UNIVERSITÉ FRANÇOIS-RABELAIS DE TOURS

ÉCOLE DOCTORALE « Sciences de l'Homme et de la Société »
CNRS UMR CITERES 7324 – Equipe IPA-PE

THÈSE présentée par :

Ksenija BANOVAC

soutenue le 3 octobre 2017

pour obtenir le grade de : **Docteur de l'université François-Rabelais de Tours**

Discipline/ Spécialité : Aménagement de l'espace et urbanisme

LA THÉORIE DES VILLES EN RÉSEAU : UN NOUVEAU PARADIGME POUR L'AMÉNAGEMENT DE L'ESPACE ?

Les réseaux des villes petites et moyennes de la région Centre-Val de Loire en France

THE CITY-NETWORK THEORY: A NEW SPATIAL PLANNING PARADIGM?

The networks of towns in the Centre-Val de Loire region, France

THÈSE dirigée par :

M. HAMDOUCH Abdelillah	Professeur, université François-Rabelais de Tours

RAPPORTEURS :

M. CARRIER Mario	Professeur, université Laval de Québec
Mme. MAILLEFERT Mauriel	Professeure, université Lyon 3 – Jean Moulin

---

JURY :

M. CARRIER Mario	Professeur, université Laval de Québec
M. CARRIERE Jean-Paul	Professeur émérite, université François-Rabelais Tours
M. DELLADETSIMAS Pavlos	Professeur, université Harakopio d'Athènes
M. DEMAZIERE Christophe	Professeur, université François-Rabelais de Tours
M. HAMDOUCH Abdelillah	Professeur, université François-Rabelais de Tours
Mme. MAILLEFERT Muriel	Professeur, université Lyon 3 – Jean Moulin
Mme. TALANDIER Magali	Professeur, université Grenoble-Alpes

Remerciements

En premier lieu, je tiens à remercier mon directeur de thèse, M. ABDELILLAH HAMDOUCH, pour la confiance qu'il m'a accordée en acceptant d'encadrer ce travail doctoral, pour ses multiples conseils et pour toutes les heures qu'il a consacrées à diriger cette recherche. Pour la patience et l'amitié qu'il a montrée à mon égard durant cette thèse, je l'en remercie profondément.

Je souhaiterais exprimer ma gratitude à M. CHRISTOPHE DEMAZIERE pour m'avoir intégré dans ses projets d'études me permettant ainsi de bénéficier de conditions de travail privilégiées. Sa rigueur, sa capacité d'analyse et ses nombreuses connaissances m'ont permis de progresser dans ma recherche.

Je remercie également l'UNIVERSITE FRANÇOIS-RABELAIS DE TOURS qui a financé cette thèse en m'accordant un poste d'ingénieur de recherche et le laboratoire de l'ECOLE DOCTORALE SHS, CNRS UMR CITERES, pour m'avoir ouvert ses portes et ainsi permis de me réaliser comme chercheur.

Je souhaite aussi exprimer ma gratitude à l'équipe d'enseignants et de chercheurs du département « Aménagement » de l'Ecole polytechnique de Tours, et tout particulièrement M. JEAN-PAUL CARRIER pour être infiniment encourageant et toujours à l'écoute, M. SERGE THIBAULT pour son enthousiasme, M. JOSE SERRANO et Mme. MATHILDE GRALEPOIS pour s'être toujours intéressés à l'avancée de mes travaux. Ils m'ont montré que le monde de la recherche pouvait être passionnant.

Je tiens également à remercier mes rapporteurs, Mme. MURIEL MAILLEFERT et M. MARIO CARRIER, ainsi que Mme. MAGALI TALANDIER, M. JEAN-PAUL CARRIERE, M. PAVLOS DELLADETSIMAS et M. CHRISTOPHE DEMAZIERE pour leur participation à ce jury.

De même, je suis reconnaissante d'avoir eu l'opportunité d'échanger avec d'excellents professeurs d'autres universités européennes. Notamment avec M. RON ATKINSON, M. LORIS SERVILLO, M. PAOLO RUSSO, M. IAN SMITH, M. LUDEK SYKORA et M. ONDREJ MULICEK sur un vaste projet d'études des villes petites et moyennes en Europe ; avec M. NILS AARSAETHER, Mme. TORILL NYSETH et Mme. ANNIKEN FORDE sur la créativité et le développement des villes nordiques ; avec M. CLAUDE LACOUR sur la méthodologie d'analyse des systèmes spatiaux; avec M. PAVLOS DELADETSIMAS, M. STUART CAMERON et M. PAULO PINHO sur les spécificités des systèmes de planification en Europe ; avec Mme. HELENE MAINET et M. JEAN-CHARLES EDOUARD sur l'attractivité des villes petites et moyennes françaises ; avec M. FRANK MOULAERT et Mme. FLAVIA MARTINELLI sur la méthodologie de ma recherche. Les discussions que j'ai pu avoir avec eux m'ont beaucoup apporté.

Je remercie les doctorants et amis FABIEN NADOU, LEILA GHAFFARI, AGATA KRAUSE, EMMA PUERARI, XENIA KATSIGIANNI, KARINA CASTRO, ALIREZA VAZIRIZADEH, MARIE HUYGHE, OLGA IURIICHUK et DANNY TANDELA pour la bonne ambiance de travail, pour les discussions que nous avons pu partager et l'ouverture qu'ils m'ont apportée.

Je tiens également à remercier les personnels administratifs de l'Ecole polytechnique de Tours, PASCALE LE HALPER, PASCALINE ROBIN, KARINE SAVARY-BODIN et MARIE-MADELEINE TALON pour leur gentillesse et leur aide dans mon installation à Tours ainsi que dans mes recherches.

Je remercie l’association « Villes au Carré » et ses membres CECILE DUBLANCHE, LAURE DAVIOT et MARIE BIZERAY qui ont grandement participé à ma compréhension des politiques de la ville en France.

Enfin, je suis profondément reconnaissante à ADRIEN FERRANDEZ, mon ami qui était à mes côtés pendant toutes mes études doctorales et qui n’a jamais cessé de m’encourager, même dans mes moments de doutes. Merci pour ses nombreuses relectures et corrections de mon français désastreux. Cette thèse et moi te devons beaucoup. Merci.

Acknowledgment

Above all, I am profoundly grateful to my mentor, Mr. ABDELILLAH HAMDOUCH, for the trust he placed in me, in accepting to supervise my work, for his many remarks and all the hours he spent to guide my research. I am thankful for his patience and friendship during my thesis.

I would like to express my deep gratitude to Mr. CHRISTOPHE DEMAZIERE for integrating me in his research projects and providing me with privileged working conditions. His rigor, ability to analyse and knowledge guided me throughout my research.

I thank the UNIVERSITY FRANÇOIS RABELAIS OF TOURS which financed my thesis by granting me a position as a researcher and the laboratory of the Doctoral School of Social Sciences and Humanities, the CNRS UMR CITERES, for opening its doors and letting me discover the academia.

I am very thankful to the team of teachers and researchers of the Planning Department of the Polytechnic School of Tours, especially to Mr. JEAN-PAUL CARRIER for his great encouragement and cordiality, Mr. SERGE THIBAULT for his enthusiasm, Mr. JOSE SERRANO and Ms. MATHILDE GRALEOIS for their interest in my work. They showed me the way the research can be exciting.

I would also like to thank Ms. MURIEL MAILLEFERT and Mr. MARIO CARRIER for their thesis reports as well as Ms. MAGALI TALANDIER, Mr. JEAN-PAUL CARRIERE, Mr. PAVLOS DELLADETSIMAS and Mr. CHRISTOPHE DEMAZIERE for their participation in the jury.

I also had a privilege to work with some excellent professors from European universities. With Mr. RON ATKINSON, Mr. LORIS SERVILLO, Mr. PAOLO RUSSO, Mr. IAN SMITH, Mr. LUDEK SYKORA and Mr. ONDREJ MULICEK on a study of small and medium-sized towns in Europe; Mr. NILS AARSAETHER, Ms. TORILL NYSETH, and Ms. ANNIKEN FORDE on the creativity and development of northern towns; Mr. CLAUDE LACOUR on the analysis of spatial systems; Mr. PAVLOS DELADETSIMA, Mr. STUART CAMERON and Mr. PAULO PINHO on the specificities of spatial planning systems in Europe; Ms. HELENE MAINET and Mr. JEAN-CHARLES EDOUARD on the attractiveness of small and medium-sized towns in France; Mr. FRANK MOULAERT and Ms. FLAVIA MARTINELLI on the methodology of my research. I feel honoured to have had an opportunity to discuss my work with them. Thank you.

I would like to thank the PhD students and friends FABIEN NADOU, LEILA GHAFFARI, AGATA KRAUSE, EMMA PUERARI, XENIA KATSIGIANNI, KARINA CASTRO, ALIREZA VAZIRIZADEH, MARIE HUYGHE, OLGA IURIICHUK and DANNY TANDELA for the excellent working atmosphere, discussions and for being open-minded. I thank the administrative team of the Polytechnic school of Tours, PASCALE LE HALPER, PASCALINE ROBIN, KARINE SAVARY-BODIN and MARIE-MADELEINE TALON for their kindness and help in my integration in school and my research.

I'm grateful to the association "Villes au Carré" and its members, Ms. CECILE DUBLANCHE, LAURE DAVIOT and MARIE BIZERAY who greatly contributed to my understanding of city policies in France.

Last but not least, I am most deeply grateful to ADRIEN FERRANDEZ, a companion and a friend who was by my side throughout the entire PhD and who never stopped believing and encouraging me, even in my most difficult moments of doubt. Thank you for all the readings and the corrections of my disastrous French. This thesis and I owe you a lot. Thank you.

Résumé

L’objectif de cette recherche est de promouvoir une nouvelle approche de l'analyse des systèmes urbains régionaux, tenant compte du progrès technologique et des évolutions contemporaines dans les modes d'organisation de la vie et du travail. Nous avons souhaité expérimenter la « Théorie des villes en réseau » sur notre cas étude. En effet cette approche est évoquée comme un « *modus operandi* » alternatif par d'éminents géographes, sociologues et économistes parmi lesquels Manuel Castells, Roberto Camagni, Georg Simmel et Jan van Dijk.

La « Théorie des villes en réseau » présente deux avantages principaux en comparaison des théories traditionnelles. Ces avantages résident dans la prise en compte de deux phénomènes postérieurs aux théories traditionnelles : d’une part, la prise en considération de nouveaux contextes socio-spatiaux ; d’autre part, l’appréhension de l’évolution des processus de transmission de la connaissance. Dans la théorie que nous avons choisi d’utiliser, le réseau se définit comme une structure où les nœuds sont des villes reliées par des liens de nature différente, à travers lesquels circulent les flux socioéconomiques. Les principales caractéristiques de ces réseaux de villes sont d’avoir simultanément des structures hiérarchiques et non hiérarchiques, d’offrir des modes de coopération entre les villes et de générer des avantages économiques liés à l'organisation de la structure urbaine. Le concept de multi-scalarité, promu par la « Théorie des villes en réseau », repose sur l'idée que différents types de réseaux s'interconnectent, se concurrencent ou coopèrent à différentes échelles. Notre recherche a pu confirmer la pertinence de la « Théorie des villes en réseau » pour une analyse intégrée des dynamiques territoriales contemporaines.

L'objectif de cette recherche est d’appliquer aux villes petites et moyennes les trois postulats fondamentaux de la « Théorie des villes en réseau » : la polycentralité, les réseaux économiques et la gouvernance intermunicipale. Nous avons analysé l'ensemble du système urbain régional de la région Centre-Val de Loire, en nous concentrant sur le fonctionnement des villes comprises entre 2 000 et 30 000 habitants. Nous avons effectué une expérimentation approfondie de l'application de la « Théorie des villes en réseau » sur un système urbain régional complet en proposant une analyse quantitative innovante de plus de 1 800 municipalités. Pour ce faire, nous avons utilisé une approche holistique pour l'analyse des spécificités sociales, économiques et politiques permettant une bonne différenciation des villes petites, moyennes intermédiaires et grandes. Dans ce cadre, nous avons prouvé que malgré un manque de stratégies à l’échelle européenne ou nationale à destination des villes petites et moyennes, elles continuent de jouer un rôle structurant dans les systèmes urbains régionaux et donc contribuent à la croissance et au développement régional. Les villes petites et moyennes dépendent donc largement de la mobilisation locale institutionnelle et des acteurs privés de leurs territoires afin d’élaborer des objectifs de développement.

Nous avons considéré que la planification régionale et urbaine dépend intimement des spécificités et aménités territoriales et que cette approche « située » (en anglais : place-based) constituerait un fondement de notre recherche. De plus, nous avons aussi privilégié une approche fonctionnelle qui dépasse le cadre des délimitations administratives et morphologiques de l'espace en prenant en considération les rôles et fonctions de toutes les villes indépendamment de leur taille. Notre recherche suggère que les zones fonctionnelles pourraient être une échelle de planification et de gestion permettant à une région de bénéficier de manière optimale de son capital territorial, et ce particulièrement si ce périmètre se trouve doté de pouvoirs de gouvernance. Nous sommes d’avis que les zones fonctionnelles peuvent devenir le socle de la politique de développement local puisqu'elles

mettent en relations des acteurs ancrés sur le territoire et partageant déjà un haut niveau de cohésion sociale, de confiance réciproque et de savoir-faire complémentaires.

Mots clés: villes petites et moyennes, théorie des villes en réseau, polycentralité, réseaux économiques, gouvernance intermunicipale, approche fonctionnelle, système urbain régional.

Summary

With the purpose to promote a new approach to the analysis of regional urban systems which takes into account the technological progress and the contemporary evolutions in the ways of organizing, living and working, we felt compelled to seek the evidence of the "City-network" theory as an alternative *modus operandi* evoked by some prominent geographers, sociologists and economists such as Manuel Castells, Roberto Camagni, Georg Simmel, Jan van Dijk and others. The advantages of the "City-network" theory as compared to the traditional theories are in understanding that there are new socio-spatial contexts and that the contemporary knowledge travels along "pipelines" between cities, towns, cultures which are neither spatial nor strictly hierarchical. The network is seen as a structure where the nodes are cities and towns connected by the link of different nature, through which socio-economic flows are exchanged. The principal characteristics of networks of cities are the possibility of simultaneous hierarchical and non-hierarchical structure, cooperation between the cities, and the generation of advantages related to the organization of the urban structure. The multi-scalarity of networks, also promoted by the "City-network" theory, is based on the idea that the different types of network at the different scales interlink, compete and cooperate whether within or between cities and towns. In this research, we were able to confirm the relevance of the "City-network" theory for an integrated analysis of contemporary territorial dynamics.

The research objective was to relate the concept of small and medium-sized towns to the three basic postulates of the "City-network" theory: polycentricity, economic networks and inter-municipal governance. We analysed the entire regional urban system of Centre-Val de Loire with a particular focus on towns with between 2,000 and 30,000 inhabitants. We performed a state-of-the-art experimentation of the application of the "City-network" theory on an entire regional urban system by proposing an innovative and integrated quantitative analysis of more than 1,800 municipalities. Above all, we used a holistic approach in the analysis of social, economic and political specificities of towns especially when it comes to their differentiation from large and intermediate cities. In that scope, we proved that in spite of a lack of policies at the European and national levels, towns are a structural element of the regional urban system and as such they have a key role in regional growth and development.

Since the socio-economic development of towns largely depends upon the institutional mobilisation of local resources and partners to achieve the agreed objectives, this research clearly opted for an integrated and placed-based approach to regional and urban planning. We devoted a great deal of attention to the functional approach which goes beyond the administrative and morphological delimitations of space by taking into consideration the roles and the functions of all settlements regardless their size. Our research suggested that the functional areas might represent the scale that would enable a region to benefit from the territorial capital, especially if it is accompanied by inter-municipal governance. Thus, we believe that the functional areas may become the platform for local development policy since they involve actors that already have relationships which are historically rooted and with a high level of social cohesion, trust and local know-how.

Key words: small and medium-sized towns, the "City-network" theory, polycentricity, economic networks, inter-municipal governance, functional approach, regional urban system.

Table of Contents

List of Tables

List of Figures

List of Equations

List of Acronyms

ACC: Activités culturelles et créatives
ADCF: Assemblée des communautés de France (eng. Assembly of French Municipalities)
ALENA: Accord de libre-échange nord-américain
ANOVA: Analysis of Variance
CAF: Corporacion Andina de Fomento (eng. Development Bank of Latin America)
CCAs: Cultural and Creative Activities
CEMAT: La Conférence du Conseil de l'Europe des Ministres responsables de l'aménagement du territoire (eng. Council of Europe Conference of Ministers Responsible for Spatial/Regional Planning)
CESER: Conseil économique, social et environnemental régional (eng. Economic, Social and Environmental Regional Council)
CET: Contribution économique territoriale (eng. Territorial Economic Contribution)
NOTRe : Nouvelle organisation territorial de la République (eng. New Territorial Organization of the Republic)
CITERES: Cités, Territoires, Environnement, Sociétés (eng. Cities, territories, environment, societies)
COM: Communistes (eng. Communist Party)
CVAE: Cotisation sur la valeur ajoutée des entreprises (eng. Tax on Firms' Added Value)
DATAR: Délégation interministérielle à l'aménagement du territoire et à l'attractivité régionale (eng. Interministerial Delegation of Land Planning and Regional Attractiveness)
DDS: Dender – Durme – Scheldt
DIV: Divers (independent candidates)
DVD: Divers droite (eng. independent right-wing candidates)
DVG: Divers gauche (independent left-wing candidates)
EPCI: Etablissement public de coopération intercommunale (eng. Public Structure for Inter-municipal Cooperation)
ESDP: European Spatial Development Perspective
ESS: Economie sociale et solidaire
ESPON: European Observation Network, Territorial Development and Cohesion
EU: European Union
FMVM: Fédération des maires des villes moyennes (eng. National Federation of Medium-Sized Towns Mayors)
FN: Front national (eng. National Front)
GDP: Gross Domestic Product
ICT: Information and communications technology
IFER: Imposition forfaitaire sur les entreprises de réseaux (eng. Tax on Network Firms)
LAU: Local Administrative Units
NAFTA: North American Free Trade Agreement
NC: Nouveau Centre (eng. New Center Party)
NUTS: Nomenclature of Units for Territorial Statistics
OECD: Organisation for Economic Cooperation and Development
PLU: Plan local d'urbanisme (eng. Master Plan)
QGIS: Quantum Geographic Information System
R&D: Research and Development
SFC: Self-Financing Coefficient
SGI: Services of General Interest
SKL: Sveriges Kommuner och Landsting (eng. Swedish Association of Local Authorities and Regions)
SMEs: Small and Medium-Sized Entreprises

SMSTs: Small and Medium-Sized Towns
SOC : Socialistes (eng. Socialist Party)
SPSS: Statistical Package for the Social Sciences
SRADDET : Schéma régional d'aménagement, de développement durable et d'égalité des territoires (eng. Regional Plan for Spatial Planning, Sustainable Development and Territorial Equality)
SRD: Socialistes, radicaux, démocrates (eng. Socialists, Radicals and Democrats Party)
SRDEII: Schéma régional de développement économique, d'innovation et d'internationalisation (eng. Regional Plan for Economic Development, Innovation and Internationalisation)
SSE: Social and Solidarity Economy
TER: Transport express régional (eng. Regional Express Transportation)
TGV: Train à grande vitesse (eng. High-Speed Train)
TVA: Taxe sur la valeur ajoutée (eng. Value-Added tax)
UDC: Union démocratique du centre (eng. Union of Center Democrats)
UE: Union européenne
UK: United Kingdom
UMP : Union pour un mouvement populaire (eng. Popular Mouvement Union)
VPM : Villes petites et moyennes
ZAC: Zone d'aménagement concerté (eng. Planning zone)
ZPIU: Zone de peuplement industriel ou urbain (eng. Area of Industrial and Urban Settlement)

List of Appendices

Appendix C: Productive and residential tissue of functional areas
Appendix D: Detailed typology of EPCI according to the indicator of financial effectiveness
Appendix E: Detailed typology of EPCI according to the indicator of decentralized investment
Appendix F: Detailed typology of EPCI according to the indicator of political inclusion and diversity

Synopsis en français

INTRODUCTION GÉNÉRALE

Les multiples facettes des changements économiques, démographies et technologiques offrent un défi continuel aux territoires (Sassen, 2001). En même temps, les différences entre les territoires

attractifs et ceux qui le sont moins sont plus grandes que jamais (Knox et Mayer, 2009). Les territoires sont obligés de constamment adapter leurs structures internes en réponse aux transformations des conditions extérieures encore plus rapides (Klaesson et al., 2011). L'exclusion sociale et économique provoquée par, de récentes turbulences financières, du chômage, de pauvreté et de dégradation de la qualité de vie a affaibli de nombreuses communautés qui ne pouvaient pas suivre le rythme de ces dynamiques. Il est évident que les défis socio-économiques contemporains, induits par les processus de la mondialisation et l'émergence d'une nouvelle hiérarchie urbaine, ne peuvent être abordés de manière adéquate avec une perspective néolibérale et la gestion traditionnelle du développement territorial (Hamdouch et al., 2017). Cependant, en dépit de la reconnaissance générale de la nécessité d'un changement structurel de la gestion du développement, les dernières décennies ont vu s'accroitre la convergence de toutes les stratégies de croissance vers un modèle unique d'efficacité financière et de performance économique, sans égard aux autres aspects du développement (Vachon et Coallier, 1993).

La croissance économique basée sur l'augmentation de la production et de la consommation est considérée comme l'objectif principal et le « modus operandi » de notre société. Ce paradigme entraine de nombreuses conséquences pour les territoires à travers le monde. Certaines villes et régions urbaines (en anglais : city-regions) tels que Paris, Londres, Tokyo, New York, Los Angeles, Hong Kong et Singapour sont devenues d'incontournables carrefours des processus de croissance mondiale car offrant des opportunités exclusives pour des activités économiques complexes et inédites. Ces villes sont considérées comme la structure spatiale la plus apte à faire face aux changements et besoins économiques mondiaux. Peu nombreuses, ces grandes villes attirent toujours les investissements financiers et les interventions politiques alors que les petites villes et les arrière-pays restent dans l'obscurité.

La concentration des ressources sociales, financières et technologiques sur quelques zones et pôles de croissance est-elle le seul moyen de développement ? L'exclusion sociale et économique est-elle le destin inévitable pour les régions périphériques et dégradées qui n'ont pas eu les moyens de relever ces nouveaux défis ?

Toutefois, loin des processus et des flux mondiaux, de nombreuses villes petites et moyennes (VPM), qui dans le contexte européen peuvent être composées de 5 000 à 100 000 habitants, montrent une dynamique locale surprenante. Beaucoup d'entre elles ont une économie locale réussie, une planification spatiale créative, une démocratie hautement participative et de nombreuses innovations sociales dans de différents domaines sans pour autant avoir besoin de développer leur population ou de copier les modèles de développement des grandes villes.

En effet, d'après de nombreux chercheurs, les VPM représentent une alternative au développement contemporain et à la planification néolibérale (Knox et Mayer, 2009). Selon Hamdouch et al. (2017), les VPM prospères sont capables de planifier et d'agir de manière créative et innovante dans la mesure où elles envisagent, conçoivent et mettent en œuvre des stratégies de développement local. De plus, ces VPM sont ouvertes aux nouvelles idées et approches ; elles imaginent des façons innovantes pour résoudre les problèmes de leurs communautés et sont socialement inclusives et solidaires.

Afin d'expliquer ces « facteurs de succès » dans les VPM et de promouvoir un nouveau regard sur l'analyse spatiale et la planification régionale, nous avons adopté la théorie des villes en réseau pour construire notre cadre théorique de la recherche.

Comparée aux théories socio-économiques traditionnelles, la théorie des villes en réseau souligne que dans un nouveau contexte socio-spatial, le partage de connaissance parcourt des distances qui ne sont plus ni spatiales ni strictement hiérarchiques. Le réseau est une structure où les villes sont représentées par des nœuds de taille différente qui sont interconnectées par des flux d'informations, de personnes, de biens, de technologies, etc. Les réseaux de villes peuvent avoir une structure qui est simultanément hiérarchique et non-hiérarchique ; une structure qui est basée sur la coopération (et la coopétition) entre les villes ; et une réorganisation de la structure urbaine qui crée des externalités positives (Boix, 2002). Dans ce cadre, le concept de la multi-scalarité, également promu par la théorie des villes en réseau, repose sur l'idée que de différents types de réseaux s'interconnectent, se concurrencent ou coopèrent aux différentes échelles (à l'intérieur des villes ou entre les villes).

En effet, notre recherche s'est référée aux postulats fondamentaux de la théorie des villes en réseau : la coexistence de réseaux verticaux, horizontaux et polycentriques ; une connexion entre les pôles spécialisés ou complémentaires. La recherche a eu donc trois objectifs majeurs :

1. Relier le concept de polycentralité au concept des villes petites et moyennes. Plus précisément, explorer la place des villes petites et moyennes dans la hiérarchie urbaine régionale, au travers de leur niveau de centralité, des arrangements territoriaux avec les autres centres et l'arrière-pays (les régions fonctionnelles).
2. Relier le concept du réseau économique au concept des villes petites et moyennes. En d'autres termes, examiner les effets d'agglomération, de co-agglomération et de synergie entre les communes d'une région et à trois échelles différentes : interentreprises, centre-périphérie et cluster.
3. Relier le concept de la gouvernance polycentrique (intercommunale) au concept des villes petites et moyennes. Plus précisément, évaluer l'efficacité financière, la dispersion des investissements, l'inclusion et la diversité politiques des intercommunalités.

La recherche regarde comment se décline la polycentralité, les réseaux économiques et de gouvernance intercommunale entre les quatre classes de centres urbains (grands, intermédiaires, moyens, petits).

1. Questions de recherche liées à la polycentralité :
    - Existe-t-il une relation de proportionnalité entre la place d'un centre urbain dans la hiérarchie urbaine de région et la taille sa région fonctionnelle ?
    - Quelle quantité d'arrangements territoriaux qualifie les quatre catégories de centres urbains ?
    - Quelle typologie d'arrangements territoriaux qualifie les quatre catégories de centres urbains ?
    - Quelles sont les différences en termes d'accessibilité et de connectivité entre les centres urbains et les autres communes de la région ?
    - Quels centres urbains offrent une meilleure accessibilité aux emplois et aux services?
    - Quelles sont les différences en accessibilité entre les petites villes, les villes moyennes, les villes intermédiaires et les grandes villes ?

2. Questions de recherche liées aux réseaux économiques :
    - La catégorie de centralité urbaine influe elles de manière positive ou négative sur la population et l'emploi dans les régions fonctionnelles ?

- Les villes petites et moyennes sont elle influencées par la proximité d'un grand centre urbain dans leurs caractéristiques socio économique ?
- Existe-t-il une relation entre les variations de démographies, de taux d'emplois et de spécialisations économiques de dans des régions fonctionnelles voisines ?
- Quelles sont les différences entre les régions fonctionnelles en termes de caractéristiques socio-économiques, de spécialisation économique et de performance?
- Quelles sont les différences entre les communes périphériques et les centres urbains en termes de caractéristiques socio-économiques ?
- Comment les secteurs d'activités se répartissent ils en agglomération, co-agglomération ou synergie ?

3. Questions de recherche liées à la gouvernance intermunicipale :
    - La catégorie de centralité urbaine d'un EPCI est-elle corrélée au degré d'efficacité financière ?
    - La catégorie de centralité urbaine d'un EPCI est-elle corrélée au degré de dispersion des investissements ?
    - La catégorie de centralité urbaine d'un EPCI est-elle corrélée au degré d'inclusion et de diversité politiques ?
    - Quelles sont les différences entre les EPCI en termes d'efficacité de la gouvernance, de dispersion de l'investissement, d'inclusion et de diversité politiques ?
    - Quels sont les modèles de gouvernance dans les EPCI dont la ville centre est une petite et moyenne ?

Notre recherche s'est construite autour de trois hypothèses reliant les trois postulats de la théorie des villes en réseau au fonctionnement des systèmes urbains régionaux, c'est-à-dire la polycentralité, les réseaux économiques et la gouvernance intercommunale. **La première hypothèse est l'affirmation que les villes petites et moyennes constituent une « épine dorsale » des systèmes urbains régionaux.** Plus précisément, les VPM compensent l'absence de certaines fonctions en entretenant des relations avec d'autres communes par l'élaboration de réseaux verticaux et horizontaux. Ces réseaux se créent à condition que la volonté de coopération entre les villes soit plus forte que celle de la concurrence. Grâce aux externalités de réseau, les VPM atteignent les économies d'échelle et d'envergure ainsi que les effets de synergie ce qui leur permet de devenir aussi attrayantes et dynamiques que les grandes villes.

La valeur ajoutée de la théorie des villes en réseau pour la science régionale est de mettre en avant l'importance de la spécialisation économique dans la chaine de valeur, la présence de fonctions supérieures dans les centres urbains d'ordre inférieur, des échanges horizontaux entre les grandes et les petites villes à travers la hiérarchie urbaine et les connexions inter- et intra-urbaines. La théorie des villes en réseau mentionne également que toutes les villes existent à travers les réseaux qui les créent. C'est-à-dire que grâce aux réseaux les VPM bénéficient de nombreuses externalités telles que l'effet de taille, le partage des connaissances, la réduction des coûts de transaction et les avantages organisationnels. Les VPM peuvent former un réseau ayant la même dimension fonctionnelle que celle des grandes villes. Les VPM profitent du réseau qui crée « l'effet de masse » leur permettant de fournir des fonctions supérieures. Ainsi dans certains cas, les VPM peuvent adopter une importance « métropolitaine » sur un territoire où il n'y a pas de grande ville. Les VPM, autant que les grandes

villes, sont des récepteurs et des générateurs de connaissances, de biens, de services et d'informations à travers un réseau.

La deuxième hypothèse est que la taille d'une commune n'est pas le facteur déterminant de la croissance économique mais la division spatiale des fonctions urbaines à travers le système urbain. Par conséquent, les caractéristiques d'une ville en réseau jouent un rôle moins important que les caractéristiques de son réseau (taille, type, structure). La mondialisation économique et culturelle a abouti à une « société en réseau » dominée par les flux de capitaux, d'idées et de personnes. Dans ce contexte, les VPM essaient de capter les rôles économiques clés dans les économies régionales voire mondiales. Enfin, les VPM offrent des fonctions différentes, et grâce aux réseaux mondialisés bénéficient d'opportunités à l'échelle internationale.

Selon la théorie des villes en réseau, les acteurs économiques des VPM spécialisées se connectent aux acteurs situés dans d'autres VPM ce qui leur permet de former un réseau de spécialisations complémentaires. Plus précisément, les villes spécialisées à un secteur particulier peuvent à travers la division du travail et du marché, compléter les activités des autres villes. De même, les villes d'un même réseau ayant des profils économiques similaires bénéficient d'effets de synergie. L'existence des réseaux à différentes échelles rend les villes interconnectées, concurrentes ou coopératives avec d'autres villes. Les leviers que génèrent les réseaux et les arrangements spatiaux qui en découlent, permettent aux VPM de surmonter leur taille modeste dans un contexte de globalisation.

La troisième hypothèse est l'affirmation que les VPM montrent une capacité à développer des ambitions dépassant leurs limites administratives par la gouvernance intercommunale et afin d'améliorer leur développement. La création d'une forme plus ou moins flexible d'intercommunalité permet de maximiser les synergies de réseaux, de proposer des solutions aux problèmes communs. Dans ce contexte, la coopération et la concurrence entre les acteurs locaux jouent un rôle structurel des réseaux des VPM.

En dehors des échanges d'informations et d'idées, les VPM se mettent en coopération afin de rechercher la complémentarité. La coopération sous forme d'un réseau territorial fournit aux VPM des ressources, des connaissances et des technologies qui permettent le développement rapide de l'innovation, l'accès aux nouveaux marchés, les économies d'échelle et le partage des risques et des coûts. De plus, les VPM en coopération assurent le développement de l'ensemble des communes membres tout en respectant le capital territorial et l'identité de chacun. Une gouvernance intercommunale permet également de garantir que les décisions prises sont efficaces et équitables. Enfin, les communes membres se mobilisent dans le but d'assurer l'allocation des ressources pour les objectifs communs.

La conceptualisation et l'opérationnalisation de la recherche se sont déroulées en quatre phases :

Tableau S1 : Les phases de la recherche

	CONCEPTUALISATION DE LA RECHERCHE	**OPERATIONALISATION DE LA RECHERCHE**
Phase 1	Exploration de la littérature théorique et empirique du domaine de la science régionale	Confronter les paradigmes de la théorie des villes en réseau aux théories socio-économiques existantes tout en mettant l'accent sur la spatialisation économique et les dynamiques inter-acteurs.

Phase 2	Construction d'une analyse originale des systèmes urbains régionaux	• Sélection des trois postulats de la théorie des villes en réseau à vérifier en utilisant trois approches suivantes : l'approche fonctionnelle, l'approche socio-économique et l'approche de gouvernance. • Identification des variables de recherche dépendantes et indépendantes ainsi que leurs indicateurs correspondants. • Sélection des outils et des méthodes statistiques pour l'analyse des variables identifiées.
Phase 3	Choix de l'étude de cas	Sélection d'un système urbain régional pour tester les postulats de la théorie des villes en réseau.
Phase 4	Rapport	Rédaction du rapport sur les résultats de recherche approuvant ou réfutant les hypothèses de la recherche.

Dans un premier temps, nous avons exploré les théories socio-économiques du domaine de la « science régionale ». L'objectif de cette phase a été de comprendre l'originalité de la théorie des villes en réseau vis-à-vis d'autres théories socio-économiques. Etant donné que la « science régionale » et la planification urbaine et régionale demandent une vision globale de la croissance et du développement. Ainsi, nous avons utilisé l'approche interdisciplinaire dans la conception de la recherche. Plus précisément, nous avons observé les principaux paradigmes des théories néoclassiques de la croissance et du développement notamment les économies de production, la théorie de localisation, les économies d'agglomération, la théorie des lieux centraux, la théorie des pôles de croissance, la nouvelle géographie économique et la hiérarchie des villes mondiales. Nous avons également exploré les conceptualisations des réseaux dans plusieurs disciplines des sciences sociales telles que la sociologie, la géographie et la psychologie afin d'apporter une valeur ajoutée aux explications économiques existantes des facteurs de la croissance et du développement territorial.

Dans un second temps, nous avons construit un cadre méthodologique pour une analyse originale des systèmes urbains régionaux. Cette méthode s'est appuyée sur l'analyse fonctionnelle, l'analyse socio-économique et l'étude de la gouvernance. En effet, nous avons testées six variables indépendantes et onze variables dépendantes grâce à la mise en place d'une série d'indicateurs à l'aide des logiciels suivants : SPSS Statistics, GraphPad InState et QGIS.

Tableau S2: Variables de la recherche

N.	VARIABLES INDEPENDENTES	DEFINITION
1	Centres urbains	Une commune caractérisée par la centralité (poids démographique, activités économiques, flux domicile-travail)
2	Région fonctionnelle	Un ensemble de communes constitué d'un centre urbain et son arrière-pays.
3	Rang spatial	Le degré de centralité d'une commune dans une région fonctionnelle qui est défini par le poids démographique, la taille du marché de travail et le flux domicile-travail.

4	Arrangements territoriaux	Des liaisons entre les communes dont la nature est définie par les caractéristiques du marché du travail et le flux domicile-travail.
5	Entreprises	Les organisations professionnelles à but lucratif.
6	Etablissement public de coopération intercommunale (EPCI)	Une structure administrative regroupant plusieurs communes afin d'exercer certaines compétences en commun.

THEMA-TIQUES	N.	VARIABLES DEPENDANTES	DEFINITION
POLY-CENTRICITE	1	Rayonnement	La taille d'une région fonctionnelle.
	2	Réseau fonctionnel	La variété d'arrangements territoriaux
	3	Accessibilité et connectivité	La présence d'infrastructures routières et ferroviaires et l'accès aux emplois et services dans une région fonctionnelle.
RESEAUX ECONOMIQUES	4	Economies d'échelle et d'envergure	Les caractéristiques et la performance des secteurs économiques.
	5	Economies d'agglomération	Les bénéfices économiques qui proviennent de la densité des agents économiques dans une région fonctionnelle.
	6	Economies de co-agglomération	Les bénéfices économiques qui proviennent de la diversité des agents économiques dans une région fonctionnelle.
	7	Effets de synergie	L'impact de la hausse ou de la baisse de l'emploi d'une région fonctionnelle sur l'emploi d'une autre région fonctionnelle.
GOUVERNANCE INTERCOMMUNALE	8	Efficacité financière	Le degré d'autonomie financière.
	9	Investissement décentralisé	La hausse ou la baisse des investissements au niveau des EPCI.
	10	Inclusion	La représentation des élus d'une commune sur les positions de commissions au sein d'un EPCI.
	11	Diversité	La variété de partis politiques au sein d'un EPCI.

Plus précisément, la première méthode est fondée sur l'analyse fonctionnelle et vise à identifier les centres urbains et leurs relations avec d'autres villes d'un même système régional. Les centres urbains ont été définis comme des nœuds dans les systèmes urbains nationaux et régionaux ayant des fonctions de centralité au service de leurs arrière-pays. Chaque centre urbain a ensuite été classé selon sa position fonctionnelle au sein de la hiérarchie régionale. En conséquence, les VPM autant que les grandes villes, peuvent jouer des rôles de centres urbains et ont été caractérisées non seulement par leur poids démographique, mais aussi par leur rayonnement territorial.

La seconde méthode de recherche est basée sur l'analyse socio-économique. Elle a pour objectif d'identifier les réseaux économiques entre les régions fonctionnelles.

La théorie des villes en réseau montre que les complémentarités économiques d'un territoire reposent sur la capacité des villes à se spécialiser dans une fonction afin d'atteindre une masse critique et à échanger avec d'autres villes spécialisées du réseau. De plus, le réseau économique est conforté par la synergie émanant des liens entre des centres ayant un profil économique similaire. Ces villes bénéficient donc d'externalités de réseau en partageant leurs savoir-faire et leurs mains d'œuvre.

La troisième méthode de recherche s'appuie sur l'évaluation de la gouvernance intercommunale avec pour but d'identifier le rôle des centres urbains dans la coopération et la compétition au sein d'une intercommunalité. La théorie des villes en réseau souligne l'importance de la gouvernance territoriale dans la coordination des acteurs locaux puisqu'elle garantit l'efficacité et le caractère équitables des politiques et stratégies et donc une allocation juste des ressources.

Aussi, la coopération et la concurrence territoriale sont deux phénomènes essentiels à la stimulation de la croissance, du développement et de la cohésion puisqu'elles permettent de maximiser les synergies potentielles et ainsi de surmonter les effets négatifs des limites communales.

Dans un troisième temps, nous avons déterminé le cas d'étude afin de tester les hypothèses de la recherche. La région Centre-Val de Loire située dans la vallée de la Loire entre l'Ile-de-France au nord et le massif central au sud. Cette région nous a paru particulièrement intéressante en raison de sa nature spécifique qui peut être qualifié de polycentrique. La région Centre-Val de Loire compte plus de 1 800 communes, dont six sont les chefs-lieu de département, tandis que le reste du territoire est constitué des VPM et des villages. De plus, le Conseil Régional s'implique activement dans le développement des centres régionaux par le biais de nombreux instruments politiques et de contrats destinés aux VPM. De plus, le Conseil Régional en tant que chef de file organise des forums, des séminaires et des conférences publiques ayant pour objectif de comprendre les dynamiques socio-économiques contemporaines des villes petites et moyennes.

Enfin, le rapport de recherche se compose de deux parties, la partie théorique et la partie empirique. Les objectifs de la partie théorique sont les suivants :

- discuter le rôle des acteurs locaux dans la création de réseaux ;
- observer l'évolution des courants scientifiques dans la géographie économique et les sciences régionales afin de distinguer la contribution de la théorie des villes en réseau à la compréhension des dynamiques urbaines et régionales contemporaines ;
- comparer les stratégies, les politiques et les pratiques européennes actuelles aux postulats et paradigmes de la théorie des villes en réseau ;
- étudier la définition des villes dans des contextes nationaux et régionaux différents dans le but d'appréhender l'importance des villes petites et moyennes pour l'ensemble des systèmes urbains ;
- montrer comment les VPM font face aux défis socio-économiques et technologiques et expliquer leurs contributions à la croissance et au développement régional ;
- décrire les politiques européennes, nationales et régionales à l'intention des VPM.

Les objectifs de la partie empirique sont les suivants :

- définir une approche permettant de tester les trois concepts de la théorie des villes en réseau (polycentralité, réseaux économiques et gouvernance intercommunale) sur les villes petites et moyennes ;

- chercher les éléments de polycentralité du système urbain régional par l'identification de ses nœuds (centres urbains) et les types de relations entre eux (arrangements territoriaux) ;
- identifier les réseaux économiques entre les VPM et les autres villes au sein d'un système régional en s'appuyant sur les économies d'échelle et d'envergure, les économies d'agglomération et de co-agglomération et les effets de synergie ;
- évaluer l'efficacité financière, la décentralisation des investissements, l'inclusion et la diversité politique dans la coopération intercommunale des villes petites et moyennes.

Concernant la structure du rapport de recherche, le premier chapitre aborde les différents aspects de la théorie des villes en réseau par une approche interdisciplinaire et par l'analyse des dynamiques urbaines régionales. Nous avons justifié notre choix de théorie en la confrontant aux paradigmes principaux des théories de croissance et de développement. Par ailleurs, nous avons présenté les politiques et les pratiques européennes qui favorisent la polycentralité, la cohésion, la coopération intercommunale et la gouvernance territoriale répondant au paradigme de la théorie des villes en réseau.

Le deuxième chapitre observe les caractéristiques fonctionnelles, socio-économiques et administratives des villes petites et moyennes en Europe. Plus précisément nous avons exploré les difficultés d'analyse des VPM dans le système urbain européen en raison de la grande variété de définitions de ces espaces. En outre, nous avons présenté les différentes pratiques de développement local qui révèlent l'importance des VPM pour la croissance et le développement régional et plus généralement, pour le système urbain.

Le troisième chapitre montre l'évolution des politiques européennes au sujet des leviers de croissance et de développement des territoires. En effet, ces politiques évoluent vers la prise en compte du paradigme de la théorie des villes en réseau à savoir la polycentralité, la cohésion, la gouvernance territoriale et la coopération intercommunale. À cet égard, nous nous sommes concentrés sur l'évolution des déclinaisons des politiques européennes à différentes échelles administratives (européennes, nationales, régionales et locales). Nous avons également étudié les pratiques des pays et régions européens pour créer un territoire équilibré et polycentrique.

Le quatrième chapitre expose la méthodologie pour une analyse intégrée des systèmes urbains régionaux. En outre, il présente les méthodes de recherche combinant différents tests statistiques et usages de logiciels pour l'identification des centres urbains, la description de leurs positions dans la hiérarchie urbaine et leurs relations. Nous avons également décrit les méthodes d'analyse de la structure socio-économique des villes, de la dynamique entre les entreprises, de la coopération et de la concurrence entre les centres urbains et de la gouvernance intercommunale.

Le cinquième chapitre présente les résultats de la recherche appliquée sur la région Centre-Val de Loire. Nous avons exploré les caractéristiques principales des villes françaises ainsi que le contexte spatial et socio-économique de la région Centre-Val de Loire. D'ailleurs, notre analyse porte sur les trois échelles spatiales suivantes, l'échelle micro (inter entreprises), l'échelle meso (opposition centre/périphérie) et l'échelle macro (clusters sectoriels) dans le but de démontrer les principales différences fonctionnelles et socio-économiques des espaces dans un système urbain régional.

Dans le sixième chapitre, nous présentons les résultats de la recherche sur la coopération et la compétition intercommunale dans la région Centre-Val de Loire. Premièrement, nous avons décrit le cadre politique et administratif des institutions régionales afin de contextualiser l'approche française

aux questions territoriales liées au développement des VPM. Ensuite, nous avons analysé la situation financière et politique des villes petites et moyennes dans la coopération intercommunale imposée par l'Etat.

Considérant ce cadre théorique et empirique, notre recherche apporte plusieurs contributions à la science régionale :

- La mise en œuvre d'une expérimentation innovante de l'application de la théorie des villes en réseau sur un système urbain régional complet.
- La conceptualisation d'une approche interdisciplinaire pour une compréhension exhaustive des dynamiques régionales et urbaines contemporaines.
- L'élaboration d'un cadre méthodologique innovant et intégré pour une analyse quantitative de la totalité d'un système régional (plus de 1 800 communes).
- L'adoption d'une approche holistique de l'analyse des spécificités sociales, économiques et politiques des VPM, permettant leurs caractérisations, notamment au regard des grandes villes et des villes intermédiaires, dans les systèmes urbains.

Outre la contribution à la science régionale, cette recherche participe à la réflexion sur planification régionale. Comme nous l'avons démontré dans cette recherche, le développement régional dépend d'une mobilisation cohérente et coordonnée des ressources et des partenaires locaux autour d'un objectif commun. En effet, **dans cette recherche, nous nous positionnons en faveur de l'adoption d'une approche territoriale intégrée (en anglais : place-based) dans la planification régionale et urbaine**. C'est une approche qui ne peut se concentrer uniquement sur quelques (grandes) villes mais doit, au contraire, être structurée autour des relations de coopération (et de coopétition) qui se créent entre les acteurs. En outre, l'approche territoriale intégrée ne se limitant pas aux logiques administratives permet une étude objective du contexte local et la prise en compte d'un large éventail d'acteurs.

Dans le cadre de l'intérêt pour les contextes locaux, **nous avons également promu l'approche fonctionnelle étant un vrai outil de la planification régionale**. C'est un outil d'analyse qui va au-delà des délimitations administratives et morphologiques car il prend en considération les rôles et les fonctions de toutes les villes indépendamment de leur taille. À cet égard, l'approche fonctionnelle est particulièrement utile pour une analyse des systèmes régionaux. Comparée aux autres approches qui analysent les territoires en fonction de leurs caractéristiques morphologiques ou de leurs statuts administratifs, un grand avantage de l'approche fonctionnelle est de considérer une région urbaine comme un ensemble de villes où leurs acteurs partagent des relations concurrentielles et / ou coopératives

Nous sommes d'avis que l'approche fonctionnelle serait une bonne base pour la construction d'une nouvelle politique du développement local. C'est une approche qui tient compte des acteurs locaux ayant des relations historiques et qui déjà partagent un haut niveau de cohésion sociale, de confiance et de savoir-faire. Les acteurs d'une région fonctionnelle exploitent de manière positive les aspects clés du capital territorial local et sont capables de s'adapter aux évolutions des circonstances extérieures. Ceci leur permet de surmonter les inconvénients liés à un faible poids démographique. Notre recherche a fourni la preuve que les régions fonctionnelles des VPM sont aussi dynamiques que les régions fonctionnelles des grandes villes du aux externalités de réseau, à la synergie et à la complémentarité économique.

Le synopsis est conçu en trois parties. Tout d'abord, nous présenterons l'évolution de la pensée économique ainsi que le paradigme de la théorie des villes en réseau tel qu'ils sont présentés dans le premier chapitre de notre recherche intitulé « City-network theory as a theoretical framework for the empiricl analysis of growth and development of territories ». Nous allons également présenter l'approche politique européenne qui a adopté certains concepts de la théorie des villes en réseau notamment la polycentralité, la cohésion, la gouvernance territoriale et la coopération intercommunale. L'approche européenne a évolué vers un objectif d'équilibre territorial, abordée dans le troisième chapitre de notre recherche intitulé « Evolution of the European approach in setting the framework for a balanced territorial development ».

Dans un second temps, nous exposerons la problématique des VPM en Europe. Les caractéristiques fonctionnelles, socio-économiques et administratives des VPM, dans le cadre de la croissance et du développement régional, ont été observées dans le deuxième chapitre de notre recherche « Small and medium-sized towns as an endowment for growth and development of territories ». Plus précisément, nous allons présenter les contraintes et les atouts des VPM pour le système urbain européen.

Enfin, dans un troisième temps, nous exposerons la méthodologie pour une analyse intégrée des systèmes urbains régionaux telle que nous l'avons développée dans le quatrième chapitre de la recherche intitulé « Construction of a methodology for the integrated analysis of a regional urban system ». Dans ce cadre, nous présenterons les méthodes de recherche qui nous ont permis d'identifier des centres urbains, leurs positions dans la hiérarchie urbaine et leurs relations avec d'autres communes. Nous décrirons également les résultats de notre analyse appliquée à la région Centre-Val de Loire, en France, présentés dans les deux derniers chapitres de la recherche respectivement intitulés « Small and medium-sized towns in the spatial and socio-economic context of the Centre-Val de Loire region, France » et « Small and medium-sized towns in the political context of the Centre-Val de Loire region ».

CHAPITRE 1 : La théorie des villes en réseau, un cadre pour l'analyse empirique de la croissance et du développement territorial

Contrairement aux sciences sociales qui ont une longue tradition d'analyse des divers aspects de la société, le lien entre les diverses structures sociales et le développement économique a été pendant longtemps négligé par les théories économiques traditionnelles. De même, toute exploration de la croissance et du développement local en utilisant des concepts tels que les institutions et les réseaux sociaux a été qualifiée « d'hétérodoxe ». Pourtant, une nouvelle génération d'économistes et de sociologues partage l'idée que de différents phénomènes sociaux jouent un rôle fondamental dans l'explication de la performance et des modèles du développement local.

La recherche scientifique sur les réseaux d'acteurs a permis de conclure que les activités économiques, la productivité et l'innovation sont déterminées par les conditions sociales existantes dans un territoire. Influencés par des liens privilégiés de confiance au sein des réseaux, les acteurs choisissent où s'installer, ils organisent leur société, ils apprennent et innovent. Autrement dit, les réseaux influencent le flux et la qualité de l'information.

Dans ce contexte, notre recherche a souligné l'importance structurelle de la coopération, de la concurrence et de la proximité des acteurs dans les réseaux. La concurrence et la coopération sont les concepts fondamentaux du comportement des acteurs étudiés par de différentes disciplines des sciences sociales. D'une part, la concurrence est considérée comme un élément essentiel de l'organisation et de la survie de l'homme ainsi que comme un mécanisme fondamental d'allocation des ressources. D'autre part, la coopération permet d'échanger des informations et des idées en cherchant la complémentarité entre les acteurs. La coopération fournit également des ressources, des connaissances, des technologies, l'accès aux nouveaux marchés, des économies d'échelle et un partage des risques et des coûts auprès des acteurs économiques. La concurrence et la coopération peuvent coexister à des échelles différentes comme le montrent les promoteurs de la coopetition dans des études récentes (Brandenburger et Nalebuff, 1996 ; Bengtsson et Kock, 1999, 2000 ; Gnyawali et al., 2006 ; Eriksson, 2008 ; Ghobadi et D'Ambra, 2012). La coopétition, phénomène non conventionnel, est une stratégie selon laquelle les acteurs développent simultanément de la concurrence et de la coopération avec leurs partenaires-adversaires. Cependant, afin de créer un système basé sur la coopération et / ou la concurrence, la proximité spatiale des acteurs n'est pas suffisante. Les proximités cognitives, institutionnelles, organisationnelles et sociales encouragent la création de réseaux en rapprochant leurs acteurs, favorisant ainsi le partage d'information et l'échange des connaissances tacites.

L'un des principaux défis pour les réseaux est la coopération d'acteurs hétérogènes et hiérarchiquement indépendants engagés dans une action collective. Par conséquent, le choix du mode de gouvernance est essentiel pour assurer la pérennité des réseaux. Elle se décline en fonction des processus décisionnels qui peuvent être descendants, ascendants, mixtes et/ou intégrés. Elle peut également être plus ou moins dépendante des aides de l'État, d'un soutien financier (incitations et des subventions) et de planification (foncier, immobilier). Aussi, la gouvernance est considérée comme un pilier de la création, de la stabilité et de la compétitivité des réseaux.

Dans le premier chapitre de la recherche « City-network Theory as a Theoretical Framework for the Empirical Analysis of Growth and Development of Territories », nous avons étayé notre choix de promouvoir la théorie des villes en réseau en la confrontant aux paradigmes principaux des théories de croissance et développement, c'est-à-dire les théories néoclassiques et post-néoclassiques.

Théories néoclassiques

La maximisation des profits, les choix de la localisation et la concentration des activités étaient au cœur des théories économiques néoclassiques jusque dans les années 1970. Notre recherche montre la manière dont les théories économiques néoclassique ont évolué vers un courant post-néoclassique dans les années 1980.

Parmi les théories néoclassiques, les « économies de production », comprenant à la fois les économies d'échelle et les économies d'envergure, sont des concepts fondamentaux de la théorie de l'entreprise (Triebs et al., 2016). La pertinence des économies d'échelle et d'envergure dans la science régionale repose sur deux postulats. Premièrement, les entreprises réalisent des économies d'échelle si la technologie leur permet de diminuer des coûts de production lorsque la production augmente (Panzar et Willig, 1977). Cela implique que dans la plupart des industries manufacturières, il existe une taille d'entreprise au-delà de laquelle les économies d'échelle sont épuisées et aucune valeur ajoutée n'est

créée (Scherer et al., 1975). Deuxièmement, grâce à la production conjointe de deux produits ou plus, les entreprises réalisent des économies d'envergure et réduisent leurs coûts de production, ce qui serait impossible si les entreprises conservaient des productions indépendantes (Clark, 1988). Ainsi, les économies d'envergure augmentent lorsque l'entreprise choisit de réaliser plusieurs produits dans sa production ou lorsqu'elle pratique l'intégration verticale c'est-à-dire lorsque chaque site de la chaine de production réalise une partie du produit finale (Pollitt et Steer, 2012).

Selon la science régionale, la structure d'un secteur est fortement influencée par la nature des économies de production. En d'autres termes, si un secteur d'activité est caractérisé par la possibilité de réaliser des économies d'échelle et des économies d'envergure, il sera composé de grandes entreprises diversifiées. En revanche, dans les secteurs d'activités où il n'y pas possibilité de réaliser des économies d'échelle et des économies d'envergure, ce sont les petites entreprises spécialisées qui dominent le secteur (Clark, 1988).

Face à l'absence de prise en compte des logiques spatiales dans les analyses économiques traditionnelles, les économistes et géographes s'appuient sur les observations issues de l'économétrie des économies d'échelle et d'envergure afin de développer les théories de la localisation et des économies d'agglomération. Leur objectif principal était donc d'expliquer les mécanismes économiques qui répartissent (dispersent ou concentrent) les activités dans l'espace.

La théorie de la localisation repose sur le fait que l'installation optimale des activités soit strictement liée aux coûts de transport des matières premières et des produits finaux (von Thünen, 1851). En revanche pour la théorie des économies d'agglomération, toutes les grappes d'entreprises ne sont pas le résultat des coûts de transport, mais se constituent à cause des aménités positives que procurent la proximité de nombreuses autres entreprises (Marshall, 1920 ; Jacobs, 1969). Plus précisément, Marshall (1920), Arrow (1962) et Romer (1986) soulignent que les entreprises d'un cluster du même secteur bénéficient d'un partage, de main-d'œuvre, d'inputs intermédiaires et de connaissances. De plus, Jacobs (1969) ajoute que ce partage de connaissances complémentaires peut également se produire dans un cluster dont les entreprises appartiennent à des secteurs différents. En effet, Jacobs élargit le sujet des économies d'agglomération en introduisant le concept de co-agglomération de multiples secteurs (Glaeser et al., 1992 ; Feldman et Audretsch, 1999 ; Ellison et al., 2010 ; Jacobs et al., 2011).

Plus récemment, des études scientifiques mettent en évidence une possibilité de partage de connaissance entre des entreprises de villes différentes offrant alors des effets de synergie. C'est donc la possibilité pour des entreprises d'une ville de bénéficier à moindre cout, de main d'œuvre qualifié et de technologies, grâce à la proximité d'entreprises agglomérés dans une autre ville (Ke et Feser, 2010 ; Shanzi et al., 2012 ; Günter et al., 2012 ; Schosser et Wittmer, 2015 ; Juan et Yun, 2016 ; Ivanova et al., 2016).

Cependant, malgré une large utilisation de la théorie de localisation et des économies d'agglomération dans la littérature scientifique, notre recherche souligne qu'elles paraissent incapables d'expliquer les mécanismes sous-jacents conduisant aux effets qu'elles évoquent (McKillop et al., 2015). Par exemple, les entreprises situées dans des grandes villes peuvent apprendre des entreprises situées dans les VPM. En outre, selon la critique de Hoover (1937) et Glaeser et al. (1992), les théories de localisation et d'économies d'agglomération ne tiennent pas compte des dynamiques temporelles et spatiales, ce qui signifie qu'elles peuvent expliquer la création des villes et leur spécialisation ou diversification, mais pas leurs croissances (Glaeser et al., 1992). D'après Capello (2011), les raisons pour lesquelles les

théories économiques traditionnelles sont critiquées sont dues au fait qu'elles n'ont pas tenu compte de l'existence d'une variété d'espaces (urbains, non urbains, centraux, périphériques, de forte ou faible densité d'activités, etc.) (Capello, 2011). « Lorsque les théories traditionnelles traitent de la localisation de multiples activités, elles négligent que celles-ci peuvent se trouver dans d'autres centres urbains. Et lorsqu'elles s'intéressent à un ensemble de villes, elles atteignent une conclusion paradoxale. Cette conclusion est que l'existence d'un système urbain en état d'équilibre nécessite que l'ensemble de ses villes ait une taille identique. » (Capello, 2011, p. 6).

Afin de surmonter les limites des théories de localisation et d'économies d'agglomération, Christaller (1933) et Lösch (1954) étudient l'organisation hiérarchique des systèmes urbains et de leurs centres fonctionnels. Ces études donnent lieux à la création de la théorie des lieux centraux.

Selon cette théorie, les lieux centraux se créent là où coexistent des marchés pour différents produits. Il existe donc un système hiérarchiquement structuré en villes de tailles différentes : les petites villes concentrent des activités inférieures, les villes moyennes concentrent des activités intermédiaires tandis que les grandes villes concentrent les activités supérieures. De plus, la théorie de Christaller souligne la dépendance hiérarchique (verticale) des petites villes aux grandes villes (Capello, 2011; Shearmur et Doloreux, 2015).

La théorie des lieux centraux a apporté une contribution très importante à la compréhension des systèmes urbains et à la hiérarchie des lieux. Néanmoins, depuis sa création dans les années 1930, le monde a évolué et ces principes théoriques ont perdu leurs exactitudes. La critique moderne de la théorie de Christaller reproche une perspective statique sur la hiérarchie urbaine ainsi qu'une absence de prise en compte de nombreuses dimensions importantes, des systèmes urbains, telles que la migration de la main-d'œuvre (Capello, 2011).

L'Europe connaît des processus de spécialisation des villes dans des marchés de niche, des fonctions supérieures présentes dans des villes d'ordre inférieur, des échanges horizontaux entre les villes à travers la hiérarchie urbaine et la proximité spatiale qui n'est plus la condition pour générer les externalités d'agglomération (Balland, 2012 ; Torre, 2014 ; Torre et Wallet, 2014). La théorie des lieux centraux selon laquelle les liens entre les villes sont strictement verticaux et hiérarchiques est donc devenue obsolète (Meijers, 2007; Derudder et Witlox, 2010; Parr, 2014). De nombreuses études récentes fournissent des preuves empiriques selon lesquelles de nouvelles connexions horizontales et non hiérarchiques entre les villes suivent « une logique du réseau où les modèles de spécialisation sont les principales raisons d'établir des relations économiques. [...] Les villes ont la possibilité d'atteindre une plus grande masse critique et des économies d'échelle grâce à l'intégration de réseaux dans les domaines économique, logistique et organisationnel avec d'autres villes » (Camagni et al., 2013, p. 319).

En plus de la théorie des lieux centraux introduite par Chistaller (1933), la théorie des pôles de croissance et le modèle « centre-périphérie » ont proposé des points de vue intéressants sur la hiérarchie des systèmes urbains que nous allons également présenter ici.

D'un côté, Perroux (1950) et Boudeville (1966) observent les interactions spatiales au niveau régional et définissent l'espace comme un réseau maintenu par des forces centripètes. Le réseau (régional) est basé sur des pôles qui rassemblent des entreprises propulsives pour la croissance régionale grâce aux liens avec d'autres entreprises de la même région. À cet égard, le développement polarisé porte des avantages pour sa région et son arrière-pays. En revanche, une telle croissance peut également produire

un effet de polarisation défavorable résultant de la concurrence et des barrières commerciales érigées par les régions développées (Dawkins, 2003). Par exemple un pôle de croissance peut créer un système spatial, à l'image des métropoles, pouvant dominer les autres centres et les régions plus faibles. Les métropoles rentrent en compétition avec les espaces périphériques et ceux-ci deviennent dépendants de leurs politiques économiques (Szajnowska-Wysocka, 2009). D'ailleurs, Perroux (1950) décrit que dans un système polarisé, il faut créer de nouveaux pôles de croissance et renforcer les relations entre la métropole et la région afin d'intensifier la diffusion et la stimulation de la croissance économique (Malizia et Feser, 1999).

De plus, notre recherche montre la façon dont le modèle « centre-périphérie » est employé pour démontrer les différences entre les pays développés et les pays en développement à l'échelle mondiale. Selon ce modèle, la domination du centre n'est pas seulement technologique, mais aussi politique et culturelle. Les périphéries sont hiérarchiquement subordonnées au centre. De plus, les relations entre les centres et les périphéries ne sont ni équilibrées ni égales (Szajnowska-Wysocka, 2009). Friedmann et Alonso (1964) donnent une nouvelle direction à la recherche en soulevant l'argument que les régions et/ou les états centraux sont des centres économiques ayant le plus grand potentiel de changement et qu'ils sont situés dans des lieux de fortes influences. De plus, le développement local vu comme un processus d'innovation, est envisageable seulement dans les grands centres métropolitains qui dominent les périphéries. En effet, le modèle « centre-périphérie » fait parti d'une approche économique dite « orthodoxe » (Friedmann et Alonso, 1964).

Comme nous l'avons décrit dans la recherche, la théorie des pôles de croissance et le modèle « centre-périphérie » ont été abandonnés dans les années 1980 en raison du manque de cohérence entre les notions traditionnelles de centres de croissance et les preuves issues des études empiriques (Dawkins, 2003). En outre, de nombreuses politiques qui ont appliqué la logique des pôles de croissance et du modèle « centre-périphérie » ont échoué dans leurs tentatives de stimuler la croissance économique des régions (Dawkins, 2003). La critique de ces deux théories expose également la difficulté d'application des paradigmes de développement régional de Perroux qui sont originales mais abstraites. De même, la critique rappelle que ces deux théories manquent d'une vision expliquant le processus de changement structurel au sein des centres de croissance ainsi que d'une explication de la croissance de certain centres plus rapide que d'autres (Darwent, 1969 ; Thomas, 1972 ; Hermansen, 1972 ; Higgins, 1983). Néanmoins, la théorie des pôles de croissance et le modèle « centre-périphérie » ont été importants car ces théories ont fourni des indications utiles sur les effets du développement et de la concurrence polarisés dans un système spatial, un des sujets retenus par la théorie des villes en réseau.

Depuis les années 1970, les doutes liés à l'économie « orthodoxe » et à la planification centralisée aux quelques grands pôles (Jacobs, 1961 ; Friedman et Weaver, 1979) ont conduit à ce que cette approche ne soit plus « *à la mode* » (Livingstone, 1992; Barnes et al., 2007). En même temps, l'engagement politique à l'égard de la décentralisation a mis l'accent sur les spécificités des territoires ce qui a suscité l'intérêt des géographes et des économistes pour cette approche (Massey, 1985 ; Storper et Walker, 1989). En effet, dans notre recherche, nous avons étudié les facteurs endogènes qui ont été popularisés par des chercheurs « post-néoclassiques » et qui ont accordé une nouvelle attention aux réseaux localisés d'apprentissage, de production et d'innovation (Moulaert et Sekia, 2003).

Théories post-néoclassiques

Selon Capello (2011), dans une tentative pour corriger les théories économiques orthodoxes, la théorie de la croissance endogène et la nouvelle géographie économique offrent deux améliorations. Tout d'abord, elles ont permis aux économistes de réexaminer la dimension spatiale de l'économie en proposant de nouveaux modèles de croissance qui incluent les économies d'agglomération mais qui intègrent toujours les outils traditionnels de la théorie économique. De même, les théories de la croissance endogène et de la nouvelle géographie économique ont introduit, des éléments d'incertitude dans leurs modèles de croissance (la cumulabilité positive et les rétroactions négatives) ainsi que la notion d'équilibre finale ce qui n'avait encore jamais été fait jusqu'alors (Capello, 2011).

Plus précisément, la théorie de la croissance endogène a proposé un modèle selon lequel les effets de croissance à long terme sont des variables endogènes liées à l'investissement dans le capital humain et à l'échange d'informations entre entreprises (l'apprentissage) (Stiglitz, 1989). Dans ce contexte, la croissance combine : (1) les inputs économiques générés localement notamment les ressources, la technologie, les acteurs économiques, (2) les besoins culturels et l'identité communautaire, et (3) la prise de décision politique et la participation des acteurs locaux au processus politique (Moulaert et Sekia, 2003).

En effet, les régions et les villes qui ont une tradition commune, une maturité démocratique et une forte concentration de la production peuvent créer des conditions favorables pour l'innovation ainsi qu'un flux de savoir entre les entreprises grâce aux processus d'apprentissage (Szajnowska-Wysocka, 2009). De plus, selon cette approche, la croissance est une course vers le contrôle monopolistique de la création d'innovations par l'amélioration de la production ce qui résulte en un avantage concurrentiel (Schumpeter, 1947 ; Arrow, 1962). En d'autres termes, la croissance est propulsée localement par l'emploi qualifié, l'administration publique, les institutions scientifiques et les organisations professionnelles (Szajnowska-Wysocka, 2009).

Comme nous l'avons expliqué dans notre recherche, même si la théorie de la croissance endogène n'a pas explicitement mis l'accent sur les réseaux urbains ou régionaux, elle a introduit des facteurs de croissance et de développement « peu orthodoxes » dans le contexte de la dynamique de l'innovation territoriale et notamment du capital humain : la culture d'entreprise locale, le système scolaire, les facteurs et les systèmes de production et d'apprentissage (Ratti, 1992). Ainsi, la théorie de la croissance endogène a été le début d'une littérature scientifique sur le développement territorial endogène et les systèmes régionaux d'innovation (Kafkalas et Komninos, 1998).

La nouvelle géographie économique s'est en revanche concentrée sur l'analyse d'une grande variété d'agglomérations économiques au travers de prédictions statiques sur les forces qui conduisent à l'émergence de grappes industrielles (Fujita et Krugman, 2003). Selon cette théorie, des grappes d'activité économique émergent grâce à une combinaison de forces centrifuges telles que les déséconomies (facteurs immobiles, location de terrains, déplacement, congestion, etc.) et de forces centripètes telles que les économies externes (réseaux, marchés épais, partage de savoir, etc.) (Fujita et Krugman, 2003). En outre, la nouvelle géographie économique a fourni un modèle intéressant, mais discutable de systèmes urbains et régionaux selon lequel toute la fabrication est située dans le centre et toute la production agricole est située dans la périphérie. Ce modèle représente donc une tentative

d'expliquer un système de réseau dans lequel les « ombres » d'agglomération (la croissance) empêchent les espaces urbains de se former trop proches d'autres espaces urbains de taille égale ou supérieur en raison de la concurrence féroce des prix spatiaux (Partridge et al., 2009).

Néanmoins, d'après Dawkins cité dans notre recherche, la nouvelle géographie économique repose sur des hypothèses plutôt restrictives concernant la mobilité des travailleurs, l'utilisation du foncier et la dynamique régionale (Dawkins, 2003). La nouvelle géographie économique se préoccupe plus de la production industrielle que des mouvements de population comme les théories néo-classiques (Glaeser et Kohlhase, 2004). En conséquence, la nouvelle géographie économique ne tient pas pleinement compte de la diversité des facteurs qui sous-tendent l'installation des ménages, tels que le déplacement ou l'accès aux infrastructures urbaines. Donc, la théorie fourni une explication limitée de la hiérarchie urbaine moderne et des dynamiques des réseaux (Gaeser et Kohlhase, 2004 ; McCann et Shefer, 2004 ; McCann, 2007). De plus, selon la nouvelle géographie économique, les « ombres » d'agglomération limitent l'émergence des grandes agglomérations urbaines, tandis que les relations entre les petites agglomérations urbaines et leurs arrière-pays restent peu claire et sans intérêt (Partridge et al., 2009).

Depuis la fin des années 1990, quelques études ont été publiées dans une tentative d'établir un lien entre les différentes théories afin de surmonter leurs lacunes. Dans notre recherche, nous avons cité quelques exemples. Fujita et Mori (1998) ont fusionné la nouvelle géographie économique et la théorie de la croissance endogène dans un modèle essayant d'expliquer l'émergence des économies asiatiques. Bretschger (1999) a combiné les éléments de la théorie de la croissance endogène, de la nouvelle géographie économique et de la théorie de localisation traditionnelle dans un modèle qui a exploré l'impact à long terme de la diffusion des connaissances sur les trajectoires de la croissance régionale. Acs et Varga (2002) ont présenté un modèle plus général de développement économique régional axé sur la technologie en intégrant certains éléments de la nouvelle géographie économique, de la théorie de la croissance endogène et de l'économie de l'innovation.

De même, la théorie de la croissance endogène a été combinée avec d'autres théories sociales telles que le rôle des institutions dans la croissance. Ainsi, nous avons cité Stough (2001) qui s'est concentré sur le leadership local associé à la croissance économique des régions métropolitaines, un sujet jusqu'alors ignoré par les chercheurs de la croissance endogène. Harrington et al. (2001) ont connecté les éléments de la nouvelle économie institutionnelle et de la croissance endogène afin d'explorer comment les institutions formelles et informelles structurent les processus de travail nécessaires à la croissance économique.

Concernant l'analyse spatiale, nous avons montré deux approches différentes qui ont contribué à une meilleure compréhension des réseaux et des systèmes spatiaux.

La première approche a exploré la division économique internationale du travail, la circulation du capital et les flux de pouvoir et de connaissances à l'échelle mondiale (Castells, 1972 ; Harvey, 1973 ; Zukin, 1980 ; Saunders, 1986 ; Katznelson, 1993). Cette approche a influencé l'apparition de la littérature scientifique sur les villes globalisées, les villes mondiales et leurs hiérarchies (Friedmann, 2004 ; Sassen, 2005).

La seconde approche a été axée sur la dynamique endogène et les thématiques telles que l'endogénéité institutionnelle locale (Brusco, 1986 ; Aydalot, 1986 ; Becattini, 1987 ; Moulaert et al., 1994), les principes de la coordination institutionnelle (Edquist, 1997), l'interprétation évolutionniste de l'économie régionale de l'apprentissage (Cooke, 1996 ; Cooke et Morgan, 1998) et de nouveaux

espaces industriels (Storper et Scott, 1988 ; Saxenian, 1994). Ce sont des thématiques qui ont introduit des concepts importants pour la géographie économique et la science régionale tels que les districts industriels, les systèmes de production localisés, les clusters, le milieu innovant, les systèmes d'innovation régionaux, etc. (Moulaert et Sekia, 2003 ; Hamdouch, 2008). Ces deux approches au sein de la géographie économique reflètent un débat actuel à une échelle plus large sur « le global » versus « le local », « l'externe » versus « l'interne », « l'exogène » versus «l'endogène».

Notre recherche a présenté deux auteurs, Friedmann (2004) et Sassen (2005), partisans les plus éminents de la première approche mettant l'accent sur la relation existante entre l'urbanisation et la mondialisation. Selon ces deux auteurs, les villes sont de puissants pôles organisateurs de l'économie mondiale qui fonctionnent comme des sièges d'entreprises et des centres financiers reliant les économies nationales et régionales à l'économie mondiale (Friedmann, 2004 ; Sassen, 2005).

Selon ces auteurs, les villes et leurs réseaux jouent un rôle important en tant que centres de la gouvernance mondiale qui favorisent le flux de personnes, d'idées et d'informations entre les états, la société civile mondiale et les organisations internationales (Low et al., 2000 ; Taylor, 2005). De plus, le réseau des villes globalisées est d'une part, intégré dans une région particulière et, d'autre part, trans-territorial parce qu'il relie des sites qui ne sont pas géographiquement proches (Sassen, 2005). Néanmoins, comme on l'a montré dans la recherche, la critique de cette approche exprime le manque de justification de la hiérarchie des villes à travers une démonstration détaillée des liens, des flux et des relations entre les villes. De même, la critique des villes globalisées démontre le fait qu'il existe de nombreuses variations dans la dynamique locale due au contexte historique local, ainsi que de différentes trajectoires régionales que cette approche ne considère pas (Smith, 2005).

Notre recherche a présenté les économistes et les géographes qui ont étudié la dynamique des réseaux locaux dans les districts industriels, les grappes, les systèmes de production localisés, les régions d'apprentissage, etc., car c'est une contribution indéniable à la compréhension de la dynamique des réseaux locaux. Ces auteurs partagent leurs interprétations de la culture d'entreprise locale, dynamique et changeante selon le discours sociopolitique (Moulaert et Sekia, 2003). En d'autres termes, une communauté stable émerge grâce à des liens locaux entre les entreprises qui permettent l'évolution d'une forte identité culturelle locale et d'une expertise industrielle partagée (Marshall, 1920).

De nombreux auteurs cités dans notre recherche soulignent que les caractéristiques clés du réseau sont la coopération et la concurrence entre les agents (les entreprises) spécialisés et le rôle de la culture locale (les relations institutionnelles formelles et informelles) qui sont le résultat des trajectoires historiques et socio-économiques (Brusco, 1986 ; Becattini, 1987 ; Dei Ottati, 1994 ; Le Roy et Sanou, 2014 ; Bachelet, 2016). De plus, selon cette approche, les facteurs qui impactent ces systèmes locaux sont la tension locale-globale, des conditions économiques nationales et internationales (Hamdouch, 2008), le marché et la concurrence (Porter, 1990), le rôle des institutions locales, la culture, la structure industrielle et l'organisation d'entreprise (Saxenian, 1994) et le rôle de l'apprentissage collectif (Moulaert et Sekia, 2003).

La théorie des villes en réseau

La mondialisation a rendu les territoires et leurs interactions plus importants que jamais pour la croissance et la prospérité économique (Rodriguez-Pose, 2013). D'après Markusen (1996), l'espace est

devenu de plus en plus « glissant » (en anglais : « slippery ») dans le sens où les capitaux, les biens, les personnes et les idées s'échangent plus facilement qu'auparavant. Ainsi, l'importance des réseaux et des flux de biens, de personnes et d'informations s'est accrues pour les territoires (Markusen, 1996 ; McCann, 2008 ; Rodriguez-Pose et Crescenzi, 2008). Le cadre théorique de notre recherche se base sur la théorie des villes en réseau car elle nous paraît la plus à même d'expliquer les effets de la mondialisation sur les territoires.

Dans notre recherche nous avons développé comment la théorie des villes en réseau différencie les villes par leurs fonctions, en ne se concentrant pas uniquement sur les contraintes spatiales. En effet, des réseaux peuvent se développer entre des villes voisines, c'est-à-dire bénéficiant d'une proximité spatiale, (Hall et Pain, 2006; Meijers, 2007), mais peuvent également se développer entre des villes spatialement éloignées en utilisant des « tuyaux » (en anglais : « pipelines ») (Shearmur et Doloreux, 2015) comme c'est le cas dans les réseaux de « villes mondiales » et de « villes globalisées » (Taylor, 2004; Sassen, 2005, 2009).

Le concept de « villes en réseau » a été bien accueilli par la communauté scientifique et a évolué au cours des vingt dernières années comme nous l'avons montré dans le tableau S3. Le concept de « villes en réseau » se définit comme un système de villes-nœuds reliés par des liens et des flux de natures différentes. En outre, ce système est caractérisé par des structures hiérarchiques et non-hiérarchiques, la coopetition entre les villes, la création de synergies et d'aménités par l'organisation de la structure urbaine (Boix, 2003).

Tableau S3: L'évolution du concept de villes en réseau dans la littérature scientifique

AUTEURS	CONCEPTS	ELEMENTS PRINCIPAUX
THEORIE DES SYSTMES WESTLUND (1999) CASTI (1995)	Systèmes d'objets ajoutés à un groupe de connexions.	Nœuds et liens.
DEMATTEIS (1990, 1991)	Système de centres (ou zones) reliés par des liens.	Nœuds et liens.
PRED (1979)	Système urbain avec des relations verticales importantes (hiérarchiques), et des liens horizontaux et coopératifs.	• Nœuds et liens. • Relations verticales et horizontales
CAMAGNI ET SALONE (1993)	Système de relations horizontales non hiérarchiques entre des centres spécialisés offrant des externalités de complémentarité et/ou d'intégration verticale ou de synergie et/ou de coopération entre centres.	• Nœuds et liens. • Relations horizontales • Synergie et la complémentarité • Externalités
BATTEN (1995)	Deux ou plusieurs villes, potentiellement complémentaires en fonctions, qui s'efforcent de coopérer et de réaliser des économies d'envergure par des corridors rapides et fiables d'infrastructures de transport et de communications.	• Coopération • Infrastructure de transport et de communication • Economies d'envergure
BOIX (2002)	Structure où les nœuds représentent les villes, reliées par des liens de nature différente, à travers lesquels les flux de nature socio-économique sont	• Nœuds et liens. • Infrastructure de transport et de communication

	échangés. Ces flux sont soutenus par les infrastructures de communication et de télécommunication. Les principales caractéristiques des réseaux de villes sont les suivantes: la possibilité d'avoir simultanément une structure hiérarchique et non hiérarchique, la coopération entre les villes, la production d'avantages liés à l'organisation de la structure urbaine.	• Coexistence de structures hiérarchiques et non hiérarchiques • Production d'avantages (externalités de réseau) liés à la structure urbaine et aux interactions entre les nœuds
VARTIANEN (1997, 1998)	Coopération interurbaine (transnationale) des villes et d'autres acteurs situés dans la ville afin d'utiliser et de développer des effets de synergies.	• Réseautage urbain en tant que principe économique et organisationnel • Dualité entre villes et acteurs • Le réseau peut être un réseau fonctionnel (spontané) ou un lobby
TAYLOR (2001)	Sorte d'organisation où les acteurs sont des nœuds et les relations sociales sont des liens. Ces relations sociales sont des liens économiques qui agissent pour structurer géographiquement l'économie mondiale.	• Nœuds et liens. • Economie et sociologie • Supra-nodale et sous-nodale • Système mondial
CAMHIS ET FOX (1992) COMMISSION EUROPEENNE (1999)	Accord formel entre les partenaires concernés.	• Constitution des organisations • Défense des intérêts et la promotion des réseaux spécifiques

Source: Boix, 2003, p. 3.

Nous avons également cité Pflieger et Rozenblat (2010) qui exposent comment les réseaux de villes dépendent de la façon dont les entités et les individus sont intégrés au réseau, mais aussi de la façon dont les différentes entités des différents réseaux interagissent au sein d'un même nœud. Les trois caractéristiques principales des réseaux sont les suivantes :

- **Le type de réseau** dépend du comportement des individus, de l'organisation du pouvoir et de la dynamique des espaces au sein d'un réseau ou de plusieurs réseaux. Par conséquent, qu'il s'agisse de coopération, de concurrence ou d'exclusion, il existe une multiplicité de réseaux qui relient les villes.
- **L'échelle de réseau** indique l'échelle géographique où se produisent les échanges ou les partages (d'individus, d'entités économiques ou sociales). Les réseaux locaux, régionaux, nationaux ou internationaux de villes sont déterminés par l'organisation de l'espace intra-urbain, la mobilité, les réseaux techniques et l'organisation territoriale.
- **La structure de connexion entre les réseaux :** Les réseaux des différentes échelles (intra et inter urbains) se superposent et les villes jouent le rôle de nœud d'interconnexion entre ces réseaux. En d'autres termes, les différentes interactions au sein d'un territoire créent des réseaux différents qui transforment l'organisation des villes, et leurs espaces urbains.

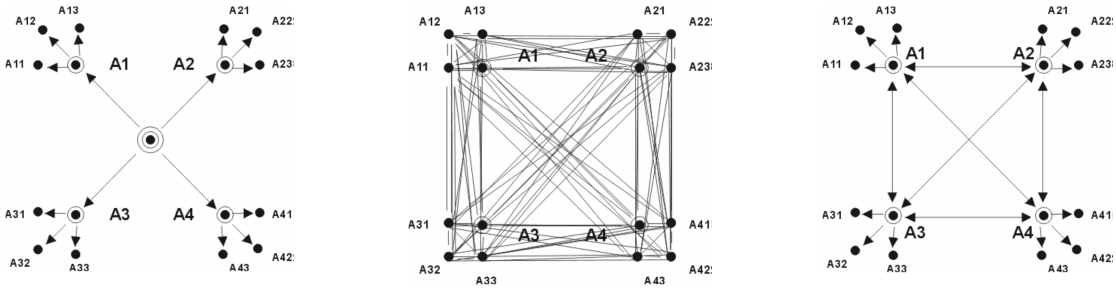
Les différents types de réseaux de villes

Comme montré dans le tableau S3, de diverses interprétations conceptuelles ont abouti à un ensemble de typologies de réseaux. Néanmoins, nous avons choisi de mette en avant celles proposés par Dematteis (1990, 1991) et Camagni et Salone (1993) étant les plus cités dans la littérature scientifique.

Dematteis (1990, 1991) a distingué trois types de réseaux (Image 1):

- **Les réseaux verticaux (hiérarchiques)** ont déjà été abordés par la théorie des lieux centraux (Christaller, 1933; Lösch, 1944). Ce type de réseau spatial décrit un système territorial en équilibre, dans lequel s'applique la loi « rang-taille » des villes supérieurs et inferieurs. Chaque rang offre des biens, des produits et des services spécifiques liés à sa taille.
- **Les réseaux horizontaux (non-hiérarchiques)** sont les réseaux où ne s'appliquent pas la loi « rang-taille » et où il n'y a pas de relation entre le rang des villes et l'offre de biens, de produits ou de services spécifiques.
- **Les réseaux polycentriques** combinent les liaisons verticales et horizontales dans le sens où les grands centres génèrent des économies d'agglomération et des fonctions supérieure, mais la loi « rang-taille » ne s'applique pas toujours parce que certains centres peuvent être spécialisés dans un secteur et attirer les consommateurs, malgré une taille et un rang inférieur.

Image S1 : Les typologies de réseaux de villes



Réseaux verticaux (hiérarchiques) | Réseaux horizontaux (non-hiérarchiques) | Réseaux polycentriques

Source: Boix, 2003, p. 4-5.

Camagni et Salone (1993) ont proposé une typologie de réseaux reposant sur deux points. D'une part elle s'appuie sur les liens entre les centres ayant des fonctions différentes, les économies d'intégration verticale, la division du travail et la taille du marché (les réseaux de complémentarité) et d'autre part sur les liens entre les centres ayant des fonctions similaires, les économies d'intégration horizontale et les externalités de réseau (les réseaux de synergie) (Camagni, 1992 ; Camagni et Salone, 1993) :

- **Les réseaux de complémentarité** s'établissent entre des centres spécialisés dont les activités ou fonctions se complètent par une division du travail. Par exemple, certaines villes peuvent avoir une forte spécialisation dans les marchés externes (internationaux), tandis que d'autres villes au sein de même réseau peuvent agir et renforcer le réseau en tant que centres de services.
- **Les réseaux de synergie** s'établissent entre les centres ayant un profil économique similaire. Ces villes coopèrent de manière formelle ou informelle afin d'atteindre une masse critique suffisante et, par conséquent, bénéficier des externalités de réseau (Boix, 2003).

Ainsi contrairement aux théories économiques traditionnelles, la théorie des villes en réseau étudie les activités et les flux de population au travers de différents types d'espaces : les espaces urbains, les espaces non urbains, les pôles centraux, les pôles périphériques, les espaces à forte et à faible densité.

Les théories économiques traditionnelles considèrent par exemple que la quantité de savoir créés dépend du rang (de la taille) d'un centre (Webber, 1972). En conséquence, les innovations et les connaissances sont considérées comme se propageant de haut en bas de la hiérarchie c'est à dire des grandes villes vers les villes petites et moyennes. Au contraire, la théorie des villes en réseau souligne que la diffusion du savoir se produit à la fois des villes « supérieures » vers les villes « inférieures », des villes « inférieures » vers les villes « supérieures » mais aussi entre les villes de rang équivalent (Tullen et Boix, 2001). Les entreprises des grandes villes peuvent copier des entreprises situées dans des VPM. En effet les entreprises des VPM entretiennent des relations plus directes avec leurs fournisseurs et leurs clients, entretiennes des réseaux avec les autres entreprises et observent attentivement l'activité des autres VPM (Capello, 2011). De plus, la théorie des villes en réseau met l'accent sur l'importance de la spécialisation des villes dans les marchés de niches, la présence de fonctions supérieures dans les centres « inférieurs » (VPM), les échanges horizontaux entre les grandes villes et les VPM à travers la hiérarchie urbaine (Balland, 2012 ; Torre, 2014 ; Torre et Wallet, 2014).

Les échelles des réseaux de villes

La théorie des villes en réseau ne considère pas les espaces et les réseaux comme deux processus distincts, mais plutôt comme une forme d'organisation spatiale co-existante (Pflieger et Rozenblat, 2010). Dans ce sens, l'école française de la proximité, représentée par Boschma (2005), Torre et Rallet (2005), Torre (2008, 2014) et Torre et Wallet (2014) signale que la proximité spatiale peux produire des économies d'agglomération au sein d'un réseau, mais qu'elle n'est pas un élément suffisant de leurs créations. En effet, «la configuration spatiale des différentes implantations individuelles des acteurs connectés au sein des secteurs d'activité importe plus que leurs simples co-implantations spatiales ou que leurs proximités géographiques » (Hamdouch, 2008, p. 20). Par conséquent, la différenciation des espaces repose sur les arrangements spécifiques des réseaux qui organisent les fonctions et les entités à des échelles locales et distantes (Pflieger et Rozenblat, 2010). L'école de la proximité utilise les notions de proximités organisationnelle, cognitive et institutionnelle pour expliquer le réseautage et les dynamiques de collaboration contemporaine.

Cependant, la théorie des villes en réseau explique comment les clusters et les réseaux d'innovation se forment conformément à ce que Hamdouch (2008) nomme « des liens multi-scalaires ». Les différents types de réseaux s'interconnectent à différentes échelles, et peuvent être soit en concurrence soit en coopération. Ainsi, grâce à leurs interactions et à leurs caractéristiques socio-économiques ou de communication, certains réseaux peuvent s'imposer sur d'autres (Pflieger et Rozenblat, 2010). En d'autres termes, de nouvelles voies de réseautage peuvent se créer à n'importe quelle échelle spatiale. Aussi, « l'ouverture de certains réseaux d'innovation et de clusters vers des relations interrégionales, nationales ou internationales illustre nettement l'idée du cercle aux multiples relations » (Hamdouch, 2008, p. 25). Comme le suggère Castells (2010), les nouvelles technologies de communication et de transport ont conduit à l'émergence d'un espace de flux au niveau mondial et de réseaux polycentriques qui rapprochent non seulement des espaces en proximité, mais aussi des espaces distants. De plus, la croissance et le développement contemporains dépendent de la capacité d'un territoire à co-créer des réseaux multi-scalaires.

Structure des réseaux de villes

Nous avons également cité Boix qui distingue quatre types d'externalités de réseaux (Boix, 2003): l'effet de taille, l'effet de connaissance, la réduction des coûts de transaction et les avantages organisationnels.

Premièrement, pour la théorie des villes en réseau, les effets de taille représentent l'un des avantages clés d'un réseau de villes. Les effets de taille ont le même effet que les externalités de concentration, mais pas dans le sens d'espace géographique, mais plutôt comme un espace économique et relationnel. Dans ce contexte, les VPM peuvent former un réseau ayant la même dimension fonctionnelle que celle de grandes villes. Elles bénéficient en effet du réseau qui assure un effet de masse critique leurs permettant de fournir des fonctions supérieures.

Deuxièmement, selon la théorie des villes en réseau, les effets de connaissances (en anglais « knowledge spillover ») émergent grâce à la transmission de la connaissance au travers du réseau et sa démultiplication dans les villes qui le compose. Ceci distingue la théorie des villes en réseau des théories traditionnelles de localisation et des économies d'agglomération qui suggèrent que seule les grande villes possèdent une vrai concentration du savoir et que dès lors sa transmission ne se fait que des grandes villes vers les petites. Ainsi, pour les partisans de la théorie des villes en réseau, les VPM autant que les grandes villes peuvent être les « récepteurs » et les « émetteurs » de la connaissance dans un réseau (Boix, 2003).

Troisièmement, alors que les coûts de transport des entreprises faisaient l'objet de nombreuses analyses économiques liées aux économies d'agglomération et à la théorie de location (Scott, 1988), la théorie des villes en réseau explore les coûts de transaction qui incluent non seulement les coûts de transport, mais également les coûts de communication, la standardisation des flux, la stabilité du flux, la présence de courtiers et de sous-traitants, etc. Les couts de transactions sont d'une part, externes à l'entreprise et liées à la concentration des entreprises et à l'existence de liens stables entre les villes (Mori et Noshikimi, 2002 ; Boix, 2003).

Quatrièmement, la théorie des villes en réseau considère les avantages organisationnels comme des externalités importantes car elles sont le résultat de l'optimisation de la répartition des ressources et de la production entre les grandes villes et les VPM. De même, les avantages organisationnels sont le résultat des interactions entre toutes les villes du réseau (les retombées du partage du savoir, des coûts, etc.). La théorie des villes en réseau expose différentes distributions du savoir au sein d'un réseau pouvant prendre la forme d'un arbre (semblable à celle de la théorie des lieux centraux) ou une forme « désordonnée » (voir l'image S1) (Boix, 2003).

CHAPITRE 2 : Les villes petites et moyennes, au cœur de la croissance et du développement territorial

Depuis les années 1980, le marché économique s'est mondialisé, ce qui a fait émerger plusieurs trajectoires originales. D'abord, les innovations et les technologies nouvelles sont devenues un objectif stratégique. Grâce à une ouverture rapide vers le monde globalisé, les entreprises cherchant les meilleures conditions de production se positionnent sur les marchés émergeants, notamment en Asie et Amérique Latine. Les relations de marché sont caractérisées par de nouvelles manières de communiquer et de travailler, notamment par les échanges en réseaux plutôt que par les relations hiérarchiques traditionnelles. Enfin, les entreprises ont choisi d'investir leurs ressources dans les activités stratégiques, la sous-traitance et le networking afin d'augmenter leur production de biens et services (Léo et Philippe, 2011).

En outre, à l'ère de la mondialisation, de nouvelles structures et organisations financières ont établi la domination du pouvoir de la finance sur la production alors que l'économie mondiale s'est tournée vers le secteur tertiaire (Amin et Thrift, 1994). De plus, Barca et al. (2012) citent trois zones hiérarchiques super-régionales qui concentrent aujourd'hui la quasi-totalité de l'activité économique mondiale : l'UE, l'ALENA, l'Asie du Sud et de l'Est. Dans ce contexte, Amin et Thrift (1994) soulignent que depuis la mondialisation, la connaissance est devenue le principal facteur de production, de croissance et de développement alors que son application dans la création de nouvelles technologies s'est internationalisée. En effet, les entreprises se mondialisent dans le sens où elles regardent dans le monde entier pour chercher les conditions optimales d'installation.

La nouvelle ère a également été témoin de l'établissement d'oligopoles mondiaux. Ces entreprises multinationales représentent une part très importante de la croissance économique (par exemple depuis 1990 les multinationales contribuent à 31 % de la croissance totale aux Etats-Unis) (Spence, 2011). De plus, la montée de la diplomatie économique transnationale ainsi que la mondialisation du pouvoir d'Etat ont créé la « communauté internationale » qui, dans son sens le plus large, fait référence à un groupe de personnes et de gouvernements (souvent de l'occident) veillant sur le développement du monde (Jacques, 2004).

Compte tenu des effets de la mondialisation sur les territoires, Davezies (2006) étudie les changements dans les transferts régionaux de revenus depuis les années 1980. Il a constaté qu'en raison de l'écart de plus en plus visible entre les lieux de résidence et les lieux de travail, les transferts trans-territoriaux ont nettement augmenté. Autrement dit, les sociétés occidentales, qui produisent si peu et consomment tant, sont conduites à une dissociation entre les zones de production et les zones de consommation (Davezies, 2008). En conséquence, deux modèles de croissance se sont distingués depuis les années 1980. Le premier modèle est basé sur la production des biens destinés aux marchés extérieurs qui

peuvent induire la croissance économique (nationale et/ou régionale). Ce modèle produit effectivement des recettes publiques et privées, mais il porte également le risque de mettre en concurrence les territoires. En revanche, le second modèle est basé sur l'attractivité résidentielle grâce à laquelle un territoire peut capter des revenus en se concentrant sur la satisfaction de la demande des ménages et des touristes. Ce modèle prend particulièrement en compte des mesures en faveur de la qualité de vie, de la cohésion territoriale et sociale. Enfin, ce second modèle semble être plus efficace dans les régions avec une population âgée croissante (Davezies, 2008).

Plusieurs études empiriques menées en Europe ont démontré que les changements de l'économie mondiale ont touché différemment les VPM (OIR, 2006 ; Léo et Philippe, 2011 ; Servillo, 2014). D'une part, de nombreuses villes européennes dont l'économie s'appuyait sur l'industrie traditionnelle telle que la manufacture, le textile et l'extraction minière ont connu un ralentissement économique. En conséquence, certaines VPM se sont trouvées dans un cercle vicieux dans lequel les entreprises ont fermé leurs usines en raison du manque d'avantage économique. Ceci, a rapidement entrainé une augmentation des taux de chômage, la main-d'œuvre locale ne pouvant pas être absorbée par d'autres industries, et a provoqué une importante croissance des bénéficiaires sociaux, renforçant par la même l'isolement social et économique de ces villes. En outre, les jeunes ont quitté des VPM pour s'installer dans les plus grandes agglomérations à cause du déficit d'emploi, des conditions de vie peu attrayantes et des disparités sociales (OIR, 2006).

La spirale descendante se poursuit lorsque certaines VPM sont gravement heurtées par l'infrastructure désuète, la dépendance à l'industrie traditionnelle, le capital humain obsolète, la baisse en compétitivité, l'accès limité aux ressources financières et sociales, etc. (Erickcek, 2004). Par conséquent, leur recours aux aides de l'Etat augmenté, les entreprises et l'administration publique locales ont eu très peu de solutions à disposition pour maintenir le reste de la population et des emplois sur leur territoire.

D'autre part, grâce à la mondialisation notamment l'amélioration de la mobilité, la spécialisation économique et la décentralisation des fonctions qui ont porté une transformation de la hiérarchie urbaine, les plus petits centres ont désormais une nouvelle opportunité de se positionner comme des nœuds importants dans le réseau mondial (Bellet et Llop, 2003). Autrement dit, les processus de mondialisation et les nouveaux flux économique et démographique bousculent la hiérarchie urbaine traditionnelle en favorisant l'apparition de nouveaux centres et en provoquant la polarisation entre les centres « connectés » et « déconnectés ».

Ainsi, la croissance et le développement territorial sont devenus moins liés à la taille urbaine qu'à une spécialisation flexible et aux systèmes de production fortement localisés (Maillat, 1998). Cela signifie que même les villes de plus petite taille peuvent désormais acquérir une nouvelle « mission » en tant que centres des fonctions économiques de haut niveau sous condition de disposer de ressources et des infrastructures de communication modernes. En outre, ces villes ont l'opportunité d'organiser leur économie locale en s'appuyant sur des réseaux locaux et internationaux ainsi que sur les relations de complémentarité avec d'autres centres. En conséquence, vu les nouvelles dynamiques économiques mondiales, les villes qui ne sont pas bien positionnées au sein du réseau (local, national et/ou international) pourraient être pénalisées par isolement, lorsque les autres villes peuvent saisir de nouvelles opportunités en se repositionnant dans la hiérarchie urbaine afin de réinventer leur territoire grâce aux réseaux (Knox et Mayer, 2009).

Le choix entre les modèles de développement basés sur la production ou la consommation

Depuis longtemps, les théoriciens du développement et de la croissance économique favorisent le secteur industriel comme le seul capable d'établir des systèmes productifs et de garantir un développement économique à long terme (Dawkins, 2003 ; Capello, 2008). Cependant, la montée continue de l'économie des services, d'une part, et la perte d'emplois manufacturiers, d'autre part, ont contesté cette vision selon lequel la production industrielle est le moteur d'économie nationale et régionale lorsque le secteur tertiaire est auxiliaire (Léo et al., 2012).

La situation économique des villes est très diverse selon les régions et les nations (Knox et Mayer, 2009 ; Smith, 2014). L'implantation d'une branche universitaire ou d'un cluster innovant peut avoir un impact significatif sur les systèmes de production locale ainsi que sur l'offre tertiaire d'une ville (Hamdouch et Banovac, 2014). On peut toutefois observer que les villes sans la tradition de fabrication industrielle peuvent bénéficier de la diffusion géographique du revenu, notamment par le développement local basé sur l'offre des services à la population et aux touristes (Davezies, 2008).

Par ailleurs, selon Huriot et Bourdeau-Lepage (2009), en Europe occidentale le choix d'installation dans une ville est moins motivé par les possibilités d'emploi que par la recherche d'une meilleure qualité de vie. Par conséquent, les petites villes bien connectées aux grandes villes avec un bel environnement naturel peuvent attirer une nouvelle population de navetteurs domicile-travail (Huriot et Bourdeau-Lepage, 2009). De même, De Roo a montré qu'après des décennies de déclin démographique, les VPM qui ont gardé son caractère rural sont aujourd'hui visées par les propriétaires de maisons secondaires, les touristes et les personnes en recherche d'un environnement plus calme (De Roo, 2007).

En s'appuyant sur la théorie de la base économique, Davezies (2008) a utilisé le terme « l'économie résidentielle » pour décrire le type d'économie locale appuyé sur des activités locales en répondant aux besoins de la population locale et des touristes. Autrement dit, le modèle de l'économie résidentielle repose sur la consommation locale. Il dépend de la circulation géographique du revenu qui, selon Davezies, est différente de la géographie de la production. Trois mécanismes peuvent être observés. Premièrement, dans les pays développés les actifs ont une tendance croissante à séparer la ville habitée et la ville de travail. Cela signifie que les sources de revenus et les dépenses réelles varient dans l'espace. Deuxièmement, grâce à la qualité de vie, certaines villes peuvent être particulièrement attrayantes pour la population à la retraite. Ainsi, les revenus se déplacent des villes où ils avaient été créés auparavant vers des villes où ils sont consommés. Troisièmement, la croissance du secteur touristique implique aussi une diffusion spatiale du revenu. Les touristes effectivement représentent une source de revenus de plus en plus importante pour l'économie d'une ville (Davezies, 2008).

En raison de ces enjeux, les villes à profil résidentiel favorisent de plus en plus des activités telles que le commerce de détail, l'hôtellerie, la restauration, la construction, les services financiers, le transport de passagers, l'éducation, la santé, le bien-être et les services administratives. La représentation de ces activités dans l'économie locale est déterminée par l'attractivité aux résidents et touristes, la qualité de vie, le patrimoine et la qualité des services à la population (De Roo, 2007). De même, le profil résidentiel de l'économie locale peut être mesuré par les indicateurs directs et indirects en analysant les sources de revenu (l'indicateur direct) et les caractéristiques de la population, c'est-à-dire la croissance

démographique, l'âge moyen et le niveau du revenu des actifs (les indicateurs indirects) (Demazière et al., 2014).

Dans le contexte européen, Hamdouch et Banovac (2014) montrent qu'il existe de nombreuses villes dont la performance économique est principalement due à la dynamique de l'économie résidentielle locale (Hamdouch et Banovac, 2014). Dans ces villes, la stratégie des acteurs politiques et économiques est d'attirer les nouveaux arrivants, notamment les retraités riches et les cadres, en investissant dans de nouveaux services et équipements tels que le sport, le tourisme, la culture, le transport, l'immobilier, la santé, etc. (Godet, 2008).

Le modèle de l'économie résidentielle locale peut se manifester différemment (Hamdouch et Banovac, 2014). Dans certaines villes, le tourisme est le secteur clé pour la production de biens et de services et pour le développement d'emplois locaux, comme par exemple à York au Royaume-Uni, Avignon en France ou Sienne en Italie. Dans d'autres villes, les services à la personne et le secteur de santé jouent un rôle important pour l'économie locale à cause d'une population âgée nombreuse. Ensuite, des villes situées à une courte distance d'une ou de plusieurs grandes villes peuvent particulièrement être favorisées par les navetteurs et les familles qui cherchent une qualité de vie dans la périphérie des grandes villes (Demazière, 2012).

Selon De Roo (2007), dans les pays « Etats-providence » comme par exemple en Belgique, France, Allemagne et aux Pays-Bas ainsi que dans les régions côtières au sud du Portugal et en Costa Daurada en Espagne, l'économie résidentielle pourrait être le moteur clé du développement local (De Roo, 2007). En période de crise économique, l'économie résidentielle est considérée comme un facteur de stabilisation pour les villes car elle permet de capturer des revenus et de créer des emplois qui ne sont pas directement exposés à la concurrence mondiale. Néanmoins, l'économie résidentielle a l'inconvénient de gérer des emplois qui sont souvent moins rémunérés et stables que ceux de l'économie productive principalement en raison de la saisonnalité du tourisme et du plus faible niveau de compétences. Un autre inconvénient est la concurrence intense pour attirer les touristes qui se crée entre les villes d'une même région (De Roo, 2007).

Le second modèle de développement local décrit par Davezies (2008) est l'économie productive basée sur la fabrication de biens et de services destinés à la consommation dans le marché extérieur. En Europe occidentale, l'économie productive tire son origine de la période de l'industrialisation et a eu une forte expansion après la Seconde Guerre Mondiale pendant les « Trente glorieuses » (Saint-Julien, 2003). En effet, durant cette période, les VPM ont connu un développement industriel, une croissance de la population en provenance des espaces ruraux et une modernisation économique et sociale. C'est également la période durant laquelle les VPM furent souvent choisies par des entreprises dont le business model était basé sur la production de biens et de services standardisés nécessitant une main-d'œuvre peu qualifiée et peu chère (Massey, 1984). Avec une population n'ayant pas ou avec peu d'expérience en technique manufacturière, les VPM étaient privilégiées pour le travail fordiste (Saint-Julien, 2003 ; De Roo, 2007).

Néanmoins, plusieurs auteurs soulignent que l'économie productive comme modèle du développement local s'est révélée fragile (Markusen, 1996 ; Hamdouch et Banovac, 2014 ; Aktinson, 2014 ; Hamdouch et Banovac, 2017). Dans sa typologie des systèmes productifs locaux, Markusen (1996) emploie le terme de « plate-forme satellitaire de fabrication » pour décrire une concentration spatiale des filières des grandes entreprises ayant très peu de connexions locales avec la région accueillante

parce qu'elles sont orientées vers le marché extérieur[1]. Ces « plateformes satellitaires » apparaissent généralement à proximité des grandes villes pour des raisons de réduction des coûts de production.

Selon Markusen (1996), les sites de production industriels favorisent la coopération avec leurs homologues situés en dehors de la région ainsi que le partenariat avec des sous-traitants locaux. De plus, les décisions clés en matière d'investissement ou de stratégie ne sont pas prises au niveau des filières de production, mais par leurs sièges souvent situés dans une grande ville ou un autre pays (Markusen, 1996). En conséquence, les villes hôtes des plateformes satellitaire de fabrication risquent de subir des effets négatifs d'une crise socio-économique lorsque les conditions extérieures (techniques et/ou économiques) provoquent une réorganisation spatiale des entreprises (Hamdouch et al., 2012).

Pour de nombreuses VPM en Europe occidentale, une telle crise s'est produite lorsque le système industriel fordiste est devenu menacé par une concurrence étrangère, une ouverture des frontières (l'espace Schengen) et une orientation des économies locales vers le secteur tertiaire (Cooke, 1989). Pourtant, certaines VPM ont réussi à construire de nouvelles spécialisations industrielles fondées sur la valorisation de l'expérience, de la connaissance et des pratiques existantes locales (Knox et Mayer, 2009). C'était le cas par exemple de nombreux districts industriels en Italie (Brusco, 1986) et des villes industrielles au Canada (Carrier et al., 2012). Ces lieux possèdent effectivement un savoir-faire industriel original qui assure une valeur ajoutée aux entreprises et les dissuade de relocaliser leurs activités ailleurs (Hamdouch et Banovac, 2014).

Le choix entre les degrés de spécialisation économique

Une économie locale avec une forte production industrielle est souvent caractérisée par des activités plus ou moins spécialisées. Comme l'ont montré Marshall (1920) et Jacobs (1969), le degré de spécialisation économique dépend de la nature des agglomérations d'entreprises qui peut être basée sur un unique secteur ou sur plusieurs secteurs (Marshall, 1920 ; Jacobs, 1969). La concentration des entreprises peut également varier considérablement d'un secteur à un autre. Par exemple, en raison des économies d'échelle, les entreprises du secteur métallurgique n'ont aucun intérêt à développer de nombreuses usines de production sur un même territoire. Par contre, la fabrication de meubles pourrait être faite par plusieurs petites entreprises locales participant chacune à différentes phases de production. Le degré de spécialisation économique dépend également de la taille de l'agglomération urbaine dont elles dépendant ; car les petites villes sont souvent plus spécialisées que les grandes villes (Polèse, 2005). De même, les villes avec des caractéristiques ressemblantes notamment en termes de taille ont tendance à développer des fonctions similaires (Polèse et Shearmur, 2005).

Une ville est spécialisée lorsqu'une part importante de son marché de travail est impliquée dans des activités économiques spécifiques. La spécialisation est un processus par lequel une ville est dédiée à la production d'une gamme de biens et de services plus restreinte (Demazière et Hamdouch, 2012). En conséquence, des villes peuvent tirer des avantages économiques de la main-d'œuvre spécialisée et d'une concentration locale de compétences qui ont le potentiel d'accroître la productivité (Huriot et

[1] La typologie de Markusen comprend les districts industriels marshalliens ; les hubs dans lesquels les filières des grandes entreprises sont fortement liées aux sous-traitants ; les districts industriels dirigés par le secteur public ; et des plateformes satellitaires de fabrication. Cette typologie est basée sur un échantillon des cas d'étude du Brésil, du Japon, de la Corée du Sud et des Etats-Unis (Markusen, 1996).

Bourdeau-Lepage 2009). De même, une spécialisation appuyée sur des ressources uniques et inexistantes ailleurs a la capacité d'attirer des investissements et de devenir un moteur du développement local (Pecqueur, 1989). Plusieurs études qu'on a cité dans notre recherche ont conclu qu'une spécialisation basée sur des connaissances, des infrastructures et des réseaux locaux contribuent à la compétitivité, créent une réputation nationale et internationale et assurent une visibilité du territoire (Glaeser, 2010 ; Bouba-Olga et al., 2012 ; Carrier et Demazière, 2012).

En revanche, la spécialisation en un nombre limité de branches de production peut également créer un obstacle à l'adaptation lors de la modification de l'environnement économique par exemple (Demazière et al., 2014). Ainsi, les villes deviennent vulnérables aux chocs et aux changements extérieurs avec des conséquences négatives pour le secteur de spécialisation et, in fine, pour l'économie locale (Floch et Morel, 2007 ; Hamdouch et al., 2012).

D'après Krugman (1991), la diversité sectorielle de l'économie locale a le potentiel d'attirer les consommateurs qui souhaitent avoir un large éventail de choix. La diversité économique offre une possibilité de collaboration intersectorielle, une diffusion des connaissances et des relations entre les producteurs de biens et de services. En effet, en diversifiant les activités économiques, une économie locale peut gagner l'accès aux nouveaux marchés (Krugman, 1991). De même, selon Demazière (2011), de nombreux économistes considèrent que les avantages de la diversification de l'économie locale sont liés à l'attractivité du territoire pour le nouvel investissement, le renouvellement des produits matures et la position concurrentielle à une échelle plus grande (Demazière, 2011).

Cependant, les études empiriques sur les différents aspects du développement local recommandent la poursuite d'une stratégie de la « troisième voie ». Selon cette stratégie, au lieu de forcer une spécialisation dans un seul secteur, les villes peuvent former des réseaux de complémentarité économique dont l'objectif est de créer une diversité dite « partagée » (Carrer et al., 2012). En d'autres termes, la stratégie de la « troisième voie » suggère que les villes ont les meilleures chances de croissance économique en développant des activités économiques spécialisées et indépendantes qui sont aussi susceptibles de se soutenir mutuellement pour un effet de masse critique (Léo et Philippe, 2011).

Selon Johansson et Quigley (2004), la spécialisation par réseautage comme c'est le cas des grappes et des systèmes de production locale peut effectivement remplacer les effets d'agglomération dans les villes qui ne sont pas suffisamment grandes. C'est-à-dire que l'effet de masse critique peut être atteint dans un réseau de VPM dans la mesure où leur relation peut dynamiser les liens de proximité, créer la diversité dans les processus de production et de consommation et stimuler le partage des connaissances (Johansson et Quigley, 2004). Enfin, les nouvelles technologies facilitent le développement des réseaux de sorte que de nombreux avantages des grandes agglomérations peuvent aujourd'hui être générés dans des systèmes composés de plus petites villes (Johansson et Auigley, 2004).

Le potentiel économique des activités culturelles et créatives

Qu'elle représente un ensemble d'attitudes, de croyances, de coutumes ou bien un secteur d'activité, la culture a été reconnue dans la littérature scientifique comme un levier important du développement local (Bayliss, 2004, 2007). Alors que pour certains auteurs, la culture et ses aspects éducatifs, démocratiques et sociaux permettent une transformation sociale, pour d'autres auteurs, la culture joue

également un rôle important dans la compétitivité et la performance économique (Scott et al., 2009). Pour cette raison, dans notre recherche, nous avons exploré la littérature scientifique afin de justifier la présence de ce potentiel dans les VPM.

La littérature scientifique énumère plusieurs contributions des activités culturelles et créatives (ACC) au développement local (KEA, 2006 ; Rosenfeld and Hornych, 2010). Tout d'abord, les ACC sont considérées comme susceptibles d'attirer les touristes, de sorte que leur impact sur l'économie locale est d'une part, direct notamment sur la création de revenus et d'emploi, et d'autre part, indirect via les dépenses dans les hôtels, les restaurants, etc. De plus, les biens et services culturels produits au niveau local peuvent être exportés et consommés en dehors du territoire ce qui peut contribuer à une visibilité internationale de toute la région. La contribution économique des ACC à l'économie locale est pertinente compte tenu du fait que la culture et l'art bénéficient le plus au territoire quand ils forment des clusters. Enfin, les ACC peuvent également avoir un impact social grâce à des projets de régénération socioculturelle, y compris l'inclusion des groupes marginalisés, la cohésion entre les quartiers riches et les quartiers pauvres par des projets culturels, la communication entre les différents groupes ethniques pas des projets d'art, etc. (KEA, 2006 ; Rosenfeld et Hornych, 2010).

En ce qui concerne les VPM, Knox et Mayer (2009) montrent que dans de nombreux cas en Europe et aux Etats-Unis, les ACC créent des opportunités pour une plus grande participation des citoyens dans la vie sociale et politique. De plus, les ACC peuvent améliorer la façon dont les citoyens collaborent et imaginent de nouvelles solutions aux défis auxquels leur ville est confrontée. Pas moins important, les ACC peuvent contribuer à la construction d'une nouvelle identité de la ville ainsi que servir au développement d'une nouvelle économie locale (Selada et al., 2011). Outre la réactivation des ressources locales, les ACC offrent aux villes la possibilité d'attirer de nouveaux talents, notamment la classe créative, ce qui dans certains cas peut être une solution de la revitalisation économique des villes en déclin (Moulaert et al., 1993).

Demazière et al. (2017) résument les quatre principaux potentiels des ACC pour le développement des VPM. Le premier potentiel est l'établissement d'un réseau ou d'un cluster créatif pouvant entraîner des changements dans les dynamiques économiques locales. Comme nous l'avons suggéré précédemment, les VPM ainsi que les grandes villes ont la possibilité d'en tirer des avantages économiques. Ceci dit, la taille n'est pas aussi cruciale que la capacité interne à absorber les innovations (Knox et Mayer, 2009 ; URBACT, 2011). Des VPM peuvent baser leurs économies locales sur les clusters créatifs qui sont en fait des formes spatiales où le talent et la créativité individuelle sont des facteurs clés (McCarthy, 2006). A travers la création de conditions favorables aux entreprises créatives, soit direct comme des subventions ou incitations fiscales, soit indirect par l'amélioration de la qualité de vie (services, accessibilité, infrastructure, etc.), l'économie de certaines villes peut bénéficier fortement des ACC et attirer de nouveaux investissements et de nouveaux résidents (Mongomery, 2003).

Le second potentiel est la présence d'aménités pouvant devenir un des facteurs clés à l'attraction de nouvelles populations et de touristes cherchant une atmosphère et une expérience originales (Demazière et al., 2007). Les atouts endogènes des VPM sont nombreux : (i) les atouts naturels (un climat chaud, des paysages distinctifs et pittoresques, une diversité topographique comme les vallées, les rivières, les lacs, les montages, les forêts, etc.), (ii) le patrimoine historique et culturel (des châteaux, des églises, des aqueducs, des ponts, des légendes, etc.) ; (iii) l'aménagement bâti (des hôtels, des restaurants, des bars, des salles de réunion, des musées, des galeries d'art, des studios, des événements, etc.) (Sélada et al., 2011).

Un autre potentiel est d'attirer de nouvelles populations en offrant des conditions, des infrastructures ou des programmes de soutien favorables, notamment de financement spécifique, du foncier et des services qui se distinguent de ceux offerts par des grandes villes. Selada et al. (2011) affirment que les VPM attirent traditionnellement de jeunes familles, des personnes en changement de carrière et des retraités. Les jeunes ménages choisissent s'installer dans des VPM en raison du coût du logement, d'une meilleure qualité de vie et de la présence d'écoles de qualité. En outre, Selada et al. (2011) ont souligné que depuis très récemment de plus en plus d'artistes et de créatifs choisissent également les villes plus petites pour leur travail dû aux déséconomies des grandes villes ce qui représente une nouvelle opportunité à saisir pour les VPM.

Enfin, selon Demazière et al. (2017), un des potentiels pour le développement local des VPM repose aussi sur l'intégration et la connectivité des ACC au tissue économique existant. Comme le signalent certaines études empiriques, les ACC peuvent fournir des « inputs » innovants pour d'autres secteurs économiques tels que l'agriculture, l'artisanat, le mobilier, les textiles, le tourisme et la gastronomie. Par exemple, l'architecture, le design, la publicité et la programmation sont des secteurs « créatifs » fortement orientés vers d'autres entreprises qu'elles soient traditionnelles ou créatives (KEA, 2006 ; Quinn, 2006). Ainsi, par le biais des ACC, les VPM ont le potentiel d'un développement intégré et de la prospérité s'ils sont attentifs aux besoins de la population et des entreprises locales.

L'expérimentation avec l'économie sociale et solidaire

Connu aussi sous le nom de « troisième secteur » (Moulaert et Ailenei, 2005 ; Birch et Whittam, 2008 ; Monzon et Chaves, 2008), l'économie sociale et solidaire (ESS) est à la fois un phénomène socio-économique avec des agents, des réseaux, des activités et des principes et un phénomène culturel qui dépend du contexte et qui est en constante mutation (Moulaert et Nussbaumer, 2005). Néanmoins, la majorité des chercheurs est d'accord pour dire que la particularité la plus importante de l'ESS est d'être constituée d'organisations bénévoles et de coopératives sans but lucratif dont les activités sont des moyens d'atteindre des objectifs sociaux qui transcendent le marché économique (Moulaert et Ailenei, 2005, 2008).

Plusieurs études empiriques illustrent la façon dont les organisations de l'ESS sont une composante centrale du développement local (Moulaert et Ailenei, 2005 ; Hamdouch et al., 2009). En effet, les organisations de l'ESS sont déterminées à répondre aux besoins immédiats des collectivités sociales et contribuent fortement au développement local notamment en s'engageant dans la protection de la propriété collective, du patrimoine naturel et historique de la ville, dans le respect de la gouvernance démocratique et des objectifs socio-économiques (ILO, 2011).

Dans le contexte européen, la pertinence de l'ESS pour le développement local est reconnue en l'an 2000 par la Commission européenne. En effet, le Comité économique et social européen a été créé au niveau de l'Union Européenne (UE) avec l'objectif de valoriser toutes les organisations européennes de l'ESS (coopératives, associations, mutuelles, fondations et entreprises sociales) sous l'égide d'une seule structure. L'objectif de cette organisation était, d'une part, de promouvoir le rôle de l'ESS et son apport social et économique au développement local, et d'autre part, de renforcer leur reconnaissance politique et juridique au niveau des pays membres de l'UE. En conséquence, l'ESS a progressé très

rapidement de 2002 à 2010 passants de 6 % de salariés rémunérés à 6,5 %, soit plus de 14,5 millions de personnes dans l'UE (CESE, 2012).

Concernant les VPM, Hamdouch et Banovac (2013) jugent que les VPM ont le potentiel de stimuler leurs économies locales en investissant en ESS. Plus précisément, l'ESS peut contribuer à la régulation des déséquilibres du marché du travail : le chômage, l'instabilité de l'emploi et l'exclusion sociale et professionnelle des chômeurs. Dans ce contexte, le Comité économique et social européen souligne que les organisations de l'ESS qui sont actives dans les secteurs de la santé, des services sociaux, de l'éducation, de la culture et de la recherche, ont particulièrement été stimulantes pour la création d'emplois en Europe. Des pays européens comme le Portugal, la Suède et le Royaume-Uni ont eu une croissance d'emplois de plus de 5 % par an dans ces secteurs particuliers (CESE, 2005). En France, plus de 215 000 organisations de l'ESS emploient plus de 2,3 millions de salariés (9,9 % de l'ensemble d'emplois) dont une part importante est localisée dans les VPM (Groupe Moniteur, 2012).

En effet, les organisations de l'ESS visent au-delà du marché économique classique à répondre aux besoins de la société liées aux secteurs non marchands tels que les services de soins et de soutiens aux personnes âgées, handicapées, enfants, réfugiés, minorités ethniques et autres groupes défavorisés qui, dans bien des cas, sont négligés par les secteurs publics comme privés (Hamdouch et Banovac, 2013). Knox et Mayer (2009) présentent un exemple intéressant du mouvement « Cittaslow » qui a débuté en Italie, en 1999, en tant que le réseau de VPM. Le mouvement promeut le développement local basé sur une alimentation saine et de proximité, une économie durable et un rythme traditionnel de la vie communautaire. Les villes membres du mouvement s'engagent à soutenir l'artisanat local traditionnel, l'agriculture biologique et la création de centres où les visiteurs peuvent goûter la cuisine traditionnelle locale. Le mouvement est rapidement devenu international et il compte aujourd'hui plus de 70 villes membres certifiées comme « slow towns » (Knox et Mayer, 2009).

La capacité de l'ESS à innover est un autre potentiel pour le développement local qui a été évoqué par plusieurs auteurs (Hamdouch et al., 2009 ; Moulaert et al. 2013). Plus précisément, l'ESS couvre les domaines tels que le développement durable, de nouveaux modes d'organisation et des réponses innovantes aux problèmes et aux besoins des territoires. Ce type d'économie locale favorise la modernisation tant des services publics que des laboratoires de R&D (Neamtan, 2002). Concernant le domaine social, l'ESS cherche des solutions aux problèmes urgents ou aux nouvelles demandes sociales liées à la pauvreté, la pénurie de logements sociaux, la violence et aux excluions sociales. Les exemples sont nombreux : les coopératives sociales pour l'intégration des groupes spécifiques de travailleurs en réponse à la crise de l'emploi, les banques éthiques offrant de petits prêts aux groupes sociaux défavorisés, les innovations les services de soutien aux personnes handicapées et les services sociaux et culturels.

Le potentiel le plus « visible » de l'ESS est sa contribution à l'insertion sociale et professionnelle des personnes défavorisées et des zones géographiques en déclin. Notre recherche cite de différentes études (CESE, 2005 ; Moulaert et al., 2013) qui ont relevé que des associations, des fondations et des entreprises sociales ont réussi à réduire le niveau d'exclusion sociale en offrant l'accès aux services et au travail. Ceci a pour conséquence d'entrainer une plus grande participation sociale à la vie communale des groupes qui en avaient été précédemment exclus. En effet, l'ESS soutient la cohésion sociale car elle « assure le bien-être d'une société, en minimisant les disparités et en évitant la polarisation » (CESE, 2005, p. 105).

La contribution des VPM à la croissance et le développement régional

Le projet européen de l'ESPON TOWN (Servillo, 2014) qui compare les économies locales des grandes villes à celles des VPM montre que, dans l'ensemble, les VPM ont un profil plus productif que résidentiel. En outre, les VPM ont en moyenne une plus grande proportion de retraités et une proportion plus faible de résidents ayants des qualifications de haut niveau comme c'est le cas dans les grandes villes. Néanmoins, le projet a signalé que le taux d'emploi est plus élevé dans les VPM que dans les grandes villes. Ceci contredit le stéréotype des VPM les présentant souvent comme des villes en déclin et touchées par la pauvreté.

Concernant les conditions de croissance démographique et économique, l'ESPON TOWN indique que les VPM situées dans des régions sans grandes villes dominantes ont une meilleure performance économique que leurs homologues situés dans des régions avec des grandes villes dominantes. De même, les VPM qui avaient une économie industrielle dominante il y a dix ans, se montrent aujourd'hui bien moins dynamiques, en termes de performance économique, que les VPM qui dépendaient moins des activités industrielles. Effectivement, les VPM historiquement industrielles (manufacturières) ont connu plus de problèmes de chômage au cours des dix dernières années en raison de la concurrence mondiale. De même, les VPM qui continuent à s'appuyer sur l'emploi industriel sont confrontées à un avenir problématique car l'emploi industriel affiche continuellement une baisse en Europe occidentale (Smith, 2014).

Dans une analyse détaillée de 31 VPM dispersées en Europe, Demazière et al. (2017) trouvent que la meilleure performance en termes de croissance de la population et de l'emploi est étayée par une combinaison de facteurs. Plus précisément, une croissance démographique a été observée dans les VPM qui : (i) sont à la proximité d'une grande ville ; (ii) dans une région dont la population croit ; et (iii) dont les taux d'emploi et d'occupation des logements sont positifs. En revanche, la croissance de l'emploi dans les VPM a été liée: (i) à la croissance de l'emploi de toute la région ; (ii) à la population active qualifiée et aux nombreuses entreprises existantes ; (iii) à la distance éloignée d'une grande ville et (iv) à l'économie locale diversifiée et non basée strictement sur les secteurs industriels ou publics.

Henderson (1997) et Hildreth (2006) distinguent nettement les VPM et les grandes villes (Tableau S4). Selon ces auteurs, les grandes villes offrent des économies d'urbanisation tout en étant des lieux de vie plus coûteux notamment en ce qui concerne le coût du logement. Les grandes villes sont également des lieux d'affaires où les coûts d'immobilier et de salariat sont plus élevés. En revanche, les VPM offrent des économies de localisation due à la spécialisation dans un secteur particulier. En même temps, les VPM sont moins chers pour vivre, travailler et diriger une entreprise que les grandes villes car elles nécessitent de plus courts déplacements et offrent des coûts fonciers et salariaux plus bas (Hildreth, 2006). Concernant la croissance et le développement régional, ces dynamiques, d'une part, renforcent l'interdépendance économique entre les villes et, d'autre part, maintiennent la stabilité des systèmes régionaux et nationaux (Hildreth, 2006).

Tableau S4 : Les différences entre les grandes villes et les VPM selon Hildreth (2006)

	GRANDES VILLES	**VPM**
Economies d'agglomération	Urbanisation	Localisation
Spécialisation	Moins de produits standardisés	Plus de produits standardisés

Développement de produits	Incubateurs de R&D avec la création d'entreprises nouvelles due à l'effet de spillover	Production de produits établis
Base de compétence	Base de compétences plus élevée et plus spécialisée	Base de compétences plus petite et moins diversifiée
Secteurs	Plus forte dans les services basés sur le savoir et plus faible dans la fabrication	Plus forte dans la fabrication et plus faible dans les services basés sur le savoir
Marchés	Plus grands et plus diversifiés marchés	Moins grands et moins diversifiés marchés

Source : Hildreth, 2006 (notre traduction)

En termes de spécialisation, la littérature économique urbaine précise que, en général, les grandes villes produisent des produits plus expérimentaux et évolutifs avec une forte prime d'innovation et de design tandis que les VPM tendent à se concentrer sur la production d'articles standardisés. De plus, les grandes villes sont considérées comme des incubateurs de R&D, de la création de nouveaux produits issus d'une économie locale dynamique et riche. Néanmoins, une fois que les nouveaux produits sont établis, leur production est décentralisée des grandes villes vers des VPM, en raison de leurs coûts de main-d'œuvre et de production moins élevés (Henderson, 1997). En conséquence, « […] des villes diversifiées et spécialisées coexistent parce que les entreprises cherchant à développer des processus innovant trouve un intérêt à s'installer dans une ville à l'économie diversifiée et plus tard lorsque le processus de conception est terminé et que la production standardisée peut commencer à s'installer dans une ville à l'économie spécialisée » (Duranton et Puga, 2001, p. 1455).

Selon Henderson (1997), les grandes villes possèdent dans la plupart des cas des secteurs qui nécessitent plus de compétences en matière de production et qui bénéficient d'un marché du travail plus grand, diversifié et fournissant des connaissances et des compétences spécialisées. En revanche, les VPM possèdent des secteurs nécessitants une main-d'œuvre non ou moins qualifiée et un marché du travail plus petit et plus spécialisé. En outre, le secteur tertiaire est en général plus représentatif des grandes villes, que des VPM. En effet les VPM ont tendance à avoir un secteur industriel dominant dans l'économie locale. La raison d'une telle répartition spatiale des secteurs est du au fait que le secteur tertiaire exige de la connaissance et des personnes qualifiée et possédant des compétences supérieur. Selon Florida (2002), les personnes qualifiées ont tendance à se concentrer dans les grandes villes. En revanche, le coût du terrain étant plus élevé dans les grandes villes que dans les VPM, les entreprises tendent à choisir une localisation de leur siège dans les grandes villes, et les sites de production dans les VPM.

En analysant les économies locales de 57 VPM en Angleterre, Hildreth (2006) estime que les VPM de la région métropolitaine de Londres ont les taux d'emploi les plus élevés, car l'économie dynamique de Londres crée des possibilités d'emploi pour toute sa région. D'une part, de nombreux navetteurs des VPM voisines participent à la main-d'œuvre pour la ville de Londres, et d'autre part les VPM accueillent des entreprises qui fournissent des services de soutien aux entreprises de Londres. Les VPM universitaires telles qu'Oxford et Cambridge ont les taux d'emploi les plus bas ce qui est probablement du au grand nombre d'étudiants.

Pourtant selon Hildreth (2006), les VPM universitaires ont tendance à être des pépinières d'innovation et de R&D. En conséquence, des entreprises se concentrent autour des universités afin de bénéficier de

réseaux informels et de personnes hautement qualifiées. En effet, Londres et les VPM universitaires ont un pourcentage élevé d'emplois dans les services aux entreprises de haut niveau. Toutefois, les entreprises situées à Londres bénéficient d'économies d'échelle ce qui est un facteur attrayant pour les entreprises du secteur des services spécialisés. Les VPM universitaires n'ont pas un tel avantage, de sorte que les entreprises du secteur des services spécialisés si installent pour profiter de la présence de l'université et de la facilité de la diffusion du savoir tacite (Hildreth, 2006).

En revanche, les VPM anglaises qui ont le rôle de « carrefour » affichent un taux d'emploi plus élevé dans les secteurs de la fabrication et de la construction, alors que le taux d'emploi le plus faible est celui du secteur tertiaire. Cela suggère que dans le contexte des VPM, les économies locales demandent peu de compétences et peu de secteurs de connaissance. En effet, le taux d'actifs sans qualifications formelles dans les VPM « carrefour » anglaises reflète l'orientation des économies locales vers la fabrication standardisée et la construction. On note donc sans surprise que les VPM industrielles en Angleterre ont également un taux élevé d'employés dans les secteurs de la manufacture et de la construction ce qui explique leur base de compétences traditionnelles et le savoir-faire spécifique lié aux secteurs industriels. Le déclin de cette base industrielle entraine dans de nombreux cas, des taux d'emploi et d'auto-entrepreneuriat bas et des compétences faibles.

La littérature scientifique affirme que les espaces ruraux les plus proches des villes sont les plus susceptibles de bénéficier des effets de la croissance urbaine (périurbanisation), alors que ces effets disparaissent plus un espace rural est isolé (Partridge et al., 2007). Les études empiriques menées par l'OCDE ont montré que le taux de croissance démographique entre 2000 et 2008 dans les régions essentiellement rurales était associé au taux de croissance des régions urbaines voisines ainsi que à leur proximité spatiale (Veneri et Ruiz, 2013). Autrement dit, les espaces ruraux peuvent tirer parti de l'effet de « spillover » en provenance d'une ville voisine et donc afficher la croissance en population et/ou en PIB. Les espaces ruraux proches des espaces urbains ont en moyenne le taux de croissance plus élevé que les espaces ruraux isolés. Ceci suggère que dans la plupart des cas il existe une complémentarité plutôt qu'une concurrence entre des espaces urbains et des espaces ruraux voisins et que leur intégration conduit vers des retombées positives. De même, la croissance démographique des VPM n'est généralement pas associée au dépeuplement des espaces ruraux avoisinants (Partridge et al., 2008).

Selon l'OCDE, les VPM devraient être considérées comme des moteurs de développement économique qui concentrent également des ressources importantes pour la viabilité et la prospérité des espaces ruraux (OCDE, 2011). Les VPM constituent les marchés pour leurs arrière-pays et au-delà, mais fournissent également l'accès au marché pour les activités productives locales comme par exemple dans le cas des circuits courts. Les VPM au milieu d'espaces ruraux représentent des pôles urbains qui donnent accès à la consommation de biens et de services pour leurs résidents et les résidents des espaces ruraux (Glaeser et al., 2001). En outre, les VPM représentent des pôles administratifs où, d'une part les citoyens peuvent accomplir les démarches administratives, et où d'autre part, les acteurs publics exercent la gouvernance du territoire. Enfin, les VPM attirent des flux de capitaux, des institutions financières et une grande partie du capital physique notamment en infrastructure. Ces atouts peuvent servir dans la création de la complémentarité avec les espaces ruraux.

Hamdouch et Banovac (2014) analysent des profils socio-économiques de VPM des dix pays européens qui ont enregistré une croissance démographique et économique due à leur complémentarité

stratégique avec l'arrière-pays rural. Par exemple, Alba en Italie et Athineou sur l'île de Chypre ont connu une augmentation de leurs populations et du nombre d'emploi sur la période 2000-2010 grâce au milieu entrepreneurial local. Dans ces deux villes, les acteurs de l'arrière-pays rural participent activement dans la construction de la vision et du développement régional. Plus précisément, Athineou a mis l'accent sur le renforcement de l'entrepreneuriat local et la diminution de la dépendance au capital extérieur (national ou régional). Le développement d'Athineou repose sur des ressources locales et des investissements d'entrepreneurs locaux réunis dans une coopérative. La coopérative contribue largement au développement des activités commerciales et à l'identité locale. En effet, la coopérative soutient l'entreprenariat local par le biais d'échanges commerciaux de produits agricoles locaux, de prêts et d'installations de stockage. De l'autre côté, Alba dispose d'un solide secteur agro-alimentaire animé par un réseau dense de PME locales et de quelques grandes usines de fabrication. Les acteurs les plus importants pour la croissance économique et sociale d'Alba sont les entreprises locales. Hamdouch et Banovac (2014) soulignent que le facteur du succès d'Alba est le nombre élevé de jeunes entrepreneurs hautement qualifiés dans le secteur agroalimentaire, un résultat de la politique nationale d'ouverture des exploitations agricoles aux nouvelles spécialisations adaptées aux spécificités des économies régionales.

Un autre objectif poursuivi par de nombreuses VPM qu'on a évoqué dans notre recherche est l'attractivité territoriale. Mainet et Edouard (2014) définissent l'attractivité d'un territoire comme la capacité d'attirer continuellement des ressources différentes (humaines, économiques et financières). D'une part, l'attractivité est mesurée par le bilan d'entrée et de sortie des personnes, du capital, des emplois, etc. D'autre part, l'attractivité d'un territoire est jugée par son image de désir et d'appel. En fait, les VPM ont le potentiel de capter les capitaux (social, humain, économique, financier) via une offre des ressources et des opportunités, ainsi que par une « atmosphère », l'image et « la capacité de séduction » (Mainet et Edouard, 2014, p.15). Le projet l'ESPON ATTREG a affirmé que certaines VPM deviennent des « centres attractifs » ainsi que des destinations de migration ce qui entraîne d'importants effets directs et indirects sur toute la région qui elle même est représentée et conditionnée par la qualité de vie et de services de ses villes (Drobne et Russo, 2012).

Le marketing des VPM est de plus en plus tourné vers la qualité de vie et de l'espace régional notamment au travers de l'environnement et des éléments naturels, des liens sociaux, des équipements urbains et du patrimoine. En fait, de nombreuses photos de diverses régions sont utilisées pour promouvoir l'architecture locale, les espaces naturels, les paysages urbains et les lieux symboliques comme par exemple les places de marché. Outre les images, Mainet et Edouard (2014) remarquent que les mots et les phrases utilisés pour décrire les VPM ne sont pas explicitement liés à l'économie, mais à la description générale de la région, du milieu et de la qualité de vie qui s'adressent directement aux potentiels visiteurs et aux nouveaux habitants. « Les acteurs locaux ont compris l'importance de nouveaux éléments d'attractivité ainsi que l'importance de les promouvoir dans un contexte de développement de l'économie résidentielle » (Mainet et Edouard, 2014, p. 23).

De même, la labellisation des villes est promue par de nombreux acteurs locaux mais aussi régionaux. En France par exemple, les villes se trouvent en compétition pour des labels nationaux qui valorisent le patrimoine (le label « ville d'art et d'histoire »), la qualité et la diversité d'équipement pour les touristes (le label « ville active et sportive », le label « les plus beaux détours de France »), la qualité de l'environnement urbain (le label « villes et villages fleuris »).

En dehors des bénéfices liés à la qualité environnementale, de nombreuses VPM utilisent la culture pour stimuler l'attractivité de leur territoire (URBACT, 2011). Par exemple, dans notre recherche nous avons décrit le cas de la ville Obidos au Portugal qui s'appuie sur le concept de la « ruralité moderne » pour attirer de nouveaux arrivants et des entreprises. C'est une ville créative, écologique et saine qui vise à améliorer la régénération et la diversification de l'économie locale, ancrées dans une stratégie de marketing appelée « Obidos créatif ». Cette stratégie est basée sur l'organisation d'événements publics qui attirent un nombre important de visiteurs et de touristes dans la ville. Ces événements s'inscrivent dans un ensemble de secteurs créatifs présents dans la ville : le divertissement, la musique, le graphisme, le marketing, la publicité, le multimédia, la création artistique et la recherche culturelle (URBACT, 2011).

Dans l'ensemble, nous avons conclu qu'il n'existe pas de recettes de succès pour les VPM. Néanmoins, les publications scientifiques ont tenté de décrire les variations des facteurs institutionnels, sociaux, économiques et environnementaux à travers de nombreuses études de cas et ce afin d'identifier des caractéristiques communes (Charbonneau, 2003; IRO, 2006; Knox et Mayer, 2009; Kwiatek-Soltys et al., 2012; Demazière, 2012; Servillo, 2014; Carrière et al., 2016; Hamdouch et al., 2017).

Dans le projet de l'ESPON TOWN, Atkinson (2014) note plusieurs facteurs communément considérés comme des conditions préalables au succès dans les VPM européennes. Tout d'abord, la gouvernance multi-scalarité comprenant l'échelon européen, les administrations nationales, régionales et locales, est jugée importante pour l'accès à des ressources financières supplémentaires ainsi que pour le développement de projets à plusieurs niveaux. La capacité locale d'agir et de créer des relations avec les acteurs locaux contribue également au regroupement des connaissances et des ressources locales. Un autre facteur est la capacité d'engager le système régional et / ou national afin de s'insérer dans des stratégies régionales pertinentes. La coopération avec d'autres villes à proximité est importante pour la création du capital territorial commun, de la complémentarité et de la synergie. Le facteur de succès des VPM dépend aussi des politiques d'aménagement. Elles doivent être capables d'identifier les dynamiques territoriales et les relations fonctionnelles entre les différentes échelles spatiales. Le leadership local est lui aussi nécessaire soit sous une forme collective (des maires bien connectés), soit sous la forme d'un individu suffisamment charismatique pour conduire le processus de changement. La présence d'une identité locale est positivement associée à la cohésion sociale et au capital social. Enfin, le dernier facteur est la localisation spatiale qui peut isoler ou connecter une ville aux aires métropolitaines, (Atkinson, 2014).

CHAPITRE 3 : Evolution des politiques européennes pour un développement territorial plus équilibré

L'importance de la théorie des villes en réseau pour la planification spatiale est observable dans l'évolution des politiques européennes qui promeuvent la polycentralité, la cohésion, la gouvernance territoriale et la coopération intercommunale. Face à la concurrence féroce à l'extérieur de ses frontières et à la crise financière et économique, l'Europe cherche à se réinventer et à redéfinir son rôle économique à l'échelle mondiale. Au cœur du débat politique européen se trouvent l'égalité et l'équité des territoires, la vision commune du développement européen ne doit pourtant pas nier leurs spécificités socio-économiques et politiques de chacun d'entre eux. Ce débat débouche sur

l’identification de quatre piliers de la politique européenne : la gouvernance territoriale, la coopération territoriale, la cohésion territoriale et la polycentralité.

Dans le cadre politique européen la « polycentralité » se définit comme un ensemble de réseaux urbains équilibrés et multi-scalaires dans lesquels les zones centrales et les périphéries bénéficient d'une coopération sociale et économique. Ce concept s’applique au à l’échelle macro (européen) comme un modèle de développement cherchant à établir des pôles de croissance sur l'ensemble du territoire afin d'améliorer le développement régional. A l’échelle méso (interrégional), la polycentralité représente la coopération, le partage des atouts existants et des fonctions urbaines entre les villes. A l’échelle micro (infrarégional), la pratique de la polycentralité accentue d’autant plus la coopération qu’elle peut améliorer la performance économique des villes grâce au réseautage dans la région. La majorité des pays européens ont introduit le concept de polycentralité dans leurs politiques nationales ainsi que dans leurs discussions sur les politiques territoriales. Cependant, cela ne signifie pas que le concept a partout été accompagné d’une traduction opérationnelle.

L’interprétation de la notion de cohésion territoriale varie en Europe aussi bien au sein des institutions, des organisations que des acteurs locaux. Il est toutefois entendu que, d'une part, elle doit permettre le développement de toutes les régions (urbaines, rurales, périphériques, côtières et montagneuses) des États membres et que d'autre part, la cohésion territoriale doit permettre de trouver l'équilibre entre les instruments politiques visant à accroître la compétitivité économique, d’assurer la cohésion sociale et d’œuvrer en faveur d'un développement durable.

Dans le contexte européen, la gouvernance territoriale est importante pour plusieurs raisons. Premièrement, elle coordonne les actions des acteurs et des institutions ce qui permet d'assurer que les stratégies et politiques publiques soit efficaces et équitables. Deuxièmement, la gouvernance territoriale produit les politiques publiques de différents domaines en intégrant le dialogue, les partenariats et les réseaux. Troisièmement, elle mobilise la participation de différents partis en veillant sur l'allocation des ressources humaines et financières. Quatrièmement, les autorités nationales, régionales et locales usent de la gouvernance territoriale pour s’adapter au contexte afin de faire face aux crises économiques et financières. Enfin, la gouvernance territoriale est donc synonyme d'approche territoriale « douce » ou fonctionnelle c’est-à-dire adaptative et s’oppose aux routines des acteurs et des institutions enfermés dans des espaces « durs ».

La coopération et la concurrence des territoires européens exercent une influence majeure sur l'activité économique, les flux d'investissements, la mobilité humaine et le comportement des acteurs privés et publics. D'un côté, la coopération territoriale vise à surmonter les effets négatifs des limites administratives agissant comme des frontières, à maximiser les synergies potentielles. Cependant, au fil du temps, les attentes de la coopération territoriale se sont élargies pour englober sa contribution au développement économique, à la compétitivité, à l'intégration territoriale, au réseautage urbain, aux bonnes relations sociales de quartier, aux marchés du travail et à l'unification des écosystèmes naturels divisés par des frontières. D’un autre côté, la concurrence territoriale est l'un des rares domaines dans lesquels l'Union européenne a une compétence exclusive et non partagée avec les Etats membres. En effet, la concurrence est strictement réglementée et contrôlée par les institutions européennes afin d'assurer la transparence, l'égalité et l'équité dans le développement de tous les territoires au sein d'un marché unique.

Dans le contexte européen, les villes petites et moyennes sont vues comme un élément important de la hiérarchie urbaine. Cependant, même s'il n'existe pas de stratégies européennes dédiées aux VPM,

deux politiques publiques concernent indirectement leurs rôles et leurs fonctions. Tout d'abord, la politique européenne de développement régional reconnait que les VPM jouent un rôle structurel pour l'équilibre spatial de l'Europe, contribuent au développement des métropoles et constituent le lien entre les métropoles et leurs arrière-pays. En outre, cette politique souligne les avantages qu'apportent VPM au développement régional. Ceux-ci reposent sur les interdépendances entre les différentes échelles de la hiérarchie urbaine, pouvant favoriser le développement des réseaux urbains, la complémentarité et la coopération entre les villes. La seconde politique européenne incluant les VPM est la politique de développement rural. En effet celle ci considère les VPM comme des lieux offrant des emplois et des services à la population. De même, leurs relations avec la campagne peuvent être complémentaires et bénéfiques pour toute la région.

En ce qui concerne les approches nationales et régionales des pays européens, notre recherche a mis en évidence un contexte institutionnel varié, allant des états unitaires aux états fédéraux, avec des degrés divers de régionalisation et de décentralisation politique et fiscale. Certains pays européens ont un grand nombre de petites communes notamment la France ce qui conduit à une structure territorialement fragmentée tandis que d'autres pays ont plutôt de grandes communes comme la Suède ou le Royaume-Uni.

En outre, dans certains pays et notamment en France, en Belgique et en Espagne, des actions à l'échelle nationale et régionale ont été déployés pour amener un ensemble de communes à atteindre une masse critique par le biais de clusters intercommunaux et de coopération. Dans d'autres pays tels que l'Italie, on constate une absence complète de politiques nationales et régionales en matière de questions urbaines, tandis qu'au Royaume-Uni, on reconnaît politiquement le rôle important joué par les VPM dans une région, mais il n'existe pas d'instruments concrets permettant d'appuyer cette réflexion. Enfin, en Suède, la politique nationale des VPM a évolué, passant d'une volonté de les « sauver » du déclin au choix d'agir uniquement en faveur des villes présentant un potentiel endogène de développement.

En outre, notre recherche explique la façon dont la vision « européenne » de la croissance et du développement fondés sur le polycentrisme, la gouvernance territoriale, la coopération et la cohésion correspond à la vision du développement local promue par la théorie des villes en réseau. Plus précisément, nous avons montré comment la polycentralité, ou les « centralités en réseau » (Gaschet et Lacour, 2002, p. 65) entretiennent plus qu'une relation mécanique entre leurs centres et leurs périphéries. La polycentralité renvoie de facto à l'émergence de nouveaux pôles, mais aussi à la création de nouveaux rôles, de nouvelles fonctions et de nouvelles responsabilités. De plus, dans la théorie des villes en réseau, la polycentralité représente un réseau de pôles spécialisés et complémentaires qui ne sont pas nécessairement des centres-villes comme avait proposé les théories traditionnelles. Au contraire, les centres-villes peuvent perdre leur centralité et les voir se déplacer vers la périphérie ou des lieux éloignés.

Néanmoins, bien qu'il y ait une reconnaissance générale de l'importance du polycentrisme, de la gouvernance territoriale, de la cohésion et de la coopération, leurs applications est loin d'être la règle. Les fonds européens ont pour but de promouvoir la mise en place des politiques européennes. Cependant, de nombreuses régions européennes, qui auraient besoin d'une aide financière, ne peuvent pas se qualifier pour bénéficier d'une subvention. En effet, elles n'ont pas toujours la capacité humaine ou matérielle ou les connaissances pour réaliser les processus rigoureux nécessaires à obtenir un financement. En conséquence, ce processus remet en cause les principes d'équité et d'égalité, mise en

avant par la Commission européenne, car les pays ou régions dépendent uniquement de leurs propres capacités pour attirer des fonds et des investissements.

De plus, la Commission européenne a une compétence exclusive à réglementer la concurrence dans tous les états membres et elle a créé une liste des régions éligibles au financement. Ainsi, les autorités nationales et régionales de facto et de jure disposent de peu d'instruments pour intervenir. Elles sont soumises à un contrôle strict des institutions européennes. Il n'est pas surprenant que de nombreuses critiques aient mis en doute l'avenir d'une vision commune du développement européen, et demandent un changement structurel des institutions européennes.

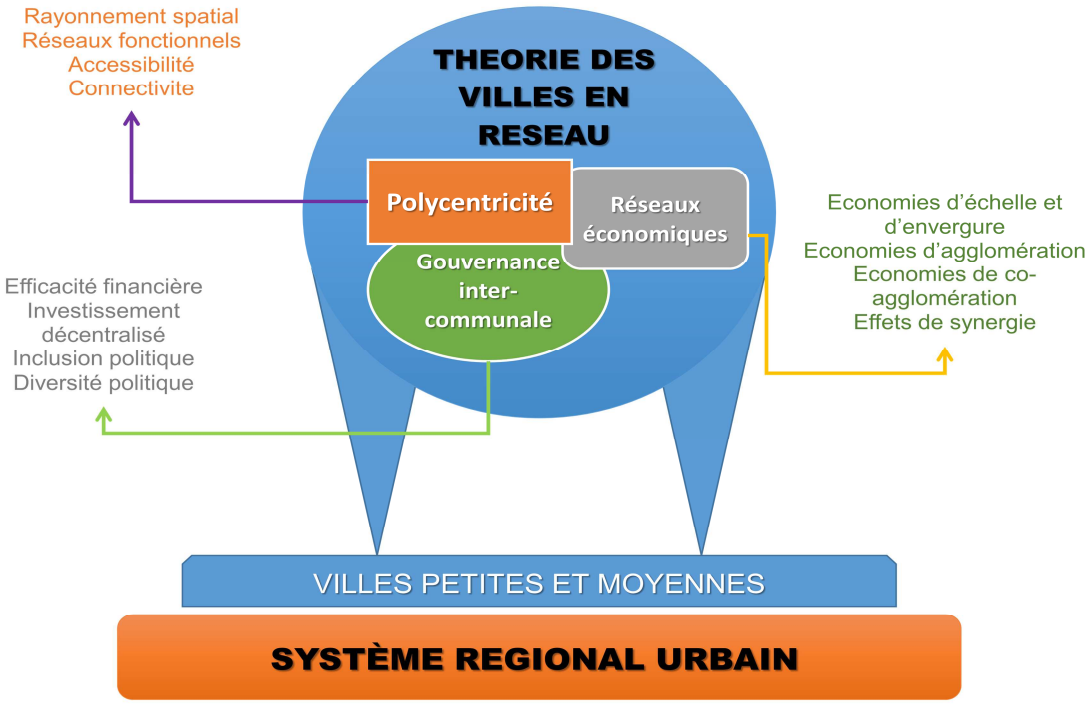
Pourtant, nous avons cité le projet européen ESPON TOWN (Servillo, 2014) qui a présenté un rapport encourageant du développement européen. Selon l'ESPON TOWN les VPM joue un rôle clé dans le développement européen en dépit d'un manque d'outils mis à leurs dispositions par les autorités européennes et nationales. Les VPM semblent être généralement en mesure de construire leurs propres stratégies de développement en fonction de leur contexte régional et national. D'une part, les VPM situées dans une région métropolitaine construisent leurs stratégies sur la base des avantages de la proximité d'un marché plus vaste et plus diversifié situé dans la métropole. D'autre part, les VPM des régions rurales et périphériques montrent un développement différent. D'après le rapport ESPON TOWN certaines développent leurs stratégies sur le développement endogène, tandis que d'autres ne présentent pas de stratégie formelle mais se reposent sur une dynamique de développement impulsée par le secteur privé et le secteur civil.

En s'appuyant sur les résultats du projet de l'ESPON TOWN, notre recherche a exploré le fonctionnement des villes petites et moyennes dans le système urbain européen. Nous avons décrit les spécificités fonctionnelles, socio-économiques et administratives des villes petites et moyennes ainsi que leur contribution à la croissance et au développement régional.

CHAPITRES 4-7 : Vérification empirique de la théorie des villes en réseau

Durant les vingt dernières années la concurrence internationale et le progrès technologique se sont intensifiés et entraînent de la part des sociétés de « nouvelles attentes et normes, des nouvelles façons d'organiser et de gouverner » (Nelson, 2007, p. 319). L'objectif de notre recherche est de tester sur l'ensemble du système urbain de la région Centre-Val de Loire en France les trois postulats de base de la théorie des villes en réseau que sont la polycentralité, les réseaux économiques et la gouvernance intercommunale (Image S2).

Image S2 : Le cadre théorique de la recherche



La première hypothèse de notre recherche est basée sur l'affirmation que les VPM représentent l'épine dorsale des systèmes urbains régionaux. En effet les VPM, de part leurs tailles, ne peuvent porter la même diversité de fonctions que les grandes villes. Aussi compensent-elles leurs manques par l'échange entre villes d'un système régional en utilisant les réseaux verticaux et horizontaux. En résumé, c'est grâce aux externalités du réseau que les VPM atteignent des économies d'échelle et d'envergure qui leur permettent de devenir aussi attrayantes, dynamiques et performantes que les grandes villes.

La deuxième hypothèse met en avant que la taille des villes est un facteur moins important que la division spatiale des fonctions urbaines pour la croissance du système urbain régional. Par conséquent, la taille des villes qui composent un système urbain est moins importante que la taille, le type et la structure du réseau lui même.

La troisième hypothèse est l'affirmation que les VPM par la coopération intercommunale ont la capacité de surmonter les effets négatifs des limites administratives, de maximiser les synergies potentielles avec d'autres villes, de promouvoir des solutions politiques communes et une intégration harmonieuse et équilibrée dans leur environnement.

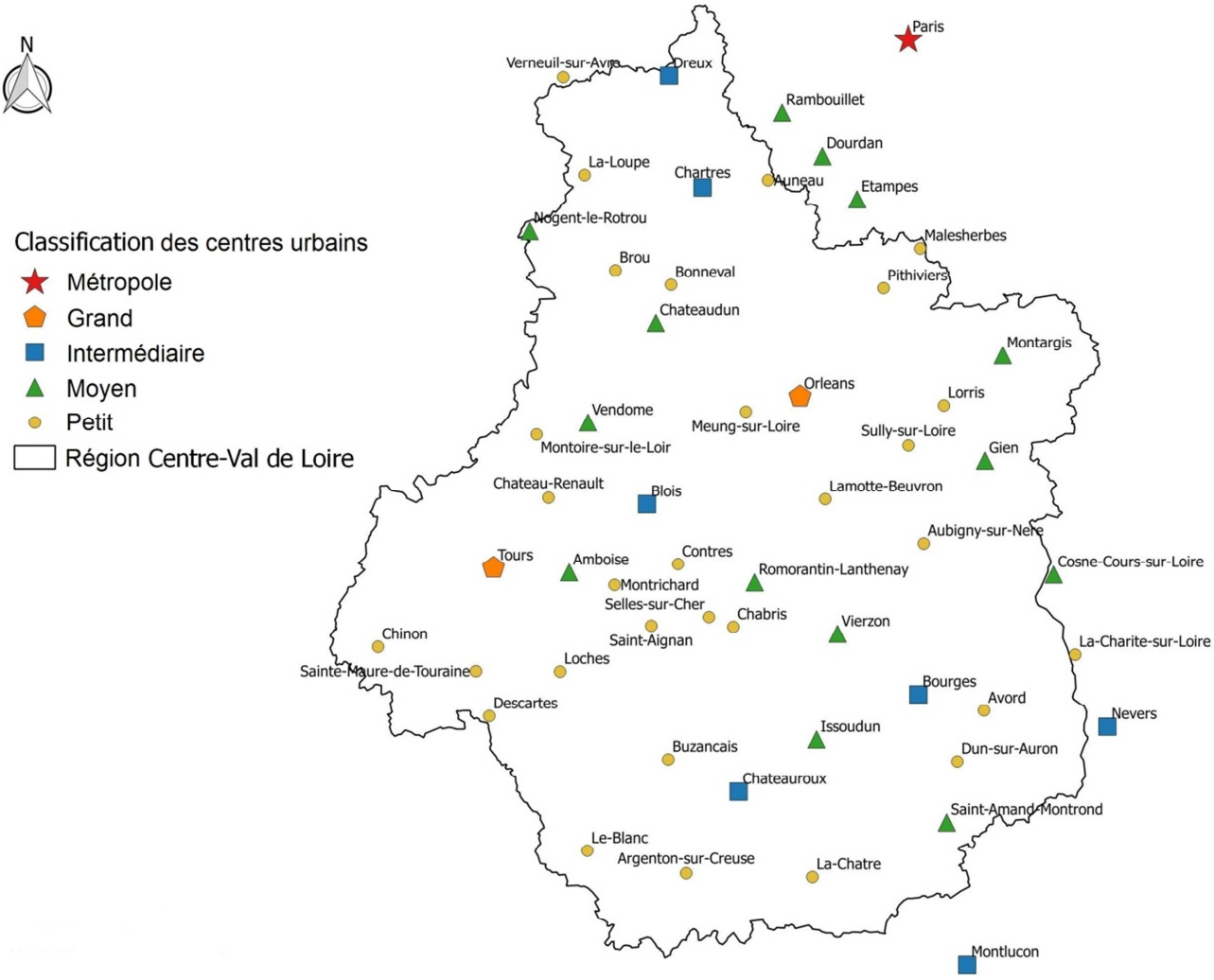
Résultats de l'analyse fonctionnelle

Grâce à une analyse innovante et étendue à l'ensemble du système urbain régional, nous avons pu confirmer la prévalence des VPM dans la région Centre-Val de Loire sur le dit système (Image S3). Plus précisément, l'analyse fonctionnelle a identifié 54 centres urbains de taille différente (voir méthodologie page 362-363):

- Une métropole (Paris) de plus de 2 millions d'habitants ;
- Deux grands centres (Orléans et Tours) de plus de 100 000 habitants ;

- Sept centres intermédiaires (Bourges, Blois, Chartres, Châteauroux, Dreux, Montluçon et Nevers) de 30 000 à 100 000 habitants ;
- 13 centres de taille moyenne de 10 000 à 30 000 habitants ;
- 31 centres de petites tailles de 2 000 et 10 000 habitants.

Image S3 : Les centres urbains identifiés dans la région Centre-Val de Loire



Source: auteur, 2015

Parmi les centres urbains du système urbain régional étudié, neuf centres sont situés en dehors de la région administrative « Centre-Val de Loire »:

- Paris, Rambouillet, Dourdan et Etampes sont les centres urbains situés dans la région Ile-de-France ;
- Verneuil-sur-Avre est située en Normandie ;
- Nevers, La Charité-sur-Loire et Cosne-Cours-sur-Loire sont les centres urbains de la région (périmètre 2015) Bourgogne-Franche-Comté ;
- Montluçon est situé dans la région Auvergne-Rhône-Alpes (périmètre 2015).

Le fait que certains centres urbains du système régional soient situés en dehors des limites administratives de la région « Centre-Val de Loire » confirme l'argument de la théorie des villes en réseau selon lequel les interactions entre les espaces transcendent les limites administratives locales.

De plus, l'amélioration permanente de l'accessibilité rapproche toujours plus les lieux les uns des autres. Les personnes, les informations, les idées et les marchandises parcourent quotidiennement des distances plus grandes pour atteindre leur destination finale. En effet, les 9 centres situés hors de la région d'étude jouent évidemment un rôle structurel dans la dynamique socio-économique de la région Centre-Val de Loire. Leurs importances pour le développement régional devraient être sérieusement prise en considération par l'autorité régionale et les inclure dans la planification stratégique régionale.

Nous avons également confirmé la contribution importante des VPM aux fonctions et services du territoire régional. Les VPM constituent l'élément principal de la polycentralité régionale car elles entretiennent le plus grand nombre d'arrangements territoriaux au sein du système régional (voir tableau p. 362-363). Les VPM sont les principaux émetteurs et les principaux récepteurs de flux de populations au sein du système régional.

Nous avons recensé les VPM ayant développé des dynamiques d'agglomération (en anglais « agglomerated relationships ») c'est-à-dire celles qui attirent les navetteurs de leurs régions fonctionnelles mais aussi les navetteurs de régions fonctionnelles plus éloignées (Image S4)[2].

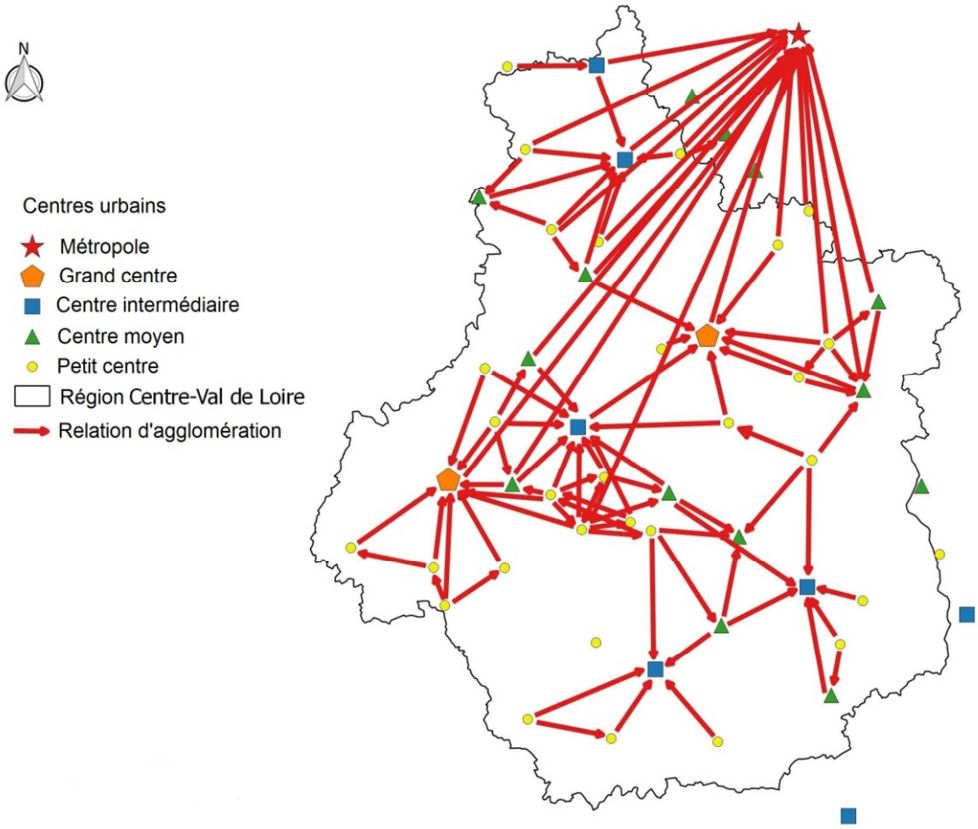
En ce qui concerne les dynamiques de réseau (en anglais « networked relationships »), notre analyse a confirmé que ce type d'arrangements territoriaux est plutôt une caractéristique des VPM que des grandes villes (Image S5)[3]. Notre étude des centres urbains en réseau indique que les VPM partagent leurs main-d'œuvre ce qui participe à créer un marché du travail en équilibre.

On constate, que les dynamiques de réseau sont beaucoup moins nombreuses dans le système régional que les dynamiques d'agglomération.

Image S4 : Les arrangements territoriaux entre les centres urbains agglomérés

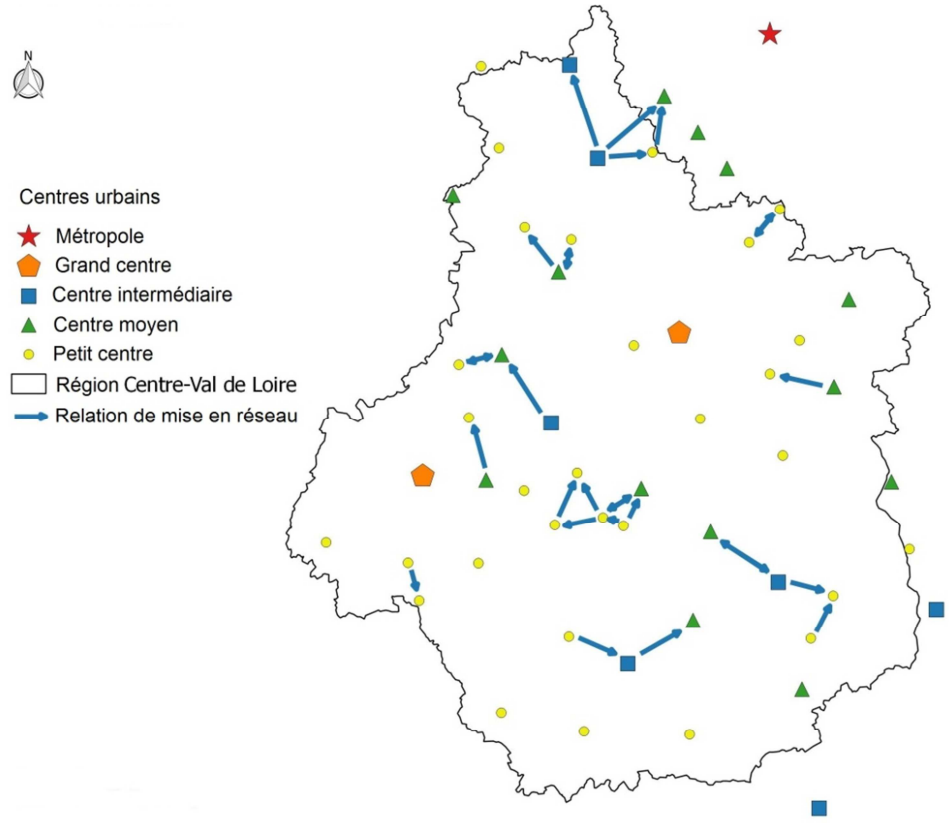
[2] Les communes entretenant des relations d'agglomération sont celles dont le flux sortant de navetteurs représente une part importante de la population active, mais où ces mêmes navetteurs n'occupent pas une part importante de l'emploi de la commune de « destination ».

[3] Les communes urbaines entretenant des relations de réseau (en anglais « networked ») sont définis comme celles dont le flux sortant de navetteurs vers une autre commune à un impact à la fois sur le marché du travail de la commune de départ et de destination.



Source : auteur, 2015

Image S5 : Les arrangements territoriaux entre les centres urbains en réseau (en anglais « networked »)



Source: auteur, 2015

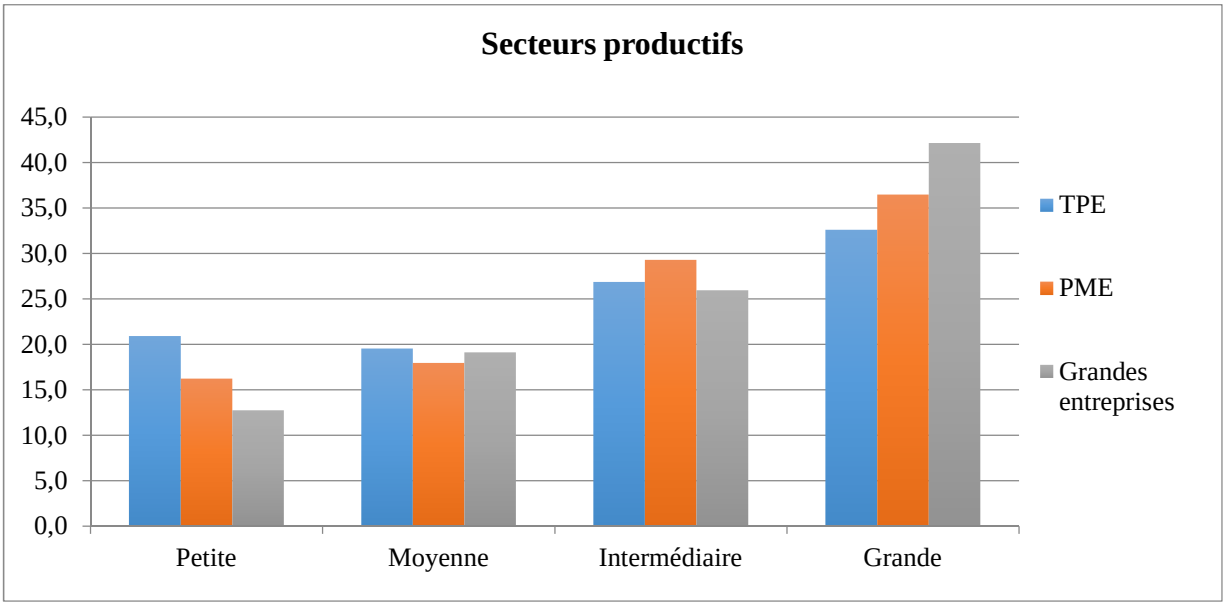
Cette analyse fonctionnelle, montre que le caractère de centralité d'une ville n'est pas uniquement dû à sa taille. Notre recherche démontre que l'aire d'influence des VPM rayonne en général sur les villes et les villages d'ordre inférieur. Pourtant, certaines VPM telles que Buzançais, Saint Aignan, Selles-sur-Cher, Vendôme, Vierzon et Issoudun, rayonnent sur des villes d'ordre supérieur grâce à leur offre en fonctions supérieures. Ceci justifie la thèse de la théorie des villes en réseau niant l'existence d'une unique hiérarchie verticale des systèmes urbains. En conclusion, ces éléments confirment que les VPM jouent un rôle de centralité dans leur région fonctionnelle à la façon des grandes villes.

Résultats de l'analyse socioéconomique

A l'échelle micro, c'est-à-dire celle des entreprises, notre analyse montre que l'économie locale des VPM est caractérisée par une forte densité de micro-entreprises et de PME. Nous avons constaté que les entreprises du secteur résidentiel s'installent plus volontiers dans les VPM que dans les villes intermédiaires ou les grandes villes. En revanche, les entreprises du secteur productif préfèrent s'installer dans des villes intermédiaires ou des grandes villes (Graphique S1 et Graphique S2).

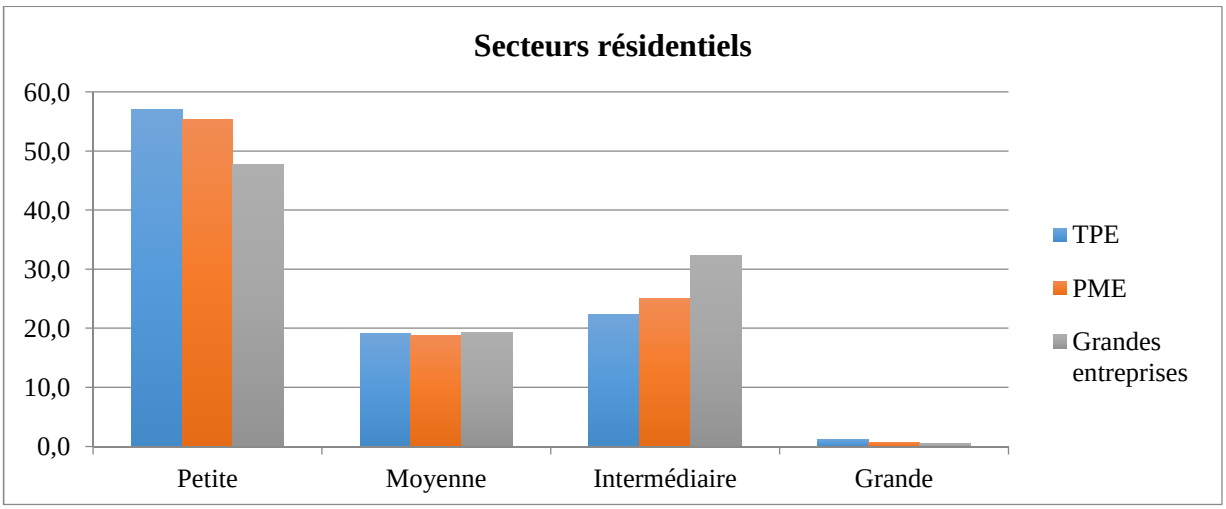
D'ailleurs, notre recherche montre que les VPM présentent très rarement un oligopole (quelques grandes entreprises dominant un secteur) ou un monopole (une grande entreprise dominant l'ensemble d'un secteur) contrairement aux grandes villes. En conséquence, les VPM ont une capacité plus faible pour atteindre des économies d'échelle et d'envergure. En revanche, le marché des VPM est plus ouvert à l'installation de nouvelles entreprises. En effet, l'analyse socio-économique montre que les VPM sont aussi attrayantes et dynamiques que les grandes villes, mais pour des secteurs économiques différents (plus résidentiels que productifs) et à des échelles différentes (plus de PME que de grandes entreprises).

Graphique S1 : L'installation des entreprises de l'économie productive en 2012 (%)



Source : auteur, 2016

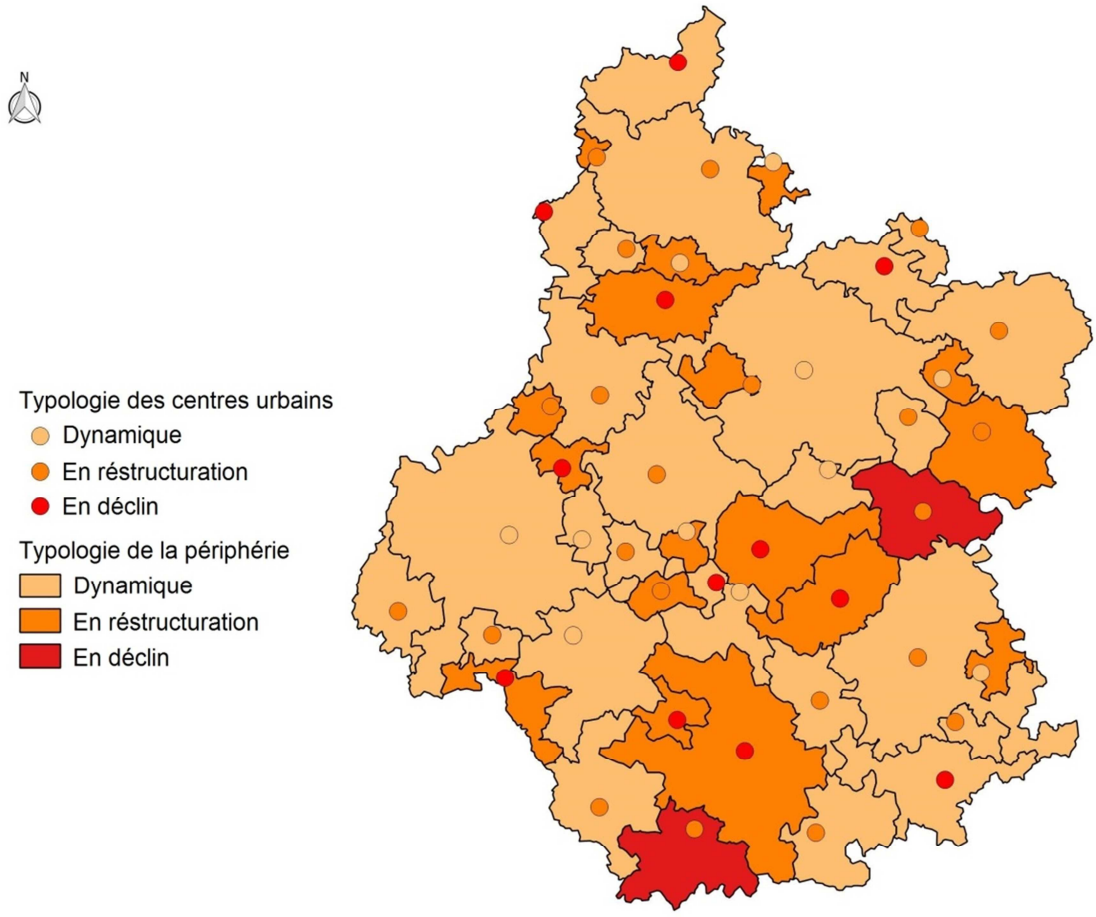
Graphique S2 : L'installation des entreprises de l'économie résidentielle en 2012 (%)



Source : auteur, 2016

A l'échelle méso, c'est-à-dire celle des centres urbains et des périphéries, nous avons constaté que les centre urbains parmi les VPM ont connu une forte baisse de population et d'emploi. Cette tendance s'explique par les fortes migrations de population vers la périphérie au cours des quinze dernières années. Cependant, nous avons observé des différences importantes entre les petites villes et les villes moyennes (Image S6).

Image S6 : La performance économique des centres urbains et de leurs arrière-pays



Source : auteur, 2016

Dans la grande majorité des cas, la périphérie des petites villes est rurale et ne présente pas les conditions minimales préalables au développement de nouvelles activités économiques. En conséquence, les petites villes perdent de la population au profit de leurs périphéries rurales, mais voient de nouvelles activités s'installer sur leurs territoires. En ce qui concerne la périphérie des villes moyennes, on note une urbanisation et une offre en commodités plus forte que dans la périphérie des petites villes. En conséquence, les villes moyennes perdent à la fois de la population et des emplois au profit de leur périphérie.

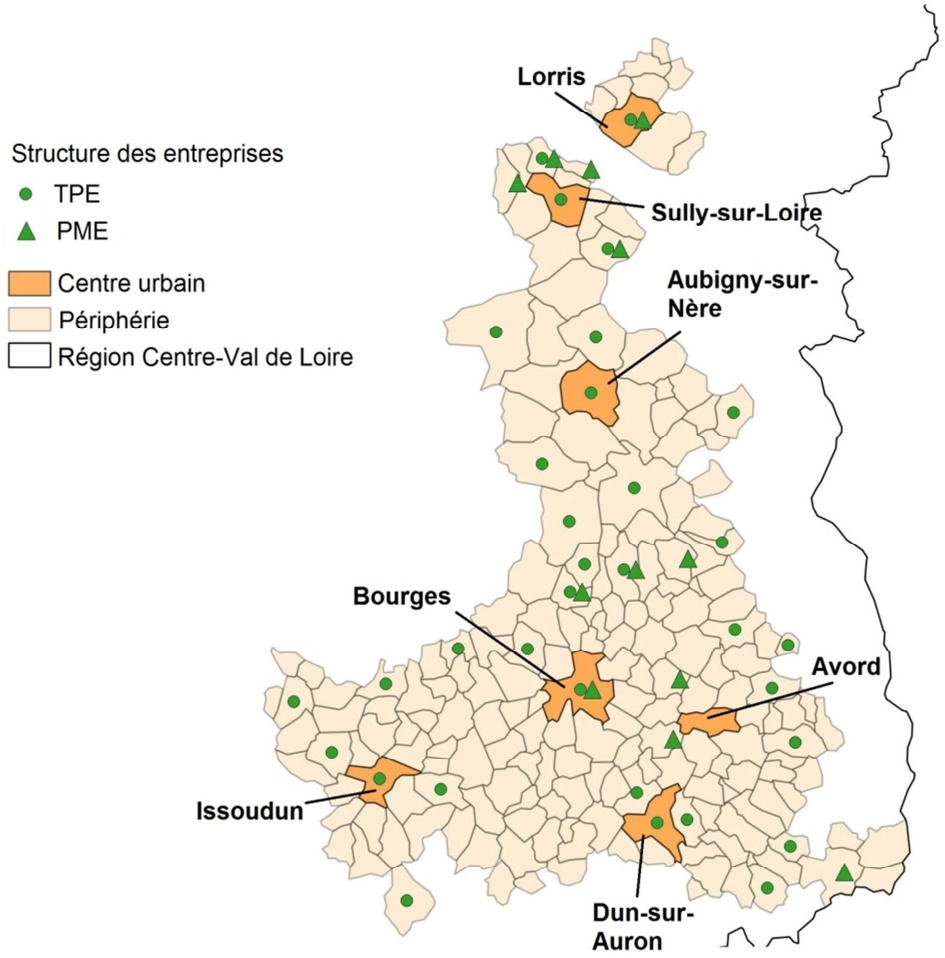
En ce qui concerne la spécialisation sectorielle de l'emploi, notre recherche montre des situations variées entre les VPM de la région Centre-Val de Loire.

La moitié des villes moyennes se spécialise dans un nombre restreint de secteurs industriels, l'autre moitié possède un tissu productif diversifié et réparti ainsi ses emplois sur des secteurs industriels plus nombreux. En revanche, leurs arrière-pays ont un profil mixte, c'est-à-dire partagent leurs activités entre le productif et le résidentiel.

Les petites villes se spécialisent en majorité dans un ou deux secteurs productifs. Tandis que leurs arrière-pays est productif et spécialisés dans quelques secteurs industriels. Cette observation montre que même parmi les VPM, il existe des différences importantes de profil économique.

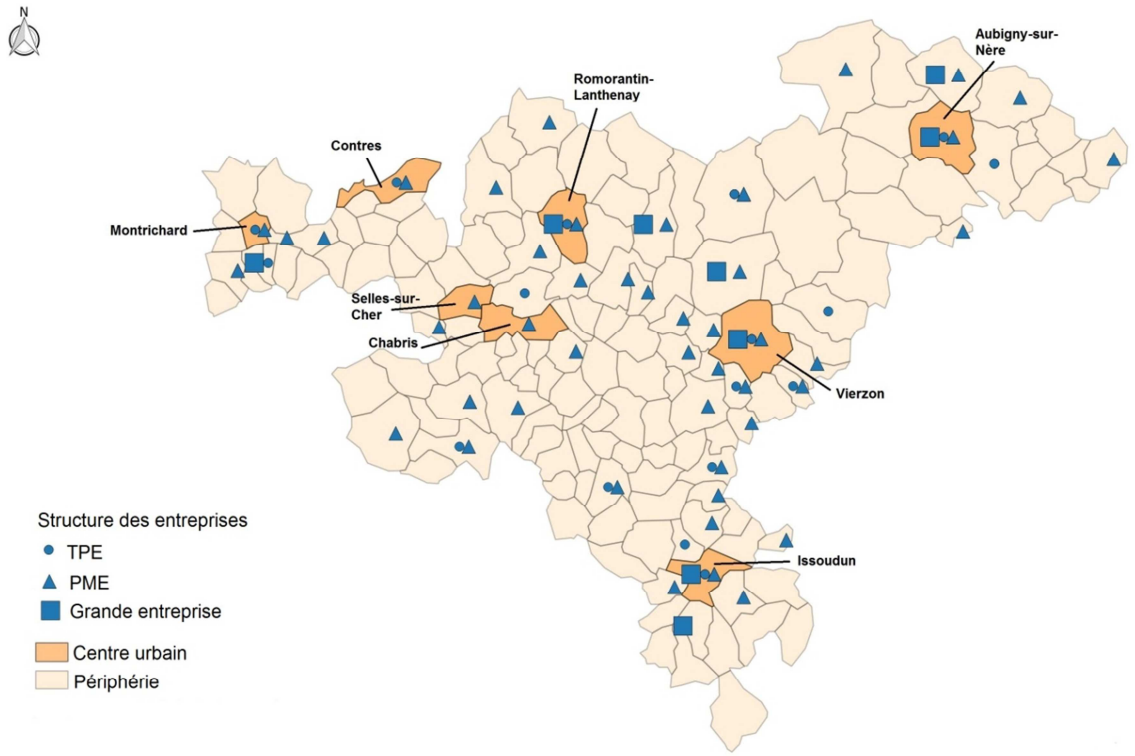
A l'échelle macro, nous avons identifié cinq clusters sectoriels où chacun possède des caractéristiques socio-économiques uniques (Image S7-S11).

Image S7 : Le cluster agricole



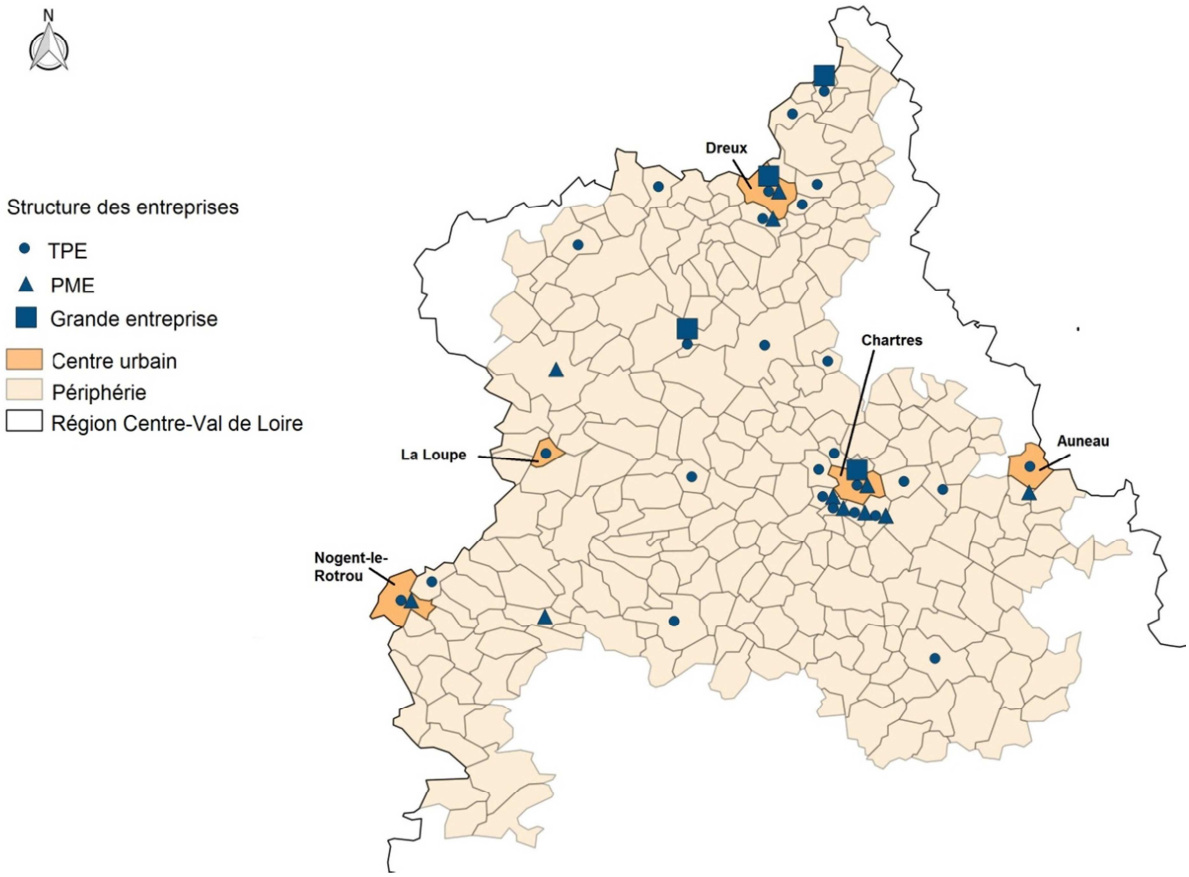
Source : auteur, 2016

Image S8 : Le cluster industriel



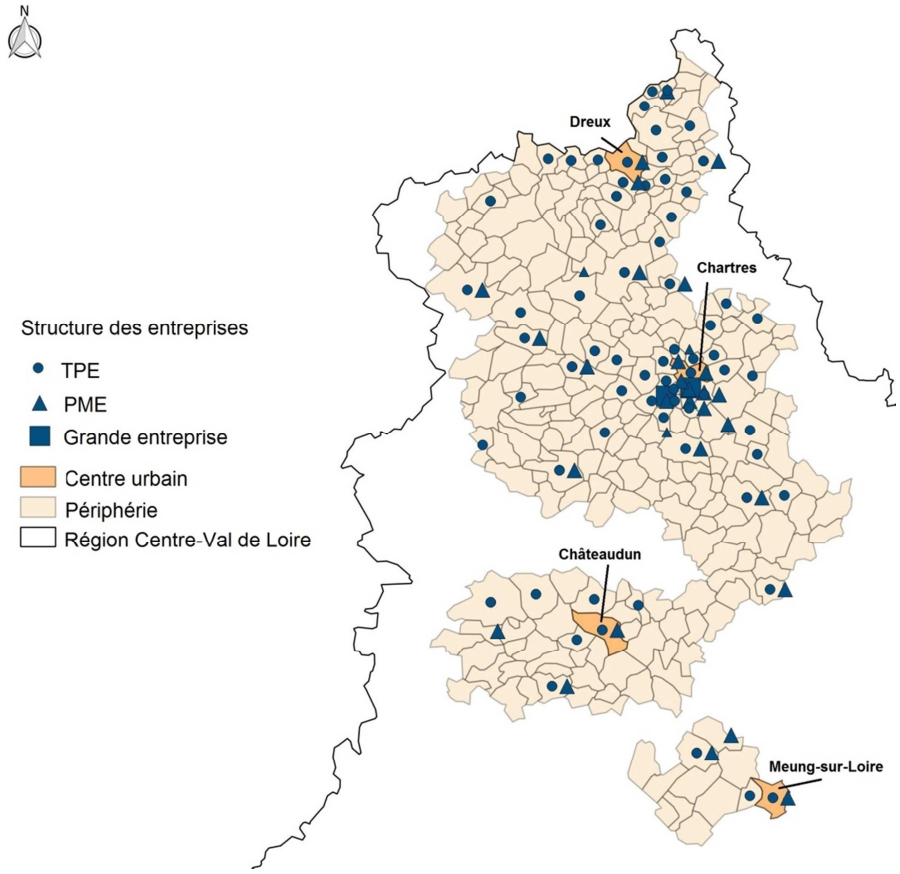
Source : auteur, 2016

Image S9 : Le cluster productif supérieur (TIC et R&D)



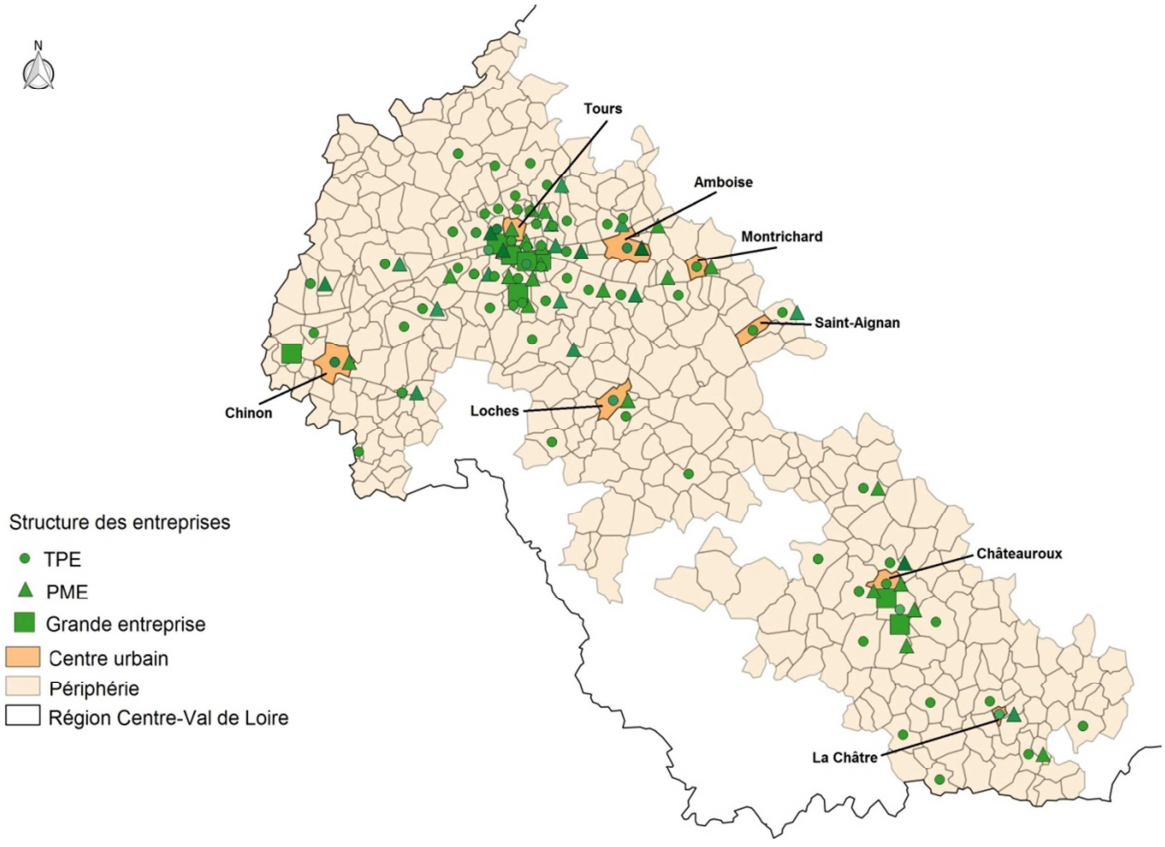
Source : auteur, 2016

Image S10 : Le cluster productif inférieur (transport, logistique, construction)



Source : auteur, 2016

Image S11 : Le cluster résidentiel (services aux particuliers)



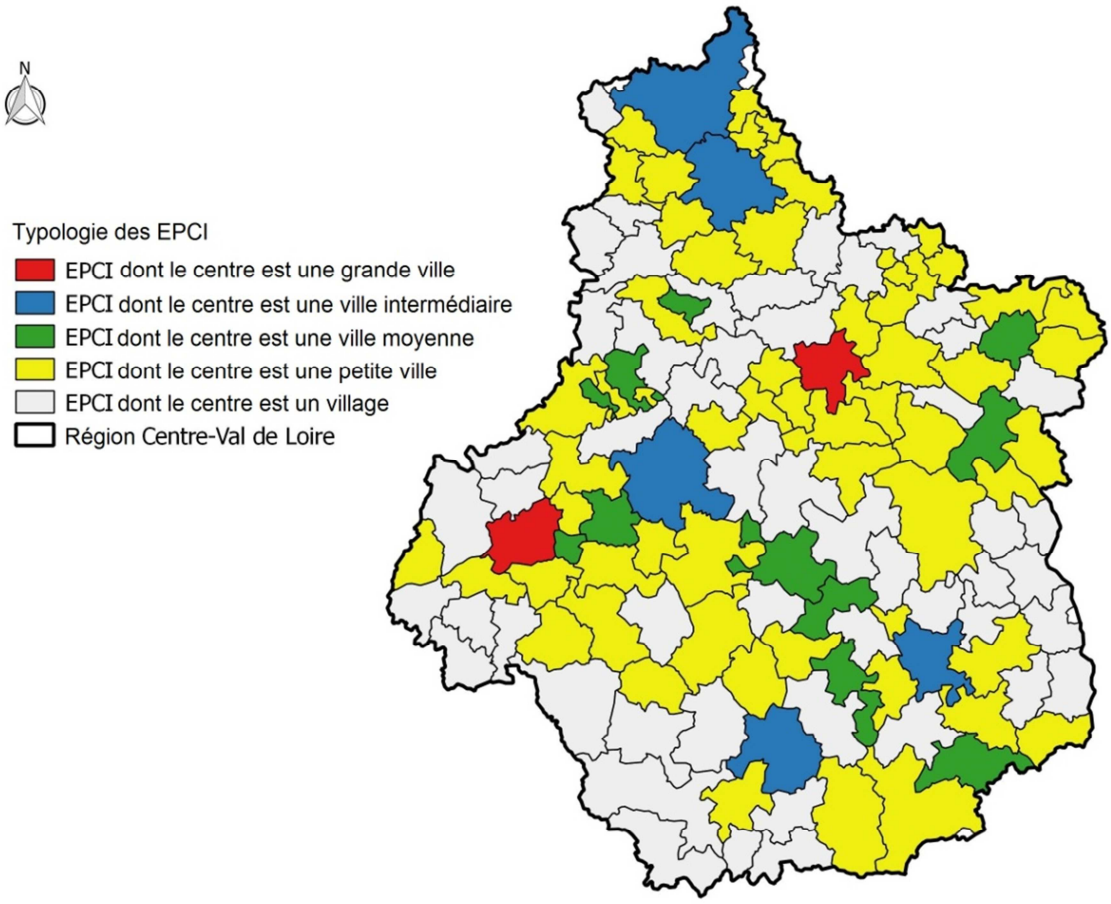
Source : auteur, 2016

Notre analyse des clusters est basée sur l'analyse des dynamiques d'agglomération, de co-agglomération, la structure des entreprises et la synergie entre les activités économiques. Nous avons remarqué que les clusters sectoriels de la région Centre-Val de Loire était aussi bien composés de grandes villes que de VPM. Les clusters connaissent de synergie exclusive qui n'existe pas à l'échelle de la région. En effet, notre recherche confirme l'existence des effets de synergie entre les villes membres d'un même cluster, ce qui est un des principaux arguments de la théorie des villes en réseau.

Résultats de l'analyse de la gouvernance intercommunale

Notre analyse de la gouvernance intercommunale montre que les VPM sont très majoritairement les sièges des établissements de coopérations intercommunales (EPCI) dans la région Centre-Val de Loire (Image S12). Dans ce contexte, les VPM montrent un engagement dans le développement inter-territorial permettant de surmonter les limites administratives traditionnelles. Cependant, notre hypothèse selon laquelle les VPM assurent un développement équilibré de toutes les communes membres de son EPCI n'a pas été confirmée.

Image S12 : Les EPCI de la région Centre-Val de Loire



Source : auteur, 2016

Du point de vue financier, nous avons remarqué que les EPCI dont le centre urbain est une ville petite ont plus de difficultés financières que les EPCI dont le centre urbain est une ville moyenne. Cependant, ces deux types d'EPCI ont en commun une allocation mal équilibrée des investissements. En d'autres

termes, les EPCI des VPM ont tendance à concentrer ses investissements dans un nombre réduit de communes ce qui peut susciter une concurrence et des conflits intercommunaux.

En effet, notre hypothèse que la gouvernance intercommunale ait pour le but de maximiser les synergies, l'intégration harmonieuse et le développement local n'a pu être confirmée sur le territoire de la région Centre-Val de Loire. Ceci est probablement du au fait que la coopération intercommunale en France est imposée par l'Etat. Par conséquent, les périmètres des EPCI ne sont pas fonctionnels, mais politiques. Dans ce contexte, le réseau intercommunal fonctionnel (la région fonctionnelle) et l'EPCI (politique) n'ont pas le même périmètre. Dans le cas de la région Centre-Val de Loire, les EPCI des VPM sont plus petits que leurs régions fonctionnelles ce qui effectivement limite le potentiel réel pour la synergie et la complémentarité locale. Comme nous l'avons montré dans notre recherche, les synergies et les complémentarités économiques intercommunales existent, mais cette dynamique se crée entre les communes qui aujourd'hui appartiennent à des EPCI différents.

Conclusion générale

Notre époque est caractérisée par une recherche de l'augmentation de la production et de la consommation. Cette dynamique néolibérale entraine des conséquences majeures sur les territoires du monde entier, surtout sur les villes de taille modeste. Pour cette raison, nous avons cherché un « modus operandi » alternatif déjà évoqué par des géographes, sociologues et économistes éminents tels que Manuel Castells, Roberto Camagni, Georg Simmel, Jan van Dijk et d'autres. La theorie des villes en réseau nous a permis de créer une méthodologie innovante pour une analyse à la fois multi-scalaire et interdisciplinaire des systèmes régionaux. Comparée aux théories traditionnelles, la théorie des villes en réseau met en limière qu'avec l'évolution du contexte socio-spatial, la taille des villes est moins pertinente que la taille, le type et la structure du réseau dans l'analyse des systèmes urbains. Cette théorie donne également plus d'importance à une analyse de la spécialisation économique, à la présence de fonctions supérieures dans les centres d'ordre inférieur et aux échanges horizontaux entre les grandes villes et les VPM. La théorie des villes en réseau cherche aussi l'existence de la polycentralité dans le système urbain qui réside dans la répartition des fonctions dans l'espace. Dans son ensemble, la contribution de la théorie des villes en réseau à la science régionale est de compléter les théories socio-économiques traditionnelles en ajoutant les effets d'externalités de réseaux comme un élément nécessaire à l'analyse spatiale.

Le concept de « société en réseau » conçus par Manuel Castells et la théorie des villes en réseau introduite par Roberto Camagni dans les années 1980, ont incité un nombre croissant de scientifiques à réfléchir aux conséquences du changement technologique sur la manière de produire, consommer et communiquer dans notre société. Le réseau est devenu le « mot à la mode » et reconnu comme le facteur de succès pour les temps à venir. Néanmoins, l'apparition de la nouvelle géographie économique de Krugman dans les années 1990 a attiré l'attention de la communauté scientifique vers l'analyse spatiale des grandes agglomérations. Depuis les années 1990, de nombreuses études appliquent la méthodologie de Krugman dans l'analyse des grandes métropoles à travers le monde alors que la théorie des villes en réseau est mise de côté.

Pourtant, dans notre recherche nous avons opté pour la théorie des villes en réseaux qui met en avant que la connectivité et l'accès aux réseaux, les clés pour assurer la productivité, la compétitivité, l'innovation et la créativité d'aujourd'hui et demain (Castells, 2004). Au regard de la collaboration croissante entre les acteurs et les structures au niveau global, on constate l'émergence d'une économie de plus en plus connectée où le réseautage devient la caractéristique principale des organisations sociales et économiques (Deman, 2008). Au fur et mesure que les acteurs du monde tendent à se connecter et que l'innovation technologique progresse, le réseautage assurera non seulement des avantages économiques mais aussi de la valeur ajoutée, de l'innovation et du partage de connaissance (Choi et al., 2013).

La théorie des villes en réseau appliquée à une analyse empirique du développement régional exige l'adoption d'une approche interdisciplinaire. En effet, nous avons étudié une sélection d'ouvrages émanant de plusieurs disciplines scientifiques et notamment la sociologie économique, la nouvelle sociologie institutionnelle, l'économie géographique, ainsi que les théories économiques classiques et néoclassiques de la science régionale. Notre approche représente donc une tentative d'apporter une dimension supplémentaire « sociale » aux explications économiques de la croissance et du développement local. D'ailleurs, la notion de « territoire » en sociologie économique ne signifie pas seulement un « espace » comme c'est le cas dans les théories économiques néoclassiques, mais aussi un contexte social qui intervient dans les relations entre acteurs (la création du réseau) et par

conséquent dans le développement local (Granovetter, 1974 ; Saxenian, 1990 ; Benko et Lipietz, 2000 ; Grossetti, 2004).

Pourtant, malgré une volonté générale des scientifiques de promouvoir une approche interdisciplinaire et multi-scalaire dans les études de phénomènes économiques et sociaux, il existe un manque de recherches empiriques qui réellement poursuivent cette logique. Au cours des dernières décennies, les politiques spatiales européennes et les études scientifiques ont eu tendance à se concentrer sur quelques zones métropolitaines considérées comme les seuls moteurs de croissance économique et de l'innovation. Cela nous apparaît comme paradoxal étant donné que les villes petites et moyennes sont en Europe plus nombreuses et rassemble plus de population que les grandes villes. Par conséquent, pour une meilleure compréhension du développement en Europe, il nous paraît nécessaire de considérer l'ensemble du système urbain, la connectivité, la polycentralité, la polarisation et le rôle des petites communes dans la croissance et le développement régional et national.

Dans notre recherche, nous avons pu confirmer la pertinence de la théorie des villes en réseau pour une analyse intégrée des dynamiques territoriales contemporaines. Les trois concepts fondamentaux de la théorie des villes en réseau que sont la polycentralité, les réseaux économiques et la gouvernance intercommunale ont été mis à l'épreuve dans le système urbain régional du Centre-Val de Loire (voir les tableaux S5-S7).

Tableau S5 : Les éléments clés de la première hypothèse

HYPOTHESE 1 : Les VPM représentent l'épine dorsale des systèmes urbains régionaux. En effet les VPM, de part leurs tailles, ne peuvent porter la même diversité de fonctions que les grandes villes. Aussi compensent-elles leurs manques par l'échange entre villes d'un système régional en utilisant les réseaux verticaux et horizontaux.		
CONCEPT THEORIQUE	**VARIABLES CLES**	**RESULTATS DE LA RECHERCHE**
POLYCENTRICITE	Rayonnement spatial	1. Confirmation de l'existence des centres urbains de taille petite et moyenne (PM) qui sont des éléments structurels du système urbain régional. 2. Confirmation de l'existence des centres urbains PM qui portent la fonction de centralité pour des zones plus vastes.
	Réseaux fonctionnels	3. Confirmation que les centres PM maintiennent le plus grand nombre de relations territoriales avec d'autres centres du système urbain. Ces centres sont ainsi les principaux récepteurs et émetteurs de flux. 4. Confirmation que les centres PM entretiennent des arrangements territoriaux (de l'agglomération et de la mise en réseau) avec d'autres centres de la taille différente.
	Accessibilité & Connectivité	5. Rejet de l'égalité d'accès aux services dans les centres PM autant que dans les grandes villes. Les centres PM ne disposent pas d'autant de services publics que les grands centres. 6. Confirmation que les centres PM sont autant reliés par des routes et des chemins de fer que les grands centres.

Tableau S6 : Les éléments clés de la deuxième hypothèse

HYPOTHESE 2 :

La taille des villes est un facteur moins important que la division spatiale des fonctions urbaines pour la croissance du système urbain régional.

CONCEPT THEORIQUE	VARIABLES CLES	RESULTATS DE LA RECHERCHE
RESEAUX ECONOMIQUES	Economies d'échelle et d'envergure	1. Confirmation que les économies d'échelle et d'envergure dans les secteurs résidentiels dans les VPM sont faites par un réseau dense de PME lorsque dans les grandes villes elles sont faites par un oligopole ou un monopole de grandes entreprises. 2. Confirmation que les économies d'échelle et d'envergure dans les secteurs productifs dans les VPM sont faites par un réseau dense de PME lorsque dans les grandes villes elles sont faites par un oligopole ou un monopole de grandes entreprises.
	Economies d'agglomération et de co-agglomération	3. Confirmation que les VPM jouent un rôle tout aussi important dans les économies d'agglomération et de co-agglomération que les grandes villes. 4. Confirmation que les clusters sectoriels sont composés de VPM et de grandes villes. 5. Confirmation que les VPM fournissent également des services de rang supérieur.
	Effets de synergie	6. Confirmation que les VPM et les grandes villes appartenant au même cluster sectoriel partagent une synergie entre leurs activités économiques. Une telle synergie dépend de la nature du cluster (du secteur). 7. Les VPM participent à la création des complémentarités entre les activités économiques d'un cluster.

Tableau S7 : Les éléments clés de la troisième hypothèse

HYPOTHESE 3 :

Les VPM par la coopération intercommunale ont la capacité de surmonter les effets négatifs des limites administratives, de maximiser les synergies potentielles avec d'autres villes, de promouvoir des solutions politiques communes

CONCEPT THEORIQUE	VARIABLES CLES	RESULTATS DE LA RECHERCHE
GOUVERNANCE INTERCOMMUNALE	Efficacité financière	Rejet partiel de l'hypothèse que les VPM réussissent à gérer financièrement leurs intercommunalités : Les petites villes sont généralement inefficaces sur le plan financier. En revanche, il est prouvé que les villes moyennes savent gérer la dette.

	Investissement décentralisé	Rejet de l'hypothèse que les VPM réussissent à promouvoir un développement équilibré dans leurs intercommunalités : Les EPCI des VPM centralisent généralement l'investissement sur un nombre restreint de municipalités membres.
	Inclusion et diversité politique	3. Rejet partiel de l'hypothèse selon laquelle les VPM sont politiquement inclusives dans le processus de prise de décision au sein des intercommunalités : Les petites villes se révèlent généralement politiquement exclusives, contrairement aux villes moyennes qui sont politiquement inclusives. 4. Confirmation que les VPM sont politiquement diversifiées en ce sens qu'il existe une variété de partis politiques au sein des intercommunalités.

Le cas d'étude de notre recherche est la région Centre-Val de Loire dont le système urbain est composé des deux grandes villes (Orléans et Tours) ainsi que de nombreuses VPM. Notre analyse a démontré que les VPM constituent un élément structurel du polycentrisme régional et des flux de personnes et de biens. En effet, pour de futures recherches, il serait intéressant de tester la pertinence de notre méthodologie sur de différents types de systèmes régionaux notamment sur un système qui contiendrait une métropole et sur un système qui ne contiendrait aucune grande ville. La comparaison des résultats de ces analyses contribuerait non seulement à une reconnaissance de la théorie des villes en réseau, mais également à une meilleure compréhension des VPM dans différents contextes régionaux.

D'ailleurs, pour développer la théorie des villes en réseau, il nous paraît nécessaire d'élaborer un cadre théorique qui distinguerait encore plus la théorie des villes en réseau des autres théories de la science régionale. Nous avons en effet trouvé qu'il était particulièrement difficile de conceptualiser les réseaux en fonction des typologies, des échelles et des structures de connexion ceci par manque d'études théoriques. Les chercheurs ayant eu des difficultés à analyser le concept de réseaux multi-scalaires (en anglais « multi-scalarity ») durant les années 1980, ont aujourd'hui à leurs dispositions de nombreux outils d'analyse qui leur permettraient d'être plus efficaces. Ces outils émergent grâce à l'avancement technologique dans le traitement de la donnée (open sources, automatisation, « big data »).

Il nous paraît également nécessaire d'élaborer une série d'études empiriques qui engloberaient une variété d'acteurs et d'échelles. Les logiciels de traitement de données étant devenus plus puissants ils nous permettent aujourd'hui d'augmenter le nombre de variables « étudiables » afin d'améliorer la compréhension des dynamiques dans un monde globalisé.

Notre recherche est le résultat d'un intérêt particulier pour les VPM et de leurs contributions au développement régional. Nous avons présenté la façon dont les VPM ont été reconnues au niveau européen pour réaliser développement équilibré. L'inexistence des politiques européennes consacrées aux VPM n'est pas nécessairement un inconvénient. Comme nous l'avons montré dans la recherche, le développement des VPM dépend de l'adoption d'une approche territoriale intégrée qui ne se concentre pas uniquement sur les VPM. Au contraire, l'approche territoriale intégrée devrait être structurée autour des arrangements territoriaux des acteurs de toutes les villes et des arrière-pays au sein d'un système régional. Enfin, l'approche territoriale intégrée devrait être locale (en anglais 'place-based') et

suffisamment souple pour respecter le contexte (régional et local) et intégrer un large éventail d'acteurs locaux.

De nombreux chercheurs tels que Pecqueur (1989), Stöhr (1990), Healey (1997), Magnaghi (2003), Hamdouch (2005), Knox et Mayer (2009), Demazière et al. (2012) ont déjà souligné l'importance de la planification stratégique et de l'approche intégrée comme outils permettant aux acteurs locaux d'identifier les avantages de leur ville et de répondre aux besoins de leurs habitants. De même, l'importance de la mobilisation locale est une leçon à tirer de l'analyse des VPM. De nombreuses initiatives locales lancées dans toute l'Europe tentent de surmonter les désavantages liés à la taille. Cependant, l'échelle d'action politique est souvent inappropriée pour générer des effets de « masse critique ». En effet, notre recherche a montré que l'action politique et la planification en faveur des régions fonctionnelles pourraient générer les résultats souhaités. Les régions fonctionnelles représentent une échelle où naissent les synergies locales, mais qui pour le moment n'est ni accompagnée ni soutenue par la politique intercommunale.

Dans l'ensemble, les villes petites et moyennes disposent de nombreuses voies de développement possibles, profondément enracinées et dépendantes de l'environnement et du réseau d'acteurs locaux, et qui par conséquent ne sont pas nécessairement reproductibles. Les décideurs politiques doivent agir de manière stratégique pour planifier le développement local en prenant sérieusement en compte les échelles supérieures dans lequel s'inscrit leur territoire. De même, les décideurs politiques doivent être en mesure d'imaginer des formes novatrices d'organisations, formelles et informelles, qui transcenderont les limites administratives historiques et offrirons au territoire une croissance équilibrée sur le long terme.

GENERAL INTRODUCTION

In a situation where the multifaceted economic, demographic and technological changes continuously challenge territories, the urge to become competitive has created new forms of spatial

division (Sassen, 2001). The differences between attractive and unattractive territories are greater than ever before (Knox and Mayer, 2009). At the same time territories are obliged to constantly adjust their internal structure in response to even faster-changing external conditions (Klaesson et al., 2011). Yet, the exclusion accompanied by financial turbulences, unemployment, poverty and degradation of quality of life have weakened many communities that could not keep pace. It is evident that the new socio-economic challenges induced by the globalization cannot be managed adequately with a neo-liberal perspective and traditional land-use planning (Hamdouch et al., 2017). However, despite a general recognition of the necessity for a structural change of planning models, the recent decades have seen the convergence of growth strategies towards a single model of efficiency and economic performance that are blind to other aspects of development such as the social and the environmental ones (Vachon and Coallier, 1993).

Economic growth based on increases in production and consumption is considered as the main goal and the main *modus operandi* of our society which has left many consequences on communities across the world. Cities and city-regions are chosen as nodal points for global growth processes which provide opportunities for complex economic activities. They are also seen as the type of spatial organization the most capable to confront global economic changes. As they are far less numerous than other smaller settlements, the investment and policy interventions seem to remain focused on a very few areas across the world while its rest remains in the dark.

Is the concentration of human, financial and technological resources on a few areas and poles of growth the only possible way of development? Is the exclusion an inevitable consequence for external peripheral and degraded areas that could not cope with challenges?

Surprisingly, far from global processes and investors' spothlight, many towns demonstrate successful local economy, creative spatial planning, highly participatory democracy and numerous social innovations in different fields without having the need to grow in size and to copy the development models of larger cities. As a consequence, for some scholars and practitioners, towns represent an alternative to neo-liberal development and planning (Knox and Mayer, 2009). According to Hamdouch et al. (2017), "successful" towns are able to think, plan and act in creative and innovative ways in the sense that they envisage, design and implement local development strategies; they are open to new ideas and approaches; they imagine ways of solving community problems; and they are inclusive and empowering.

With the aim to explore the success of towns, several scientific publications drew some common lessons by describing the variations in institutional, social, economic, and environmental factors in a series of case studies (Charbonneau, 2003; ÖIR, 2006; Knox and Mayer, 2009; Kwiatek-Soltys et al., 2012; Demazière, 2012; Servillo, 2014; Carrière et al., 2016; Hamdouch et al., 2017). The factors that are commonly noted as the preconditions to success in European towns are (i) the presence of multi-level governance which includes the effort of national, regional and local governments to develop some joint projects; (ii) the local capacity to act (local mobilisation) aiming to create relationships among local stakeholders that can bring together local knowledge and local resources; (iii) the ability of local stakeholders to engage in a wider regional dynamic and to insert themselves into the relevant regional/national strategies; (iv) cooperation with other neighbouring towns and cities built on a common territorial capital, complementarity and synergy; (v) the level of available resources that can be deployed; (vi) the existence of appropriate spatial planning approaches and policies capable to identify some relevant dynamics and relationships across different spatial scales; (vii) local leadership

either in its more collective form of well-connected mayors or in the form of one individual who is charismatic enough to drive the process; (viii) local identity that is positively associated with social cohesion and social capital; and (ix) the town's location in isolated rural areas or in contrast closer to metropolitan areas (Atkinson, 2014).

The theory that in our opinion is the most adequate to explain these so-called "factors of success" in small and medium-sized towns is the "City-network" theory. This theory has its origin in the concept of "network society" which emphasizes the importance of organizational transformations and the emergence of globally inter-dependent social structures whereas connectivity and access to networks are essential to any human activity. In that context, "the tight combination of ICT, development of human capacity to take advantage of the full potential of these technologies, and organizational restructuring based on networking becomes the key to ensuring productivity, competitiveness, innovation, creativity and ultimately power and power sharing." (Castells, 2004, p. 42).

Following the development of the "network society" concept, an increasing number of recent scientific works has adopted a network approach to reexamine the urban economies. When applied in urban and regional studies, the "City-network" theory argues that, regardless the size, cities exist through the networks that create them. In other words, the positioning of cities at global and local scales depends on their capacity to connect themselves to the existing economic, social, political and cultural networks. Furthermore, the "City-network" theory recognizes cities as functionally differentiated, but their functions are not determined by geographic constraints (transport cost and market range) unlike it was suggested by the theories of industrial districts, localized production system, cluster, etc. On the contrary, according to the "City-network" theory, the economic agents within specialised cities connect to the agents in other cities which provide complementary specialisations. Indeed, such networks of cities may develop within a limited geographic area, but they may also develop aspatially through "pipelines" between cities and cultures as it is the case of world cities and global cities. Over the last 20 years, the "City-network" theory has evolved. However, its general interpretation is that there is a system of city-nodes connected by flows of different nature. These networks of cities are characterized by hierarchical and non-hierarchical structures, cooperation among cities and advantages generated through the organization of urban structure.

The network approach is different from the traditional mainstream approaches. The latter remains focused on functions and activities of major cities due to their diversity, the size of labour market, the accessibility to high-rank services, and the dense network of transportation, communication and research, etc. However, the "City-network" theory complements the traditional approaches by exploring the effects of network externalities among connected cities. In that scope, the size of a single city or a town in a network is less relevant than the size, type and structure of the network itself. In fact, the "City-network" theory puts ahead the importance of cities' specializations in particular markets, the presence of higher order functions in towns (centres of lower order) and horizontal exchanges between cities and towns across the urban hierarchy. In addition, the "City-network" theory observes existence of polycentricity in which different urban functions are identified through inter-urban and intra-urban connections. Likewise, the centralities are created in a network of specialized and complementary poles and not necessarily in the city-centres as it was argued by the traditional approaches. Thus, a city-centre may lose its centrality and see it moved to the periphery and some remote places.

Nevertheless, there seems to be a lack of empirical research that would test some of the postulates of the "City-network" theory. For the last several decades, spatial policies and scientific studies have tended to focus more on the metropolitan areas that are considered to be the centres of economic growth and innovation. Such an exclusive approach rejects any importance of smaller settlements for the national and / or regional growth and development. This is quite paradoxical considering the fact that small and medium-sized towns are far more numerous and more populated than larger cities in Europe. How come that such a multitude of small and medium-sized urban settlements got attention from so few scholars and planners? On the territory of the European Union, Iceland, Lichtenstein, Norway and Switzerland, there are more than 8,400 small and medium-sized towns compared to only 850 large cities (Servillo, 2014). These towns house a majority of European population, they provide services and jobs and they are important part of the regional urban system. Therefore, for any understanding of development in Europe, we believe it is necessary to consider the entire urban system, its connectivity, polycentricity, polarization and the role of smaller settlements in the regional and the national growth and development.

Facing the challenge of a fiercer competition from emerging countries mostly fom Asia, the European Commission has introduced new concepts into the European policy arena over the last ten years. **The concepts of polycentricity, governance, cooperation, and cohesion became the tools for Europe to reinvent itself and to identify its new economic role in the world.** Interestingly, the European concept of polycentricity is similar to the one of the "City-network" theory. The European Commission chose to promote a balanced and multiscalar urban network in which core areas (cities) and peripheries (hinterland) benefit from a social and economic cooperation. Such an approach is considered to assure a better complementarity whereas all settlements can play a more pivotal role in the regional growth. Likewise, as relationships between core areas and peripheries are characterized by a different degree of cooperation and competition, territorial governance is promoted as an innovative solution across Europe. Firsty, territorial governance is seen as an instrument to coordinate actors and institutions in an efficient and equitable way. Second, it is also considered to facilitate the integration of territorial knowledge, dialogue, partnerships and networks in the process of policy-making. Finally, territorial governance is assumed to enable national, regional and local authorities to become more adaptive in their responses to crisis and changing international environment. Therefore, through the promotion of cooperation over competition, the strengthening of regional connectivity, territorial cohesion and fostering liveable communities, Europe is on its way to re-establish its leading position in a decade to come.

In that context, one would expect that towns, which in Europe have less than 100,000 inhabitants and are far more numerous than cities, would benefit from a common development policy. However, despite a general recognition in the European circles that towns are an important element of urban hierarchy and a vital asset to Europe, there is no specific policy for towns at the European level. When it comes to the national and regional approaches to towns, there is a variety of institutional contexts ranging from unitary to federal states, and varying degrees of regionalization and political and fiscal decentralization. To give some examples, there are some interesting approaches in France, Belgium and Spain where there are visible efforts of national and regional policies to create advantages for towns through the establishment of inter-municipal clusters and cooperation. In contrast, in countries such as Italy, there is a complete absence of national and regional approaches to towns. In the UK, there is a political recognition of importance of towns for a region, but there is also a lack of concrete instruments that represent a "British" approach to policy action. Finally, in Sweden for example, there

has been a shift in the national approach from the one that tries to "rescue" towns from the decline towards the approach that selects to act only in towns that have an endogenous potential for growth.

Despite evident differences in approaches across the European countries and an absence of intervention from the European Commission, towns across Europe seem to generally cope well with challenges (Servillo, 2014). Suprisingly, some European towns demonstrated some very positive practices and experiences. The ESPON TOWN project (Servillo, 2014) which focused on small and medium-sized towns in ten European countries, argued that towns created their development strategies depending on their regional and national context. On the one hand, towns that were located in a metropolitan region built on the advantages of proximity to a larger and diversified market. On the other hand, towns in the rural and peripheral regions seemed to have different development dynamics. Some towns developed their own strategy based on endogenous development, some of them had no "written" strategy but there was a "visible" development dynamic driven by private and civil sectors, and finally, some of them were the object of the regional and county policies and planning. Overall, the ESPON TOWN project drew some interesting conclusions related to the way some European towns actively participate in the regional growth and development. Indeed, these discoveries require further testing in order to verify the consistency of the arguments exposed by the ESPON TOWN. This research hence maintains the same focus by exploring French small and medium-sized towns within a theoretical framework of the "City-network" theory.

With the objective to explore the socio-economic development outside cities and city-region, this research will refer to the basic postulates of the "City-network" theory which underline the co-existence of vertical, horizontal and polycentric networks, polycentricity as "networked centralities" and networks of specialized and complementary poles.

Therefore, the research has three objectives:

1. **To relate the concept of polycentricity to the concept of small and medium-sized towns**. More precisely, to explore the position of small and medium-sized towns within the urban hierarchy, including their centrality, territorial arrangements with other settlements and functional areas.
2. **To relate the concept of economic network to the concept of small and medium-sized towns**. In other words, to examine the socio-economic characteristics of small and medium-sized towns including agglomeration, co-agglomeration and synergy effects as creation of economic networks at three different scales: inter-firm, centre-periphery and cluster.
3. **To relate the concept of polycentric (inter-municipal) governance to the concept of small and medium-sized towns**. More precisely, to assess the financial effectiveness, investment decentralization, political inclusion and diversity of inter-municipal cooperation units consisting of small and medium-sized towns.

The research is particularly interested in questions related to the correlations and the differences in polycentricity, economic networks and inter-municipal governance between towns and cities that belong to the same regional urban system. The research questions are compiled into the three groups as follows:

1. Group of research questions related to polycentricity:
    - Is the class of urban centres related to the size of functional area?

- Is the class of urban centres related to the number of territorial arrangements?
- Is the class of urban centres related to the type of territorial arrangements?
- What are the differences in terms of accessibility and connectivity between urban centres and other municipalities in the region?
- Which urban centres offer better access to job opportunities and to services?
- What are the differences in terms of accessibility between small, medium-sized, intermediate and large urban centres?

2. Group of research questions related to economic networks:
    - Is the class of urban centres and functional areas related to the increase or decrease of population and/or employment?
    - Is the proximity to larger urban centres related to the increase or decrease of population and/or employment in small and medium-sized urban centres?
    - Is there a relationship between the change of population, employment and/or economic specialization in one functional area and the change of population, employment and/or economic specialization of the neighbouring functional area?
    - What are the differences between the classes of functional areas in terms of their socio-economic characteristics, economic specialization and performance?
    - What are the differences of towns-peripheries and towns-centres in terms of their socio-economic characteristics?
    - Which sectors of activities reflect agglomeration, co-agglomeration and synergy effects between functional areas?

3. Group of research questions related to inter-municipal governance:
    - Is the type of inter-municipal cooperation related to the degree of financial effectiveness?
    - Is the type of inter-municipal cooperation related to the degree of investment's decentralization?
    - Is the type of inter-municipal cooperation related to the degree of political inclusion and diversity?
    - What are the differences between the types of inter-municipal cooperation in terms of governance effectiveness, investment's decentralization, political inclusion and diversity?
    - Which inter-municipal cooperation offers greater degree of financial effectiveness, investment's decentralization and political inclusion and diversity?
    - What are the models of governance in inter-municipal cooperation consisting of small and medium-sized towns?

The research will approve or reject the three working hypotheses that relate the basic concepts of the "City-network" theory (polycentricity, economic networks, and polycentric governance) to the functioning of a regional urban system. **Our first hypothesis is based on the affirmation that towns and cities are the backbone of regional urban systems. They are the carriers of functions whose lack they compensate through vertical and horizontal networks with other settlements of different ranks under the condition that their cooperation is stronger than competition. Thus, through network externalities, towns reach economies of scale and scope, and synergy effects**

which enable them to become as attractive, dynamic, and growing as cities. The "City-network" theory puts ahead economic specializations, presence of higher order functions in centres of lower order and horizontal exchanges between cities and towns across the urban hierarchy. The theory also argues that, regardless their size, towns exist through the networks that create them. More precisely, the networks of towns benefit from externalities such as size effect, knowledge spillover, reduction of transaction costs and organizational advantages. Towns may form a network that has the same functional dimension as the one of larger cities. They benefit from the network which endows a "mass effect" that enables them to provide high-rank functions. Thus, they can perform a "metropolitan" importance on a territory where there is no larger city. Towns, as much as cities, are receivers and generators of knowledge, goods, services and information across a network. In addition, the "City-network" theory observes existence of "networked centralities" in which different urban functions are identified through inter-urban and intra-urban connections.

Our second hypothesis is that the size of a settlement is not the key determinant of growth, as much as a spatial division of urban functions across the urban system. Therefore, the size of a single city or a single town in the network is less relevant than the size, type and structure of the network itself. Economic and cultural globalisation resulted in a "network society" dominated by flows of capital, ideas, and people. In that context, towns capture the key economic roles in the global and regional economies. They are functionally differentiated, but in time of globalized networks, their functions are not determined by geographical constraints. Rather, economic actors within specialised towns connect to the actors in other towns and cities which offer complementary specialisations. In other words, specialized towns with different functions complement each other's' activities through the division of labour and market size. In contrast, towns with similar economic profiles benefit from synergy effects. These networks at different scales make towns to interlink, compete and to cooperate whether within or with other towns and cities. Consequently, a space is differentiated from another by specific arrangements of networks that organize functions and entities on local and distant scales to overcome the handicap of the size.

Our third hypothesis is that through inter-municipal coopetition, towns demonstrate capacities to overcome the negative effects of administrative borders as barriers, to maximise potential synergies, to promote joint solutions to common problems and a harmonious and balanced integration of their wider territory. Cooperation and competition of actors play a structural role in networks of towns. Besides exchanges of information and ideas, towns cooperate in order to seek complementarity among each other. Cooperation in a form of territorial network provides with resources and technological knowledge that foster rapid development of innovations, access to new markets, economies of scale and sharing of risks and costs. Through cooperation, towns ensure the development of all partner-municipalities while respecting their territorial capital and identity. Moreover, through inter-municipal governance, towns coordinate actions which result in ensuring that decisions are efficient and equitable to achieve growth goals. Towns also mobilise their partner-municipalities in a network by ensuring the allocation of resources in their interest. Thus, cooperation of towns enables them to become more adaptive to changing economic situations and to respond collectively and strongly to raising challenges.

The conceptualization and the operationalization of the research are constructed in four phases as follows (Table 0.1):

Table 0.1: Phases of the research conceptualization

	RESEARCH CONCEPTUALIZATION	RESEARCH OPERATIONALIZATION
PHASE 1	Exploration of the theoretical and empirical literature of the regional science	Confronting the paradigms of the "City-network" theory to the existing socio-economic theories with a particular focus on spatial location and inter-actor dynamics.
PHASE 2	Construction of an original integrated analysis of regional urban systems	• Selection of three postulates of the "City-network" theory to be verified by using the three types of approaches: functional, socio-economic and governance. • Identification of dependent and independent research variables and their corresponding indicators. • Selection of statistical tools and methods to be used on identified variables.
PHASE 3	Selection of the case study	Selection of the regional urban system to test the postulates of the "City-network" theory.
PHASE 4	Reporting	Written report on results and conclusions that approve or reject the working hypotheses.

The first phase refers to the exploration of the scientific literature related to the different socio-economic theories in the regional science. This phase is necessary in order to understand the originality of the "City-network" theory vis-à-vis other socio-economic theories. Since the regional science, in particular urban and regional planning, calls for a multifaceted outlook of territorial growth and development, we felt compelled to promote and apply the interdisciplinary approach in the conception of this research. In that respect, we will observe the main paradigms of the neoclassical growth and development theories such as production economies, the location theory, agglomeration economies, the central place theory, the growth pole theory, the core-periphery model, the endogenous growth theory, the new economic geography, local systems, the world cities hierarchy and global cities networks. We will also explore the conceptualizations of networks in social science disciplines such as sociology, geography and psychology in order to provide an added value to the existing economic explanations of territorial growth and development.

The second phase refers to the construction of an original integrated analysis of regional urban systems based on the functional, socio-economic and governance assessments methods. Overall, six independent and eleven dependent variables will be tested in a series of indicators using the statistical software SPSS Statistics, GraphPad InState and QGIS (Table 0.2).

Table 0.2: Variables of the research related to the "City-network" theory

N.	INDEPENDENT VARIABLES	OPERATIONAL DEFINITION
1	Urban centres	Municipalities with a centrality function in terms of the size of population, labour market and an incoming flow of job commuters.
2	Functional areas	A group of municipalities among which one has a centrality function (urban centre) and the rest has a role of hinterland.
3	Spatial ranking within a functional	Degree of centrality of municipalities within a functional area measured by population size, labour market size and flow of job commuters.

	area	
4	Territorial arrangements	Relationship between two municipalities that is defined by the characteristics of their labour markets and flow of job commuters.
5	Firms	Business organizations that sell goods or services to make a profit.
6	Inter-municipal cooperation (EPCI)	Group of municipalities that form an inter-municipal cooperation which is a result of political decision and arrangement.

CONCEPT	N.	DEPENDENT VARIABLES	OPERATIONAL DEFINITION
POLY-CENTRICITY	1	Spatial radiance	The size of a functional area that is determined by the intensity of flows of job commuters between peripheral municipalities and the urban centre.
	2	Functional networks	Variety of territorial arrangements between urban centres.
	3	Accessibility and connectivity	Access to job opportunities, commercial and public services within a functional area as well as the existence of road and rail infrastructure.
ECONOMIC NETWORKS	4	Economies of scale and scope	Competition and cooperation between firms within a functional area
	5	Agglomeration economies	Benefits from sharing similar labour, input and knowledge spillover between firms of the same sector within a functional area.
	6	Co-agglomeration economies	Benefits from sharing similar labour, input and knowledge spillover between firms of different sectors within a functional area.
	7	Synergy effects	Impact of increase or decrease of employment in a specific sector in one functional area over the other.
INTER-MUNICIPAL GOVERNANCE	8	Financial effectiveness	Degree of financial autonomy measured by the self-financing capacities and debt regulation over a period of time.
	9	Decentralized investment	Increase or decrease of investments in municipalities-members of an EPCI over a period of time.
	10	Political inclusion	Degree of representation of each municipality on the leading positions in an EPCI.
	11	Political diversity	Variety of elected political parties within an EPCI after the municipal elections 2015.

The first method is based on the functional analysis having for the objective to identify urban centres and their relationships with other settlements of a regional urban system. The urban centres are defined as nodes of national and regional urban systems that have centrality functions and that serve to wider territories. Each urban centre is ranked according to its functional position within the regional hierarchy. Towns, as much as cities, have roles of urban centres and are characterized not only by demographic size, but also by their territorial influence.

The second method is based on the socio-economic analysis with the aim to identify economic networks between functional areas in a regional urban system. The “City-network” theory defines the

network of economic complementarity as linkages between specialized centres that have different functions and that complement each other's' activities through the division of labour and market size. Likewise, the network of economic synergy is defined as linkages between centres with similar economic profile that benefit from network effects.

Finally, the third method is based on the governance assessment with the goals to identify the position of urban centres in inter-municipal cooperation (EPCI) as well as the differences and similarities in their functioning. The "City-network" theory underlines the importance of territorial governance in coordination of actors and institutions in ensuring that policies and strategies are efficient and equitable and that the resources are allocated in the interest of all stakeholders. Likewise, territorial cooperation and competition are seen as essential element to boost growth, development and cohesion, to maximise potential synergies and to overcome the negative effects of borders as barriers.

The third phase refers to the selection of the case study in order to test the research hypotheses. The Centre-Val de Loire region located in the Loire valley between the Paris metropolitan region in the north and the Central Massif in the south seems particularly interesting to study due to its particular urban polycentricity. More precisely, the region has more than 1,800 municipalities among which six are provincial capitals large and intermediate in size, while the rest of the territory is made of towns and villages. Moreover, the Regional Council seems to be actively involved in the development of regional towns through a special tailor-made policy and contracts. It has also demonstrated a particular interest in hosting forums, seminars, and conferences and in sponsoring studies which all have one common goal - to understand the evolution and contemporary socio-economic dynamics of small and medium-sized towns.

The final phase is related to the compilation of a written report divided into theoretical part and empirical part. The objectives of the theoretical part of this research are as follows:

- to discuss the role of actors in the creation of networks, different nature of their relationships and the context in which these relationships take place.
- to observe the evolution of scientific thinking in economic geography and regional science as well as the way the "City-network" theory contributes to the understanding of contemporary urban and regional dynamics.
- to provide the parallel between the current European strategies, policies and practices with the postulates and paradigms of the "City-network" theory.
- to acknowledge the existence of variety of national and regional classifications of urban settlements and to apprehend the importance of towns' roles and functions for the entire urban system.
- to explain the way towns deal with socio-economic and technological challenges as well as to underline their contribution to the regional growth and development.
- to provide the European perspective of towns as compared to some differences in national and regional approaches and to demonstrate some development approaches and practices from the European towns.

The objectives of the empirical part of this research are as follows:

- to define an approach that examines the three concepts of the "City-network" theory (polycentricity, economic networks and inter-municipal governance) and that prove or reject their application in small and medium-sized towns.
- to contextualize the French approach to territorial issues related to the development of towns.
- to define the polycentricity through identification of its nodes (urban centres) and types of relations between them (territorial arrangements).
- to identify the economic networks between towns and other settlements within a regional system by referring to the concepts of economies of scale and scope, agglomeration and co-agglomeration economies and inter-city synergy effects.
- to assess financial effectiveness, political inclusion, diversity and decentralization of investment in inter-municipal cooperation consisting of small and medium-sized towns.

Therefore, in the first chapter, we will discuss the different aspects of the "City-network" theory which in our opinion provides an interdisciplinary and contemporary approach to the analysis of contemporary urban and regional dynamics. We will justify our choice of the "City-network" theory to be a backbone of the research by confronting it to the main paradigms of growth and development theories. Moreover, we will refer to the European strategies, policies and practices which promote polycentricity, cohesion, cooperation and governance which, *in fine*, correspond to the postulates of the "City-network" theory.

In the second chapter, we will explore the concept of small and medium-sized towns by observing their functional, socio-economic and administrative features as well as their development strategies, plans and actions. In particular, we will outline the difficulties in defining the "European town" and setting them in a common "European urban system" due to a variety of national and regional classification of urban settlements. In addition, we will provide with some examples of local development practices in towns which demonstrate their importance for the regional growth and development and the regional urban system.

In the third chapter, we will present the new approaches to the growth and development in Europe which concord with the basic postulates of the "City-network" theory such as polycentricity, territorial cohesion, territorial governance, and territorial cooperation. In that respect, we will focus on the evolution of European policies at different administrative scales (European, national, regional, and local) which are relevant for the growth and development of towns as well as the efforts of different European countries and regions to create a balanced and polycentric territory.

In the fourth chapter, we will expose a methodology for an integrated analysis of regional urban systems. Furthermore, we will present the research methods that combine different statistical tests and the use of software for the identification of urban centres, their position in the urban hierarchy and their relationships with other settlements. We will also describe the methods for the examination of settlements' socio-economic structure, dynamics between firms, cooperation and competition between urban centres and their hinterland, cluster dynamics, and inter-municipal governance.

In the fifth chapter, we will provide with the results of the research on polycentricity and economic networks in the Centre-Val de Loire region with a special focus on small and medium-sized towns. In particular, we will describe the national and regional characteristics in which French towns endure. We will also explore the spatial and socio-economic context of the Centre-Val de Loire region in order to describe the relationships of polycentricity between urban settlements. Furthermore, we will analyse

the main socio-economic differences between urban settelements within the same regional urban system by referring to the three spatial scales: inter-firm, centre-periphery and cluster.

In the sixth chapter, we will provide the results of the research on inter-municipal cooperation in the Centre-Val de Loire region with a particular focus on cooperation between small and medium-sized towns. *A priori*, we will describe the political and administrative features of the regional institutions in order to contextualize the French approach to territorial issues related to the development of towns. *A posteriori*, we will analyse the financial and political arrangements that small and medium-sized towns maintain within their inter-municipal cooperation (EPCI).

The final chapter of the thesis will include the general conclusions of the research, its contribution to the scientific reflection and its limitations.

PART 1:

PARADIGM OF THE “CITY-NETWORK” THEORY

CHAPTER 1: City-network Theory as a Theoretical Framework for the Empirical Analysis of Growth and Development of Territories

The network as a fundamental element of development came into existence in the 1980s when the scholars started reflecting upon the effects of modernization and industrial capitalism on the

organizational transformations and the emergence of a new social structure in which connectivity and access to networks have an essential role. As a result, the two different developments took place in social sciences. On the one hand, some new scintific disciplines, such as the economic sociology and the new institutional sociology, emerged as a forceful critic of the conventional sociology. As a result, a new generation of sociologists started to apply different approaches to study social phenomena and the society in general. Among these new approaches, the "Actor-network" theory and the theory of social networks gained a lot of popularity among sociologists interested in the emergence of collective actions, bonds between actors within a society and the creation of different social structures (e.g. firms, institutions, nations, etc.).

On the other hand, the traditional economic theories were seen as outdated and unable to explain the growth patterns in a globalized world. Hence, an increasing number of economists started in the 1970s to explore new approaches to the issues of growth and development which led to the establishment of the endogenous growth theory, the new economic geography theory, the schools of institutional economics and the new institutional sociology. Their interests in the flows of goods, people and information, territorial capital, firms' networks, clustering, innovation and knowledge transfer, etc. were based on a common idea that a social structure (a social factor) may play a fundamental role in explaining the causes of performance and development. To this day, however, the use of the concepts such as institutions and social networks are still by many "mainstream" economists considered as a heterodox approach to the economic science.

In urban and regional studies, the "network approach" let to the conceptualization of the "City-network" theory which argues that, regardless their size, cities exist through hierarchical and non-hierarchical networks, cooperation, competition and the creation of advantages through polycentric organization of urban systems. How the scientific thought of growth and development was developing and how the network approach became the subject of theoretical discussions? Who are the main contributors to the approach and what are the main features of the theory?

In order to find answers to these questions, this chapter will discuss different theoretical aspects of the "City-network" theory by using an interdisciplinary approach to its social, economic and spatial planning aspects. More precisely, the first section will discuss the conceptualization of networks from the point of view of the economic sociology and the new institutional sociology which is our attempt to provide an additional "social" dimension to economic explanations of growth and development of territories. In that respect, the objective of the first section is to discuss the role of actors in the creation of networks, a different nature of their relationships and the context in which these relationships take place. The second section will critically analyse the main paradigms of growth and development theories that represent the solid foundations of the economic geography and the regional science. The objective is to observe the evolution of scientific thinking in those particular areas as well as the way the "City-network" theory contributed to the understanding of contemporary urban and regional dynamics.

SECTION 1.1: Relations between actors as the heart and the brain of networks

Globalization has made localities and their interactions more important for economic growth and prosperities (Rodriguez-Pose, 2013). As Markusen (1996) argued, the space has become increasingly

"slippery" in a sense that capital, goods, people and ideas travel more easily. Thus importance of networks and participation in flows of goods, people and information for development of a territory has become evident (Markusen, 1996; McCann, 2008; Rodriguez-Pose and Crescenzi, 2008).

The scientific work in the economic sociology emphasizes various social conditions to be taken into consideration in order to understand economic decisions (Le Velly, 2007). Networks develop special bonds of trust between actors which, as a result, may interfere in economic activities (e.g. price formation, share of resources, etc.) and productivity and innovation (Saxenian, 1994; Granovetter, 2006). Furthermore, according to Granovetter (2006), networks influence the flow and quality of information. The information that circulates may be subtle, nuanced and difficult to verify. Thus, as actors look for reliable and trustworthy sources of information, they make networks which provide them with such security. Moreover, networks are an important "*compass*" of behaviour which can award or punish actors (e.g. good or bad publicity). Their "corrective" potential is even stronger in networks whose members know each other well. Finally, networks develop a strong relationship of trust which encourages its actors to consider the interest of a group before their own interests.

In order to study the relevance of the "City-network" theory for the empirical analysis of growth and development, it is necessary to embrace an interdisciplinary approach to spatial analysis. In that respect, we start by referring to a selection of works from economic sociology and new institutional sociology before exploring the "mainstream" economic theories. This may be considered as an attempt to provide an additional "social" dimension to economic explanations' of growth and development. The notion "territory" in economic sociology does not only mean a "space" as is the case of neoclassical economic theories, but it also means a social context that intervenes in relationships between actors (networks) and, therefore, in growth and development (Granovetter, 1974; Saxenian, 1990; Benko and Lipietz, 2000; Grossetti, 2004).

Having this in mind, the first objective of this section is to discuss the role of actors in creation of networks. The second objective is to explore the nature of relationships between actors by focusing on dynamics of proximity, competition and cooperation related to networks of actors. The third objective is to observe contextual factors such as roles of institution, governance and policymaking and the way they set, influence and guide various relationships between actors within a network.

1.1.1 Role of actors in the creation of networks

The first part of the subsection explores the concept of "social network" that seems to be a more conventional way in economic sociology to explain the influence of social relationships on economic decisions. The second part of the subsection gives some insights on connections between heterogeneous actors enrolled in a network as seen by the "Actor-network" theory which emerged in the 1980s as a forceful critic of the conventional sociology. The third part of the subsection discusses some main features of the "network society" concept which tackled the issues of development and growth in times of globalization and technological advancements.

- Social networks -

Research on relationship between local actors (politicians, firms, different social classes, parties and associations, etc.) led many sociologists and economist to consider the factor of embeddedness of ties

in particular social condition of a locality (Granovetter, 1974; Bakis, 1993; Saxenian, 1994; Grossetti, 2004; Pecqueur and Zimmermann, 2004). In fact, they argued that the ties that actors develop among each other (so-called "social networks") influence their activities, choice of location, organization of society, innovations etc. (Storper, 1999). The term "social networks" has been often used to define a set of connected social relations in which nodes represent actors and links represent relationships between actors (Menage, 2011). Social networks, thus, form a system in which links between actors vary (e.g. specialized links, symmetrical links, asymmetrical links, etc.) and which are organized so that actors may respond to each other (Lemieux, 1999; Bidart, 2008).

Besides heterogeneous links, networks are also composed of actors who are different in size, origin, objectives and/or resources (Doz et al., 2000; Sölvell et al., 2003; Agranoff and McGuire, 2003; Loubaresse, 2008; Provan and Kenis, 2008). Alberti (2001), for example, distinguished between internal and external types of actors. External actors are physically outside the network, but their activities have an influence on the functioning of the network (e.g. governments, investors, political groups, consumers, etc.). In opposition, internal actors may be collective or an individual (e.g. firms, research laboratories, training organizations, institutions versus entrepreneurs, managers, employees, researchers, etc.) who have an interest in participating in a network (Donaldson and Preston, 1995); who share common objectives (Freeman, 1984); and who contribute to economic and social performance of the network (Attarça, 1999).

Along with a variety of profiles of actors, their interpersonal skills and potential to mobilize social networks is considered to bring "coherent order" that in turn is capable to anchor the network in its territory (Sölvell et al., 2003; Provan and Kenis, 2008). The new institutional sociology uses the term "institutional entrepreneurs" (DiMagio, 1988) to define actors who mobilize resources and aid in order to transform an institution (or network) or create a new one (DiMaggio, 1988; Maguire et al., 2004). In other words, they mobilize political, normative and cognitive levers to facilitate the process of institutionalization (Lawrence and Suddaby, 2006).

In that scope, the role of public actors has been particularly in the focus of empirical studies of social networks (Provan and Milwards, 1995; Agranoff and McGuire, 2007). Driven by the urge of competitiveness, public actors are often seen to use the principle of positive discrimination to provide with material and/or financial support to territories that may attract new businesses and population (Guillaume, 2008). This, in turn, may result in creation of networks that gather together both private and public actors in a form of public-private partnership to achieve a common goal of growth and development (Stoerring and Christensen, 2004).

Nevertheless, a challenge for social networks may be in their configuration and governance (Rhodes, 1996; Winkler, 2006; Agranoff and McGuire, 2007). For instance, configuration of networks that is characterized by domination of one or few leading actors can be negatively linked to vertical integration and centralization (Fréry, 2007). Hence, the network with one key player acting as a coordinator may imply a strong asymmetry of power between the members of the network (DePropis, 2001). As a result, connections between actors may become limited and knowledge may be controlled by the central actor who has the power to slow the diffusion process or to direct it to serve its own strategic interests (Human and Provan, 1999; Lorenzoni and Baden Fuller, 1995). Relationships are, in that case, more formalized and hierarchical (Boari and Lipparni, 1999; DiMaria and Micelli, 2007; Josserand, 2007; Provan and Kenis, 2008). Another example is the network in which all members are involved as a collective in strategic and operational decisions that concern them. In such case, relations

between actors are generally non-hierarchical and members enjoy a broad autonomy (Provan and Kenis, 2008). In such circumstances, network members are collectively responsible for the relations they nurture with other actors inside and outside the network and their coordination is based on both cultural and social mechanisms, trust and a common belief system (Marshall, 1920; Provan et al., 2007).

- "Actor-network" theory -

The "Actor-network" theory, which emerged in the 1980s as a field of sociology, is considered to be useful for explanations of involvement of actors in a common action (Callon, 1986; Latour, 1987; Law, 1992). The theory defines an "actor" as any agent (collective or individual) that can associate with other agents. Actors enter into networked associations which in turn define them, name them and provide them with action and intention. Furthermore, a network, in the sense of the "Actor-network" theory, is not primarily concerned with "mapping interactions between individuals", but with "mapping the way in which they [actors] define and distribute roles, and mobilize others to play these roles" (Law and Callon, 1988, p. 285). To do this, the theory explores the associations between heterogeneous actors which can be used to describe how networks come to be larger and more influential than others, how they come to be more durable through enrolling actors, where power comes from and how it is exerted (power and connectivity, according to the theory, are intertwined) (Latour, 1986).

According to Cressman (2009), the "Actor-network" theory emphasized that the concept of network can be used to describe the entire world (e.g. people, organizations, technologies, nature, politics, social order, etc.). Put in other words, on the one hand, "everything" is the effect of associations within a heterogeneous network; there are no causes, only effect. On the other hand, to study any type of organization, innovation, scientific discovery, social phenomena, etc. is to study the connections between heterogeneous actors enrolled in a network (Cressman, 2009).

Brechet and Desreumaux (2008) used the "Actor-network" theory to describe the four phases of progressive construction of a network of actors: (i) controversy, (ii) problem-setting, (iii) interest and (iv) enrolment. In fact, according to these authors, phases of controversy and problem-setting lead to development of a network and to emergence of solutions involving coordination between actors. In case of a public policy, two phases of controversy and problem-setting are led by a public actor who is the initiator of the action and who proposes processes for dialogue, mechanisms and deadlines (Michaux et al., 2011).

The theory was criticized for its lacking of conceptions of agency, for insisting on the capacity of nonhumans (e.g. technology) to be as important actors as human ones, and for its risk of degenerating into endless chains of associations by stating that "we are all networked to one another" (Winner, 1993). Nevertheless, the "Actor-network" theory is acknowledged for its efforts to conceptualize a spontaneous emergence of actor networks as well as for explaining the difficulties of initiating a coordinated collective action in a situation where there are numerous actors within one territory (Michaux, 2010a, 2010b).

- "Network society" concept -

Conceptualized as a fundamental element of development, the "*network society*" came into existence in the 1980s (Van Dijk, 1991; Castells, 1996). The term emerged as a new form of social organization when three originally independent processes took place after the World War II in developed (Western) countries: the crisis of industrialism, the rise of social movements and the ICT revolution (Castells, 2004). First, the industrial model of development was obsolete for growth in productivity which resulted in declining of surplus, profits and private investment and led to questioning of the Keynesian model. Second, by challenging state power, militarism, cultural uniformity, patriachalism and productivism, cultural social movements of the 1960s and 1970s were oriented toward a transformation of the values of society. Third, the technological revolution from the 1980s onwards (computer networking, telecommunications, information and technology-based transportation system, etc.) combined with government policies of deregulation, liberalization and privatization led to the creation of the "network enterprise" that replaced the Fordist organization of work and as such became the most productive and efficient form of doing business (Castells, 2004).

In terms of labour organization, the "network society" distinguished between self-programmable labour and generic labour. The former had an autonomous capacity to recombine existing knowledge by using databases and stocks and to apply it "in the form of tasks oriented toward the goals of the process" (Castells, 2004, p. 26). The latter did not have a value making task; hence such labour was either replaced by machines or decentralized to low-cost production sites. When it comes to business practices, the "network society" had a vision of an economy based on alliances, partnerships and collaborations that were specific to a given product, process, time and space. The key factor for productivity growth in such knowledge-intensive network economy was innovation (Lucas, 1999; Castells, 2004). Last but not least, in terms of power distribution, each network defined its own power system. Nevertheless, actors that exercised power were made up of networks of actors and were engaged in dynamic interfaces that exercised power in the "network society" (Castells, 2004).

Overall, the "network society" emphasized the organizational transformation and the emergence of a globally interdependent social structure whereas connectivity and access to networks are essential: "The tight combination of ICT, development of human capacity to take advantage of the full potential of these technologies, and organizational restructuring based on networking becomes the key to ensuring productivity, competitiveness, innovation, creativity and ultimately power and power sharing." (Castells, 2004, p.42)

The following subsection will focus on the nature of relationships by exploring more in detail the effects of competition, proximity and cooperation of actors on networks and, in fine, on growth and development.

1.1.2 Nature of relationships between actors

The principles of competition, proximity and cooperation between multiple actors have been in focus of numerous disciplines, mainly in the field of economic science and sociology. We refer to these concepts for the reason that their processes seem to be based on practices of consultation, conflicts, coopetition, shared decision-making participation, alignment and, above all, on networking of actors. As argued by Michaux et al. (2011), coopetition, proximity and cooperation rely on the creation of conditions favourable to the discussion of common objectives, on processes of co-construction of collective actions and they are rarely prone of hierarchical and centralized relationships.

In that scope, the first part of subsection explores competition as a fundamental mechanism of human survival and a principal vehicle for firms positioning in a market. The second part of subsection observes different relations of proximity between actors related to geography, culture, institutions and cognition that appear to be the factors of success and sustainability of local networks. The third part of subsection focuses on the concept of cooperation in a network by referring to the scientific literature in business management and in regional science. The fourth part of subsection introduces a relatively recent concept of "coopetition" which refers to simultaneous cooperation and competition between actors.

- Competition -

Beginning with Darwin, sociologists and psychologists have argued that aggressive between-group competition is a critical component of human social organization (Darwin, 1871; Hamilton, 1975; Alexander, 1979, 1990; Henrich, 2004; Boyd and Richerson, 2009). In fact, anthropological studies indicated that violent intergroup conflicts in primitive human societies have been frequent and sever enough to have favoured the evolution of individual characteristics that increase a group's success in a conflict (Bowles, 2009). Moreover, it has been observed that individuals prefer to cooperate more within their group if there is an inter-groups competition compared to a situation when competition is absent (Bornstein et al., 1990). The most recent study on human competitive behaviour conducted by Puurtinen et al. (2015) confirmed that the decision to act competitively toward other group coincided with the decision to cooperate with group members. As authors explained, the reasons are multiple: (i) individuals may choose a competitive option to psychologically protect themselves from the disappointment of making a poor decision; (ii) in some cultures, competitive inter-group interactions may dominate over the other options; (iii) individuals may find competition to be a more interesting option than cooperation. Yet, as underlined by authors, these reasons should be taken cum grano salis since internalized cultural norms and previous experience with conflicts, competition and cooperation play a large role in an individual's response (Puurtinen et al., 2015).

Furthermore, competition is a fundamental concept in economics as well. Firstly, it is acknowledged as a basic mechanism of adjustment of economic agents and of allocation of resources in search for the economic equilibrium (Smith, 1776). In that context, competition between independent suppliers is accepted as a necessary condition for balancing supply and demand at a competitive price which in turn ensures the optimal resource allocation and maximization of agents' functions (Hamdouch, 1998). Secondly, competition is considered by some economists as an efficient process of struggle for survival in a changing and unstable economic environment (Shepherd, 1990). In other words, firms that develop the best capabilities to adapt to environmental changes have every chance to survive in the market. Conversely, firms that adapt less are more likely to decline and disappear. As resilience depends on firm's innovation efforts, management qualities and anticipatory behaviour, there is no room for inter-firm cooperation. Finally, competition defined by the game theory as a "non-cooperative" game, has many supporters in industrial economics (Hamdouch, 1998). It became an important subject in the analyses of strategic interactions between firms in a context of oligopoly or monopoly (cases of imperfect competition). Thus, strategic interactions between firms in competition are considered to be self-enforcing through contracts and agreements which no third party can interfere with (Shapiro, 1989).

Indeed, competition and the "competitive conduct" (Porter, 1980) are considered important as they are "the principal vehicle by which firms position themselves in the competitive environment" (Smith et al., 2001, p. 321). In the organizational studies, competition consists of moves taken by actors with the objective to improve their competitive position vis-à-vis their competitors in the area (Gnyawali et al., 2006). It has two key aspects: competitive activity and competitive variety. On the one hand, the competitive activity refers to the total number of competitive actions undertaken by an actor and reflects the scale of competition. Thus in case of firms, the more competitive actions a firm has, the more market share and profitability it takes. On the other hand, the competitive variety refers to the diversity of undertaken actions and reflects the scope of competition. In that sense, a broader scope of undertaken actions leads to a greater impact and to less predictability for competitors (Gnyawali et al., 2006).

- Proximity -

A new current of scholars (especially the French school of proximity) argues that short distances may bring people together, favour information and contacts and facilitate the exchange of knowledge, but it is not a prerequisite for cooperation and learning (Boschma, 2005; Torre and Rallet, 2005; Carrincazeaux et al., 2008; Healy and Morgan, 2012; Torre, 2008, 2014; Torre and Wallet, 2014). In other words, a spatial closeness of actors may encourage creation of networks and proximity effects. Yet, it has been proven that a simple coexistence of actors (geographical proximity) does not always create a system. On the contrary, social networks are considered to have a potential to create a system if they are embedded in local economy and if different "types" of proximity exist (Granovetter, 1985; Grossetti, 2004). Hence, networks through which development takes place are not necessarily spatially delimited, but may happen across large distances through other forms of proximity (Boschma, 2005; Torre and Rallet, 2005; Carrincazeaux et al., 2008; Healy and Morgan, 2012; Torre, 2008, 2014; Torre and Wallet, 2014).

In that scope, Boschma (2005) identified four additional types of proximity and their effects on the creation of a network:

- ***The cognitive proximity*** means that people who share the same knowledge base and expertise may also learn from each other. Therefore, this type of proximity facilitates learning within a network through interaction and effective communication, understanding, and processing successfully new information. However, too much of it may decrease the potential for learning and increase of risk of lock-ins and unwanted spillover to competitors. Likewise, too little of it may result in a lack of sources of new information sharing.
- ***The organizational proximity*** is defined as the extent to which relations are shared in an organizational arrangement, either within or between organizations. In fact, it involves the degree of autonomy and of control that can be exerted in organizational arrangements: no ties between independent actors, loosely coupled networks (i.e. joint venture, flexible firm), strong ties (i.e. hierarchical firm or network). While too much of organizational proximity is accompanied by a lack of flexibility, too little organizational proximity means lack of control and increasing danger of opportunism.
- ***The social proximity*** indicates embedded relations between actors within a network in a sense of trust based on friendship, kinship and experience. It may stimulate interactive learning due to trust and commitment. However, too much of social proximity may damage interactive learning due to

lock-ins and risk of opportunism. These negative aspects of social proximity may be compensated in agglomerations that may weaken strong ties in network because they offer a variety of potential partners and possibility to access extra-regional networks. As a result, social networks are more likely to be developed in areas where agglomeration economies are more or less absent (Gordon and McCann, 2000).

- ***The institutional proximity*** includes both the idea of actors sharing the same institutional "rules of the game", as well as a set of cultural traditions and values (Zukin and DiMaggio, 1990). It is an important factor as it provides stable conditions for interactive learning within a network to take place effectively. However, too much institutional proximity limits new ideas and innovations due to institutional lock-ins and inertia while too little institutional proximity is detrimental to collective action and innovation due to weak institutions and a lack of social cohesion and common values (Boschma, 2005).

- Cooperation -

Since the 1970s, economists have explored firms and their networks through a method of observing contracts of cooperation between firms. The argument is that the network provides firms with resources, information, ideas and opportunities that are necessary for their development (Richardson, 1972; Powell, 1990). Besides exchanges of information and ideas, the most common reason for cooperation seems to be seeking complementarity among firms which, in fine, is a key feature of the concept of network (Antonelli, 2003). Moreover, firms of any size may organize themselves under various networking schemes to achieve competitiveness, thus network may become an organizational and functional response to the need of skills and resources that firms do not have internally (Hamdouch, 1998). For instance, Hamdouch (2002) highlighted the common interest of achieving economies of scale and scope and knowledge spillover through coalitions of firms. Indeed, on the one hand, by cooperating, firms may (i) save on fixes costs by increasing the size of transactions and sales volume, (ii) reach a critical threshold required to achieve profitability of an activity/project, (iii) coordinate the production and the distribution of goods and services and (iv) expand or diversify the range of offered products. On the other hand, firms that operate at the global level in highly innovative and competitive sectors are in constant search for new resources. Thus, it is not surprising that firms forge alliances with complementary firms in order to outperform their rivals (Hamdouch, 2002). In other words, cooperation in network seems to facilitate firm management by providing access to external resources when they are not available in the firm itself without the need for a large internal reorganization (Jacob et al., 1996).

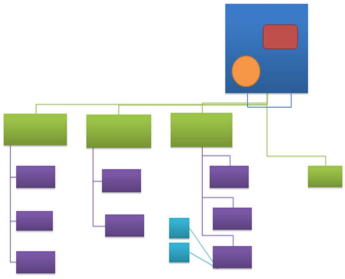
The recent empirical work in business management has explained different factors that determine the type of cooperation between firms (Raposo et al., 2014). For instance, Fritsch and Lukas (2001) found that firm's efforts related to improvements of process are most likely to involve cooperation with suppliers while improvements of product are associated with cooperation with clients. Tether (2002) argued that cooperation is mostly the domain of firms aiming for more radical innovations than incremental innovations. Mariotti (2005), for example, provided an interesting typology of cooperation by exploring subcontracting relationships between firms and their evolution in time (Figure 1.1).

Figure 1.1: Subcontracting models in networks of firm

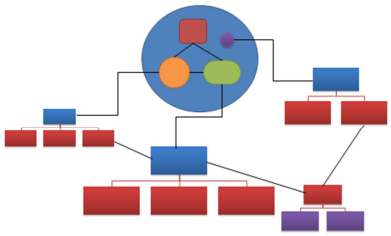
Integrated model in the 1980s Pyramidal model in the Network mode in the 2000s

1990s

Numerous subcontractors limited in size and in direct contact with the central provider; *cherry-picking*: choosing the least expensive subcontractor for each operation; trust is limited.



In favour of rationalization (reduction of the number of the direct subcontractors); outsourcing of major functions and creation of partnerships within the same sector; relationships are based on trust; internal organization distinguishes between external and internal management: management of projects versus management of the entire organization.



Trivialization of internal and external management; huge expansion of various forms of inter-firm relations: alliances, partnerships, agreements, *filières*, service delivering, etc.; simultaneous generalization of internal networks; globalization, increasing number of equipment manufacturer, volatile relationships despite strong inter-dependence.

Source: Mariotti, 2005

In the same light, scholars who observed innovative firm management found that increasing number of successful firms has been putting much of their efforts on establishing different types of cooperation with other organizations (Child et al., 2005). More precisely, firms' strategy seems to be a search for reasons to establish cooperation, a selection of suitable partners whose goals are compatible with the goals of the firm, and integration of partner's cultures and systems (Faulkner, 1995; Hamdouch, 1998). Thus, a cooperation strategy includes not only the method of solving conflicts and the alignment of strategic goals with those of partners, but also the establishment of cooperation connection based on integration of the used channels (Lendel et al., 2015). Depret and Hamdouch (2000) provided an interesting illustration of coalition's types within the pharmaceutical industry. The first type is a vertical coalition which refers to vertical partnerships in research, clinical development, production or sale initiated by one or several firms that are complementary. The second type is a horizontal coalition which is the most common one and which is formed by competitive firms against rival firms and against suppliers, clients or producers of complementary goods (i.e. R&D alliances, co-development, co-promotion, mergers and acquisitions, etc.). The third type is a transversal coalition which brings together firms from different business sectors that are involved in the preparation and sale of goods-systems (Depret and Hamdouch, 2000).

Overall, in business management literature, cooperation is considered to lead to competitiveness if accompanied with strategic thinking, continuous analysis of the environment, readiness for change, integration, concentration of cooperation resources and continuous learning (Lendel et al., 2015).

"Within a context of increasing globalized competition, each firm must therefore build and exercise (or simply belonging to) coalitions and networks sufficiently powerful and durable so as to stay – and possibly dominate – in the innovation race and the struggle for market share" (Depret and Hamdouch, 2000, p. 250).

As regards to the regional science, the importance of cooperation for regional development became evident as scholars and practitioners proved that cooperation involves joint influence of economic, social, institutional and cultural actors on development of capacities (Maskell et al., 1998), interdependent transactions (Storper, 1997), mutual learning between regional actors (Morgan, 1997; Florida, 2003) and generating and spreading of knowledge inside and outside the territory (Becattini and Rullani, 1996). In other words, scholars and practitioners consider regional development to be dependent on relational exchanges between actors as a pathway towards attaining the common development goals (Rutten, 2003; Porter, 2003).

All these arguments point at the importance for spatial analysis to study cooperation between local actors. Activities based on cooperation with other firms and institutions represent opportunities to access the resources and technological knowledge that foster rapid development in innovations, access to new markets, economies of scale and sharing of both risks and costs (Raposo et al., 2014). Likewise, firms seem willing to engage in cooperation because of the benefits that come from exposure to denser flows of knowledge and information which would not be the case if there was no cooperation (Schmidt, 2005; Gomes-Casseres et al., 2006).

- Coopetition -

As a phenomenon of simultaneous cooperation and competition, coopetition attained popularity in the game theory and was subsequently fully adopted in strategic management literature (Brandenburger and Nalebuff, 1996; Bengtsson and Kock, 1999, 2000; Gnyawali, He and Madhavan, 2006; Eriksson, 2008; Ghobadi and D'Ambra, 2012). The affirmative arguments are based on the series of studies showing that managers may overcome traditional competitive thinking by cooperating with competitors in order to create added value (Dorn et al., 2016).

Despite the risk inherent in applying cooperation and competition simultaneously, this emerging perspective has tried to integrate the two paradoxical logics into a common construct (Chen, 2008; Bengtsson et al., 2010). More precisely, scholars in support of the concept aimed to depict cooperation and competition on two separate continua allowing a distinction between different forms of coopetition with varying combinations of low to high cooperation and competition respectively (Lado et al., 1997; Luo, 2007; Raza-Ullah et al., 2014). For example, Dumez and Jeunemaître (2005) used the terms "multidimensional strategic sequences" to resolve the contradiction of coopetition. On the one hand, actors may engage in strategies of confrontation and cooperation, but not at the same time. Those strategies in fact can succeed and shift from one into another over a period of time. On the other hand, actors may engage in confrontation and cooperation at the same time, but not in the same field and at the same scale (Dumez and Jeunemaître, 2005). Therefore, in the coopetition strategy, cooperation and competition are no longer seen as antagonistic but as interdependent opposites, which reflects the contemporary business and political realities (Chen, 2008).

The concept found a substantial interest within organizational and management studies on all levels of analysis: individual, intra-firm, inter-firm and network. At the individual level, simultaneous

cooperation and competition is considered to facilitate innovation and creativity (Hutter et al., 2011; Baruch and Lin, 2012). In that context, most of these studies referred to complex psychological processes when individuals are expected to cooperate with their team members while simultaneously each member is encouraged to increase individual performance. At the intra-firm level, scholars studied the effects of competition for resources, corporate support, power delegation, market expansion and the simultaneous need for cooperation between the sub-units of a company (Ritala et al., 2009; Rossi and Warglien, 2009). At the inter-firm level, authors focused on firms that cooperate despite being direct competitors (Bengtsson and Kock, 1999, 2000; Hamdouch and Perrochon, 2000; Depret and Hamdouch, 2000; Hamdouch, 2002; Eriksson, 2008; Kumar, 2010). Studies at the network level tried to explain competitive behaviour within a cooperative network structure (intra-network) (Gnyawali et al., 2006) as well as competition and cooperation between two or more networks (inter-network) (Peng and Bourne, 2009).

Nevertheless, scholars agree that, regardless the level, coopetition may generate innovation related benefits (i) by combining resources and capabilities to enhance joint innovation performance, (ii) by engaging in internalization of partners' resources so to enhance own innovation performance by leveraging those resources, and (iii) through motivation to enhance own internal efforts (Park et al., 2014).

Indeed, "[…] while strong competition and strong cooperation are both individually important, firms that engage in moderately high competition with their partners are better off if they also develop more intense cooperative relationship with those firms" (Park et al., 2014, p. 218). For instance, Peng and Bourne (2008) and Routelous, Vedel and Lapointe (2011) analyzed management strategies in health institutions and found that these institutions are increasingly adopting coopetitive strategies in which they simultaneously combine relations of competition and cooperation. The reasons for coopetition, according to authors, were the need of health institutions to reduce uncertainty regarding the medical resources shortages and the need to optimize the healthcare processes in cases when an institution alone had no longer any resources (Routelous et al., 2011). Furthermore, two healthcare organizations will compete and cooperate simultaneously under several conditions: (i) each organization has complementary but distinctly different sets of resources; (ii) the field of competition is distinctly separate from the field of cooperation; (iii) each organization has compatible but distinctly different structure (Peng and Bourne, 2009).

To sum up, in the economics and the regional science, the network is the way to access resources to develop economic activities (Djuatio, 2004). Thus, they are defined through different relations between actors or groups of actors (the process of intermediation) which are needed for exchange and satisfaction of needs and which continually evolve by being embedded in social context (Menage, 2011; Nadou, 2013). Furthermore, the empirical studies of social and economic relationships (cooperation, competition and coopetition) within a network confirmed the idea that they are not only a result of geographical proximity of actors, but also of various other factors such as characteristics of actors (social, professional, etc.), culture, traditions, organization, values and institutions (Torre, 2009).

In the following subsection we will continue our pursuit of understanding networks by exploring three contextual factors (institutions, governance and policymaking) that have an important influence on networks of actors as well as on growth and development.

1.1.3 Setting the actors in a specific context

Not until recently, exploring the contextual factors within the domain of the theory of growth and development has been the hallmark of heterodox approaches (Dutraive, 2009; Rodriguez-Pose, 2013). However, a new generation of economists has emerged that share the idea that the context (in a form of local institutions, traditions, culture, governance and policymaking) plays a fundamental role in explaining the causes of growth and development (North, 1991; Mauro, 1995; Knack and Keefer, 1997; Hall and Jones, 1999; Djankov et al., 2002, Acemoglu et al., 2005).

The first part of this subsection explores the effect institutions have on performance of networks of actors as, on the one hand, they are the product of a territory, and one the other hand, they shape the orientation and the content of public policies and regulations of a territory. The second part of the subsection discusses the relevance of governance which is understood as a pillar of creation, stability and competitiveness of networks. The third part of the subsection observes policymaking as a decision making process that can take various forms in different places and at different scales.

- Institutions -

Institutions are increasingly seen as a key to attract, create and maintain economic activities of places (Acemoglu and Robinson, 2000; Rodrik et al., 2004; Acemogly et al., 2006; Hamdouch et al., 2009; Storper, 2011). Many economists and sociologists consider institutions to be the "glue for collective action" because they ensure factors of security that enables the development, knowledge transfer, interactive learning and innovation (Boschma, 2005; Hamdouch and Moulaert, 2006). Institutions are seen as the underlying factor of long-run performance of economies (North, 1991) and "key enablers of innovation, mutual learning and productivity growth (Putnam, 2000, p. 325). As a result, they are assumed to "pave the way to the design and implementation of efficient economic development strategies across territories" (Rodriguez-Pose, 2013, p. 1037).

Although the term "institution" has been understood differently, most economists and sociologists agree on two approaches to the definition (Hamdouch, 2005). The first approach, proposed by Ménard (1995), uses notions such as rules, models and mechanisms to describe the term, thus giving the definition: "An institution is manifested in a long-standing historically set of stable, abstract and impersonal rules, crystallized in traditions, customs or laws, so as to implement and enforce patterns of behaviour governing the relationship between separate social constituencies" (Ménard, 1995, p. 167). The second approach, introduced by Hodgson (1998), is based on the notion of habit as "a form of self-sustaining, non-reflective behaviour that arises in repetitive situations" (Hodgson, 1998, p. 178). Thus, institutions involve a network of actors. "They [institutions] have a number of characteristics and common conceptions and routines; they sustain and are sustained by shared conceptions and expectations. Although they are neither immutable nor immortal, institutions have relatively durable, self-reinforcing and persistent qualities. Institutions incorporate values and processes of normative evaluation." (Hodgson, 1998, p. 179)

The network theory describes institutions as follows:

- Institutions are structurally embedded, they evolve as networks, they are multi-functional and they are characterized by communication and interaction between network members which follow rules and codes.

- Actors transact, associate and negotiate institutional forms and they have access to different types of capital.
- The genesis of institutions depends on the role of associated actors, path dependency and bridging structural holes (Moulaert and Jessop, 2007).

The relationship between performance and institutions has been subject of many discussions (Innes et al., 1994; Amin and Thrift, 1995; Davoudi, 1995, 2004; Jessop, 1997, 2002; Le Galès, 1998; Stoker, 2000). Amin and Thrift (1995) coined a concept of "institutional thickness" which has been much in use ever since which explained their argument that the nature of institutional relations is a significant factor in economic and social health of localities. In other words, "institutional thickness" is based on idea that regions and places are different (not all regions and places are able to embed global process). However, if and where this happens, process of development can be "linked" to the local level. Thus, regions and places are not simply containers of development processes but actors of their own development (Amin and Thrift, 1995).

The relevance of the institutional factor for the performance of networks of actors is also related to the distribution of power and resources between the State and sub-national authorities (regions, counties and municipalities). In that respect, in some countries, local authorities have competence in regulating important issues such as traffic management and local public transport, building regulations and urban planning as well as some social services. By contrast, in other countries central and intermediate levels of governments (i.e. regional level, inter-municipal level) share competences in all areas relevant to economic development such as infrastructure human resources, productive environment and social services (ESPON FOCI, 2010).

Furthermore, the importance of institutional factor for growth and development may be demonstrated by a process of decentralisation of political and administrative structures, and empowerment of regional and local institutions (e.g. employment, industrial restructuring, higher education, R&D) (Sorens, 2009). As Hamdouch and Moulaert (2006) argued, benefits for local networks of actors from the institutional system where public and private investment and resources are spread across the (national) territory would be in the long run greater than in a more centralised system where the investment is concentrated and shared between the capital and few larger cities. Moreover, several studies conducted by the ESPON (Nordregio, 2005; OIR, 2006; ESPON FOCI, 2010; ESPON SGPTD, 2012; Servillo, 2014) outlined that, on the one hand, the performance of local territories is significantly affected by national government policies – implicit or explicit, direct or indirect. Territories, in fact, perform better where national, regional and local policymaking systems are horizontally and vertically aligned. Institutions, thus, shape the orientation and the content of public policies and regulations, which, in turn, influence strategies and coordination modes within development processes. On the other hand, economic actors and public authorities, through their decisions, actions and interactions (networks), may modify the existing institutional framework or even build a new one. Thus, the development process becomes a continuous flow of opportunities to influence the system and to initiate new forms of networks of actors and their coordination (Hamdouch and Moulaert, 2006).

In addition, many scholars stressed the importance of institutional mobilisation of resources and networks of actors to achieve agreed long-term objectives through systematic, coherent strategies and policies (Pecqueur, 1989; Stöhr 1990; Healey, 1997; Magnaghi 2003; Hamdouch, 2005; Knox and Mayer, 2009; Demazière et al., 2012). According to them, local mobilisation of broad networks of actors is crucial for many local policy initiatives to succeed to overcome disadvantages of their

territories in terms of accessibility, life quality and job creation. Yet, according to the study ESPON FOCI (2010), there might be some important hindering factors at the micro-level of many countries that pose a threat to coordination of institutional system and networks of actors: heterogeneity of competences, limits of competencies, inadequacy of administrative boundaries in relation to the issues on the ground, limitations in financial resources of the respective administrative levels of the partnership, competitions and mistrust between partners, absence of mechanisms and instruments to set aside local interests for the greater regional good, lack of coherence, etc.

- Governance -

Today's urban systems are characterized by complex patterns of interdependencies between actors, institutions and functions (Nordregio, 2005). City governments are not anymore "the only" but one of many actors competing for access to resources and control of the policy agenda (Davoudi, 1995). As a result, it is necessary to distinguish between concepts of "government" and "governance". According to Healey et al. (2002), "government" refers to the dominance of state power organized through the formal and hierarchical public sector and bureaucratic procedures. In contrast, "governance" refers to an alternative model for managing collective affairs, which is horizontal and self-organizing among mutually interdependent actors (Jessop, 2000). Likewise, governance means "effective coordination of interdependent forces within and beyond the state" (Jessop, 1997, p. 96).

A shift from "government" to "governance" led to the fragmentation of local government and to the disruption of the established hierarchical channels and networks (Nordregio, 2005). Therefore, a new challenge for governance emerged which is creating new forms of integration and coherence out of fragmentation and inconsistency (Stoker, 2000; Richards and Smith, 2002). This is particularly challenging in relation to spatial planning aimed at promoting a polycentric development. Given the new condition of governance, the capacity of institutions to create new networks of actors for collective action seems to be central, even though conditions affecting capacity vary between different territories (Healey, 1997).

In scientific circles, governance is understood as a pillar of creation, stability and competitiveness of networks and yet it has remained quite unexplored in an empirical way (Alberti, 2001; Ehliner et al., 2007). Indeed, many authors who studied cluster dynamics consider governance to be a structural element in ensuring the sustainability of clusters and networks of actors, thus knowing more about it would allow understanding of the development trajectory of networks (Llobrera et al., 2000; Alberti, 2001; DePropis and Wei, 2007). Furthermore, as complex and multifaceted as they appear, the key challenges for networks seem to be in cooperation of heterogeneous and hierarchically independent actors engaged in collective dynamics. Therefore, their modes of organization and governance are seen by scholars to be crucial to ensure their sustainability (Alberti, 2001).

Furthermore, according to some scholars, networks are already a specific type of coordination and a form of governance itself. Networks seem to have their own governance, characteristics, methods of conflict resolution and legitimacy (Powell, 1990; Hakanson et Johanson, 1993; Sorensen, 2005; Ehlinger et al., 2007). As demonstrated by empirical studies, social coordination, professional socialization, mutual trust, collective punishment and reputation are all mechanisms of governance that are more important for network creation and its sustainability than for the existence of legal authority of the network (Jones et al., 1997; Kale et al., 2000; Ehlinger et al., 2007). In that scope, governance of

networks is based on social contracts that enable different actors to adapt to environmental changes and to coordinate and ensure activities (Jones et al., 1997). Nevertheless, as pointed out by Chabault (2009), social contracts might seem sufficient to govern traditional networks like Italian industrial districts, but in networks that are the creation of proactive cluster policies and where actors are initially separated and unrelated, more formalized governance process might be required.

In the light of debate on the "appropriate" governance, increasing number of authors underline the need for a specific governance to assure the stability of modern networks (Gilsing, 2000; Alberti, 2001; Provan and Kenis, 2008). Their first argument is that the multiplicity of actors and their individual interest is likely to create tension, particularly in the context of territorial networks where local resources are limited (Sorenson and Audia, 2000; Provan and Kenis, 2008). The second argument is that the network can be a system of tension, especially due to the inability of actors to reach a consensus on common objectives or due to opportunistic behaviour of its actors (Sölvell et al., 2003). Thus, some authors are prone to more formal governance if the network has hierarchically independent actors involved in a collective action. As such it is likely to better manage the diversity of its actors by offering a common vision of development (Gilsing, 2000; Winkler, 2006; Provan an Kenis, 2008). The third argument is that in the absence of governance structure, the network is likely to lose much of its advantages and become a simple market (Fréry, 2007). Hence, the presence of a network coordinator may seem essential despite the danger of limitation of autonomy of other network members. In other words, even though governance may promote autonomy of individual behaviour, creativity and involvement of members and a collective control in the network may facilitate coordination of actors and cohesion of the system, it may also limit their adaptability and individual reactions (Alberti, 2001; Assens, 2003; Ehlinger et al., 2007).

- Policymaking -

Despite changes in theoretical thinking about growth and development, some authors argue that policymaking that responds to modern challenges of growth and development evolved quite less (Pike et al., 2006; Barca et al., 2012). In fact, it seems to take long for international organizations and scholars working on different development issues to react to the challenges of globalization and to address properly growth and development theory (Barca et al., 2012). In his critique of political science, Holland (2015) stated that all that exists are policy theories that focus more on the administration of policy rather than the normative criteria by which policies are initially designed. In other words, policy theories, such as pluralism (Dahl, 1961), elite theory (Dumhoff, 1978; Peterson, 1981), growth machines (Logan and Molotch, 1987), regime theory (Stone, 1989), neo-Marxism (Tabb and Sawer, 1978; Castells, 1983) or urban managerialism (Pahl, 1975; Saunders, 1986), they all model the governance and distribution of power in a political process, without providing an answer to "what are the parameters that serve as a basis for the normative judgement that these elites make from a limited set of options available in their policymaking" (Holland, 2015, p. 125).

Furthermore, scholars argued that, with few and minor exceptions, traditional policymaking for development in different parts of the world frequently ended up by designing and implementing similar (if not identical) strategies that rely on growth and development theories of the 1950s: supply-side or demand-side strategies based on sectorial rather than a territorial dimension (Barca et al., 2012). In fact, traditional policymaking seems to imitate successful development strategies that were applied in very different contexts (Storper, 1997; Pike et al., 2006). More precisely, in traditional policymaking, decision making was mainly top-down, while mixed, integrated and/or bottom-up

approaches were ignored. The tendency to depend on state aid, financial support, incentives and subsidies were key elements of the strategy and there was no real consideration of the regional or local context (Barca et al., 2012). Likewise, traditional policymaking is seen as not able to cope with the heterogeneous economic reality emerging from globalization (Roberts, 1993) and in many cases ended up with "policies and strategies of waste" (Rodriguez-Pose and Arbix, 2001).

Nevertheless, five recent major reports seem to announce a shift towards rethinking development strategies and policymaking:

- The World Development Report "Reshaping Economic Geography" by the World Bank in 2008 is grounded on the new economic geography theory. The perspective of the World Bank is advocating the advantages associated with the agglomeration effects of large cities, thus attempts to spread economic activity would hurt growth and prosperity. The report also argues that all territories must follow the same "path" of success which is the concentration of economic activity in dynamic poles.
- The Sapir Report "An Agenda for a Growing Europe" in 2004 shares the vision with the World Development Report by promoting space-neutral intervention with a primary emphasis on institutional reform, primarily targeting Member States rather than sub-national regions.
- The Barca Report "An Agenda for a Reformed Cohesion Policy" in 2009 advocated place-based policy as the best way to deal with underutilization and social exclusion in all areas of Europe. Exogenous policy action is seen as a way to trigger endogenous changes.
- The Report "How regions grow" by the OECD has a similar conclusion to the one of Barca and it stresses the individual characteristics of regions and their place specificity and proposes to go beyond "one-size-fits-all" development approaches. It underlines that opportunities for growth exist in every region and the role of development intervention is to mobilize regional assets and exploit synergies.
- The CAF Report "Local development: towards a new protagonist of cities and regions" in 2010 focused on a Latin American perspective and concludes that the answers to development problems are the promotion of integrated policies for each territory with special attention to the need of cities, city regions and regions.

These reports reflect a collective reaction of scholars and practitioners to the growing unease with the way traditional policymaking has been conducted (Barca et al., 2012). As a result, two approaches to policymaking were invented and adopted. The first approach, promoted by the World Bank, is spatially-blind and "people-based" policymaking focus on delivering an improvement in people's lives and guaranteeing equal access to opportunities regardless of where they live. Context, institutional and, in general, territorial specificities are seen as irrelevant because the accent is put on encouragement of people to move to places where they would be more productive (primarily in cities), which in turn would improve their lives and foster overall economic growth (Gill, 2010). The second approach, promoted by the EU and the OECD, assumes that the interactions (networks) between institutions and geography are critical for development. In that respect, in order to understand the impact of a policy, the specificities of the local and wider regional context need to be considered (Barca, 2009; Barca et al., 2012; Holland, 2015). Likewise, place-based policymaking points at a variety of cities and towns that, regardless their size, have the potential to make a substantial contribution to economic growth and development by achieving high levels of productivity in the activities in which they are best suited. From this perspective, a state or a region can reach its total potential by developing networks of places

of different sizes and densities, because “it is the performance of the urban and regional systems as a whole which is critical, rather than just the cities at the top of the urban hierarchy” (Barca et al., 2012, p. 140).

1.1.4 Conclusion of section 1.1

Unlike the social sciences that have a long-standing tradition in analysing various aspects of societies, the link between social structures and economic development has been for years overlooked by the mainstream economic theories. Likewise, any exploring of the theories of growth and development by using concepts such as institutions and social networks was labelled as a heterodox approach. Yet, a new generation of economists and sociologists share the idea that different social phenomena play a fundamental role in explaining the causes of performance and development.

The scientific research on networks of actors led to a conclusion that economic activities, productivity and innovation are embedded in existing social conditions. Influenced by special bonds of trust within their networks, actors choose their location, they organize their society and they learn and innovate. In order words, networks influence the flow and quality of information. As actors look for reliable and trustworthy sources of information, they make networks which provide them with such security. Moreover, networks are an important “*compass*” of behaviour which can award or punish actors (i.e. good or bad publicity, include or exclude). Their “corrective” potential is even stronger in networks whose members know each other well. Finally, networks encourage a strong relationship of trust which encourages its actors to consider the interest of a group before their own interests.

Cooperation, competition and proximity of actors play a structural role in networks. Competition and cooperation are the fundamental concepts of actors’ behaviour studied across social sciences. On the one hand, competition is considered as a critical component for human organization and survival, and as a basic mechanism of allocation of resources. On the other hand, cooperation enables exchanges of information and ideas and seeks complementarity among actors. It also provides actors with resources and technological knowledge that foster rapid development of innovations, access to new markets, economies of scale and sharing of both risks and costs. Competition and cooperation may co-exist at different scale and scope as supporters of coopetition have shown in their recent studies. Coopetition is an unconventional strategy in which actors simultaneously develop competition and cooperation with their partners-opponents. However, in order to create a system based on cooperation and/or competition, spatial proximity of actors is not sufficient. On the contrary, cognitive, institutional, organizational and social proximities of actors encourage creation of networks by bringing people together, favouring information contacts and facilitating the exchange of tacit knowledge.

Finally, institutions, governance and policymaking are contextual factors that set the “scene” for emergence and maintenance of networks. Institutions are structurally embedded, they evolve as networks, they are multi-functional and they are characterized by communication and interaction between network members which follow rules and codes. Governance is understood as a pillar of creation, stability and competitiveness of networks. As one of key challenges for networks is cooperation of heterogeneous and hierarchically independent actors engaged in collective action, the modes of governance seem to be crucial to ensure the sustainability of networks. Policymaking defines decision making process in networks which can be top-down, mixed, integrated and/or bottom-up. It

may also be more or less depending on state aid, financial support, incentives and subsidies and it may more or less take into consideration regional/local context.

The following section will explore the main economic theories and the conceptualization of the "City-network" theory. The selected economic theories were divided into the neoclassical and the post-neoclassical ones and they deal with subjects relevant for the "City-network" theory such as economic activities, production, clusters, urban hierarchy, growth and development.

SECTION 1.2: Theoretical foundations of the "City-network" approach

Before exposing the "City-network" theory and its relevance for the spatial analysis, it seems necessary to explore the evolution of scientific understanding of socio-economic dynamics. Indeed, the "bright minds" of the classical economics such as A. Smith, D. Ricardo, T. Malthus and J.S. Mill paved the way for the economic analysis of free markets in the new era of capitalism (18^{th} and 19^{th} century). It was the period of industrial revolutions that led to the vast changes in western societies. Their questions on production of goods and services under such new circumstances tackled the issue of a new organization of society.

Following the development of nations and the multiplication of interactions, the neoclassical school emphasized the exchange of goods and services as the key focus of economic analysis. The neoclassical economic theories that emerged focused on subjects such as profit maximisation, location choices, and concentration of activities. However, since the 1970s and the period of globalization and technological advances, the neoclassical approaches to economic analysis became outdated and were replaced by a new post-neoclassical current which put local territories, networks of learning, production and innovation in the centre of economic analysis.

The following section has three objectives. The first objective is to provide a critical overview of theoretical foundations that led to the conceptualization of the "City-network" theory. In that respect, we will explore some basic assumptions of the neoclassical and the post-neoclassical economic and development theories. The second objective is to provide some key definitions and features of the "City-network" theory. Finally, the third objective is to relate the "City-network" theory and its application in empirical research.

1.2.1 Evolution of understanding growth and development

The first part of this subsection confronts the "City-network" theory to several neoclassical theories that represent early landmarks of scientific reflection in the economic geography and the regional science: production economies, the location theory, agglomeration economies, the central place theory, the growth pole theory, and the core-periphery model. The second part of this subsection deals with the contemporary approaches which adjusted the understanding of development dynamics in the light of globalization and technological and organizational changes: the endogenous growth theory, the new economic geography, local systems (industrial districts, clusters, localized production systems, regional innovation systems), world cities' hierarchy and global cities' networks.

- Neoclassical theories -

So-called "production economies" which comprise **economies of scale** and **economies of scope** are the fundamental concepts of the theory of the firm (Triebs et al., 2016). The scientific relevance of economies of scale and scope for the regional science lays in their two postulates. Firstly, firms may realize economies of scale if technology allows production costs to rise proportionately less than output when output increases[4] (Panzar and Willig, 1977). This implies that in most manufacturing industries, there is a firm size beyond which economies of scale are exhausted and no added value is created (Scherer et al., 1975). Secondly, through joint production of two or more products, firms may achieve economies of scope and lower their production costs which would not be possible if firms kept their production independent[5] (Clark, 1988). Thus, economies of scope arise with different final products or with vertically related stages of production (Pollitt and Steer, 2012). As for the regional science, it is important to underline that industry structure is greatly influenced by the nature of production economies. In other words, if an industry is characterised by both economies of scale and economies of scope, it will tend to be made up of large diversified firms. Alternatively, if there is neither economy of scale nor scope, small specialized firms will tend to dominate the industry (Clark, 1988).

Building on the econometric observations of economies of scale and scope, the **location theory** and **agglomeration economies** were developed by economists and economic geographers as a response to the ignorance of space in traditional economic analyses. Their objective was to explain economic mechanisms that distribute activities in space. On the one hand, in the location theory, the optimal location of activities is strictly related to the costs of transporting raw materials and final products (von Thünen, 1851). On the other hand, agglomeration economies (location and urbanization economies) observe clusters of firms that are not a result of the transportation costs but a result of close proximity to a large number of other firms (Marshall, 1920; Jacobs, 1969). More precisely, Marshall (1920), followed by Arrow (1962) and Romer (1986), argued that closely located firms in an industry may benefit from sharing similar labour, intermediate input and knowledge spillover. Yet, compared with Marshall's notion of industrial agglomeration, Jacobs (1969) asserted that the spillover of complementary knowledge may also happen across diverse industries. It, thus, extended the subject of agglomeration economies to the context of co-agglomeration of multiple industries (see Glaeser et al., 1992; Feldman and Audretsch, 1999; Ellison et al., 2010; Jacobs et al., 2011). In addition, some recent

[4] The degree of economies of scale in a firm has been defined as:

$$\text{Sca} = \frac{C(q)}{\sum_{i=1}^{n} q_i C_i(q)}$$

where the scale of the economy (*Sca*) is given by the production cost (*C*) for a single firm to produce outputs (*q*). This is divided by the sum costs of producing each of the outputs separately over the full range of products (*n*). (*q*) is a vector of all of the products, i.e. $q = (q_1, q_2, q_3 \ldots, q_n)$, and C_i is the marginal cost. Economies of scale are realised when *Sca* > 1 and diseconomies when *Sca* < 1 (Pollitt and Steer, 2012).

[5] For an example of two products (q_1 and q_2), the degree of economies of scope is defined as:

$$\text{Sco} = \frac{C(q_1,0) + C(0,q_2) - C(q_1,q_2)}{C(q_1,q_2)}$$

That is, the degree of the scope economy is equal to the cost of producing each of the goods individually subcontracted by the lowest possible cost of producing them jointly. This is all divided by the cost of producing them jointly. Therefore, if *Sco* > 1 there are economies of scope that can be gained, and if *Sco* < 1 there are diseconomies of scope (Pollitt and Steer, 2012).

studies pointed at the existence of inter-city knowledge spillover and synergy effects[6] between firms of different cities because firms agglomerated in one city may also enable firms in the neighbouring cities to access the skilled labour pool and technology at a lower cost (Ke and Feser, 2010; Shanzi et al., 2012; Günter et al., 2012; Schosser and Wittmer, 2015; Juan and Yun, 2016; Ivanova et al., 2016).

However, despite a wide usage of the location theory and agglomeration economies in the scientific literature, they seem unable to explain underlying mechanisms that drive these effects (McKillop et al., 2015). For example, what was misunderstood is the fact that firms in big cities may learn from other firms located in smaller cities and towns because they have a direct supplier-customer relationship with that firm, because they hire workers from that firm or because they observe what other firms in other smaller cities and towns are doing and copy them. Furthermore, as criticized by Hoover (1937) and Glaeser et al. (1992), the location theory and agglomeration economies are temporally and spatially static which means that they may be able to explain the formation of cities and their specialization or diversification, but not their growth (Glaeser et al., 1992; Capello, 2011). The reasons why these traditional approaches were criticized by regional and urban economists is the fact that they did not take into account the existence of other activities and alternatives location such as urban or non-urban areas, central or peripheral ones, areas with high or low concentrations of activities (Capello, 2011). "When they consider the existence of several activities, they rule out the possibility that these might locate in alternative urban centres. And when they deal with several cities, they reach somewhat paradoxical conclusion that the existence of urban systems apparently in equilibrium entailed that those cities must all be of the same size." (Capello, 2011, p. 6).

In the attempt to overcome some of the limits of the location theory and agglomeration economies, **the central place theory** was developed with the objective to study the organization of urban systems forming nested hierarchies of centres (Christaller, 1933; Lösch, 1954). According to this theory, central places emerge in location where market areas for different products overlap. Thereby there is a hierarchically structured system of cities of different sizes and economic diversity: smaller cities tend to concentrate activities of low order, slightly larger cities concentrate higher order activities while the largest cities concentrate activities of the highest-order. In addition, the theory highlights the hierarchical (vertical) dependence of smaller cities on larger ones (Capello, 2011; Shearmur and Doloreux, 2015).

The central place theory made a very important contribution to the understanding of urban systems and hierarchy of places, however, since its creation in 1930s and 1940s, the world has changed and the above-mentioned principles have lost their accuracy. The modern critique of Christaller's theory points at a static perspective and ignorance of many important dimensions of urban systems, particularly labour migration as serious limitations in understanding modern urban systems (Capello, 2011). In Europe, we have witnessed, processes of city specialization in particular markets, presence of higher order functions in centres of lower order, horizontal exchanges between cities across the urban hierarchy and spatial proximity as no longer crucial for agglomeration externalities (Balland, 2012; Torre, 2014; Torre and Wallet, 2014). The central place theory, according to which links between cities are strictly vertical and hierarchical, has therefore become obsolete (Meijers, 2007; Derudder and

[6] Introduced by Ansoff (1965), the synergy concept is described by a simple equation 2 + 2 = 5, pointing out that the combination of two individual parts creates more value than the separate individual parts. Unlike economies of scope, the supporters of synergy underlined the value enhancements that can derive either from less input factors needed to produce the same output or from a higher output with constant input factors (Schosser and Wittmer, 2015). In both cases, it is argued that due to synergy effects, an efficiency enhancement and a reduction of redundant functions and processes lead to value creation (Teece, 1982; Chatterjee, 1986; Seth, 1990).

Witlox, 2010; Parr, 2014). Many recent studies provide empirical evidence that new horizontal and non-hierarchical connections among cities follow "network logic, where specialization patterns are the main reasons to establish economic relationship. […] Cities have a possibility to reach higher critical mass and scale economies through network integration in the economic, logistic and organizational fields with other cities." (Camagni et al., 2013, p. 319).

Furthermore, it is necessary to mention some additional insights into the hierarchy of urban systems provided by **the growth pole theory and the "core-periphery" model**. On the one hand, Perroux (1950) and Boudeville (1966) observed the spatial interactions at the regional level and defined the space as a network that is held together by centripetal forces. The (regional) network is based on "poles" which are defined as the presence of propulsive firms and industries that generate sustained regional growth through linkages with other firms in a region. In that respect, the polarized development may benefit both the growing region and the surrounding hinterland. The growth may also produce unfavourable polarization effect resulting from competition and trade barriers erected by the developed regions (Dawkins, 2003). For example, the growth pole may create a spatial system such as the metropolitan areas that dominate over weaker centres and regions. They become competitive for peripheral regions and make them dependent on their economic policy (Szajnowska-Wysocka, 2009). In addition, Perroux (1950) emphasized that in such polarized system, it is needed to create new growth poles and to strengthen relations between metropolis and the region in order to intensify diffusion and stimulation of economic growth (Malizia and Feser, 1999).

On the other hand, the "core-periphery" model was used to emphasize differences between developed and developing countries at the global scale. According to this model, the domination of the centre is not only technological, but also political and cultural one. The peripheries are hierarchically subordinated to the centre. Moreover, the relations between the core and the peripheries are neither balanced nor equal (Szajnowska-Wysocka, 2009). Friedmann and Alonso (1964) directed the path for further reflection of scholars by arguing that core regions and/or countries are economic centres with the greatest potential for change and they are located in places of strong influence. In addition, development is seen as an innovative process located only in large metropolitan centres that dominate over the peripheries which puts this model in a traditional "classical" economic framework (Friedmann and Alonso, 1964).

The growth pole theory and the "core-periphery" model were abandoned in the 1980s due to growing dissatisfaction with the lack of coherence between traditional notions of growth poles and cores and empirical studies (Dawkins, 2003). Moreover, many policies that followed the logic of the growth pole and "core-periphery" models have failed in their attempt to stimulate economic growth in lagging regions (Dawkins, 2003). The critics of these two theories also point at difficulties of applying Perroux's original but abstract formulation of regional development, at the lack of emphasis on the process of structural change within growth poles/cores over time, the weak behavioural basis of theories, the lack of explanation why some growth poles and cores tend to grow faster than others, etc. (Darwent, 1969; Thomas, 1972; Hermansen, 1972; Higgins, 1983). Nevertheless, the growth pole theory and the "core-periphery" model provided some insights on effects of polarized development and competition within a spatial system which were further developed by the "City-network" theory.

Overall, even though the neoclassical theories such as the central place theory, the growth pole theory and the core-periphery model provided a wider approach to the location theory and agglomeration economies (Parr, 2014), they still seem to be closely associated to "orthodox" economics of the

regional science: profit maximisation of economic agents, measures of distance through costs and location choices, concentration in large cities and vertical hierarchy of urban system (Dicken and Lloyd, 1990). Since the 1970s, doubts related to "orthodox" economy and centralized planning (Jacobs, 1961; Friedman and Weaver, 1979) resulted in those theories falling out of fashion (Livingstone, 1992; Barnes et al., 2007). At the same time, political commitment to decentralization put local territories into a focus of economic geographers (Massey, 1985; Storper and Walker, 1989). The endogenous factors were popularised by "post-neoclassical" scholars, and increasing attention was given to localized networks of learning, production and innovation (Moulaert and Sekia, 2003).

- Post-neoclassical theories -

In an attempt to correct traditional "orthodox" economic theories, the endogenous growth theory and the new economic geography offered two improvements. First, they enabled "orthodox" economists to re-examine the spatial dimension of economy by providing them with new growth models that include agglomeration economies and used traditional tools of economic theory. Second, they introduced elements of uncertainty into their growth models (positive cumulativeness and negative feedbacks) and the final equilibrium which until then was not done (Capello, 2011).

On the one hand, **the endogenous growth theory** proposed a model in which long-term growth effects are endogenous variables related to investment in human capital and exchange of information between companies (learning) (Stiglitz, 1989). More precisely, growth combines: (1) economic inputs that are generated locally (i.e. resources, technology, economic actors), (2) cultural needs and community identity and (3) political decision making and involvement of local actors in the policy process (Moulaert and Sekia, 2003). Hence, regions and towns that have a communal tradition, civic maturity and a high concentration of production may create conditions for innovation and knowledge flow between firms through the process of learning (Szajnowska-Wysocka, 2009). In addition, the growth is a race for monopoly-control over the creation of innovations through experience in internal production which results in gaining a competitive advantage (learning-by-doing) (Schumpeter, 1947; Arrow, 1962). In other words, growth is propelled locally by qualified employees, public administration, scientific institutions and business organisations. On the top of it, the growth concerns also technical infrastructure where "soft" infrastructure (science, education, institutional structure) becomes more important (Szajnowska-Wysocka, 2009).

Overall, even though the endogenous growth theory has not explicitly focused on urban or regional networks, it introduced some "unorthodox" growth and development factors within the context of territorial innovation dynamics: human capital, local business culture and schooling system, infrastructure, quality of production factors and systems, and learning from the regional experience for renewed regional development (Ratti, 1992). Thus, the endogenous growth theory was the beginning of a literature on endogenous territorial development and regional innovation systems (Kafkalas and Komninos, 1998).

On the other hand, **the new economic geography** focused on the formation of a large variety of economic agglomeration in space through static predictions about the forces that lead to the emergence of industry clusters (Fujita and Krugman, 2003). According to this theory, the clusters of economic activity emerge due to a combination of centrifugal (diseconomies: immobile factors, land rent,

commuting, congestion, etc.) and centripetal (external economies: networks, thick markets, knowledge spillover, etc.) forces (Fujita and Krugman, 2003). Moreover, the new economic geography provided an interesting, but debatable core-periphery pattern of urban and regional systems where all manufacturing is located in the core and all agricultural production is located in the periphery. In fact, such pattern was an attempt to explain a network system in which agglomeration (growth) shadows prevent urban areas from forming too closely to other equal- or larger-size urban areas due to fierce spatial price competition (Partridge et al., 2009).

Nevertheless, the new economic geography seems to rely on rather restrictive assumptions regarding worker mobility, land use and regional dynamics (Dawkins, 2003). As much as its predecessors (productive economies, the location theory, agglomeration economies, the central place theory), the new economic geography is preoccupied with industrial production and less with population movements in the 21st century (Glaeser and Kohlhase, 2004). As a result, it seems not to fully consider the diversity of factors underlying household location such as commuting or access to urban amenities; hence as a result it provided a limited explanation of modern urban hierarchy and network dynamics (Gaeser and Kohlhase, 2004; McCann and Shefer, 2004; McCann, 2007). In addition, in the new economic geography, agglomeration shadows limit larger urban areas to emerge next to one another while the relationship between smaller urban areas and rural hinterlands seem to stay unclear and of no interest for exploration (Partridge et al., 2009).

Since the late 1990s, few studies have been published in an attempt to establish a link between different theories in order to overcome their shortcomings. For example, Fujita and Mori (1998) made a fusion of new economic geography and endogenous growth into a model that explains the "Asia Miracle" and frontier economies. Bretschger (1999) combined elements of endogenous growth theory, new economic geography and traditional location theory into a model that explores the long-term impact of knowledge diffusion on regional growth trajectories. Acs and Varga (2002) provided a more general model of technology-led regional economic development by integrating some elements of new economic geography, endogenous growth theory and economics of innovation. Likewise, the endogenous growth theory has been combined with the role of institutions in growth. For example, Stough (2001) focused on local leadership associated with economic growth of metropolitan areas, a subject that has been until then ignored by researchers of endogenous growth. Harrington et al. (2001) linked elements of the new institutional economics and endogenous growth in order to explore how formal and informal institutions structure labour processes, necessary for economic growth.

When it comes to the economic geographers and their broader approach to spatial analysis, there are two different approaches that in particular have contributed to a better understanding of spatial networks and systems. The first approach explores the international economic division of labour, the capital circulation and the flows of power and knowledge at the global scale (Castells, 1972; Harvey, 1973; Zukin, 1980; Saunders, 1986; Katznelson, 1993) which resulted in a growing work on global cities, world cities and their hierarchy (Friedmann, 2004; Sassen, 2005). The second approach focuses on endogenous dynamics and a smaller local scale such as the local institutional endogeneity (Brusco, 1986; Aydalot, 1986; Becattini, 1987; Moulaert et al., 1994), the institutional coordination principles (Edquist, 1997), the evolutionist interpretation of the regional learning economy (Cooke, 1996; Cooke and Morgan, 1998) and the new industrial spaces (Storper and Scott, 1988; Saxenian, 1994) which introduced important concepts for the economic geography and the regional science such as industrial districts, localized production systems, clusters, innovative milieu, regional innovation systems, etc. (Moulaert and Sekia, 2003; Hamdouch, 2008). These two approaches within the economic geography

reflect a current wider debate on “global” versus “local”, “external” versus “internal”, “exogenous” versus “endogenous”.

Friedmann (2004) and Sassen (2005) are the most prominent representatives of the first approach as they focus on relationship between urbanisation and globalization (McCann, 2004). According to them, cities are powerful organizing nodes of the global economy which function as headquarters and financial centres that link national and regional economies to the global economy (Friedmann, 2004; Sassen, 2005). Furthermore, cities and their networks play an important role as nodes of global governance which promote the flow of people, ideas and information among states, global civil society and international organizations (Low et al., 2000; Taylor, 2005). In addition, the network of global cities is at the same time place-centred in a sense that it is embedded in particular region and it is trans-territorial because it connects sites that are not geographically close (Sassen, 2005). Nevertheless, the critique of this approach underlines the lacks of justifying cities’ hierarchy through a detailed demonstration of data on connections, flows and ties between cities as well as the fact that there are many variations in local dynamics due to local historical context, institutional change and regional trajectories which this approach does not take into account (Smith, 2005).

Despite their limited focus on strictly “productive/industrial” part of spatial systems, economists and geographers that studied local network dynamics in industrial districts, clusters, localized production systems, learning regions, etc. undeniably contributed to the understanding of local network dynamics. They share the interpretation of local business culture as dynamic and changing according to the socio-political discourse (Moulaert and Sekia, 2003). In other words, a stable community emerges through local linkages between firms, which enable the evolution of strong local cultural identity and shared industrial expertise (Marshall, 1920). The key characteristics of the network within that context are cooperation and competition among functionally specialized agents and the role of local culture - formal and informal institutional relations which depend on historical and socio-economic trajectories (Brusco, 1986; Becattini, 1987, Dei Ottati, 1994; Le Roy and Sanou, 2014; Bachelet, 2016). In addition, according to this approach, factors that impact these local systems are related to local-global tension, national and international economic conditions (Hamdouch, 2008), to market and competition (Porter, 1990), to the role of local institutions, culture, industrial structure and corporate organization (Saxenian, 1994) and to the role of collective learning (Moulaert and Sekia, 2003).

The following subsection will provide some key definitions and features of the “City-network” theory that we chose to be the theoretical platform for our research of urban systems.

1.2.2 Key concepts of the “City-network” theory

As we discussed in the previous section, the growing literature on proximities (Boschma, 2005; Carrincazeaux and Coris, 2011; Granovetter and Swedberg, 2011; Torre and Rallet, 2005), clusters (Porter, 1998, 2000; Cooke, 2001; Depret and Hamdouch, 2000, 2006, 2013; Nooteboom, 2004; Hamdouch, 2007; Hamdouch and He, 2009), local development initiatives (Polèse and Shearmur, 2006) and studies on urban hierarchies at a wider global scale (Taylor, 2004; Derudder and Witlox, 2010) provided theoretical and empirical evidence that “even if territorial dynamics remain relevant (Malecki, 2012), wider socio-spatial and institutional contexts can no longer be understood as ancillary” (Shearmur and Doloreux, 2015, p. 1526). Therefore, a network approach has been introduced in order to understand new socio-spatial contexts and contemporary knowledge travels

along privileged “pipelines” between cities and cultures which are neither spatial nor hierarchical (Bathelt et al., 2004; Shearmur and Doloreux, 2015).

The first part of the subsection coins the definition of the concept “City-network” and explores its evolution in scientific literature over the last forty years. The second part of the subsection discusses typologies of networks of cities among which the accent in put on typologies proposed by Dematteis (1990, 1991) and Camagni and Salone (1993). The third part of the subsection focuses on the multi-scalarity of networks based on the idea that different types of network at different scales interlink, compete and cooperate whether within or between cities. The final part of the subsection explores the structure of networks in which different interactions within the same territory have different networks (network externalities) that transform the organization of the city, its internal locations and its urban space.

- Conceptualization of the “City-network” -

Increased collaboration between actors and organizations leads to an economy in which networking becomes the most characteristic feature of social and business organizations (Deman, 2008). In particular, as the world is becoming even more inter-connected and technologies advance rapidly, networking seems to ensure not only economic benefits for its members, but also added value, innovation and knowledge-sharing (Choi et al., 2013).

The “City-network” perspective recognizes cities as functionally differentiated, but their functions are not determined by geographic constraints (transport cost and market range) unlike industrial districts, localized production system, cluster, etc. “Rather, economic agents within specialised cities connect to agents in other cities which offer complementary specialisations, or exercise geographic arbitrage as they select locations for corporate functions” (Shearmur and Doloreux, 2015, p. 1526). Indeed, networks of cities may develop within a limited geographic area (Hall and Pain, 2006; Meijers, 2007), but they may also develop aspatially through “pipelines” between cities and cultures (Shearmur and Doloreux, 2015) as it is the case of networks of world cities and global cities (Taylor, 2004; Sassen, 2005, 2009).

The concept “City-network” had a resonance in the scientific literature and it has evolved over the last 20 years (Table 1.1). **The general interpretation of the “City-network” is that it is a system of (inter)city-nodes connected by links and flows of different nature. In addition, it is characterized by hierarchical and non-hierarchical structures, cooperation and coopetition among cities, creation of synergies and advantages through the organization of urban structure** (Boix, 2003).

Table 1.1: Evolution of the City-network concept in the scientific literature

AUTHOR	CONCEPT	PRINCIPAL ELEMENTS
Theory of Systems Westlund (1999) Casti (1995)	Systems of objects added to a group of connexions.	Nodes and links
Dematteis (1990, 1991)	System of centres (or areas) related by links.	Nodes and links
Pred (1979)	An urban system with not only important vertical relationships	• Nodes and links • Vertical and horizontal

	(hierarchical), but also the horizontal and cooperative links.	relationships
Camagni and Salone (1993)	System of horizontal, non-hierarchical relationships among specialised centres providing externalities from complementarity/vertical integration or from synergy/cooperation among centres.	• Nodes and links • Horizontal relationships • Synergy and complementarity • Externalities.
Batten (1995)	Two or more cities, potentially complementary in function, which strive to cooperate and achieve scope economies by fast and reliable corridors of transport and communications infrastructure.	• Cooperation • Transport and communications infrastructure • Scope economies
Boix (2002)	Structure where the nodes are the cities, connected by links of different nature, through which flows of socio-economic nature are exchanged. These flows are supported on communication and telecommunication infrastructure. Principal characteristics of networks of cities are: the possibility of simultaneous hierarchical and non-hierarchical structure, cooperation (or competence – cooperation) between the cities, and the generation of advantages related to the organization of the urban structure.	• Nodes and links • Transport and communications infrastructure • Coexistence of hierarchical and non-hierarchical structures • Generation of advantages (network externalities) related to the urban structure and the interactions between the nodes
Vartianen (1997, 1998)	Inter-urban cooperation (transnational) of cities and other actors based on the city, with the purpose of use and develops synergetic effects.	• Urban networking as economic and organizational principle • Duality between cities and actors • Network can be a functional network (spontaneous) or a lobby
Taylor (2001)	A kind of organization where the actors are nodes and the social relationships the links. These social relations are economic links that acts to geographically structure the world economy.	• Nodes and links • Economics and sociology • Supra-nodal and sub-nodal • World system
Camhis and Fox (1992) **European Commission (1999)**	Formal agreement between relevant partners.	• Constitution in organizations • Defence of interests and promotion of specific networks

Source: Boix, 2003, p. 3.

Pflieger and Rozenblat (2010) argued that the network of cities depends on how a local entity and individuals are integrated in a larger network, but as well on how different entities from different networks interact within the same place. Therefore, three key features of networks are summarized as follows:

- The ***type of network*** depends on the behaviour of individuals, the power organization of networks and the dynamics of spaces within a single or multiple networks. Hence, whether it is the case of cooperation, competition or exclusion, there is a multiplicity of networks that connect cities.
- The ***scale of network*** points at the geographical scale where exchanging or sharing (of individuals, economic or social entities) is happening. Local, regional, national or international networks of cities are defined by the organization of the intra-urban space, mobility, technical networks and territorial organization.
- The ***connection structure between networks*** means that a city is an aggregation of multiple networks as well as an interconnection node between networks. In other words, different interactions within the same territory have different networks that transform the organization of the city, its internal locations and its urban space.

The following parts of subsections focus on the three key elements of the network of cities (type, scale and connection structure) which will enable the distinction of the "City-network" theory from the scientific mainstream. In that respect, the first part of the subsection will explore the typology of networks based on linkages and functions that exist in cities. The second part of the subsection will discuss the processes of networking at different spatial scales between various actors. The third part of the subsection will discuss the structure of networks by referring to concepts of centrality, centre, periphery and polycentricity.

- Type of networks of cities -

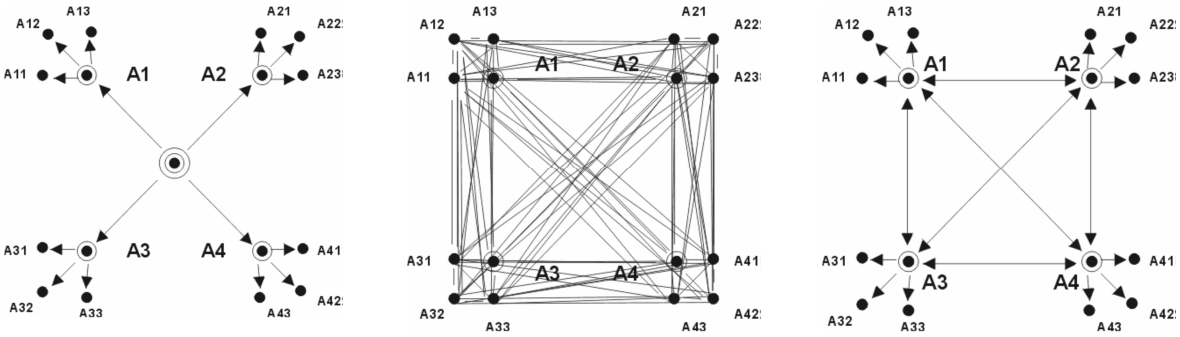
As demonstrated in the Table 1.1, various conceptual interpretations resulted in a set of networks' typologies. Nevertheless, the most prominent and the most quoted ones are those proposed by Dematteis (1990, 1991) and Camagni and Salone (1993).

According to Dematteis (1990, 1991) (Figure 1.2):

- ***Vertical (hierarchical) networks*** are the ones that have already been theorized by the central place theory (Christaller, 1933; Lösch, 1944). This type of spatial network describes a territorial system in equilibrium, with the application of the law of upper and lower range[7] and each rank of cities offers specific goods, products and services related to its size.
- ***Horizontal (non-hierarchical) networks*** do not apply the law of upper and lower range and there is no relation between the rank of cities and the offer of specific goods, products or services.
- ***Polycentric networks*** combine vertical and horizontal links in a sense that major centres generate agglomeration economies and high-order functions, but the upper and lower range law does not always apply because some centres may be specialized in a sector and attract consumers regardless their size or rank.

[7]The law of upper and lower range describes the farthest distance a population is willing to go to consume a good, product or services in one city and the minimum amount of consumption needed to offer the good, product or service (Boix, 2003).

Figure 1.2: Typologies of networks of cities



Vertical (hierarchical) networks | Horizontal (non-hierarchical) networks | Polycentric networks

Source: Boix, 2003, p. 4-5.

Camagni and Salone (1993) provided a typology of city-networks based, on the one hand, on linkages among centres that have different functions, economies of vertical integration, division of labour and market size (so-called complementarity networks) and, on the other hand, based on linkages among centres with similar functions, economies of horizontal integrations and network externalities (so-called synergy networks) (Camagni, 1992; Camagni and Salone, 1993):

- ***Complementarity networks*** are made between specialized centres that complement each other's' activities or functions through the division of labour. For example, some cities may have a strong specialization oriented to external (international) markets, while others within the network may act (and contribute to the network) as services centres.
- ***Synergy networks*** happen between centres with a similar economic profile that may formally or informally cooperate in order to reach a sufficient critical mass and to benefit from network (cluster) effects (Boix, 2003).

Unlike traditional theories presented in the previous section, the "City-network" theory takes into consideration the activities and the flow of population located in urban and non-urban areas, central and peripheral areas and areas with high and low concentrations.

In more traditional approaches, the amount of created knowledge, for example, depended on the rank (size) of a centre (Webber, 1972). As a result, innovations and knowledge were seen as spread in a hierarchical way from major cities to minor cities and towns. In the "City-network" theory, the diffusion of knowledge happens not only in a vertical way, but also among cities of the same rank and from cities and towns of lower rank toward cities of higher rank (Tullen and Boix, 2001). Firms in big cities may learn from other firms located in smaller cities and towns because they have a direct supplier-customer relationship with that firm, because they hire workers from that firm or because they

observe what other firms in other smaller cities and towns are doing and copy them (Capello, 2011). Likewise, the "City-network" theory stresses the importance of cities' specializations in particular markets, presence of higher order functions in centres of lower order (towns), horizontal exchanges between cities and towns across the urban hierarchy (Balland, 2012; Torre, 2014; Torre and Wallet, 2014).

- Scale of networks of cities -

The "City-network" theory does not consider places and networks as separate interactive processes but rather a form of co-produced spatial organization (Pflieger and Rozenblat, 2010). As shown by "proximity" school represented by Boschma (2005), Torre and Rallet (2005), Torre (2008, 2014) and Torre and Wallet (2014), the geographical proximity may enable economies of agglomeration in each network, however it is neither a sufficient nor a systematic condition for the existence of a network. In fact, "it is the spatial configuration of the various individual respective localizations of the interacting actors within activities that matters rather than their mere spatial co-location or their geographical proximity" (Hamdouch, 2008, p. 20). Therefore, what differentiate one space from another are the specific arrangements of networks that organize functions and entities on local and distant scales (Pflieger and Rozenblat, 2010). The school of proximity uses the terms organizational, cognitive and institutional proximities to explain networking and collaboration dynamics.

However, the "City-network" theory embraces what Hamdouch (2008) named "*multi-scalar networks*" while discussing innovation clusters and networks. Different types of network at different scales interlink, compete and cooperate whether within or between cities. Thus, through their interaction, some networks may impose their characteristics on others due to their domination in socio-economic or communication capacities (Pflieger and Rozenblat, 2010). In other words, new networking paths can occur at any spatial scale and "the openness of some innovation networks and clusters towards interregional, national or international relationship clearly illustrates this idea of multiple "circle of relationship" (Hamdouch, 2008, p. 25).

Indeed, the "City-network" theory recognizes cities as functionally different and geographically unconstrained. It embraces knowledge spillover and synergy effects which happen when actors from different cities and cultures connect irrespective of their spatial distance. As suggested by Castells (2010), new communication and transportation technologies led to the emergence of a space of flows at the global level and of polycentric networks that bring together not only close places, but also distant ones. In that context, a contemporary growth and development of cities stands for the ability to co-produce and to co-create networks.

- Structure of networks of cities -

The networks of cities benefit from four types of externalities (Boix, 2003): size effect, knowledge effect, reduction of transaction costs and organizational advantages. First, in the "City-network" theory, the ***size effects*** represent one of the key advantages of a network of cities. It has the same effect as concentration externalities but not in a sense of a geographical space as in traditional approaches, but rather as economic-relational space. In that context, towns may form a network that has the same functional dimension as a large city. They benefit from the network which assures a "mass effect" that enables them to provide high-order functions.

Second, the ***knowledge effects/spillover*** in the "City-network" theory emerges from the transmission of knowledge through the network of cities and multiplies it in each node. This perspective is different from the one of the traditional location theory and agglomeration economies where it happens only in large cities – seen as the concentrations of knowledge. Hence, according to the "City-network" theory towns, as much as cities, may be the "receivers" and the "emitters" of knowledge in a network (Boix, 2003).

Third, while the transport costs of firms were the subject of many economic analyses related to agglomeration economies and the location theory (Scott, 1988), the "City-network" theory defines and explore the ***transaction costs*** which als include the communication costs, the flux standardization, the space-time stability of flow, the existence of brokers and subcontractors, etc. These factors are on the one hand external to the firm, and on the other hand, internal to the concentration of firms and the existence of stable links between cities (Mori and Noshikimi, 2002; Boix, 2003).

Fourth, the ***organizational advantages*** are considered to be an important externality in the "City-network" theory as they arise from optimizing the distribution of resources and productions among cities and towns as well as from interactions between cities and towns in the network (knowledge distribution, transaction costs, etc.). Thus, the "City-network" theory takes into consideration the differences in distribution of knowledge in a network that has a shape of a tree (similar to the one of the central place theory) and in a network that has a "messy" form (Boix, 2003).

Therefore, unlike the traditional approaches that focused on functions and activities of major cities (Lacour and Puissant, 1999) as the only capable of achieving critical mass: the diversity and the size of labour market, the accessibility to high-rank services, the dense network of transportation, communication and research, etc. (Lacour et al., 1998; Black and Henderson, 1999), the "City-network" theory complements these approaches by exploring the network externalities across the entire city-network. In that context, the size of a single city or town in the network is less relevant than the size, type and structure of the network itself.

As we discussed in the previous subsection, the traditional approaches observed urban systems as mono-central in which peripheral areas are in dependence on core areas that are the only to capture positive externalities related to diverse and high-rank activities (Porter, 1995; Quigley, 1998). The core areas thus had a characteristic of being centralities within urban hierarchy whereas a centrality was defined as a concentration of flows, attractiveness and territorial organization (Dubois-Taine, 2000). Gaschet and Lacour (2002) enlarged the definition of centrality as the capacity of coordination and networking of actors and activities in an organized way. Thus, centrality is less physical and geographical and more functional element since it is a capacity to capture, organize, filter and disseminate flows of goods, people and information across the system (Gaschet and Lacour, 2002). As a result, there have been some interesting observations that confirm the relevance of the "City-network" theory in understanding dynamics of spatial systems:

- A simultaneous emergence of a large number of peripheral centres whose size is modest compare to traditional (large) centres;
- A strong specialization of various sub-centres, each of them having one or two major economic functions;
- A wide variety of specializations in various centres;
- The location of centres near transportation nodes and large infrastructures, often away from residential areas;

- The absence of hierarchy of centres both in terms of functions and distances of commuting (Gaschet and Lacour, 2002).

In other words, Gaschet and Lacour (2002) observe the existence of "networked centralities" (polycentricity) in which different urban functions are identified through inter-urban and intra-urban connections. Likewise, centralities are created in a network of specialized and complementary poles and not necessarily in city-centres as argued by traditional approaches. Thus, the city-centre may lose its centrality and see it moved to the periphery and remote places (Gaschet and Lacour, 2002). In other words, the centre is no longer a point in space where activities agglomerate, but it is a system of interactions that support the functioning of economy. Hence, the centre is wherever the economic functions are connected to the rest of the world. In contrast, the periphery represents all spaces (cities and regions) with no or poor connections to networks that remain non-globalized (Bourdeau-Lepage et al., 2009).

In the "City-network" theory, the polycentricity is more than a mechanical relation between a centre and its periphery. In fact, it is the emergence of new cities and towns, but also a creation of new roles, functions and responsibilities in the existing ones (Gaschet and Lacour, 2002). "It is the network that should restructure and "sew" an exploded agglomeration that has neither image nor soul and that should create unity and urban identity both in terms of infrastructure and spatial cooperation" (Gaschet and Lacour, 2002, p. 65).

The following section will present some applications of the "City-network" theory in the empirical researches which were inspiring for our further reflection on the research of urban systems.

1.2.3 Some examples of application in empirical research

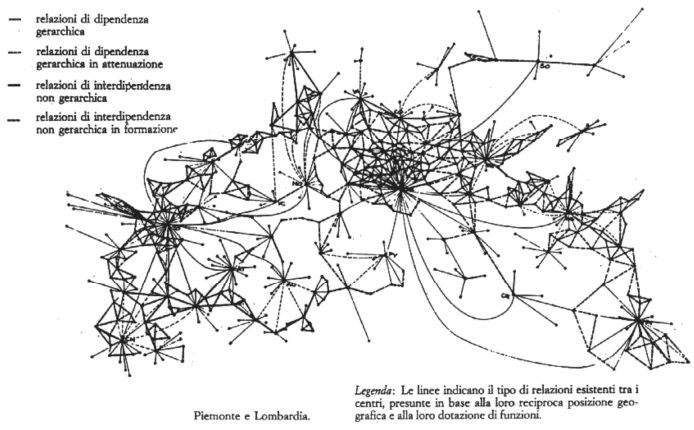
The section provides insights into several empirical studies of the "City-network" theory that have been conducted since the 1990s. Their applications were made in a different context (e.g. Italy, France, The Netherlands, Japan, Switzerland, Spain, etc.) by using some different methods and had in focus an observation of different dynamics: urban functions, hierarchy, specializations, cooperation, planning the network strategy, flows, evolution of spatial systems, polycentricity, small and medium-sized towns, etc.

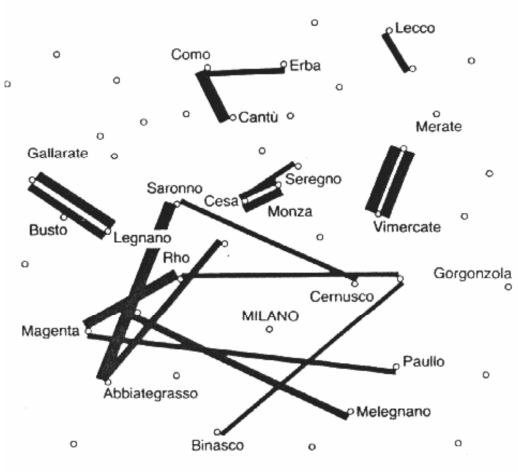
First, the studies of networks of cities in Piedmont and Lombardy regions were conducted by Emanuel and Dematteis (1990) and Camagni et al. (1994) (Figure 1.3). Emanuel and Dematteis tested the central place theory in order to verify if the functions of cities really corresponded to their rank. They used factor analysis on business services and personal services and found that the distribution of urban functions differs from what has been claimed by the central place theory. In other words, they found that the services not only cluster in a hierarchical way, but also according to the functional homogeneity and specialization. In fact, spatial interactions did not have a form of a tree as suggested by the central place theory, but rather of a network.

Camagni et al. (1994) used the gravity model in order to explore vertical and horizontal networks in Piedmont and Lombardy regions. They observed the relation between intensity of flows, telephone interactions, spatial distance and urban centres. The results of their analyses showed that the hierarchy is dominant in rural areas; reticular structures were located in urban zones; the metropolis (Milan)

acted as a regional gateway and other networks were made due to the presence of specialized districts and multifunctional nodes.

Figure 1.3: Networks of cities in Piedmont and Lombardy regions



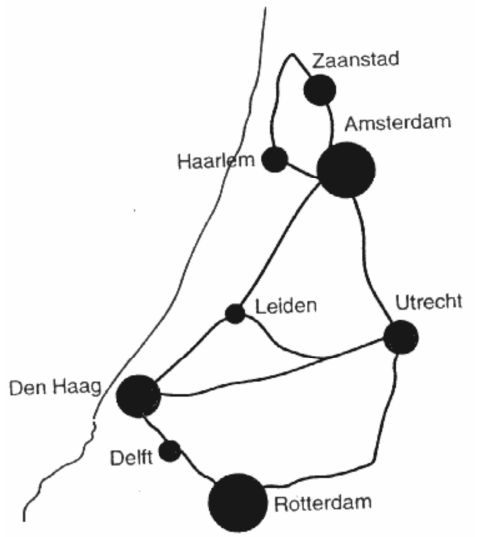


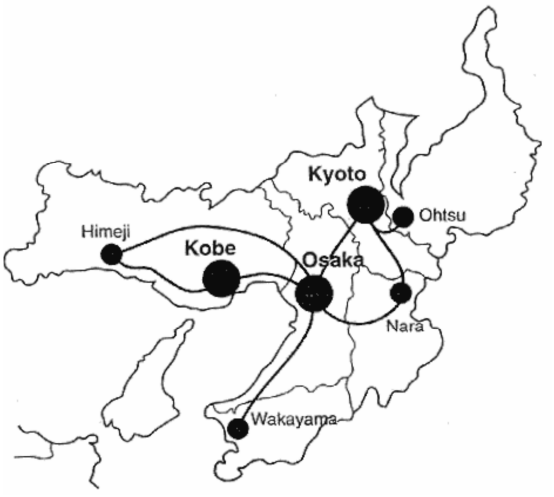
Source: Emanuel and Dematteis (1991)

Source: Camagni et al. (1994)

Second, Batten (1995) observed a variety of connections and their change in time between cities and towns in two regions: Randstad in the Netherlands and Kansai in Japan (Figure 1.4). In Randstad, author explored conurbations (Amsterdam, Rotterdam, Den Haag and Utrecht) being complemented by the lower-rank nodes (Delft, Haarlem and Zaanstad). It was the case of polycentric network in which cities specialized in a particular function such as port, airport, political function, etc. and complemented each other within the network. In Kansai, Batten identified six centres and several minor cities that all had important and traditional specialization either as administrative capitals, commercial centres, touristic and cultural centres, etc. which resulted in an integrated planning of the networked area.

Figure 1.4: Networks of cities in Randstad (The Netherlands) and Kansai (Japan)





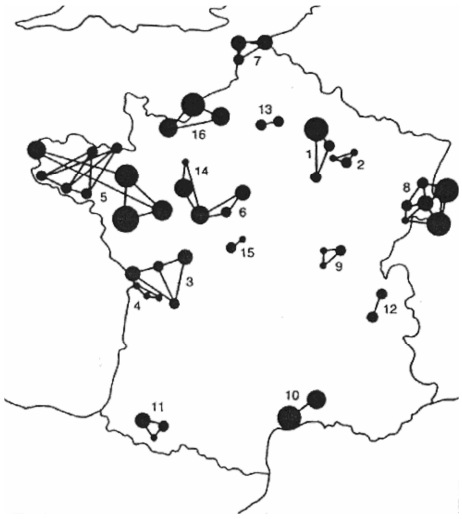
Randstad, The Netherlands

Kansai, Japan

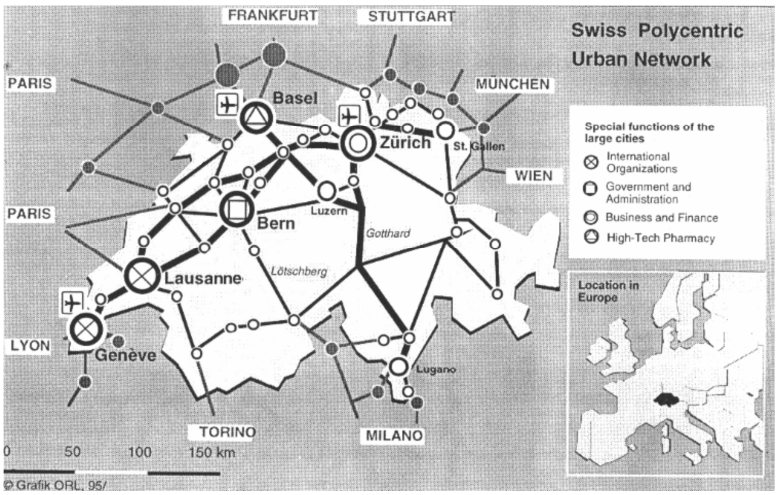
Source: Batten (1995)

Third, the relation between networks of cities and the spatial development strategy in Switzerland was explored by Ringly (1997) (Figure 1.5). The author found a number of specialized medium-sized and small towns within a polycentric network. The cities and towns used a functional complementarity of their network in order to overcome the handicap of their size. Ringly also observed the process of planning the network strategy, including internal and external challenges and competition coming from large urban centres.

Figure 1.5: Networks of cities in France and Switzerland



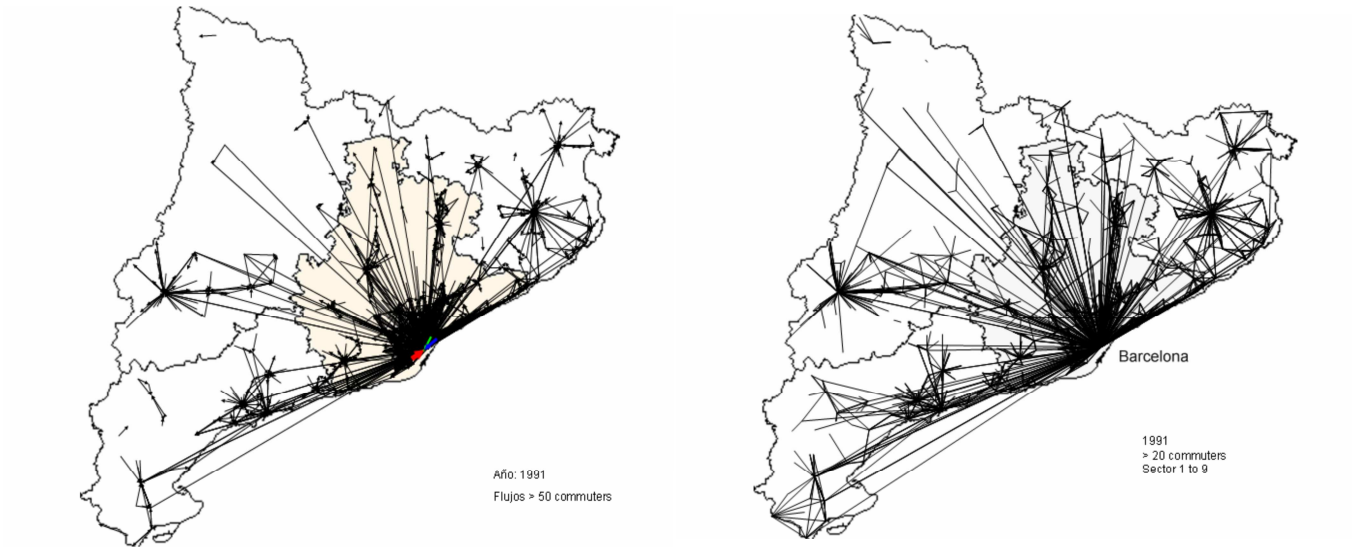
Source: Camagni and Salone (1993)



Source: Ringly (1997)

Fourth, the innovation networks in France were studied on several occasions. Camagni and Salone (1993) and Tesson (1997) were among the earliest authors to study the cooperation agreements among local administrations that created the innovation network (Figure 1.5). In France, these networks were part of a development policy that was introduced in the early 1990s with the objective to encourage cooperation around the provision of infrastructure, technology, education, culture and tourism. Each network was different in size, type and structure and mainly located in the periphery of big urban centres or in the border regions.

Figure 1.6: Networks of cities in Catalonia region, Spain



Networks by using the significant flow method

Networks by using the flow score coefficient method

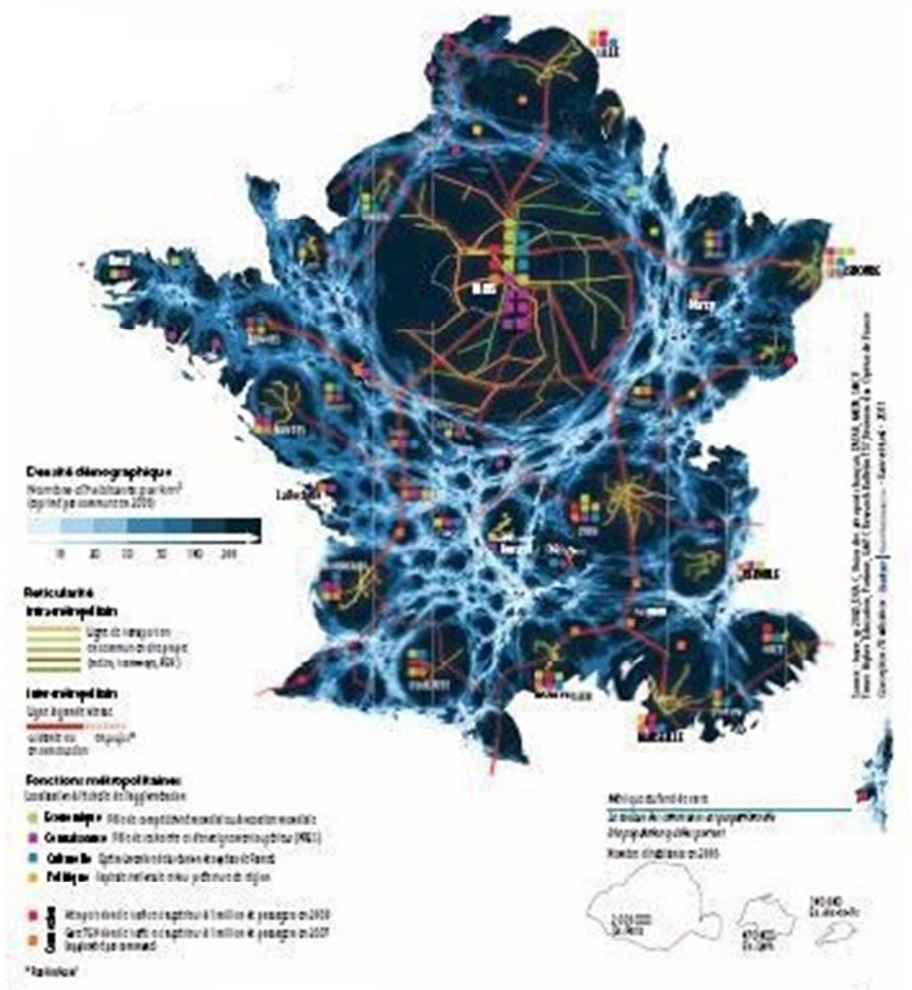
Source: Boix, 2002

Fifth, Boix (2002) provided a detailed analysis of networks of cities in Catalonia region, Spain by using two different methodologies: the significant flow and the flow score coefficient (Figure 1.6). The results using the significant flow method showed a network with a dense nucleus in the centre of the metropolitan region of Barcelona and links connecting Barcelona with other local subsystems (Tarragona, Lleida, Igualada, Manresa, Vic and Girona). The network consisted of both vertical and horizontal connections of towns and cities. The second method of flow score coefficient pointed at non-hierarchical structure of flows between specialized municipalities. At the same time, construction and services activities had more centralized and vertical structure.

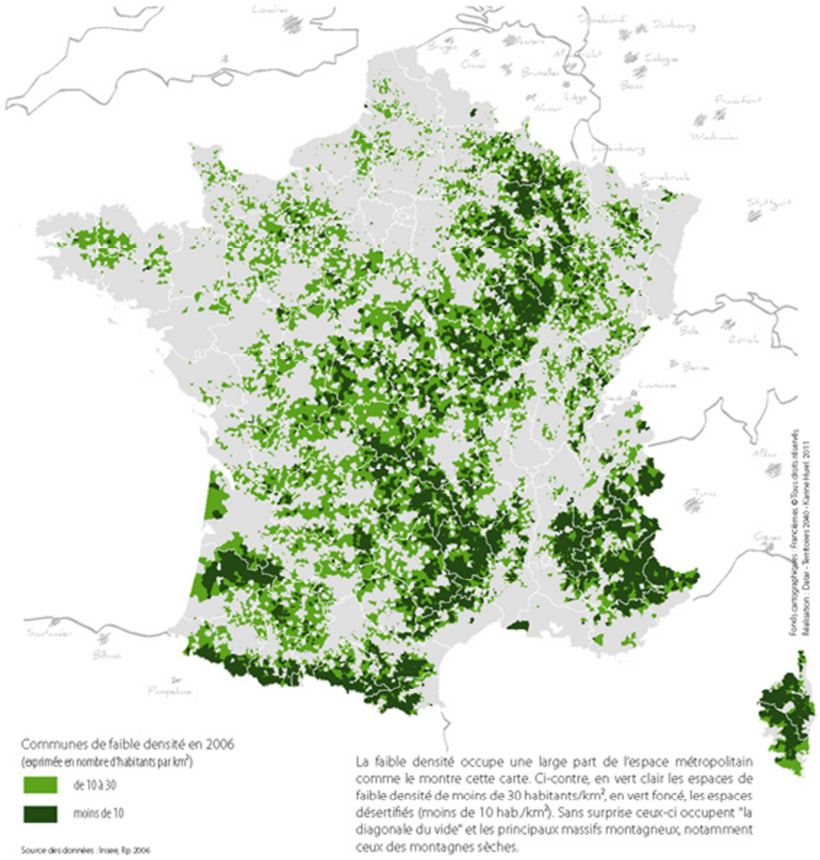
More recently, the French administration agency (DATAR) working for the Ministry of rural area and territorial planning published a detailed study on seven types of spatial systems: French urban metropolises, integrated metropolitan system, gateway and spatial system of flows, industrial areas, system of intermediate cities, residential and touristic areas, and low density areas (Figure 1.7). In this study, the DATAR used a vast number of data to identify endogenous and exogenous factors which affect spatial systems, including their creation and evolution in time and space: aging of population, international and national migration flows, inter-regional mobility and territorial attractiveness, climate change and evolution of areas, energy and environmental standards, bio-resources, agriculture, food needs, globalization and localization of economic activities, modes and places of consumption, technological innovations, geography of innovation, labour market, etc. In addition, based on diagnostics of spatial systems, the DATAR provided 28 scenarios of evolution of each spatial system for the year 2040.

Figure 1.7: Spatial networks analysed by the DATAR

French urban metropolises



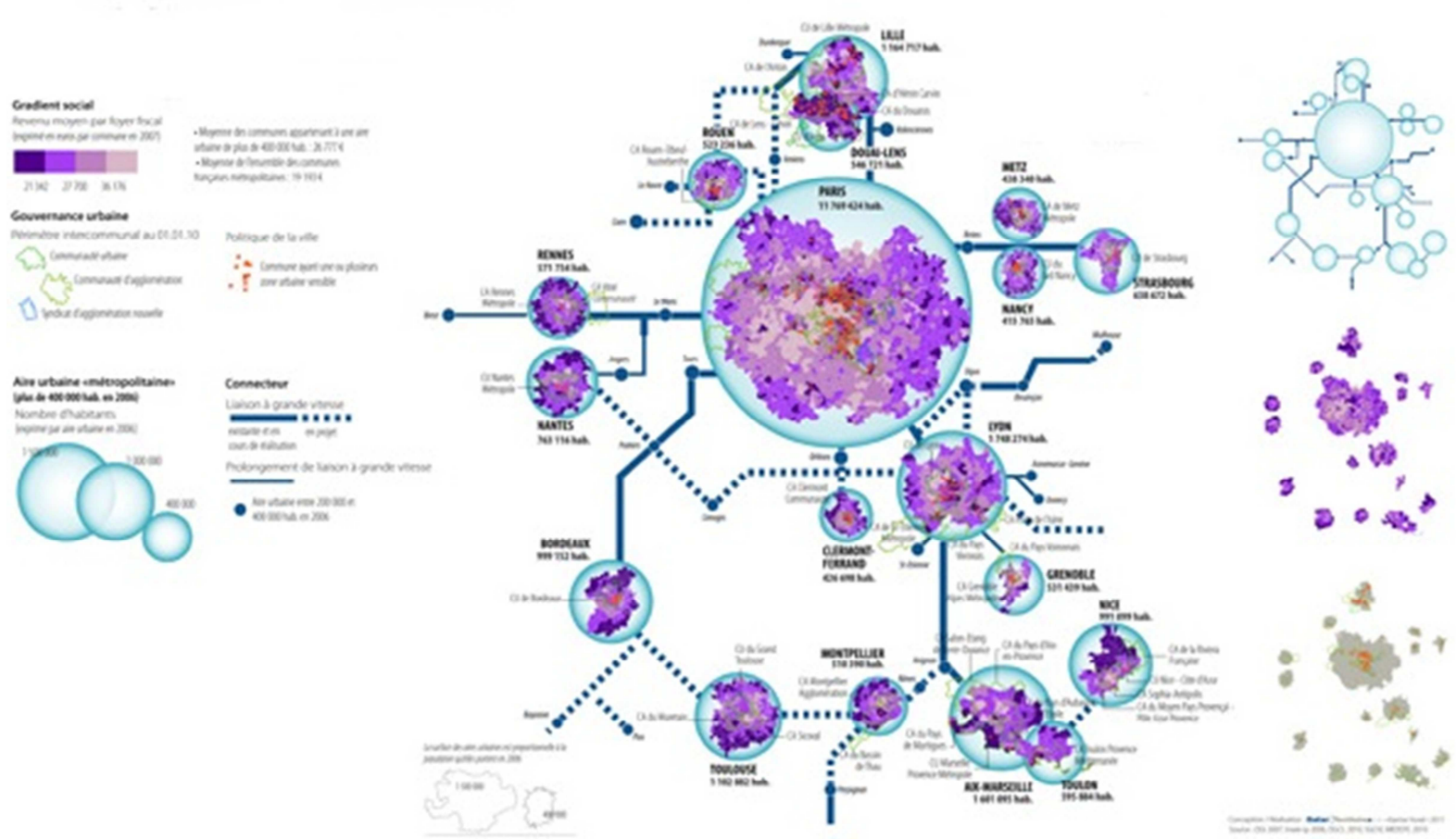
Low density areas



Source: DATAR (2011)

Figure 1.8: Spatial networks analysed by the DATAR

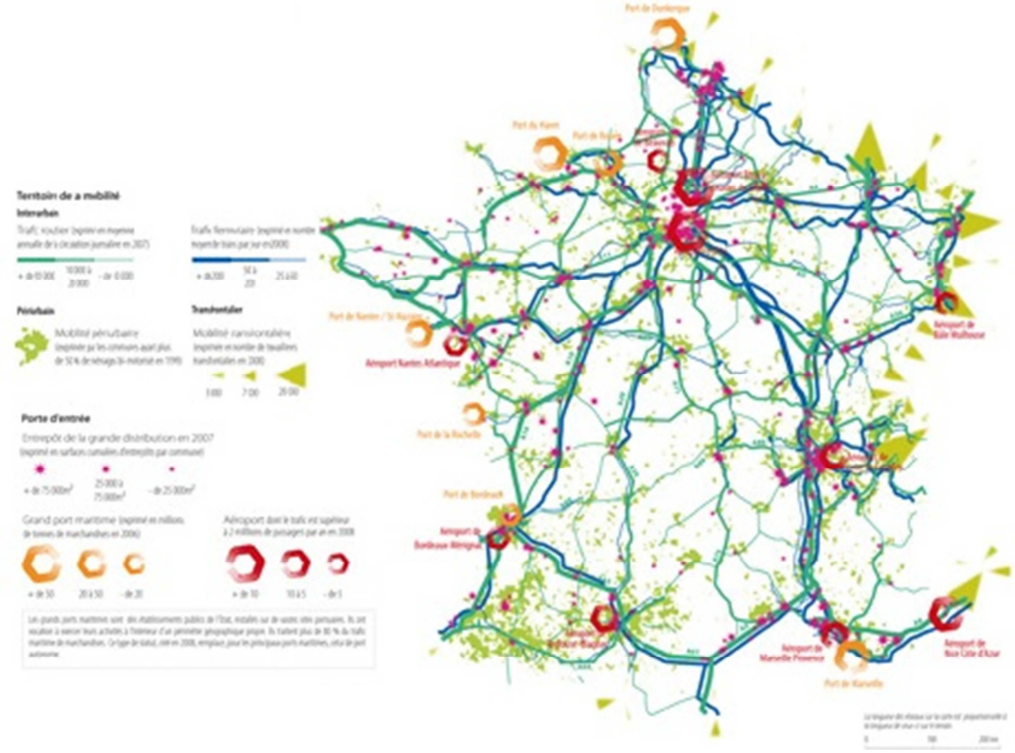
Integrated metropolitan systems



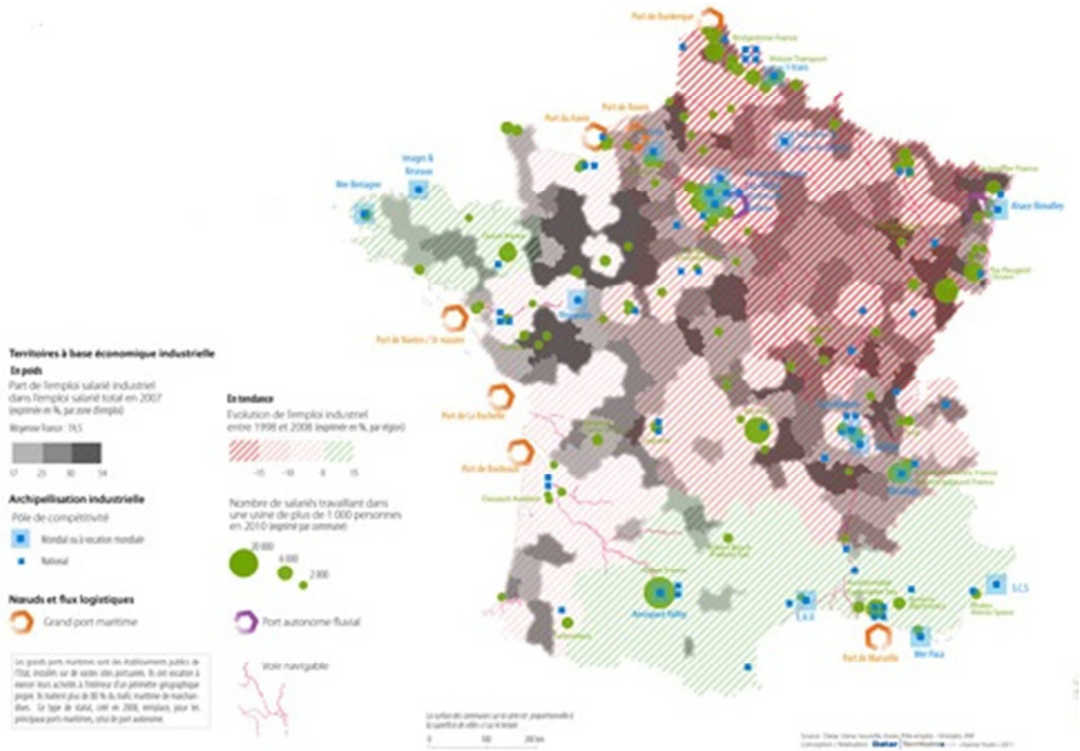
Source: DATAR (2011)

Figure 1.9: Spatial networks analysed by the DATAR

Gateway and spatial system of flows



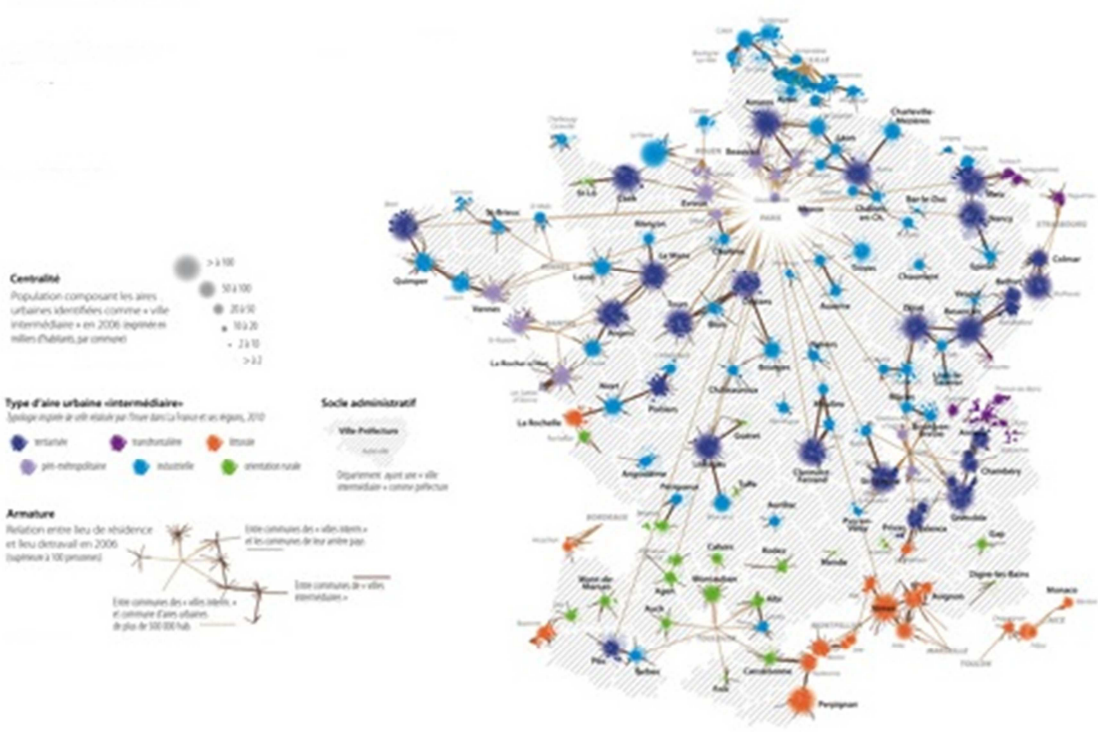
Industrial areas



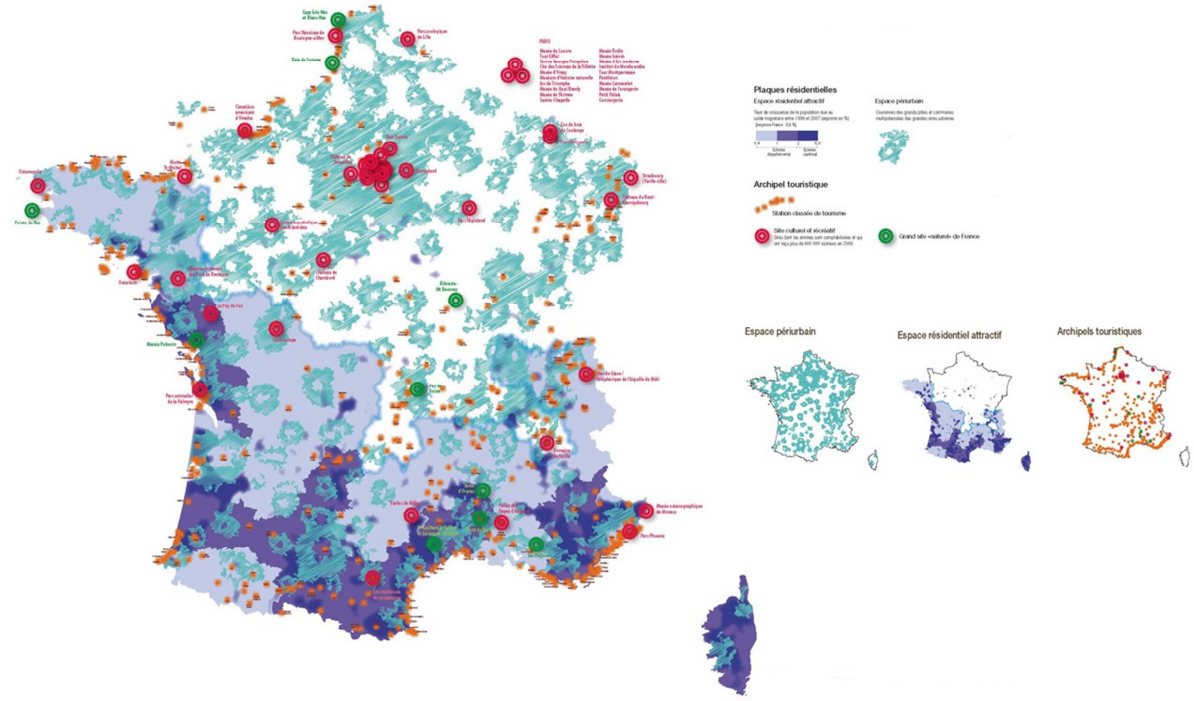
Source: DATAR (2011)

Figure 1.10: Spatial networks analysed by the DATAR

System of intermediate cities



Residential and touristic areas

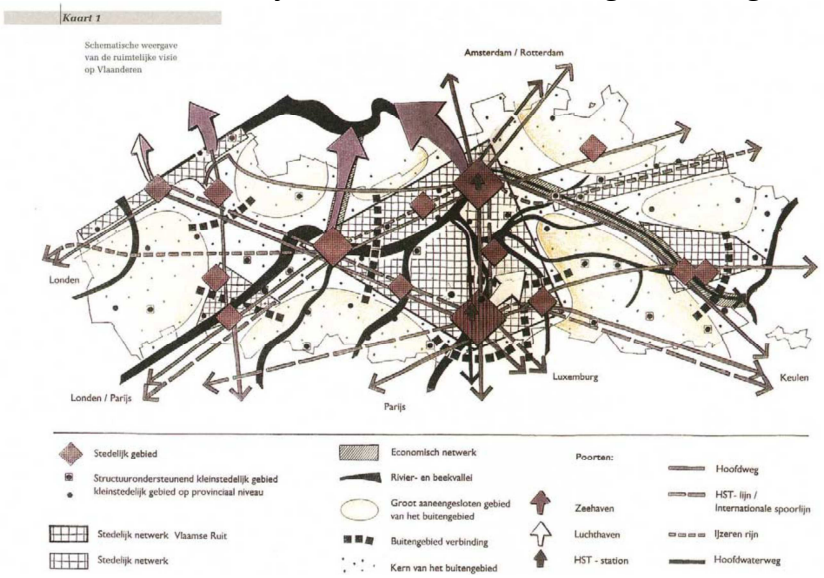


Source: DATAR (2011)

Finally, several projects coordinated by the European Observation Network, Territorial Development and Cohesion (ESPON) provided comparisons of the relation between the city-networks and the polycentric policies in some European countries. For instance, Nordregio (2005) focused on the polycentricity and its application in spatial policy and planning; Spiekermann et al. (2007) observed the flows of goods and people across the European continent and beyond; the European Institute for Urban Affairs (2013) conducted analyses of growth poles; and Servillo (2014) examined functional roles of small and medium-sized towns in the European context (Figure 1.11).

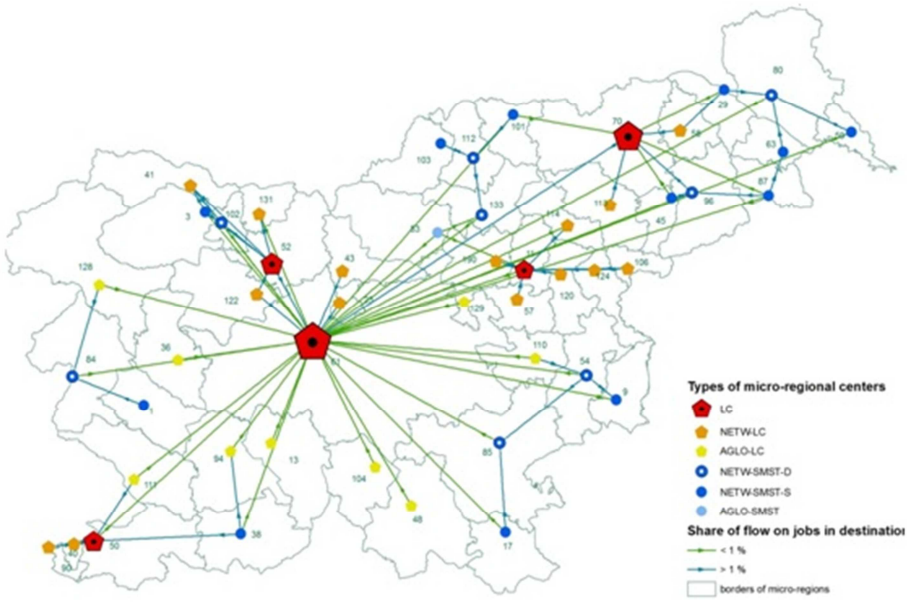
Figure 1.11: Examples of networks in two studies coordinated by the ESPON

City-networks of Flanders region in Belgium



Source: Nordregio (2005)

City-networks in Slovenia



Source: Servillo (2014)

1.2.4 Conclusion of section 1.2

The network as a fundamental element of development came into existence in the 1980s with the concept of the "*network society*" which emphasized organizational transformations and emergence of a globally interdependent social structure whereas connectivity and access to networks are essential: "The tight combination of ICT, development of human capacity to take advantage of the full potential of these technologies, and organizational restructuring based on networking becomes the key to ensuring productivity, competitiveness, innovation, creativity and ultimately power and power sharing." (Castells, 2004, p.42).

Following the development of the concept "network society", an increasing number of scientific works adopted a network approach to examine urban economies. In urban and regional studies, the "City-network" theory argues that, regardless their size, cities exist through networks that create them. At the same time, positioning of cities on global and local scale depends on economic, social, political and cultural networks in support of the scale and typology of networks, their structure and function and their historical trajectory. Furthermore, the "City-network" perspective recognizes cities as functionally differentiated and geographically unconstrained unlike in theories on industrial districts, localized production system, cluster, etc.

The concept "City-network" has evolved over the last 20 years. However, the general interpretation is that it is a system of (inter)city-nodes connected by links and flows of different nature. In addition, networks of cities are characterized by hierarchical and non-hierarchical structures, cooperation among cities and creation of advantages through the organization of the urban structure. There are three key features of networks:

- The *type of network* depends on the behaviour of individuals, the power organization of networks and the dynamics of spaces within a single or multiple networks. Hence, whether it is the case of cooperation, competition or exclusion, there is a multiplicity of networks that connect cities: vertical (hierarchical) networks, horizontal (non-hierarchical) networks, polycentric networks, complementary networks, synergy networks, etc.
- The *scale of network* points at the geographical scale where exchanging or sharing (of individuals, economic or social entities) is happening. Local, regional, national or international (multi-scalar) networks of cities are defined by the organization of the intra-urban space, mobility, technical networks and territorial organization.
- The *connection structure between networks* means that a city is an aggregation of multiple networks as well as an interconnection node between networks. In other words, different interactions within the same territory have different networks that transform the organization of the city, its internal locations and its urban space.

Unlike the traditional approaches that focused on functions and activities of major cities as the only capable of achieving a critical mass due to the diversity and the size of labour market, the accessibility to high-rank services, a dense network of transportation, communication and research, etc., the "City-network" theory complements these approaches by exploring the network externalities across the entire city-network. In that context, the size

of a single city or town in the network is less relevant than the size, type and structure of the network itself. In fact, the importance is given to the cities' specializations in particular markets, the presence of higher order functions in centres of lower order (towns), the horizontal exchanges between cities and towns across the urban hierarchy. In addition, "City-network" theory observes existence of "networked centralities" in which different urban functions are identified through inter-urban and intra-urban connections. Likewise, centralities are created in a network of specialized and complementary poles and not necessarily in the city-centres as argued by the traditional approaches.

CONCLUSION OF CHAPTER 1

This chapter was dedicated to the "City-network" theory and its related theoretical conceptualizations in some different scientific disciplines: the eeconomic geography, the institutional economics, the economic sociology and the new institutional sociology. Since the regional science, in particular urban and regional planning, calls for a multifaceted outlook of the territorial growth and development, we felt compelled to promote and apply the interdisciplinary approach in the conception of this chapter. Having this in mind, we observed the main paradigms of neoclassical growth and development theories which represent some early landmarks of scientific reflection in the economic geography and the regional science: e.g. production economies, the location theory, agglomeration economies, the central place theory, the growth pole theory, and the core-periphery model. We also referred to some contemporary approaches in the economics which adjusted to the new globalization dynamics and the technological and organizational changes: e.g. the endogenous growth theory, the the new economic geography, local systems (industrial districts, clusters, localized production systems, regional innovation systems), world cities' hierarchy and global cities' networks.

Furthermore, we explored the conceptualizations of networks in social science disciplines such as sociology, geography and psychology in order to provide an additional "soft" dimension to the economic explanations of territorial growth and development. Hence, we presented the arguments of the scientific studies on networks of actor that showed that economic activities, productivity and innovation are embedded in existing social conditions. Indeed, sociologists and geographers emphasized that networks are the result of actors choosing their location, organizing their society, learning and innovating. In that context, cooperation, competition and proximity of actors have a structural role in networks because they represent various types of relationships that actors form so to exchange information and ideas, to seek complementarity, to unlock development potential and to create synergies. The neoclassical and post-neoclassical trajectory of scientific reflections in the social science led to the conceptualization of the "network society" in which networking becomes the key to ensuring productivity, competitiveness, innovation, creativity and power. Indeed, as the world is becoming even more inter-connected and technologies advance rapidly, networks have become *modus operandi* to ensure economic benefits, added value, innovation and knowledge-sharing.

In urban and regional studies, the network approach resulted in the conceptualization of the "City-network" theory which argues that, regardless their size, cities exist through hierarchical and non-hierarchical networks, cooperation, coopetition and synergies of a polycentric organization of urban systems. Unlike traditional approaches that focused on functions and activities of major cities as the only capable of achieving the critical mass, the "City-network" theory complements these approaches by exploring the network externalities

across the entire city-network. In that context, towns may form a network in which the “mass effect” enables them to provide high-order functions. The importance is thus given to the specializations in particular markets, the presence of higher order functions in centres of lower order (towns), and the horizontal exchanges between cities and towns across the urban hierarchy. The “City-network” theory recognizes cities as functionally different and geographically unconstrained in a new globalized world, thus knowledge spillover and synergy effects may happen when actors from different cities connect irrespective of their spatial distance. Overall, according to the “City-network” theory, the size of a singly city or town in the network is less relevant that the size, type and structure of the network itself.

CHAPTER 2: Small and Medium-Sized Towns as an Endowment for the Growth and Development of Territories

For the last several decades, spatial policies and scientific studies have tended to focus on large metropolitan areas that have been seen as the main centres of economic growth and innovation (Sassen, 1991). The process of "metropolization" was the subject of many analyses conducted at the various spatial scales with the objective to explore the "agglomeration" dynamics of global cities and city-regions and to impose them on other types of smaller settlements. Most scholars consider that large cities, in general, represent the type of spatial organisation the most capable to confront global economic changes whose development models should be examined and replicated. The importance of the city size is justified by the claims that the urban location advantages increase when the city size increases (Alonso, 1971) due to the externalities that stem from investments in public services, large markets of outputs, large and diversified markets of inputs (Capello, 2013).

The interest in cities at the top of urban hierarchies also corresponds to the selection of scientific papers by the international journals. The article on large cities is more likely to get published than the one on small and medium-sized towns. Likewise, despite being far more numerous than cities, the European towns remain an "unattractive research topic" for the most of scholars in the regional science. Yet, the focus on only one element of urban system (such are large cities) cannot lead to a complete understanding of development prospects of urban systems. In other words, the exploration of economic performance in Europe means to consider additional issues such as connectivity, polycentricity, spatial polarisation, and the contributions of a wide range of urban settlements to the regional growth and development. In that light, towns which have been left out of the scientific discussions on cities and economic performance should be more thoroughly addressed by scholars and policymakers.

Towns are, as Brunet (1997) put it, "an unidentified real object" for both practitioners and scholars. Brunet's formulation demonstrates how, despite undoubtful existence of towns as part of an urban system, it has been difficult to apprehend its volume, profile and substance. Towns usually exist within the reference to cities and rural areas as a "fuzzy" statistical element of something that is in between "the rural" and "the large urban". What are towns' roles and functions within a territory? How do they contribute to the regional development? Are they an alternative way of European development?

Having in mind these questions as well as a variety of contexts across Europe, this chapter will provide a general perspective of the key functional, socio-economic and administrative features of the European towns. More precisely, the first section will focus on defining the concept of towns and setting them within the European urban system. Therefore, the first objective of the chapter is to acknowledge the existence of variety of national and regional

classifications of urban settlements and to apprehend the importance of towns' roles and functions for the entire urban system. The second section will discuss the socio-economic specificities of towns. As towns are neither isolated nor immune to changes and evolutions, the objective is to explain the way towns deal with the socio-economic and technological challenges as well as to underline their contribution to the regional growth and development.

SECTION 2.1: Towns – "unidentified real objects"

One of the most problematic issues is the definition of the term "town" and its differentiation from the term "city". There is a connotation that implies the smallness and something in between the village and the city, but a conceptual demarcation from other types of settlements seems at first quite blurred (Servillo, 2014). Furthermore, while the linguistic distinction between a "town" and a "city" is evident in the English language, other European languages seem to use only one general term: e.g. ville, città, ciudad, stadt, πόλη, město, grad, etc. (Servillo, 2014).

In order to shed some light on the issues of definitions, the following section has three objectives. The first objective is to provide an overview of variety of approaches to definitions and categorizations of small and medium-sized towns across Europe. The second objective is to discuss the urban functions and the roles that towns have in the urban system as well as what makes them important for the territorial development. Finally, the third objective is to observe a particular evolution of European towns in time, their roles in a particular period and the importance given to them in a course of time.

2.1.1 Definitions and categorizations

Brunet's description of the notion "town" as "an unidentified real object" shows how hard it is to define what stratum of the urban system the attributes such as "medium", "small" or "intermediate" really define (Brunet, 1997). The notion "town" is "*real*", because in every country, beside the capital city, large cities and rural areas, there are other urban settlements which are smaller in size, but which play an important role within regions. The notion "town" is also "*unidentified*", as the limits of size and functions of this category are not unanimous within the research community (Santamaria, 2010). In addition, the notion "town" is often defined in relation to cities and a specific (functional) level of services, rhythms and lifestyles that they provide (Charbonneau et al., 2003).

In that regard, the first part of the subsection explores the static approaches to the definition of urban entities which include the population size thresholds, the morphological characteristics and the administrative status. Due to a variety of practices in European countries, these approaches have been strongly criticized as unsuited for cross-national comparisons. The second part of the subsection is in prone of a dynamic functional approach to the definition and the classification of urban entities. As it takes into consideration

exchanges and relations among all settlements in a region, the functional approach may better capture the reality of urban systems as well as position, roles and functions of centres in it.

- "Static" approaches -

Since a systematic attempt to count the world's urban population in the 1950s, scholars have wrestled with a fundamental empirical and theoretical problem of how to determine the appropriate spatial boundaries of the areas whose population were to be measured (Brenner and Schmid, 2014). As one of the earliest contributors to these efforts, Davis (1955) vaguely defined "cities" as having substantially larger population than smaller "towns" and surrounding areas during a certain period of time. When asked to provide quantitative definitions, Davis proposed a primary definition of cities as places containing a population of 100,000 or more, and a secondary one based on a smaller population threshold of 20,000. However, no theoretical justification for his choice of threshold was provided, except an empirical demonstration of what such a criterion would entail for the urban measurements, both at a world scale and among the major world regions (Brenner and Schmid, 2014). Accepted as a way of defining and analysing urban areas, such approach was soon largely adopted in the scientific circles despite its deficiencies.

Consequently, researchers started using their own threshold values to distinguish large urban areas, medium and small towns and rural areas which led to a great variety of thresholds and to no unique definition and agreement. For instance, most European authors claim that **small towns count from 5,000 to 20,000 inhabitants and medium-sized towns from 20,000 to 100,000 inhabitants**. According to the ESPON (OIR, 2006), on the territory of the EU Member States, Iceland, Lichtenstein, Norway and Switzerland, there were 15,757 small municipalities (from 5,000 to 20,000 inhabitants), 3,100 medium-sized municipalities (from 20,000 to 100,000 inhabitants), and 407 large municipalities (with more than 100,000 inhabitants). When it comes to the thresholds used among scholars from other continents, the ones from northern America and Australia used thresholds close to European ones while researchers from southern America defined relatively higher thresholds for towns compared to their European colleagues (Table 2.1).

With the development of remote sensing techniques (e.g. geo-referenced dataset on global land cover such as CORINE Land Cover and MODI Urban Land Cover), scholars were able to add some additional criteria to standard population thresholds: density of urbanized area, distance between settlements and buildings and compact built-up area. In such **morphological approach**, a town is defined as a compact built-up area with a certain minimum concentration of population (urban settlement). In other words, scholars in favour of the morphological approach distinguish between the built-up space and open-space areas. The term "urban settlement" represents an area in which buildings are not too sparse and contain a concentration of population that creates the sense of an urban agglomeration. Two parameters are commonly in use: (i) the distance between buildings must be below a given threshold; (ii) the total population of the built-up area must exceed a certain minimum level (Servillo, 2014). Yet, regardless an official agreement on parameters for the morphological

approach, there are still significant differences between thresholds applied in each country (Servillo, 2014). For instance, while the UN recommends that for the definition of urban areas, 200 m should be used as the maximum distance between houses (Le Gléau et al., 1997), some European countries use different values (e.g. 50 m in UK and Norway; 250 m in Belgium) (OIR, 2006). There may be also some differences in interpretation of urban areas that are public, commercial or industrial which, in turn, creates even more difficulties for a cross-national comparison (Le Gléau et al., 1997).

Table 2.1: Variations of population size thresholds for towns according to some researchers

Thresholds	Authors
	EUROPE
20,000 – 100,000	De Esteban Alonso and Lopez, 1989; Santamaria, 2010; Taulelle, 2010; ESPON SMESTO (OIR, 2006)
50,000 – 100,000	Vinuesa Angulo, 1989; Thompson, 1995
50,000 – 200,000	Boyer, 2003
5,000 – 50,000	ESPON TOWN (Servillo, 2014)
	NORTHERN AMERICA AND AUSTRALIA
50,000 – 500,000	Henderson, 1997; Seasons, 2005; Simard and Simard, 2005
98,000 – 170,000	Vey and Forman, 2002
50,000 – 250,000	Clancey, 2004
20,000 – 200,000	Bruneau, 2000
20,000 – 100,000	Bell and Jayne, 2006
	SOUTHERN AMERICA
50,000 – 1 million	Rodriguez and Villa, 1998
100,000 – 1 million	Sanchez-Crispin and Propin, 2001; Pulido, 2004

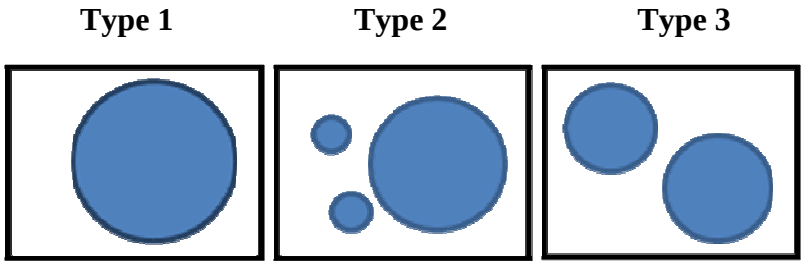
Source: author

Indeed, the definition of the urban settlement through its built-up area in the morphological approach is quite different from the one of the **administrative definition**. According to this approach, an urban settlement is an administrative entity (municipality) with functions, rights and duties that can be also called “town” (UK), “ville” (France), “stadt” (Germany), “mesto” (Czech Republic), etc. (Servillo, 2014). However, European countries keep using different population threshold for defining their urban municipalities. For instance, the Czech Republic and Luxembourg use 2,000 inhabitants as a bottom line; Slovakia 5,000 inhabitants; Switzerland, Italy and Spain 10,000 inhabitants, Austria 20,000 inhabitants. Likewise, in some countries, the status of an urban municipality is given by the government (e.g. Czech Republic, Poland, Ireland and Germany). For instance, in the UK the status of a city has been conferred by the monarch since the 16th century, while in Poland and Germany, it was historical events and political decisions that determined the status of a town (Servillo, 2014).

The limits for comparative analyses by using morphological and administrative approaches due to a variety of situations in Europe were put ahead by the ESPON TOWN (Servillo, 2014). More precisely, the ESPON TOWN underlined the presence of three types of relationships between administrative units and morphological versions of urban settlements

which may lead to question the liability of efforts for any cross-national urban analysis (Figure 2.1). The first type represents countries in which one administrative unit contains one settlement. These are the countries that experienced the Napoleonic reform of territorial administration or those that were inspired by it (e.g. France, Spain, Italy, Belgium, etc.). The second category indicates countries in which the administrative boundary contains more settlements and the administrative function is allocated to the main settlement. In this case, thresholds for the definition of the minimum size of the area can be attributed and the status of municipality can be given by a political act (e.g. Poland, Czech Republic, Croatia, etc.). The third category represents countries with large administrative units which contains several settlements of a certain dimension. The sub-administrative units may exist in this case, but with no important official role (e.g. UK, Sweden). Yet, countries in this category may attribute urban administrative functions through political decision to several or all urban settlements within one urban administrative unit (e.g. UK).

Figure 2.1: Three types of relationships between urban administrative units (black squares) and urban settlements (blue circles)



Source: Servillo, 2014

A strong criticism of the "static" approaches to spatial analysis came from Wirth (1969) and Castells (1977) who recognized their practical need, but also underlined that they are purely arbitrary and "no definition of urbanism can hope to be satisfying if numbers are the sole criterion" (Wirth, 1969, p. 145). In fact, according to these authors, thresholds should be viewed as "artefacts of juridical convention" rather than as indicators of urban reality (Brenner and Schmid, 2014).

Moreover, according to Brenner and Schmid (2014), thresholds' variations in defining what is urban (and what is rural) point at several key problems that today's urban comparative analyses may try to ignore. Firstly, across national contexts, there is no standardized definition of the urban units on the basis of population size. "A city of 20,000 inhabitants in Norway, in northern Scotland or in Portugal can play functions within its territory that corresponds to those usually found in cities with more than 100,000 inhabitants in Germany

or in France" (Carrière, 2008, p. 16). Likewise, a town of 20,000 inhabitants may play more important role in Hungary than a town of the same size in Italy as much as a large city in France with about 300,000 inhabitants is considered to be small in China or Mexico.

Moreover, scholars base their cross-national comparative analysis on data provided by national statistical offices while knowing (and often ignoring) that each state has a nationally specific and different census practice. For instance, Brenner and Schmid (2014) provided with an example of the revision of the World Urbanization Prospects (UN-DESA-PD, 2002) in which 109 UN member countries used their own administrative criteria as the primary basis for their urban definitions. As a result, some municipalities were declared to be urban regardless of population size or other indicators, while others, often large and densely settled, were excluded by administrative fiat. Moreover, a significant population clusters located on the peri-urban fringes of large metropolitan settlements, but positioned outside the city's official administrative border, were classified as "non-urban" and, in fine, irrelevant (Brenner and Schmid, 2014).

Finally, the problem of population threshold is even more important as many countries frequently change their official urban classification which in turn may dramatically produce different results and change "overnight" their settlement typologies. In addition, the timing of census data collection as well varies considerably across nation states which seems to be often overlooked in comparative analyses (Brenner and Schmid, 2014).

For the aforementioned reasons in conceptualization of the urban dimensions (including towns), researchers proposed a "dynamic" functional approach to urban issues (Veron, 2006; Maturana and Terra, 2010; Saint-Julien, 2011) which goes in line with the postulates of the "City-network" theory.

- Dynamic functional approach -

Instead of "doubtful" population thresholds and administrative and morphological delimitations, some scholars proposed the **functional approach** to definition and classification of urban settlements that considers cities and towns as places where different functions (economic, cultural, political and administrative) are gathered and shaped in a way that makes them important for the rest of territory (Julien and Pumain, 1996; Leo and Philippe, 1998; Beaverstock and al., 1999; Rosenblat and Cécille, 2003; Bolay and Rabinovich, 2004; Zuliani, 2004; Taulelle, 2010). More precisely, in the functional approach, urban functions are considered to be the most important indicator for classification and many scholars seem to use them in parallel with the central place theory in order to rank cities and towns (e.g. basic low-rank services for towns and specialized high-rank services for cities) (Christaller, 1933).

As much as the functional approach seems to be the most appropriate for definitions of towns within urban hierarchy, the fact that it is still related by many scholars to a strictly hierarchical structure of the urban system is an outdated explanation of modern urban dynamics. As we demonstrated in the first chapter, new studies of urban and regional

dynamics argue that through networks with other cities and towns, a town can reach a critical mass and scale economies and, in fine, provide specialized and high-rank services (Camagni et al., 2013). In fact, through networks, towns can become producers of dynamics, competition and may have the capacities to create knowledge at local, national and international levels (Bellet and Llop, 2004; Christopherson, 2004; Mender and Mercer, 2006).

Thus, the functional approach, if related to the "City-network" theory, takes into consideration the role and function of urban centres regardless their size on the wider territory. In that context, the approach defines towns as urban centres that concentrate jobs, services and other functions that serve other settlements in its hinterland. In other words, the urban centre acts as an urban core of the urban (functional) region, which is a larger area that contains the urban centre and its hinterland which together form a socio-spatial system integrated by functional inter-relations (hierarchical and non-hierarchical networks) (Table 2.2) (Servillo, 2014).

Table 2.2: Conceptualizations and related criteria in the functional approach

TERM	DEFINITION	CHARACTERISTICS	CRITERIA
Urban centre/core	Urban settlement (municipality) with concentration of jobs, services and other urban function	Role of centre for region due to concentration of jobs and other urban functions attracting commuters and visitors.	- Population - Jobs - Other urban functions - Commuting - Centrality
Urban functional region	Larger area with functional relationship with one or more urban cores	Gravitational area of jobs, services and other functions located in urban core(s).	- Access to jobs and services - Job commuting - Home-service commuting

Source: from Servillo, 2014

Indeed, the functional approach assumes that if the economically active population of one municipality commutes daily to another municipality, those entities belong to the same functional area (Servillo, 2014). Thus, there is a clear distinction between urban cores (destinations of commuters) and hinterland areas (municipalities from which commuters come). The network (inter-relations) of all municipalities shapes an urban functional region which has been by some scholars referred to as travel-to-work area (Coombes et al., 1982; Robson et al., 2006) or local labour market area (Van der Laan and Schalke, 2001). Furthermore, some countries, such as France, Belgium, Switzerland and the Netherlands, already have an official definition of functional regions that has been in use for regional and urban analyses: "aire urbaine" in France, "région urbaine/Stadsgewest" in Belgium, "agglomération" in Switzerland. Other countries, such as Austria, the Czech Republic, Germany, Hungary, Ireland, Slovenia and the UK, have no official recognition, but the concept of "urban regions" is often used by research institutes and national agencies (Servillo, 2014).

To sum up, compared to the "static" approaches which based their definition of towns (and any other urban unit) on their morphological characteristics and administrative status, the functional approach takes into consideration the entire urban region (all settlements) in a way it has a meaning for the daily life of its inhabitants. According to the functional approach, the exchanges and relations that take place between the different parts of the urban region delimit the zone of influence of one or more urban centres and specify the role they play for its territory. Thus, the urban (functional) region is shaped by networks (inter-relations) of all settlements and provides a definition of towns as concentrations of jobs, services and other functions that serve other settlements of the hinterland.

The next section will explore in detail urban functions and roles that small and medium-sized towns play in their region. The objective is to show how towns are less product of their size, and more the product of inter-relations in a territory and positioning within the regional system.

2.1.2 Functions, roles and arrangements within a territory

The first part of the subsection explores four urban functions that towns play in their regions. Indeed, the functions may have been fulfilled differently in practice as contextual factors trigger different effects in European regions and countries. The second part of the subsection provides an overview of roles that towns have in a region as reported by several empirical studies across Europe. Finally, the third part of the subsection discusses the three territorial arrangements of towns within a region: agglomeration, network and remoteness.

- Urban functions of towns -

Elasser (1998), Winkel (2001) and Baraini et al. (2002) explored in detailed some particular functions that towns fulfil in a territory. First, the **supply function** means providing an area with goods and services which, in turn, on the one hand, secures the existence of rural areas by creating a surplus or spill-over of functions and, on the other hand, tasks towns to enrich their region and hinterland. Nevertheless, new tendencies in the services sector show that towns outside of metropolises lose importance because the latter absorb functions of towns (OIR, 2006). As accessibility and mobility, in general, influence the supply function of towns, some towns were able to improve their position within urban hierarchy while others lost their influence of urban centres. For instance, in Poland and Romania, small towns in areas where individual motorised vehicles are not available to everyone have kept most of their supply duties; hence there is a dense network of towns with a supply function.

Second, some towns seem to combine the advantages of countryside and city lifestyle and by forming a continuum between the towns and surrounding landscape, they may eliminate their juxtaposition (OIR, 2006). The **housing function** corresponds to the provision of sufficient habitat and building grounds which, for towns outside of agglomeration areas, may play an important role to avoid urban sprawl. However, even though towns may offer a high quality

of life related to their natural environment, there is a pitfall whereas detached houses, which are the predominant housing structures in many European towns, cause excessive land use and traffic increase because job commuting is longer than in densely built-up areas. Furthermore, towns at the fringe of larger agglomeration may become a cause of suburbanization and end up as dormitories for neighbouring labour market centres.

Third, the **labour market function** means that towns are able to keep small structures and renew local economic entities. Western European towns became important labour market centres during the period of industrialization and especially during the Post-War boom. In that particular period, they experienced growth of population coming from rural areas, industrial development and social and economic modernization. They were often selected by companies whose rapid expansion was based on the production of standardized goods and services that require low-skill workforce (Massey, 1984). With a population having no or little experience of manufacturing jobs, towns were a privileged place for the Fordist spatial division of labour. Nowadays, many towns in Western Europe lost their labour market function when the Fordist industrial system became threatened by increased foreign competition, lowering borders and rise of services sectors (Cooke, 1989). Nevertheless, some towns were able to build on existing experience and practices and specialize in new industrial sectors, and thus kept their status of labour market centre.

Finally, some towns have a rich and diverse cultural heritage for Europe and are marked by their cultural landscape, i.e. vinery towns, health resorts, port towns, etc. (Dower, 1998). They are frequently celebrated and idealised as last resorts of true urban ambience and the most appropriate linkage between the urban and the rural as in Schumacher's idea "small is beautiful" (Schumacher, 1978). On the other hand, towns are also conceived as immature, less developed or declining territories, in need of policy action from outside and from within in order to cope with present day economic dynamics (OIR, 2006). The **cultural function** in towns includes leisure and tourism that can be reinforced by city marketing and branding. For example, sub-cultural music scenes and festivals emanated from cities may take place in some towns because of available open space, surroundings and no neighbours being disturbed.

- Roles within a territory -

In the first chapter we discussed the network externalities for cities and towns within the same territory. In general, polycentric urban regions with urban centres functionally interlinked in urban networks reflect the "possibilities for the 'borrowing' of certain skills and expertise from nearby urban areas" (Phelps, 2013, p. 160). In fact, the "borrowing-size" effect (Alonso, 1973; Meijers and Burger, 2010) represents the way towns realizing a "virtual critical mass" by establishing processes of synergistic networking with other urban areas. Hence, towns may evolve in relationships with other towns and cities and should be studied in relation to the environment of urban and regional system (functional region) in which they are embedded (Andersen et al., 2012).

The ESPON TOWN that studied functional roles of towns across Europe showed that the majority of towns are networked or agglomerated within local, regional, national, supra-national and global systems. Towns also seem to play either a role of urban centres for their hinterland or a role of nodes within the urban system (Sykora and Mulicek, 2014). Furthermore, the ESPON TOWN found some remarkable differences between countries in terms of the number and share of towns that play the role of urban centres in their territory. Firstly, some countries such as Belgium have highly urbanized landscape of large municipalities. In that context, towns are linked to neighbouring large centres that concentrate population and jobs, hence, all urban places in Belgium, including towns, benefit from the polycentric pattern. Secondly, some countries such as Slovenia have two forms of territorial organization working in symbiosis. The role of the capital Ljubljana as the prime national centre for the whole country is accompanied by an equally important polycentric arrangement of towns. Thirdly, some countries such as the Czech Republic, Spain and Poland have developed a diversity of towns' territorial arrangements within urban systems (networked, agglomerated and remote towns).

By pursuing the study of roles that towns play for their territory, scholars came out with different typologies. For example, in France, scholars from the Governmental Agency for Spatial Planning and Regional Attractiveness (DATAR) identified three categories of towns: (a) towns close to large areas that keep their autonomy and that maintain the exchange with other surrounding towns, thus creating a network that prospers due to proximity of nearby dominant city; (b) towns with industrial background being on the outskirts of the larger city. They provide to the whole system with manpower, infrastructure and equipment; and (c) towns with strong administrations that are rather autonomous and turned towards their territory (De Roo, 2007). In the UK, Hildreth (2006) based its typology of towns upon the economic role and performance they play within their region: (a) industrial town; (b) gateway corridor; (c) heritage or tourism centre; (d) university knowledge hub; (e) metropolitan periphery; and (f) regional service centre. Finally, the ESPON (2009) identified 13 types of towns based on a set of socio-economic variables such as size, economic structure, performance and key divers of competitiveness: (a) knowledge hubs; (b) established capitals; (c) re-invented capitals; (d) national service hubs; (e) transformation poles; (f) gateways; (g) modern industrial centres; (h) research centres; (i) visitor centres); (j) de-industrialized cities: (k) regional market centres; (l) regional public centres; and (m) satellite towns.

- Different territorial arrangements -

Kroner (1984) and Pinning (1984) argued that **towns located in densely populated areas and agglomerations (metropolitan regions)** fulfil absorption and release functions for large cities as their growth and development potential is also limited. In that context, the urban core is often the economic engine of the region, with a sphere of influence that extends beyond the average daily commuting distance. The core organizes the whole regional space, while the countryside often becomes urban (peri-urban) in nature. The countryside and towns may house those who commute to the central core, but commuting patterns and economic activity

also occur within and across the peri-urban areas, independent of the urban core. A large urban core has the potential to generate strong positive spill-over effects on its surrounding territory, benefiting the entire functional region. However, it can also generate tensions and competitive relationships with smaller surrounding areas, whose interests may not always play a fundamental role. They supply many functions, including residence of a high environmental and social quality, resources and space for many economic activities. These areas can help large firms in the retail or manufacturing sectors, which often need space and fewer constraints for transport (OECD, 2013).

In that respect, Perlik (1984) listed several possible outcomes for towns located near an agglomeration: (i) towns are sooner or later incorporated in the agglomeration; (ii) towns lose their significance and role of a centre; (iii) towns are restructured as local centres and allowed to retain their place in the urban system. Yet, recent scientific research argued that there is still no statistical evidence that there is a negative or positive impact of proximity of a town to a large city (Léo et al., 2012). In other words, the proximity of a large city may be an asset on which a town may attract firms and residents that would benefit from goods access to services and infrastructure in a city, while avoiding costs and diseconomies of a city such as land availability, higher prices, social disparities, congestions, etc. However, the proximity to a large city may also block the development of a town through the competition related to commercial activities and services. In that case, the central position of a large city would have a wider catchment area than the eccentric position of a town. Thus, the competition between a large city and a town may be less intense if a town is located far away of a city and if the distance becomes a protective barrier for a town to offer more diversified services (Léo et al., 2012).

Towns located in regions dominated by towns of the similar size and with a good connection to traffic network may profit from inter- and intraregional migration from rural areas. In that case, advantages of scale and agglomeration economies can be achieved through network relationships of complementarities, avoiding the disadvantages of congestion (Lee and Gordon, 2007; Meijers and Burger, 2010). Network of towns may bring new impulses to rural development as they maintain the interaction with their hinterland via urban-rural relationship (partnership) (OIR, 2006). More precisely, the non-hierarchical linkages between towns and the hinterland can be based on functional complementarities, such as inter-sectoral linkages, commuting flows, value chains, etc. The development potential and attractiveness of these networks has been associated with their accessibility to urban cores, their capacity to provide skilled labour for specialized industrial clusters, and their cultural dynamism (especially towns with university campuses). The urban and rural areas are less clearly separated, and often strongly linked with one another. In addition, successful networking implies coordination either in the functions played by each centre or in increased synergy among centres specialized in similar functions. Complementarities among urban places are important in these regions. Two or more towns can complement each other functionally by offering residents and firms in their conjoined hinterlands access to urban functions usually only offered by higher-ranking cities (OECD, 2013).

Finally, it is argued that **towns located in remote and peripheral areas** need alternative concepts of development as they often lack integrated strategies of social and economic regeneration (OIR, 2006). These are the regions that are predominately rural, with a particularly low population density. Towns concentrate some functions, but economic activities in rural areas support the small towns. The spatial organization of this kind of region makes service provision a major challenge. Urban-rural or rural-rural cooperation is often justified by the low density and low size of the administrative units, which are often not economically and financially able to provide services. In this context, pressures of urbanization are lower while the rural-urban linkages are the heart of interactions between towns and the surrounding countryside. In these regions, urban-rural linkages and cooperation can play a major role in satisfying the need to achieve economies of scale for the provision of services, to diversify the economy and to improve the capacity of administration. In addition, in rural regions whose economy is based on natural resources, coordination between rural areas, where these resources are located, and cities, which host strategic functions and competences, can help rural communities retain the benefits of the exploitation of resources (OECD, 2010).

Among the above mentioned three possible territorial arrangements, the first model has been explored in a "mainstream" literature of regional science due to a "fashionable" subject of metropolization and metropolitan governance (Derudder et al., 2010), European cities and regional cities (Brunet, 1989; Rozenblat and Cecille, 2003). Likewise, urban sociology has been particularly interested in remote industrial towns whose evolution throughout the 20th century has been described in many sociological monographs. On the contrary, networked forms of towns (formal and/or informal) have been less the subject of scientific research.

Overall, towns play different roles and functions for their territory. They provide with goods and services, with habitat and building grounds, with labour and activities of leisure and tourism. Likewise, they act as either urban centres for their hinterland or nodes within the urban system. The role and functions may largely vary depending on location in densely populated areas and agglomerations, in areas dominated by towns with a good connection to traffic network, or in remote and peripheral areas in need of strategies for social and economic regeneration.

In the next subsection, we will provide with some examples of the way urban settlements are identified and mapped by using morphological, administrative and functional approaches.

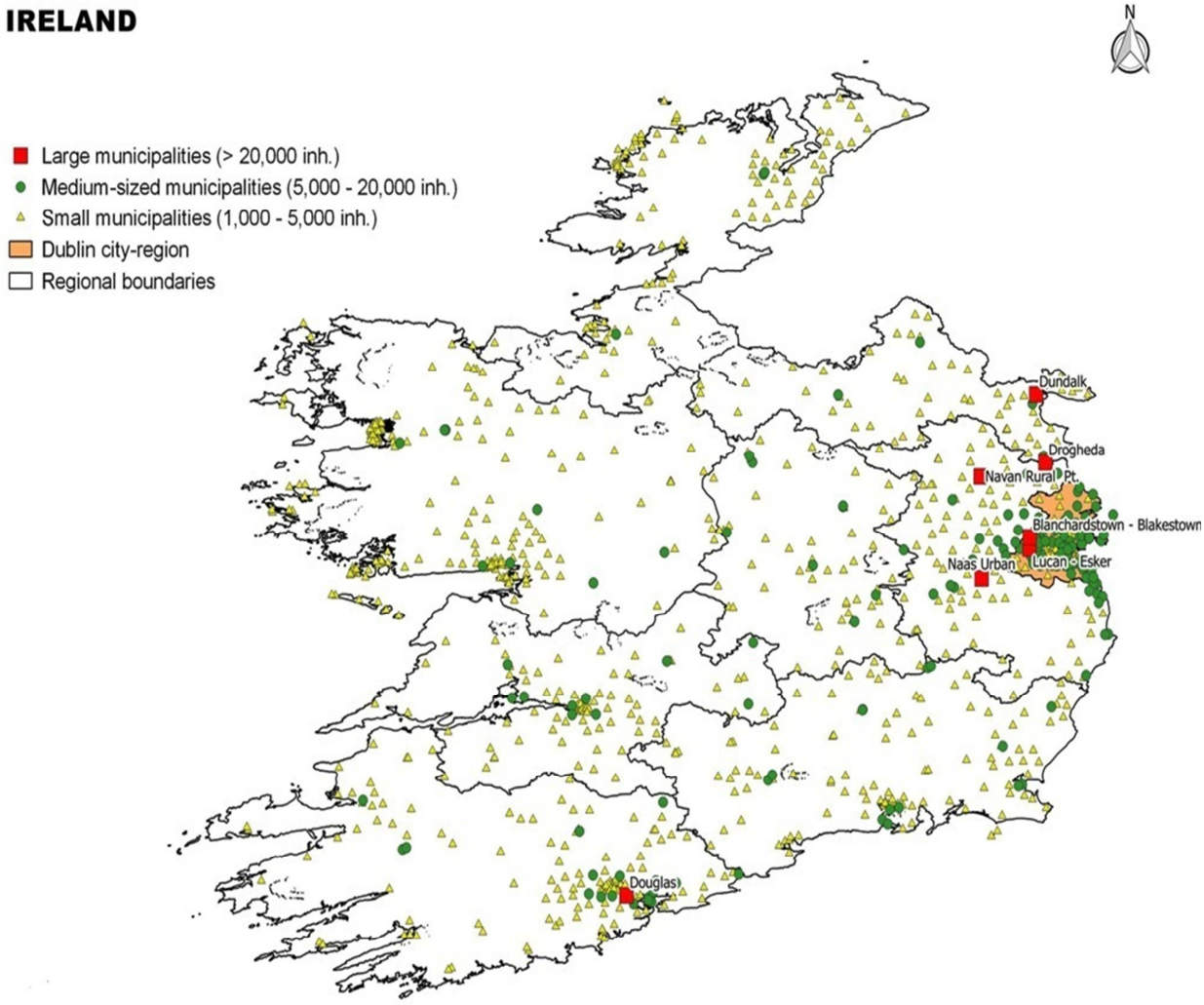
2.1.3 Mapping the European urban system

The first part of the subsection provides maps of urban municipalities defined as local administrative units (LAU lists) in selected Member States. The second part of the subsection provides the identification of urban settlements according to a morphological approach. The third part of the subsection provides some examples of mapping European towns by using the functional approach.

- Examples of administrative approach -

The local administrative units (LAU) have for the objective to divide up the territory of the EU for the purpose of statistics at local level. They were set up by the Eurostat and they are compatible with the Nomenclature of Territorial Units for Statistics (NUTS). Generally, a LAU represents the low level administrative division of a country, ranked below a province, region or a state. Not all countries describe their locally governed areas this way, but in Europe they are formally considered to be descriptively applied anywhere to refer to counties and municipalities.

Figure 2.2: The urban system of Ireland by using the administrative approach

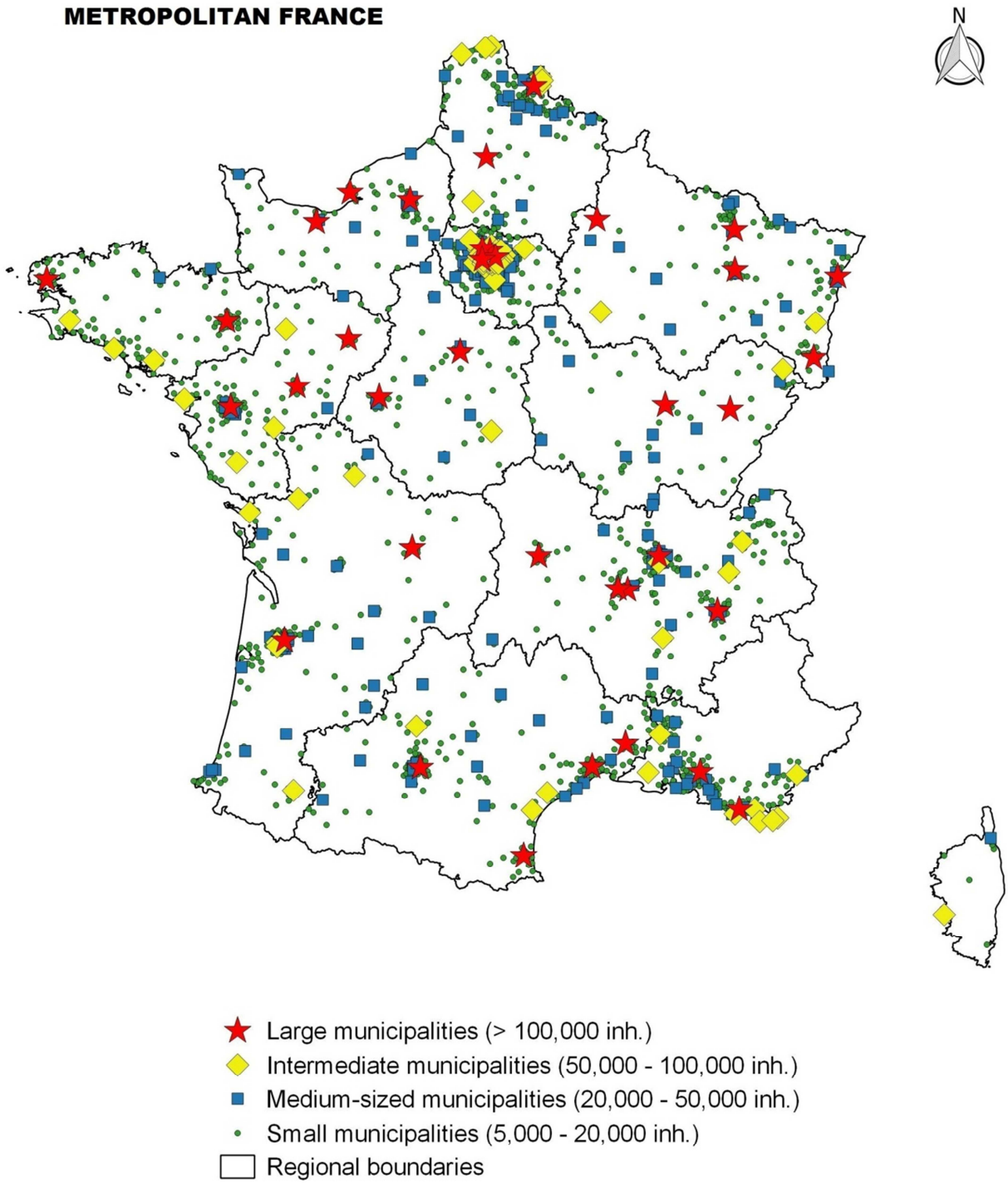


Source: author based on Eurostat data (2011)

The figure 2.2 represents position of urban municipalities of small, medium and large size in the Irish urban system. We identified seven large municipalities with the population above 20,000, out of which majority is located in Dublin city-region or nearby it, in eastern neighbouring regions. When it comes to towns, majority of 147 medium-size municipalities with the population between 5,000 and 20,000 are also located in Dublin city-regions, but,

contrary to large cities, these towns are also situated along the entire coastline of the country. In addition, we found that 945 small municipalities with between 1,000 and 5,000 inhabitants are dispersed across the country which seems not to be the case with larger towns and cities.

Figure 2.3: The urban system of France by using the administrative approach



Source: author based on INSEE data (2011)

The figure 2.3 represents the localization of French urban municipalities. We identified 35 large municipalities with population superior to 100,000. They seem to be dispersed across all regions. We also identified 71 “intermediate” municipalities with the population between 50,000 and 100,000 that seems to be clustered mostly in Paris region, border regions and along the western and the southern coastline. Among 288 identified medium-sized municipalities with the population between 20,000 and 50,000, the majority seems to be regrouped in Paris region, on the northern border with Belgium and along the southern coastline. Finally, 1,476 small municipalities with between 5,000 and 20,000 inhabitants seem to be dispersed across the country with a general exception of the Massif Central area. Yet, we found that many small municipalities seem to cluster around large cities in Paris region, along the southern and the western coastline and on northern border with Belgium.

- Example of morphological approach -

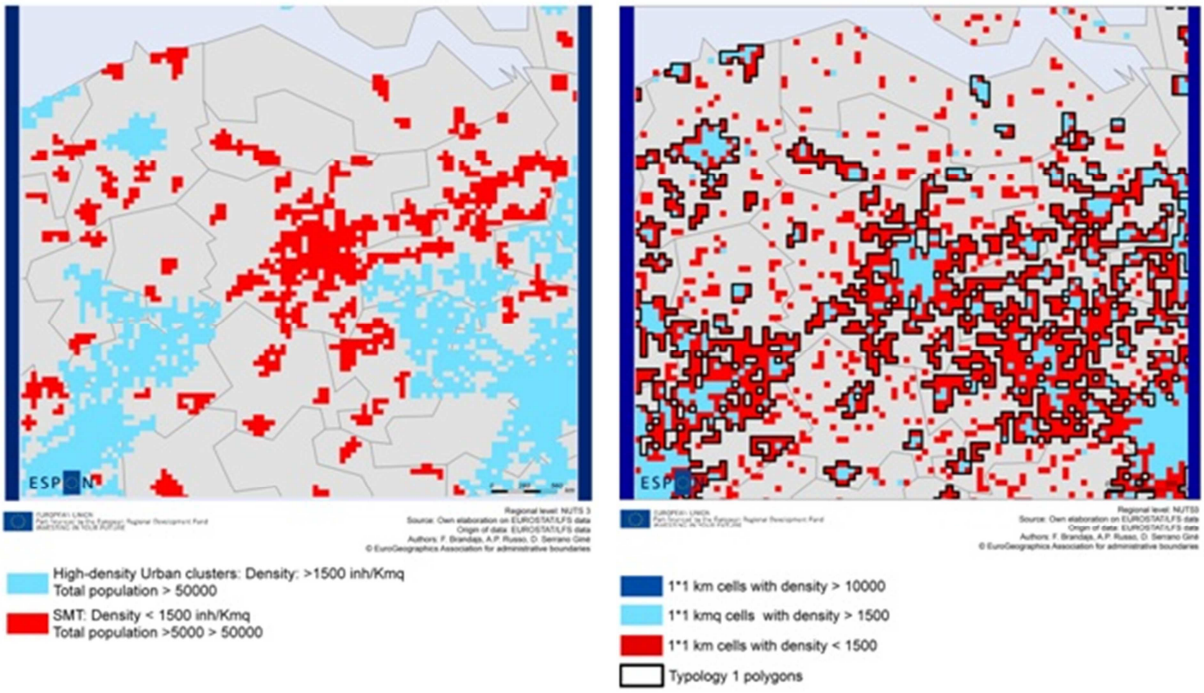
By applying the grid-based dataset (grid cells of 1 km^2) provided by the Geostat and aggregating them into polygons, the ESPON TOWN (Russo et al., 2014) identified across Europe[8]:

- 69,043 very small towns with the population density superior to 300 inhabitants per km^2 and population inferior to 5,000;
- 8,414 small and medium-sized towns with a population density superior to 300 inhabitants per km^2 and population between 5,000 and 50,000;
- 850 high density urban clusters with the population density superior to 1,500 inhabitants per km^2 and population superior to 50,000 (Figure 2.5).

The Figure 2.4 illustrates the application of the method of grid-cells on the settlement structure in the urban area of Gent, Belgium. It is a municipality of 240,000 inhabitants and with a density of 1,550 inh./km^2 which, at first, would classify Gent into a large urban centre (coloured in blue). However, a detailed morphological analysis of the urban structure by using grid-cells and polygons indicated the prevalence of medium-sized dense polygons (below 1,500 inh./km^2) in the urban structure (coloured in red). Hence, Gent was classified as a medium-sized centre in spite of the existence of a higher density urbancore.

[8] It is important here to remind of the pitfalls of cross-national studies that use the same thresholds (density and population size) for all European countries. Consequently, results may be misleading and questionable.

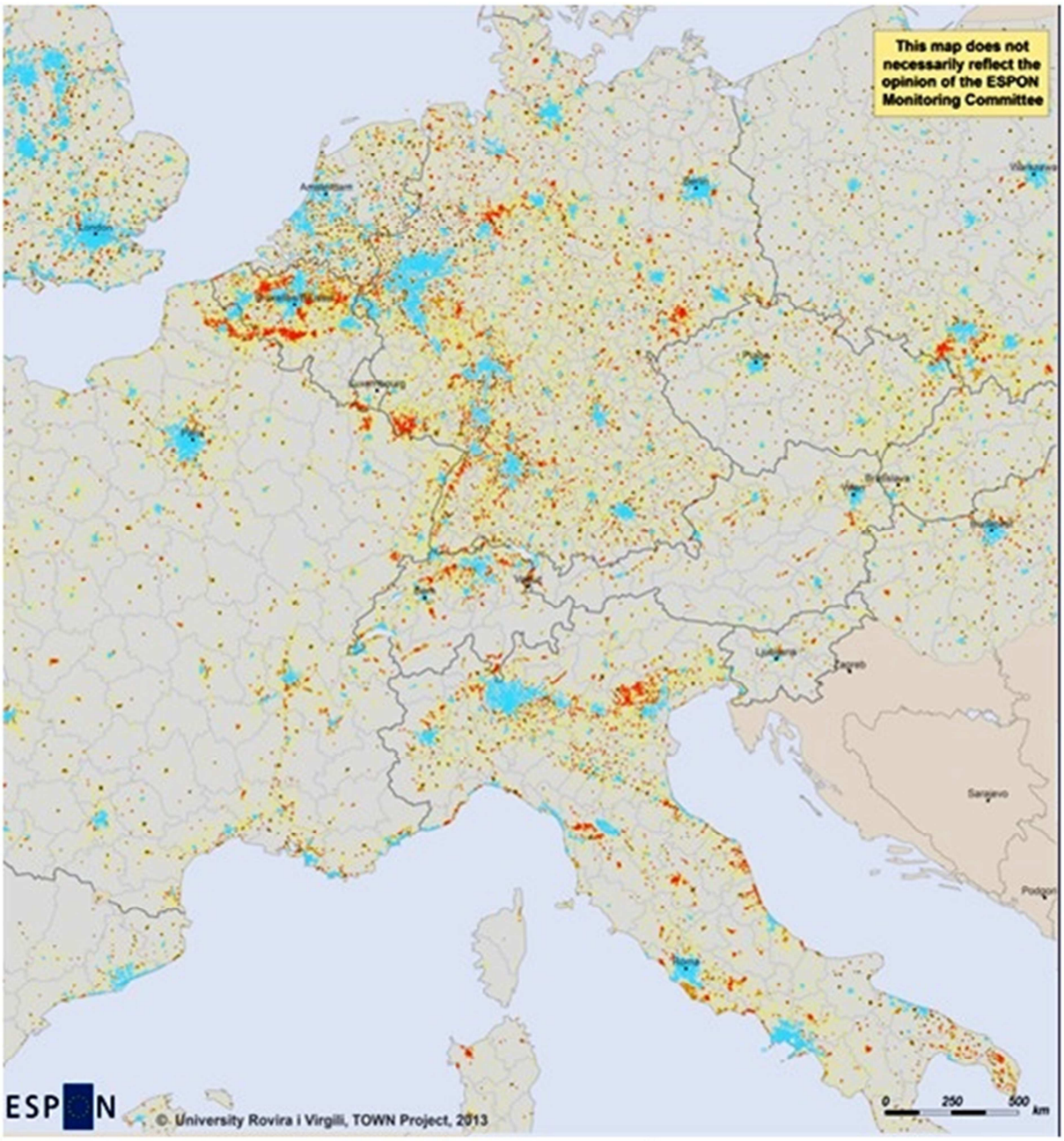
Figure 2.4: Urban agglomeration of Gent (Belgium) represented by polygons (left) and grid-cells of 1km^2



Source: Russo et al., 2014

The Figure 2.5 presents European small and medium-sized urban settlements as red polygons, large urban settlements and city-regions in blue and very small urban settlements in yellow. It seems that small and medium-sized urban settlements are highly present in the south of England, the Benelux, the west of Germany and Italy, with some clusters in the industrial belt of south-east Germany and Poland and the whole western Mediterranean arc from Spain to Italy. It also illustrates a relative sparseness of small and medium-sized urban settlements in continental France and Eastern European countries (Russo et al., 2014).

Figure 2.5: Zoom to the European urban system by using the morphological approach

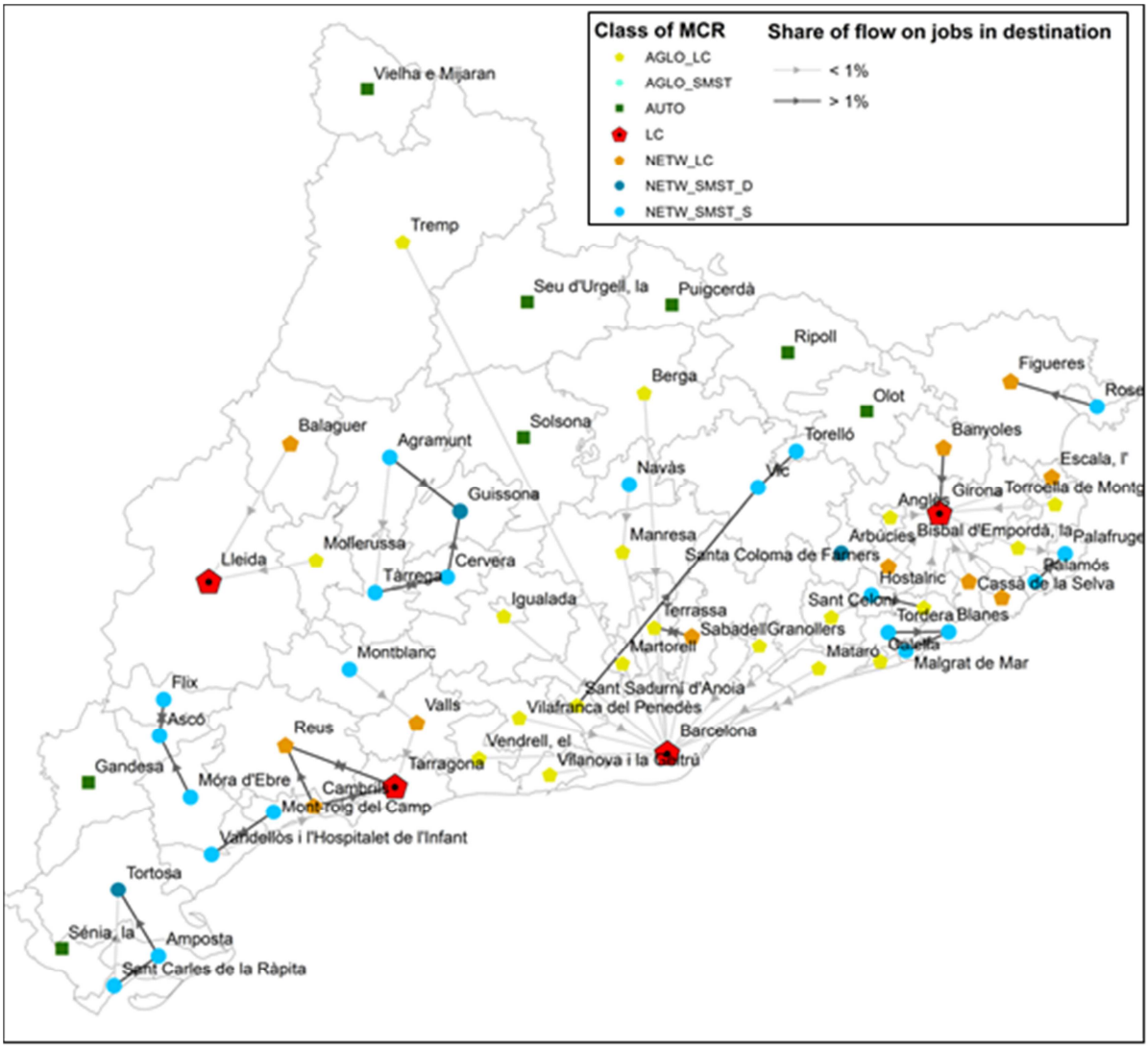


Source: Russo et al., 2014

- Examples of functional approach -

By exploring the functions and roles of urban centres within functional regions as well as commuting flow between them in selected European regions and countries, the ESPON TOWN (Servillo, 2014) identified the location of small and medium-sized urban centres and their territorial arrangements: isolation, agglomeration or network.

Figure 2.6: Urban system of Catalonia region (Spain) by using the functional approach



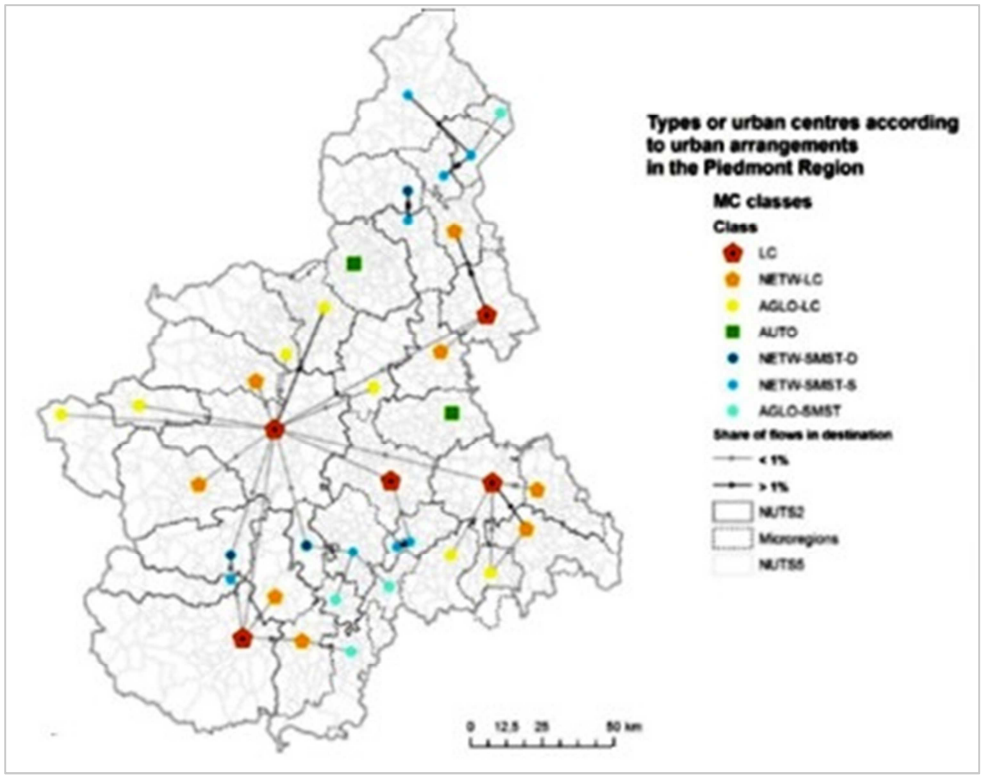
Source: Sykora and Mulicek, 2014

The urban system of Catalonia seems to be dominated by hierarchical structure centred on Barcelona with secondary role of three other large centres (Figure 2.6). Large centres affect majority of small and medium-sized towns, which are either agglomerated (10%) or networked (7%) with large centres. Peripheral parts of Catalonia especially in sparsely populated counties in the Pyrenees area are served by autonomous micro-regional centres, which impact large territories. Yet, they account only for a small share of population (2%). Besides the systems centres on large centres, in Catalonia, there are also systems or networked relations between several small and medium-sized towns accounting in total for

4% of population in the regions, which is 6% of urban population (Sykora and Mulicek, 2014).

The Figure 2.7 represents the urban system of the region Piedmont in Italy. Among 37 urban centres that were identified, 5 are large centres and 32 are small and medium-sized centres. The majority of small and medium-sized centres are networked (19 centres) and agglomerated (11 centres), and only 2 centre of that size are isolated. Thus, the urban system seems to be more networked (polycentric) in its non-central parts, while the central areas are centred to the large centre of Turin (Sykora and Mulicek, 2014).

Figure 2.7: Urban system of Piedmont region (Italy) by using the functional approach



Source: Sykora and Mulicek, 2014

2.1.4 Conclusion of section 2.1

Small and medium-sized towns appear to be a relative term, arising from upper and lower extremes of regional, national or continental hierarchy. The median of the urban framework is defined by statistical thresholds, by spatial parameters and by different polarization levels.

Due to diversity in national census practices across Europe, there is no unique urban classification and settlements typology. Each nation state uses different approaches, among which we classified the most common ones:

- A morphological approach in which a town represents a continuous built-up area that concentrates a certain number of inhabitants. In European context, the most common

threshold of population size for small towns is 5,000 – 20,000, and for medium-sized towns 20,000 – 100,000.

- An administrative approach according to which a town is a territorial unit of local government.
- A functional approach in which a town concentrates jobs, services and functions for its hinterland.

For many researchers, it is often by immersing themselves in the territory, by observing the everyday practices, roles and functions that enable them to have the best approach to towns in order to analyse differences within the same regional space and to outline the development potentials. Indeed, towns have different functions for its territory, such as providing an area with goods and services (supply function), providing sufficient habitat and building grounds (housing function), keeping small structure and renew local economic entities (labour market function) and/or providing activities of leisure and tourism (cultural function). Furthermore, towns may play different roles for their region as either urban centres for their hinterland or nodes within the urban system. The role and functions of towns may largely vary depending on location in densely populated areas and agglomerations, in areas dominated by towns with a good connection to traffic network, or in remote and peripheral areas in need of strategies for social and economic regeneration.

SECTION 2.2: Socio-economic specificities of towns

International competition, technological progress facilitating transfer of information, goods and people in the production system in favour of more flexible and increasing number of new markets involve "new expectations and norms, new ways of organizing and governing work" (Nelson, 2007, p. 319). Towns are neither isolated nor immune to the global changes and technological and social evolution. The scientific literature is polarized when it comes to town's success in facing new challenges. They "are conceived on the one hand as immature, less developed or declining territories, in need of policy action from outside and from within in order to cope with present day economic dynamics. (…) On the other hand, SMSTs [small and medium-sized towns] are frequently celebrated as last resorts of true urban ambience and idealised as the most appropriate linkage between the urban and the rural, a potentially sustainable form of urban structure" (OIR, 2006, p. 27). Arguably we need to move beyond this "simple" duality and to investigate the more varied and complex nature of towns in their context.

This section has three objectives. The first objective is to explore the impact of globalization on the roles and functions of European towns. Throughout history (pre-industrial, industrial revolutions and post-industrial change) one can observe different functions and roles played by the European towns. The second objective is to discuss the economic features and dynamics that are specific to towns. In time of international and intra-regional competition, towns make choices between development models, specializations, new levers for growth, etc. The third objective is to demonstrate the way towns contribute to the regional growth and

development as economic and social engines, as links between urban and rural, and as places that are increasingly attractive to firms and residents.

2.2.1 Impact of structural change: globalization, competition and new urban hierarchies

The first part of the subsection discusses the historic evolution of functions and roles of European towns in the light of changes in production of goods and services. The second part of the subsection observes the changes in the world economy and the effects of globalization on development of small and medium-sized towns.

- Historic evolution -

Scientific work in urban history has observed the various dynamics of European cities through different phases of development (Hofmeister, 1999; Huriot and Bourdeau-Lepage, 2009). In that scope, scholars distinguished between city types which range from Roman cities to market places in the Middle Age, from cities of the noble and administrative cities in the 17th and 18th century to industrial cities in the 19th and 20th century and finally to new towns in the 20th century.

According to Hofmeister (1999), towns in pre-industrial era were centres of sales, retailing, trade, crafts, religion and administration, but the main function was to provide protection for the surrounding peasant population in case of attacks. The differentiation between small, medium and large towns was not evident as the urban entities were much smaller than nowadays and the hierarchy of towns was often defined by the importance of their sovereigns. The most powerful obstacle for the growth of cities was transportation costs, thus the supply area was limited for both towns and their rural hinterland (Bairoch, 1985). The constraints were also coming from institutions that controlled and protected the pre-industrial economy of their towns (Weber, 1957). In fact, there was an institutional control of quality of goods produced, markets and prices which was often hostile to innovation and new ideas (Bairoch, 1985).

Regarding the production, the value of agricultural production was much greater than that of industrial one. Industry was dispersed across rural areas and was directly linked to agricultural activities. Moreover, the dispersion of industrial production was caused by high transportation costs and no growth of returns because the production had place in small individual units with few fixed assets. Also, the production was spatially dispersed in a sense that it required high skills and access to goods and services (e.g. production of cloths) which was concentrated in towns (Hohenberg and Lees, 1992). Overall, a town was a centre where the manufactured goods were exchanged for food and raw materials (Huriot and Perreur, 1992).

With the industrialization, urban functions began to sprawl beyond the town cores which in turn made city spread out due to dimensional reasons. In 18th and 19th centuries, changes in sectors of agriculture, manufacturing, mining, transportation and technology had a profound impact on every aspect of society. Advances in agricultural technology increased productivity to a larger scale, available workforce for industry and demand for manufactured goods (Bairoch, 1985). As a result, industrial plants were built and due to their high requirement for energy and raw materials, they were located near a pool or nearby cities. This movement was very important for towns since industry started to have its own spatial logic by developing in chosen places which were not necessarily important cities of that time. In fact, industrialization happened in villages and small mining towns, or in entirely new cities-factories that were grouped around a large firm (Huriot and Bourdeau-Lepage, 2009).

The industrialization period was also marked by the expansion of markets, the development of mass production and a new way of company organizations. The owners and the managers were not the same people, so the strategic decisions were separated from production itself. As a result, services such as accounting and advertising appeared and stayed concentrated in large cities, while towns became and stayed places of production. In addition, due to better mobility, city dwellers were able to move faster and less expensive; urban mass transportation was followed by a spatial extension of cities and suburbanization of the population. Thus, the separation of place of residence and workplace was inevitable (Huriot and Bourdeau-Lepage, 2009).

After the World War II, many European towns saw the creation of functionalism which had its peak in the economic rise of the post-war period until the 1980s. It was the period of standardized mass production, urban growth based on economies of scales and of relying on localization and urbanization advantages. Moreover, the industrial centres shifted from the centres to the periphery and the result was a creation of tertiary districts accessible only by car, construction of numerous commercial centres and dependence of urban policy-makers on private investors. In addition, the inner city habitats were replaced by commercial buildings – the housing function was replaced by the supply function which led to the decay of city centres and to suburbanization.

- New era, new threats and challenges -

Since the 1980s, the economy has become globalized which points at several new dynamics: innovation and new technologies have become a strategic objective, there has been a rapid opening towards the globalized world, firms have sought the best conditions for production and have positioned themselves in extensive and dynamic markets, there has been a general preference for market relations rather than hierarchical relations, firms have focused on strategic activities, subcontracting and networking as they have increased the production of de-materialized goods and services (Léo and Philippe, 2011).

Furthermore, in the globalized era, new financial structures and organizations have established the power of finance over production while the world's economy has turned

towards the tertiary sector (Amin and Thrift, 1994). Barca et al. (2012) pointed at the three super-regional areas of integration (EU, NAFTA and South and East Asia) that have increased their share of almost every indicator of global economic activity, implying that global activity is increasingly concentrating in these three super-regional areas of integration. In that context, Amin and Thrift (1994) underlined knowledge as the major factor of production, growth and development whose application in creation of new technologies has become internationalized. Likewise, companies are going global in a sense that they look across the entire world for optimal conditions to settle down.

The new era has witnessed the establishment of global oligopolies as well. These multinational firms have accounted for a growing share of economic growth, including 31% of total growth in the United States since 1990 (Spence, 2011). Moreover, the rise of transnational economic diplomacy and the globalization of state power have created the "international community" that in its broad sense refers to a group of people and governments of the world, but which also may refer to "the West" (Jacques, 2004).

Due to the rise of global cultural flows, new identities and geographies have emerged which embody these new global dynamics (Amin and Thrift, 1994). In other words, globalization has made localities and their interaction more important for economic growth and prosperity (Crescenzi and Rodriguez-Pose, 2011). In fact, economic growth is not any more uniquely related to mega-city regions, but it can be distributed across various urban systems in different ways in different countries (Barca et al., 2012).

In the light of global effects on territories, Davezies (2006) discussed the changes in regional revenue transfer that have been in place since the 1980s. Due to the gap between places we live in and places of work, there has been an increase in trans-territorial transfers. Put in other words, western societies, which produce so little and consume so much, have led to dissociation between production areas and consumption areas (Davezies, 2008). As a result, two regional growth models have appeared. The first one is based on the offer that drives the growth of national economies. It also produces public and private revenue, but at the same time, it seems to create competition and discrimination between territories. The second model is based on residential attractiveness that captures the revenue produced elsewhere and focuses on satisfying the demand of households and tourists by making actions that are in favour of quality of life, territorial and social cohesion. This model seems particularly efficient in regions with ageing population as the share of pensions in total revenue of households increases (Davezies, 2008).

According to several empirical studies of European towns, the changes in the world's economy have differently affected small and medium-sized towns (OIR, 2006; Léo and Philippe, 2011; Servillo, 2014). On the one hand, many European towns, which traditionally had a strong industrial sector, have experienced an economic downturn. As a result, many of them have fallen into a vicious circle whereas companies close their plants and branches, resulting in high unemployment rates. The local workforce cannot be easily absorbed by other industries, leading to a growing amount of socially disadvantaged, welfare recipients and unemployed who reinforce negative demographic and social trends. Another consequence is the loss of educated and young people who move from towns to bigger

agglomerations for the reasons of job deficit, unattractive living and working conditions, and related social disparities (OIR, 2006). The downward spiral moves on as towns face with difficulty the economic challenges such as outdated infrastructure, dependence on traditional industry, obsolete human capital base, declining regional competitiveness, weakened civic infrastructure and limited access to resources (Erickcek, 2004). Consequently, the reliance on transfers from the state budget increases and the remaining local firms and public administration have limited opportunities to keep the rest of population and jobs in their territory.

On the other hand, the processes of economic globalization have led to a modification of the vertical directions of the urban hierarchy, which also means that smaller centres now may position themselves as important nodes due to the effects of mobility improvements, increased specialization and decentralization of activities and functions (Bellet and Llop, 2003). In other words, the processes of economic globalization and the associated flows through the global network tend to favour certain points, and to encourage polarization between "connected" and "disconnected". Thus, growth and development seem to have little to do with urban size, but rather with flexible specialization and strongly localized production systems (Maillat, 1998). This means that towns may gain a new significance as places for high-ranking economic functions if conditions of resources, networks and modern communication infrastructure are met. In addition, towns may gain greater force when the work is carried out in networks and when there are complementary relations and cooperation with other nodes (towns and cities). This can penalize towns that are not well located within the network, but also can provide with an opportunity to reposition and to reinvent the territory (Knox and Mayer, 2009).

Overall, towns are neither isolated nor immune to changes and evolution. Throughout history, their functions and roles had a trajectory in line with the regional, national and global dynamics. In that respect, towns in Europe evolved from Roman cities to market places in the Middle Age, from cities of the noble and administrative cities in the 17th and 18th century to industrial cities in the 19th and 20th century, and finally to new towns in the 20th century. Nowadays in the globalized economy, some towns have been caught in an economic downturn related to inert traditional industry, while others gained a new significance as places for economic functions though valorisation of local resources, networks and know-how.

As the economic situation of towns varies across Europe, in the following section, we will observe the way towns' particular economic structure related to consumption, production, degree of specialization, culture, creativity and social and solidarity economy may contribute to the growth and development of small and medium-sized towns.

2.2.2 Economic structure and factors of dynamism

The first part of the subsection explores two models of towns' economy. The first model is based on the consumption of residents and tourist, and the second model is based on the

exportation of industrial production. The second part of the subsections discusses the advantages and disadvantages of towns' specialization in one sector or industry. The third part of the subsection underlines the potentials of cultural and creative activities for the towns' growth and development. The final part of the subsection observes the way social and solidarity economy contributes to towns' economy.

- Between production and consumption models -

The development and growth theories have for long favoured industries and their massive investments as the only capable of shaping the productive system and leading a long-term economic development (Dawkins, 2003; Capello, 2008). Yet, the rise of service economy, on the one hand, and the loss of manufacturing jobs, on the other, have challenged the established classification according to which industries are the drivers and services are the auxiliary to national and regional economies (Léo et al., 2012).

The economic situation of towns is quite diverse across regions and nations (Knox and Mayer, 2009; Smith, 2014). The location in metropolitan city-regions, a university branch, or the participation in an innovative cluster may have a significant impact on town's manufacturing and tertiary production systems (Hamdouch and Banovac, 2014). However, it is also possible to observe that towns without any manufacturing tradition may benefit from the geographical diffusion of income, in particular through the localized growth of services (Davezies, 2008). In Western Europe, the mobility of people who are less motivated by job opportunities, but rather by the search for a better quality of life, increases. Hence, towns that are well connected to large cities and that offer beautiful natural environment may significantly attract a population of commuters (Huriot and Bourdeau-Lepage, 2009). Likewise, after decades of demographic decline, small towns that have kept a rural character are looked for by second-home owners, tourists or people who look for a quieter living environment (De Roo, 2007).

Building on the theory of economic base, Davezies (2008) coined the term "**residential economy**" to describe a model of town's economy that mostly relies on local activities that meet the need of people in an area, both residents and tourists. In other words, the residential economic model relies on the local consumption. It is based on the geographic circulation of income which, according to Davezies, is different from the geography of production and can be observed through three mechanisms. Firstly, there is a growing trend in the developed countries of separating a living place from a working place, which means that the sources of income and its actual spending (consuming) can differ in space. Secondly, the growing number of pensioners is in favour of places that attract that particular population, thus again the income can move from the places where it was at first created to places where it is finally consumed. Thirdly, the growth of tourism also marks a spatial diffusion of income due to the fact that tourists represent an increasingly important source of income for town's economy (Davezies, 2008).

Due to these mechanisms, towns with the residential economic model favour activities in domains such as retail trade, hotels and catering, construction, financial services, domestic and passenger transport, education, health, welfare and government services. Their weight on overall local economy is determined by the attractiveness of a town to residents and tourists, by good living environment, heritage, and quality of provision of services of general interest (De Roo, 2007). Likewise, the residential economy can be measured directly and indirectly by analysing the sources of income (direct indicator) and the characteristics of population, i.e. demographic growth, age and professions income (direct and indirect indicators of economic power) (Demazière et al., 2014).

Across Europe, there are towns whose economic performance mostly benefits from the residential dynamics (Hamdouch and Banovac, 2014). In some towns, there is an intention to target wealthy pensioners and young professionals, and to encourage the development of facilities such as sports, tourism, culture, transport, real estate, healthcare, etc. in order to maintain residents satisfied and to attract newcomers (Godet, 2009). As a result, the residential model of towns may differ in profile (Hamdouch and Banovac, 2014). There are towns where the tourism is the dominant activity in terms of production and jobs such as York in the United Kingdom, Avignon in France or Sienna in Italy. But one may also find towns with dominant elder population and where personal services and services related to healthcare have an important role for local economy. Other towns, located at a short distance from one or several major cities, may specialize in attracting commuters and their families from those cities (Demazière, 2012).

In welfare states (e.g. Belgium, France, Germany, the Netherlands) or in regions benefiting from transnational migrations to their coastal settings (e.g. South of Portugal, Costa Daurada in Spain), the residential economy may be considered to be the key driver of the future economic development (De Roo, 2007). In times of economic crisis, the residential economy is considered to be a stabilizing factor for towns since it allows the capture of income and the creation of jobs that are not directly exposed to the global competition (Demazière et al., 2014). Nevertheless, the residential economy has a disadvantage of providing jobs that are often paid less and not as “fixed” as the ones in the productive economy, mainly due to the seasonality of tourism and a lower skill levels (De Roo, 2007).

The second model of town’s development proposed by Davezies (2008) is the **productive economy**, which is based on the production of goods and services to be mainly consumed out of the production area. Such an economy model is oriented towards the activities in agriculture, wholesale, manufacturing, research, energy sector, etc. The dominant productive economy in the overall economy of towns in western European countries has its origins in the period of industrialization, especially during the post-war boom (Saint-Julien, 2003). As we discussed in the previous subsection, during that particular period, towns experienced a growth of population coming from rural areas, an industrial development and a social and economic modernization. It was also the period when towns were selected by companies whose rapid expansion was based on the production of standardized goods and services that required low-skill workforce (Massey, 1984). In other words, with a population having no or

little experience of manufacturing jobs, towns were a privileged place for the Fordist spatial division of labour (Saint-Julien, 2003; De Roo, 2007).

Nevertheless, the foundations of such manufacturing concentrations in towns proved to be fragile (Markusen, 1996; Hamdouch and Banovac, 2014; Atkinson, 2014; Hamdouch and Banovac, 2017). In her typology of local productive systems, Markusen (1996) used the term "manufacturing satellite platform" to describe a spatial concentration of branches of large companies that have little or no local connections or networks within the region, but are oriented towards an outside market[9]. Such concentrations seem generally appearing at distance of large cities in order to lower the production costs of firms. According to the author, the major cooperative relationships take place with firms that are located outside the district, rather than with local subcontractors, and the key decisions regarding investment or strategy are not in local hands (Markusen, 1996). Indeed, towns which host such industrial concentration of activities may be at risk of entering in crisis when the technical or economic conditions change, provoking a spatial reorganization of firms (Hamdouch et al., 2012). For many towns in Western Europe, this happened when the bases of the Fordist industrial system were threatened by increased foreign competition, lowering borders and rise of services sectors (Cooke, 1989). Yet, there are towns that were able to build new industrial specializations were built on existing experience and practices in the town (Knox and Mayer, 2009). This is the case of many Italian industrial districts (Brusco, 1986) or of industrial towns in Canada (Carrier et al., 2012). Such places seem to offer a particular industrial knowledge and skills that local firms or firms relocating to the town can draw upon (Hamdouch and Banovac, 2014).

- Balancing the degree of specialization -

In general, the town's productive economy model is characterized by activities that are more or less specialised and as such contribute to the overall local economy. More precisely, the degree of specialisation of towns is related to pushing and pulling forces of agglomerations whereas firms from different sectors locate in different towns rather than in the same town (except in the case of clusters) (Marshall, 1920; Jacobs, 1969). Likewise, the intensity of firms' localization in a single town varies greatly from one sector to another. For example, in the metalworking sector, due to economies of scale, there might be little interest to develop many plants of small towns. Likewise, the nature of economic specialization is related to the size of a town whereas the smaller ones tend to be more specialized (Polèse, 2005). In other words, on the one hand, firms operating in different sectors and at different stages of the production process will choose to locate in different-sized towns (Duranton and Puga, 2001). On the other hand, towns of similar characteristics (particularly in terms of size) tend to develop similar functions (Polèse and Shearmur, 2005).

[9] The three other types are: (i) Marshallian industrial districts; (ii) 'hub and spokes' districts where branch-plants of big firms are strongly connected to subcontractors; and (iii) public-led industrial districts, where the defence (public) industry and research centres are leaders. This typology is based on a piece of research on industrial districts in Brazil, Japan, South Korea and the United States (Markusen, 1996).

A town is considered to be specialised when a significant share of its workforce is involved in specific economic activities. It is a process by which a town is dedicated to production of a narrower range of goods and services (Demazière and Hamdouch, 2012). As a result, towns can benefit from their specialisation through a wider scale of specialized labour and a local accumulation of skills that can increase productivity of goods and services (Huriot and Bourdeau-Lepage, 2009). Likewise, a specialisation based upon specific resources has the capacity to attract investment and to become a driver of local development (Pecqueur, 1989). Several studies showed that specialisation based upon already existing local knowledge, infrastructure and networks can increase competitiveness, create national and international reputation and assure some visibility to the territory (Glaeser, 2010; Léo et al., 2012; Bouba-Olga et al., 2012; Carrier and Demazière, 2012). In contrast, specialisation of a limited number of production branches can also create an obstacle for adaptation to new economic environment (Demazière et al., 2014). In other words, specialization alone may reinforce selected industries, which may not be in demand in the future and such mono-structural infrastructure may turn out useless (OIR, 2006). Thus, specialisation may make towns vulnerable for the reason that it becomes exposed to shocks and drastic changes that might negatively impact that particular sector, and in fine the majority of town's economy (Floch and Morel, 2007; Hamdouch et al., 2012).

Complementing the arguments against specialization, Krugman (1991) underlined that it is exactly the diversity of local activities that attracts consumers who wish to have a wide range of choices. The diversity provides access to labour pooling, knowledge spill-overs and links between producers of goods and services. In fact, through diversifying economic activities, a local economy can benefit from new markets by adding new businesses and activities to already existing ones without necessarily having any connection between them (Krugman, 1991). Thus, many economists consider that the advantages of diversifying the local economy are the attraction of investment in order to reduce risks for development, the renewal of mature products and a competitive position at a broader scale (Demazière, 2011).

In the light of this debate, several empirical studies of local development suggested the "third wa**y**" in which instead of specialisation in one industry, towns rather build on networks and economic cooperation to create so-called "shared" diversity (Carrier et al., 2012). In other words, the "third way" suggests that the best chances of economic growth for towns would be to develop economic activities that are independent, but that are also likely to support each other to create an effect of critical mass (Léo and Philippe, 2011). However, the local economy of towns may face difficulties if the diversification of activities within a network is unreasonably forced by the local actors (Servillo et al., 2014). In other words, as argued by Johansson and Quigley (2004), specialization by networking such as in the case of clusters and local production systems may be a substitute for missing agglomeration effects in towns in a sense that they may survive and prosper to the extent that networks can substitute for geographically proximate linkages, for local diversity in production and consumption, and for the spill-outs of knowledge in dense regions. In addition, new technologies facilitate the development of networks so that many of the advantages of large agglomerations can nowadays be generated in systems of towns as well (Johansson and Quigley, 2004).

- Building on potentials of cultural and creative activities -

Whether the culture represents art, or a set of attitudes, beliefs and customs, or if it is a sector of activity that involves some form of creativity, it has gained scientific recognition as a factor of development (Bayliss, 2004, 2007). While, for some authors, culture and its educational, traditional, democratic and social components enable social transformation, for others culture also plays an important role in competitiveness and market position (Scott, 1997; Cohendet et al., 2009). The scientific literature listed several benefits of cultural and creative activities (CCAs) to the local development (KEA, 2006; Rosenfeld and Hornych, 2010; Hamdouch et al., 2017). Firstly, the CCAs are considered to have the potential to attract tourists, so their impact on the local economy may be direct as the creation of income and employment and indirect as tourist spending on hotels, restaurants, and improvement of quality of life that attracts tourists and investors. Secondly, cultural goods and services produced at a local level can be exported and consumed outside the area of production. The CCAs' economic function is even more relevant considering the fact that culture and art benefit from operating in clusters. Finally, the CCAs may also have a social impact though socio-cultural regeneration projects to include marginalized groups, cultural projects for better cohesion between rich and poor areas, creative projects with the objective of improving the communication between different ethnic groups, etc. (KEA, 2006; Rosenfeld and Hornych, 2010).

When it comes to towns, Knox and Mayer (2009) demonstrated on many cases in Europe and the United States the way the CCAs could create opportunities for greater engagement of citizens, visitors, neighbours, friends and families. Furthermore, the CCAs may enhance the way in which citizens collaborate, as through new leadership, a community may create new solutions for challenges they face. Not less important, the CCAs may help shaping a community's identity and they can contribute to the development of a new economy (Selada et al., 2011). Besides (re)activation of local resources, the CCAs give the potential to towns to attract new talent, namely of the creative class, which may be a solution for their economic revitalization (Florida, 2002; Moulaert et al., 2013; Hamdouch et al., 2017).

Building on these arguments, Demazière et al. (2017) distinguished between four main potentials of the CCAs for towns' development. The first potential is a creative clustering that may lead towards changes in local development dynamics. As suggested previously, both cities and towns may pull benefits for their development from globalization processes. Thus, the size is not as crucial as the capacity to absorb global innovations (Knox and Mayer, 2009; URBACT, 2011). A town is considered to be able to find its potential in creative clusters as spatial forms where talent and individual creativity are the key factors (McCarthy, 2006). Through creation of conditions favourable for creative businesses (e.g. subsidies or tax incentives) and through improving the life quality for the population (e.g. services, accessibility, infrastructure), some towns may build on its resources/talents and attract new ones (new investment and new residents) (Montgomery, 2003).

The second potential for towns is the presence of amenities that may become one of the key factors to attract new population and tourists seeking for an original atmosphere and

experience (Demazière et al., 2017). Town's endogenous assets may be various: (i) natural amenities (e.g. warm climate, distinctive and picturesque countryside with topographical diversity such as valleys, rivers, lakes, mountains and forests), (ii) historical and cultural amenities (e.g. architectonic and archaeological heritage such as castles, churches, aqueducts and bridges, and intangible heritage such as memories, testimonies and legends), (iii) symbolic amenities (e.g. community spirit, neighbourliness and sociability, identity, authenticity, civic associations), and (iv) built amenities (e.g. health and social services, hotels, restaurants, bars, meeting spaces, museums, art galleries, studios, events) (Selada et al., 2011).

Towns are also considered to be able to attract new population by offering favourable conditions, infrastructures or support programmes (i.e. specific financing, land and services) that differ from those in large cities. Selada et al. (2011) argued that towns traditionally attract young families, mid-life career changers and active retired people. Nevertheless, young households increasingly seek for towns due to the cheaper cost of housing, better quality of life and the presence of quality schools, which is all clearly facilitated by new technologies. Furthermore, authors pointed at growing tendency for artistic and creative persons to look for smaller urban places for their work, which may be an opportunity for towns to offer better conditions than those usually found in large cities (the logic of dis-economies).

Finally, according to Demazière et al. (2017), one of the potentials for the local development of towns lays also in embeddedness and connectedness of the CCAs to the existing economic tissue. As some empirical studies reported, the CCAs may provide innovative inputs for other sectors of activity such as agriculture, handicrafts, furniture, textiles, tourism and gastronomy. For instance, architecture, design, advertising and software are strongly oriented on other businesses, regardless if they are traditional and creative ones (KEA, 2006; Quinn, 2006). Hence, through the CCAs, towns have the potential for an integrated development and prosperity that are attentive to needs of population and businesses in a changing world.

- Exploring the social and solidarity economy -

Known also as the Third Sector (Moulaert and Ailenei, 2005; Birch and Whittam, 2008; Monzon and Chaves, 2008), the Social and Solidarity Economy (SSE) is at the same time a socio-economic reality (with agents, networks, activities and principles) and a phenomenon per se (context-depended and in constant change) (Moulaert and Nussbaumer, 2005). Nevertheless, most scholars agreed that the SSE may be considered as made of voluntary, non-profit and co-operative organizations whose activities are means of achieving social development goals that transcend the market as it is (Moulaert and Ailenei, 2005; Birch and Whittam, 2008).

Furthermore, several empirical studies illustrated how the SSE organisations have been a central component of the community-based local development (Moulaert and Ailenei, 2005; Hamdouch et al., 2009). In other words, the SSE organisations are praised by scholars to

“emerge in response to the need and collective aspirations of communities and are in harmony with community-based local development processes: collective ownership, benefits to the community, democratic governance and combined social and economic goals” (ILO, 2011, p. 146).

The relevance of the SSE for the local development in the European context may be seen in the fact that in 2000, the European Commission established the Social Economy Europe, organisation that at the EU level represents the SSE enterprises (cooperatives, associations, mutual societies, foundations and new forms of social enterprises) with the aim to promote the social and economic role and input of the SSE organisations and their actors, as well as to reinforce their political and legal recognition at the EU level. As a result, the SSE has increased more quickly than the European population as a whole from 2002 to 2010, increasing from 6% of the total European paid workforce to the 6.5% which is over 14.5 million people across the EU Member States (EESC, 2012).

Concerning small and medium-sized towns, Hamdouch and Banovac (2013) argued that towns may have the potential of (re)activating the development processes by encouraging and investing in the SSE. In other words, the SSE may contribute to the regulation of imbalances in town’s the labour market: unemployment, job instability and social and labour exclusion of the unemployed. In that scope, the European Economic and Social Committee highlighted that the SSE organisations working in domains of health, social services, educational, cultural and research services have in fact boosted job creation in Europe. For instance, European countries such as Portugal, Sweden and UK reported the growth of more than 5% per year of employment in these sectors (CESE, 2005). In France in 2008, there were 215,000 organisations of the SSE with more than 2.3 million of employees (9.9 % of total employment) – many of which were in small and medium-sized towns (Groupe Moniteur, 2012).

Indeed, the competitiveness of the SSE organisations is seen to go beyond the market as it addresses directly the needs of society in the non-market sector such as services of care for the elderly, the disabled, children, refugees, ethnic minorities and other disadvantaged groups that in many cases are not covered by public or for-profit sectors (Hamdouch and Banovac, 2013). Knox and Mayer (2009) provided with an interesting example of the Cittaslow movement that started in Italy in 1999 as a network of towns that ever since has promoted local development based on healthy food, sustainable economies and traditional rhythms of community life. The member-towns are committed to supporting traditional local arts and crafts, organic agriculture and creation of centres where visitors can sample local traditional food. The movement soon became international with 70 towns in 2008 from around the world certified as slow towns (Knox and Mayer, 2009).

The SSE’s capacity to innovate is another potential for the local development of towns (Hamdouch et al., 2009; Moulaert et al. 2013). As the SSE is preoccupied with sustainable development, new ways of functioning and innovative responses to problems and needs are imagined and initiated. It furthers the modernisation of collective services, serving as a laboratory of research and development (Neamtan, 2002). In the social sphere it searches for solutions to urgent problems or new social demands related to poverty, social housing

shortage, violence and social exclusions: e.g. social cooperatives for the integration of groups of workers as a response to the employment crisis, organisations and ethical banks providing small loans to deprived social groups, innovations in social welfare services such as support services for dependent persons and social and cultural services, etc.

Finally, one of the most visible potentials of the SSE is the contribution to social and labour inclusion of disadvantaged people and geographical areas. Different studies (CESE, 2005; ILO, 2011; Moulaert et al., 2013) reported on associations, foundations, integration enterprises and other social firms that reduced the levels of exclusion by providing access to services, activities and working opportunities, and by enabling greater social participation and negotiating capacity of social groups that had previously been excluded. In other words, the SSE supports the social cohesion as it "ensures the welfare of a society, by minimising disparities and by avoiding polarisation" (CESE, 2005, p. 105).

Overall, scholars agreed that towns are specific and heterogeneous, as are their levels of specialisation or diversity of activities within productive or residential economies (Hamdouch and Banovac, 2014). Each town can assume different roles in terms of functionality and development strategies: administration, residential services, tourism, research and development, culture, social and solidarity economy, or export-oriented production (Demazière and Hamdouch, 2012). Therefore, "city types are shifting and towns are searching for new roles and identities. In order to remain competitive, they [towns] are making places more attractive [...] to local inhabitants and potential foreign investors [...] by promoting local special resources, cultural values, and local know-how" (OIR, 2006, p. 118).

In the next subsection we will observe the way small and medium-sized towns contribute to regional growth and development in terms of economic performance, unemployment, rural and urban development and regional attractiveness.

2.2.3 Contribution of towns to the regional growth and development

The first part of the subsection discusses the way towns become economic and social engines of regional growth and development. The second part of the subsection explores the way towns counterbalance the urban system of a region by complementing the dynamics taking place in large cities. The third part of the subsection argues that towns have a significant role for rural development, especially in relation to the urban-rural partnership. Finally, the last part of the section shows the contribution of towns to the regional attractiveness to firms, tourists and new residents.

- Economic and social engines -

While comparing economic sectors in large cities and small and medium-sized towns across Europe, the ESPON TOWN (Servillo, 2014) highlighted that towns, in general, seem to have a profile of local economy that is higher in industrial activities and lower in service. Moreover, towns commonly have a greater proportion of pensioners and a smaller proportion

of residents with high-level qualifications. Nevertheless, surprisingly the employment rates tend to be higher in towns than in large cities which contradict to a stereotypical public image of declining and poor small and medium-sized towns.

In terms of conditions for population growth and rise in jobs, towns located in regions with a low proportion of population living in large cities have better economic performance than towns located in regions with dominant large cities. Equally, towns that had higher levels of industrial employment ten years ago performed less well than towns that depended less upon industrial activities. In other words, historically industrial (especially manufacturing) small and medium-sized towns have been facing more unemployment problems over the last ten years due to global competition. Moreover, towns which continue to rely on industrial employment face a problematic future as a higher proportion of employment in industrial activities is associated with poorer job growth. "The relative competitive advantage of lower wages and more passive workers may be insufficient in contemporary Europe" (Smith, 2014, p. 276).

In terms of differences between countries, the ESPON TOWN found that, on the one hand, employment in industrial activities is statistically significantly higher in towns than in large cities in France, North West Italy, England and Wales. On the other hand, in Belgium, Northern Sweden and Slovenia the average proportion of industrial employment in towns is greater than that for large cities. Moreover, the ESPON TOWN highlighted that population from towns in most cases need to commute further for work. In fact, the share of active population who live and work in the same municipality is lower in towns than in large cities in Belgium, France, North Sweden, Czech Republic, North West Italy, England, Wales and Slovenia. Furthermore, unemployment rates in towns seems to be lower than in large cities in Czech Republic, France, North West Italy, England and Wales "which implies (in combination with high economic activity rates) that towns' residents in many parts of our studied area were able to find work successfully although this work may not necessarily be within the municipality they live in" (Smith, 2014, p. 268).

In a detailed analysis of 31 towns from across Europe, Demazière et al. (2017) highlighted how better performance in terms of positive demographic change and job growth seem to be underpinned by a combination of factors. More precisely, the positive demographic change may be seen in towns that are: (i) in the proximity to a large city (due to the market access); (ii) in a region that has a positive population change; and (iii) in towns with positive employment rate and housing occupancy. Contrary, the job growth in towns is related to: (i) positive employment change within their wider region; (ii) towns that have skilled resident active population and many existing businesses; (iii) towns that are not in close proximity to a large city and that have a diversified local economy (not based strictly on industrial or public sectors).

- Counterbalancing the urban system -

Henderson (1997) and Hildreth (2006) clearly distinguished between cities and towns by stating that large cities offer urbanization economies of agglomeration, whilst being costlier locations to live (higher commuting and housing costs) and to run a firm in (higher land and wage costs). By contrast, towns offer localization economies of agglomeration from specialization in a particular industry. At the same time, they are cheaper locations to live, work and run a business in compared with the cities, because they have shorter commuting and lower land and wage costs (Hildreth, 2006). For regional growth and development, these dynamics, on the one hand, reinforce economic inter-dependency between cities and towns and, on the other hand, they maintain stability in the regional and national systems (Hildreth, 2006).

In terms of specialization, the urban economic literature specifies that, in general, large cities produce more experimental and evolving products with a high premium on innovation and design, while towns tend to concentrate on the production of standardized items. Moreover, large cities are by many scholars considered to be the incubators for R&D, for the creation of new products out of a dynamic, knowledge-rich local economy as well as for an increased demand for goods and services to support the R&D firms. Nevertheless, once new products become established their production is decentralized from cities to towns, due to their cheaper labour and production costs (Henderson, 1997). As a result, "when diversified and specialised cities co-exist, it is because firm finds in its best interest to locate in a diversified city whilst searching for its ideal process, and later to relocate to a specialized city where all the firms are using the same type of process" (Duranton and Puga, 2001, p. 1455).

Table 2.3: Differences between cities and towns based on simplified assumptions

	CITIES	**TOWNS**
Agglomeration economies	Urbanization	Localization
Specialization	Less standardized and more evolving products	More standardized products
Product development	Incubators for R&D with new firm creation spill-over	Production of established products
Skill base	Higher and more specialized skill base	Lower and less diverse skill base
Sectors	Stronger in knowledge-based services and weaker in manufacturing	Stronger in manufacturing and weaker in knowledge-based services
Markets	Larger and more diverse markets	Smaller and less diverse local markets

Source: Hildreth, 2006

Considering skill base, according to Henderson (1997), cities in most cases have industries that are more skill-intensive in production and they benefit from larger and diverse labour markets which, in fine, provide firms with specialized knowledge and skills. By contrast,

towns mostly have industries that are less skill-intensive in production and they have smaller and less diversified labour market. Furthermore, cities seem, in general, stronger in services and weaker in manufacturing, while towns tend to be stronger in manufacturing and weaker in services. The reason for such spatial distribution of sectors is the fact that service sector are knowledge-intensive and require people who are well educated and with specialized skills. According to Florida (2002) such people tend to concentrate in larger cities. But also, the cost of land is higher in cities than in towns. Hence, firms may choose to locate their headquarters in city, and their manufacturing operations in towns.

To provide with some examples, by analysing local economies of 57 cities and towns in England, Hildreth (2006) found that cities in the London city-region have the highest rates of employment as London's dynamic economy creates employment opportunities for the wider region. There are many job commuters from neighbouring towns to London, but also towns have local businesses which provide support services to London or benefit from its success. University knowledge towns Oxford and Cambridge have the lowest rates of employment which is probably due to the large number of unemployed students of working age. Yet, according to Hildreth (2006), university knowledge towns tend to be incubators for innovation and R&D. As a result, spin-off companies may grow up around the university and benefit from effective informal networks of highly skilled people. Indeed, London and university knowledge towns have a high percentage of employment in knowledge-intensive business services. However, firms that locate in London benefit from economies of scale, making it a relatively desirable location for specialized service industries. University knowledge towns do not have such advantage of economic scale compared with large cities, so their specialized service industries are attracted by the presence of the university and benefit from the advantages of the spread of tacit knowledge (Hildreth, 2006).

By contrast, English towns that have the role of gateways seem to have the highest percentage of workers employed in manufacturing and construction sectors, and the lowest in the services. This may indicate that the nature of local industries required relatively low skill-base and under-representation of “knowledge industries” to support the port or airport. In fact, the highest proportion of working age with no formal qualifications are found in English gateway towns which is likely to reflect their focus on standardized manufacturing and construction. Unsurprisingly, industrial towns in England also have a high percentage of workers employed in manufacturing and construction sectors which reflects their traditional skill base and local knowledge in particular industrial sectors. Decline of their historic industrial base may result in relatively low employment rates, low skills and entrepreneurialism.

- Link to rural development -

The economic literature claims that the rural areas closest to towns are more likely to benefit from the spread effects of urban growth, while these positive externalities tend to disappear as distance increases (Partridge et al., 2007). Empirical analyses conducted by the OECD found that the population growth rates in predominately rural regions between 2000 and 2008

were positively associated with the growth in the closest urban regions and with their distance to the latter (Veneri and Ruiz, 2013). More precisely, the rural regions may benefit from the positive growth spillover both in terms of population and GDP per capita as the closest towns grow. The rural regions closer to towns grow on average at higher rates than more remote regions. This suggests that in most cases there is complementarity rather than competition between neighbouring urban and rural areas and that integration is positive. Likewise, the population growth of towns is generally not associated with the depopulation of neighbouring rural regions (Partridge et al., 2008).

Towns are considered as the engines of economic development and concentrate resources relevant for the liveability and the prosperity of rural areas (OECD, 2013). They provide larger markets for their functional region and beyond, where these markets benefit local productive activities (e.g. selling local products to local consumers). Urban density has been found to be significantly helpful in facilitating consumption, since towns ensure access to complex patterns of consumption for both urban and rural dwellers (Glaeser et al., 2001). Moreover, towns concentrate administrative capacity, which can help in carrying out administrative tasks and achieving objectives when public actors have to define and manage complex activities. Finally, towns attract capital flows and some financial institutions and a large part of the physical capital of a territory (e.g. infrastructure, buildings). These resources may produce potential complementarities with the rural areas

In the analysis of socio-economic profiles of selected towns from ten European countries, Hamdouch and Banovac (2014) provided with several examples where towns had an increase in population and in employment due to its strategic complementarities with the rural hinterland. Alba in Italy and Athineou on Cyprus, for instance increased their population and employment rate over the period 2000-2010 due to entrepreneurial local milieu where actors from rural hinterland complemented in the construction of the vision and the development of towns and its region. For example, Athineou focused on strengthening local entrepreneurship and minimal dependence on external (national or regional) capital. Its local development is based on local sources and investment from local entrepreneurs gathered in a cooperative. The Cooperative contributes largely to the development of business activities and local identity of population. It supports local entrepreneurship through common trade of local agricultural products, loans and provision of storage facilities. At the same time, Alba has a strong agro-food and wine sector that is driven by a dense network of local SMEs and some large-scale manufacturing plants. The most important actors in the economic and social growth of Alba have been local enterprises. There are mainly young entrepreneurs with high qualifications in the agro-food sector, which is a result of the national policy to open new facilities with specialisations fitting with regional economic specificities.

- Promoting regional attractiveness -

Mainet and Edouard (2014) defined the attractiveness of a territory as the capacity to attract sustainably different forms of resources (human, economic and financial). On the one hand, it can be measured by the balance of in and out movements of people, capital, jobs, etc. On the

other hand, it can be suggested in a more subjective aspect as the appeal and desirability. In other words, towns may be attractive for their resources and opportunities, but also for their atmospheres, image and “some seductive capacity” (Mainet and Edouard, 2014, p. 15). The ESPON ATTREG (Drobne and Russo, 2012) argued that the fact that some towns become “attractive centres” and migration destinations has important direct and indirect effects on the entire region since it becomes represented by towns' local quality of life, tourist offer and services.

For instance, towns' branding tends to be increasingly dedicated to quality of life and quality of regional space with focus on environment and natural elements, social linkages, urban amenities and heritage. In fact, many pictures from the region are used to promote local architecture, “natural” elements of the urban or surrounding landscapes and symbolic places like the market squares. Apart from pictures, Mainet and Edouard (2014) noticed that the words and sentences used to describe towns are not explicitly related to economy, but to the general description of the region, living environment and quality of life that are directly addressed to potential visitors or new inhabitants. “Local actors have integrated the importance of new potential elements of attractiveness as well as the importance to promote them in a context of development of the residential economy” (Mainet and Edouard, 2014, p. 23).

Furthermore, many local actors seem to be engaged in labelling their towns which is also promoted at the regional level with quite an appreciation. For example, in France, towns compete for national labels qualifying characteristics such as their heritage (e.g. Towns and Regions of Art and History, etc.), the quality and diversity of their equipment and services for tourists (e.g. Green Resort, The Most Beautiful Detours in France, etc.), the quality of their urban environment (e.g. Flowery Towns and Villages, etc.) or rewarding actions in sustainable development (e.g. Local Agenda 21).

Besides the attractiveness based on their environmental qualities, there are many examples of towns using culture to boost the attractiveness of their area (URBACT, 2011). For example, Obidos in Portugal uses the concept of modern rurality to attract new comers and firms. It is an example of creative, eco and healthy town that had for its aim to improve the regeneration and diversification of the local economy, anchored in a powerful marketing strategy (the Creative Obidos). The most visible part of this approach is the organization of public events that attract a significant number of visitors and tourists to the historical town. The organization of these events implied a set of different creative fields: content production, entertainment and acting, music, graphic design, marketing and advertising, multimedia, artistic creation and cultural research (URBACT, 2011).

Another example is a Spanish town Cambrlis, located in the core of the Costa Dourada, one of the main tourist destinations in Catalonia and the largest resort area in terms of accommodation capacity. It is part of the networked metropolitan system that also includes two cities: Tarragona and Reus. The tourism has been the main factor of transformation of the local economy. The town is a founding member and promoter of the Spanish Association of Destination for Culinary Tourism Promotion which is a partnership created to develop and promote food-based tourism products from raw materials to the regional restaurants. The

partnership involves different local stakeholders: town authorities, tourist companies, the fishermen association, the agricultural cooperative and the tourism school (Hamdouch and Banovac, 2014).

2.2.4 Conclusion of section 2.2

Throughout history, towns' functions and roles had a trajectory in line with the regional, national and global dynamics. In that context, European towns evolved from Roman cities to market places in the Middle Age, from cities of the noble and administrative cities in the 17th and 18th century to industrial cities in the 19th and 20th century, and finally to new towns in the 20th century. Nowadays in the globalized economy, some towns have been caught in an economic downturn related to an inert traditional industry, while others gained a new significance as places for the economic functions though the valorisations of local resources, networks and know-how.

As towns play different functional roles within spatial hierarchy, some of them have more economic advantages over the others. For example, towns located in a dynamic city-region are more likely to benefit from the economic success of the large city. In that case, highly qualified workers would choose to live in towns and work in large cities. On the contrary, if the town is located in a weak or dominantly rural region, it may face difficulties in attracting and retaining highly qualified workers unless it offers some economic advantages such as the presence of a university, attractive business environment or natural amenities. This clearly illustrates that the socio-economic characteristics of towns are related to the proximity of larger city and to their performance in terms of their capacity to create jobs, to provide services, to attract new population and to engage in inter-territorial and innovation networks.

Furthermore, a smaller size of the labour market such as the one of towns often leads to a specialisation in economic activities (e.g. manufacturing, tourism, etc.) whose dynamics are linked to economic and social changes at national or even international levels. More precisely, towns seem to benefit more from the economies of location in which firms agglomerate within the same sector so to produce a variety of the same product (benefits of specialisation) in order to attract customers by a wide range of choices and to attract other firms producing similar goods and services, thus increasing their productivity. Scholars agreed that towns are specific and heterogeneous, as are their levels of specialisation or diversity of activities within productive or residential economies. Each town can assume different roles in terms of functionality and development strategies: administration, residential services, tourism, research and development, culture, social and solidarity economy, or export-oriented production. Therefore, city types are shifting and towns are searching for new roles and identities. In order to remain competitive, towns are making places more attractive to local inhabitants and potential foreign investors by promoting local special resources, cultural values, and local know-how.

In that respect, many towns consider the access to cultural events and facilities as one of the key development priorities. On the one hand, they have the potential to include marginalized

groups and improve communication between different groups of the society through social regeneration projects. On the other hand, cultural and creative activities produce direct and indirect benefits for the local economy. They may generate revenues and employment in the case when cultural events entail expenditure that is connected to these activities; or in terms of revenues coming from cultural tourism. The social and solidarity economy seems to be another potential lever due to its orientation towards community-based local development, democracy and citizen participation in response to the crucial needs of local communities. It has the capacity to mobilize both local actors and local resources, to reinvest surpluses within the same area and to keep certain practices away from disappearing due to lack of profitability or because of strong competition.

In terms of their contribution to the regional growth and development, European small and medium-sized towns have demonstrated (during the period 2000-2010) growth of jobs and population in spite of general local economy based more on industrial activities. Towns have also been counterbalancing the urban system as being cheaper locations to live, work and run a business in compared to the cities. They are also assumed to be important to rural economies and societies in Europe and they may enable beneficial economic development while conserving the environmental assets of open countryside, confining new developments to existing urban areas and reducing the need for commuting. As a result, they become the “attractive centres” and the regional promoters by branding local quality of life, services and natural heritage.

CONCLUSION OF CHAPTER 2

This chapter was dedicated to small and medium-sized towns which appear to be a relative term, arising from upper and lower extremes of regional and national urban hierarchies. In the European context, the most commonly used threshold of population size for small towns is 5,000 – 20,000, and for medium-sized towns 20,000 – 100,000. Yet, there is no unique classification and each country uses different approaches. For example, the morphological and administrative approaches are considered to be the static ones since they use the "strict" borders to define towns either as the built-up areas or the territorial units of local government. In contrast, the functional approach is a dynamic one as it observes the concentration of jobs, services, functions, population commuting and relations between an urban centre and the hinterland. The functional approach is particularly interesting for the "City-network" theory because it takes into consideration the entire urban region to be shaped by networks (inter-relations) of all settlements. Furthermore, in this chapter, we explored the roles and functions towns play in their regions. Indeed, the function may be fulfilled differently in practice since the contextual factors trigger different effects in European regions and countries. The scientific literature listed the towns' functions as follows: supply function, housing function, labour market function and/or cultural function. Furthermore, towns play different roles for their region as either urban centres for the hinterland or nodes within the urban system. In addition, the role and functions of towns largely depend on whether they are located in densely populated areas and agglomerations, in areas dominated by towns with a good connection to traffic network, or in remote and peripheral areas in need of strategies for social and economic regeneration.

When it comes to their socio-economic features, some towns have more economic advantages than the others. More precisely, some towns are caught in an economic downturn related to an inert traditional industry, while the others gain a new significance due to the valorisation of local resources, networks and local know-how. Indeed, a smaller size of the labour market such as the one of towns often leads to a specialisation in economic activities whose dynamics are linked to the economic and social changes at the national or even international levels. Thus, towns may benefit more from economies of location in which firms agglomerate within the same sector so to produce a variety of the same product in order to attract customers by a wide range of choices and to attract other firms producing similar goods and services, led by a search to increase their productivity. Each town can assume different role in terms of functionality and development strategy: administration, residential services, tourism, research and development, culture, social and solidarity economy, or export-oriented production. Therefore, local economies are shifting and towns are searching for new roles and identities. In this chapter we also explored the towns' contribution to the regional growth and development. Despite a stereotypical image of being in declin and poor, towns are in fact the economic and social engines as their employment rates tend to be higher than in large cities. They are especially economically successful if located in regions with no

dominant large city. They also been counterbalance the urban system as being cheaper locations to live in, work and run a business as compared to the cities. Considering the regional growth and development, towns, on the one hand, reinforce the economic inter-dependency of cities and, on the other hand, they maintain stability of the territorial system. Towns are also assumed to be important for rural communities in Europe as they enable beneficial economic development while conserving the open countryside. As a result, towns are becoming increasing attractive to population and tourists, and are regional promoters of local quality of life, services and natural heritage.

CHAPTER 3: Evolution of the European Approach in Setting the Framework for a Balanced Territorial Development

Since the Treaty of Rome, signed in 1956, a common vision of the future of Europe has built on the values of diversity of places and socio-economic conditions. The so-called "European project" was conceived by the leading European policy-makers as a process of gradual political integration to overcome the nationalistic conflicts and wars. The member states opted for Europe to evolve into a community of "a harmonious development of economic activities, a continuous and balanced expansion, an increase in stability, an accelerated raising of the standard of living and closer relations between the states" (EEC Treaty, 1957, p. 4). About fifty years later, by signing the Treaty of Lisbon, the European Union established a single market with a goal to achieve a sustainable development based on balanced economic growth, a highly competitive social market economy, and the environmental protection. Such development was designed for all European regions to be given the opportunity to achieve their full potential by reducing disparities and by respecting equity of all its citizens.

Yet, in 2008, the economic and financial crisis emphasized the long-existing gap between the European regions, particularly economic decline, inefficient governance and underperformance of some European economies. It became evident that isolated, peripheral, socio-economically weak regions were strongly hit by the crisis unlike central, export-oriented regions with stronger adaptive capacity to react to external shocks. Likewise, the capital regions came out as winners, while rural and the Eastern border regions came out as losers. Under such circumstances, some cities have gained an increasingly important social, economic and political role. Those that have been interconnected at different spatial scales have continued to attract human capital and to cluster added-value activities.

Moreover, while counting few large metropolises, the European continent is mostly characterized by a balanced distribution of small and medium-sized towns. Building on this feature and on the large social capital in towns and cities, the European development strategy has chosen strengthening a polycentric structure in order to facilitate a more balanced growth and development. Thus, a new challenge for towns would be in increasing their European and global connectivity without losing their social inclusiveness and cultural heritage. How did European policy adapt its vision and legal framework to the new development challenges? How is the "City-network" paradigm related to the European territorial development? How are towns approached by the development strategies and policies and what are the local experiences across Europe?

In order to answer to these questions, this chapter will explore the evolution of European perspectives and policies over a period of time as well as the relevance of towns in European,

national, regional and local policies and practices. More precisely, the first section will discuss the conceptualization of polycentricity, territorial cohesion, territorial governance, and territorial competition and cooperation as the pillars of European growth and development. In that respect, the objective of the first section is to present the evolution of new approaches within the European policy area and a variety of practices across Europe. The second section will expose the different European, national and regional approaches to towns as well as a variety of local development experiences. The objective is to evaluate the relevance of towns in development strategies, policies and planning at different spatial scales and administrative levels.

SECTION 3.1: Implications of the European policy and planning

Facing the challenge of fiercer competition from outside Europe, especially from emerging countries, of the contraction of the internal European demand, of financial crisis and problems with public finances and of the process of European integration, it is evident that the EU can no longer prosper without a clear long-run development strategy (Capello et al., 2015). In the light of new multi-polar global economy, and the emergence of new country-leaders such as China, Europe is no longer the core continent and struggles to identify its new economic role (Capello et al., 2015).

The general objective of this section is to illustrate how new global dynamics are addressed in the European policy arena through continuous debating, defining and introducing into practice new visions and strategies for further European growth and development. More precisely, the "City-network" theory was initially conceptualized by the European scholars (Italian, Spanish and French schools) who were acquainted with and some even engaged in the creation of European public policies, hence this section has two goals. The first goal is to analyse the process of creation of concepts such as cohesion, territorial governance, cooperation, competition and polycentricity which are considered to be the fundamental pillars for the European development strategies and policies. The second goal is to explore the variety of applications and understandings of these concepts into policy and planning practices across Europe.

3.1.1 New conceptions in the European policy arena

In the recent European policy debate, two documents captured the interest of experts. The first is the EU Report Europe 2020 (European Commission, 2010a) that presented the general context in which Europe will act in the next decade and that proposed a strategy based on three pillars (smart, sustainable and inclusive growth). Second is the Barca Report to Commissioner for Regional Policies (Barca, 2009) that discussed a new process of EU Regional Policy Reform launched in preparation of the programming period 2014-2020 (Camagni and Capello, 2013).

Before presenting the fundamental concepts of the European development, the first part of the subsection presents the evolution of European development strategies and policy reforms over the last several decades. The second part of the subsection explores the concept of polycentricity and its relation to European spatial development. The third part of the subsection observes the evolution in conceptualization of territorial cohesion and its present variations in understanding among European stakeholders. The fourth part of subsection discusses the European vision of territorial governance to be important tool in achieving specific territorial development goals and working towards territorial cohesion. The fifth part of the subsection explains the way territorial cooperation is seen as an objective and a tool to overcome the negative effects of borders as barriers, to maximise potential synergies, to promote joint solutions to common problems and harmonious and balanced integration of Europe.

- Strategies of territorial development -

A number of visions for the European territorial development have been developed over the years with the objective to provide for the basis for a possible European territorial development policy consisting of Structural Funds (since 1975) and Cohesion Funds (since 1992). Since its creation, the Council of Europe was the driving force in the elaboration of plans and projects of territorial planning based on the specific needs of the territories (urban, rural, frontier areas, mountains, islands, etc.). Thus, in 1968, the Council founded the European Conference of Ministers responsible for Regional Planning (CEMAT) with the objective to organise on-going coordination of spatial planning among member states. During the 1980s, it also adopted the European Outline Convention to provide a legal framework for cross-border cooperation between territorial authorities and the European Spatial Planning Charter. In 1983, the European Parliament adopted a so-called Gendebien Resolution on the European spatial planning policy which was followed by the adoption of the Coordinated Spatial Planning Policy in 1990.

The first territorial analyses of European development and prospects were developed during the 1990s by the European Commission through programs Europe 2000, Europe 2000+ and the Compendium of Spatial Planning Systems and Policies. Following these programs, the European Spatial Development Prospective (ESDP) was approved by the Council of Ministers responsible for spatial/regional planning in 1999 (CEMAT, 2006). The aim of spatial development policies was a balanced, polycentric and sustainable territorial development in a sense that all European regions achieve goals of economic and social cohesion, conservation of natural resources and the cultural heritage, and a more balanced competitiveness (Nordregio, 2005).

In 2007, the European Union signed the Lisbon Treaty declaring to promote economic, social and territorial cohesion and solidarity among member states. Likewise, the European Commission launched a public debate on cohesion by issuing the Green Paper on Territorial Cohesion (CEC, 2008). The debate in the European policy arena stressed the importance of territorial cohesion associated with an integrated approach to development, which entails a

better coordination of public policies, better account of territorial impacts, improved multilevel governance and partnership, and the promotion of territorial cooperation (ESPON & MCRIT LTD, 2014). The Commission also demanded an independent report which would analyse the recent practice and achievements of the EU Cohesion Policy and propose various policy steps for the period 2014-2020. The report was published in 2009 by F. Barca who made a strong case for basing the EU regional policy programmes and operations on a "place-based approach", which was a notion that was previously explored by the Organisation for Economic Cooperation and Development (OECD) (ESPON & MCRIT LTD, 2014).

Furthermore, the Europe 2020 Strategy (EU2020) was launched in 2009 by the European Commission and it was adopted in 2010 after a series of discussions in the key institutions (the Parliament, the Council of Minister, and the European Council) (European Commission, 2010a). It was a strategic document for the decade 2010-2020. Indeed, the EU2020 was created in a context of economic and financial crisis and envisaged a sustainable future which is "more about jobs and better lives" acknowledging that the EU "has the capability to deliver smart, sustainable and inclusive growth to find the path to create more jobs and to offer a sense of direction to our societies" (ESPON and Universidade de Santiago de Compostela, 2012, p. 4). The EU2020 went beyond the Lisbon Strategy (made for the decade 2000-2010) that was focused on economic growth based on competitiveness and knowledge-based economy. In contrast, the EU2020 consists of three themes which constitute its basic framework:

- Smart growth: developing an economy based on knowledge and innovation.
- Sustainable growth: promoting a more resource efficient, greener and more competitive economy.
- Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.

In order to catalyse progress towards each of the priorities, seven initiatives have been put forward to foster the achievement of the EU2020: (i) Innovation Union, (ii) A Digital Agenda for Europe, (iii) Youth on the Move, (iv) Resource Efficient Europe, (v) An Industrial Policy for the Globalization Era, (vi) An Agenda for New Skills and Jobs, (vii) European Platform against Poverty. Moreover, cohesion and regional policies have been included as part of the overarching framework of the EU2020. More precisely, the Commission adopted two specific communications on regional policy to support the EU2020 goals on smart growth (in 2010) and sustainable growth (in 2011). In addition, the Territorial Agenda of the European Union 2020 adopted in 2011, as part of the cohesion policy was entirely coherent with the EU2020.

Overall, through the three priorities, the EU2020 indicated the basic direction that the EU economy which was to be measured by means of some indicators such as:

- 75% of the 20-64 year-old population to be employed.
- 3% of the EU's Gross Domestic Product to be invested in R&D.

- The achievements of three targets known as “20/20/20”: 20% reduction in greenhouse gas emissions in relation to 1990 levels, 20% of energy from renewable sources and 20% increase in energy efficiency.
- Reducing early school leavers to below 10%.
- At least 40% of 30-34 year-old population completing third level education.
- At least 20 million fewer people in or at-risk-of-poverty and social exclusion.

Nevertheless, the critics underline the controversial matter in accomplishment of these goals as each country is establishing its own national targets by adapting the general orientations of the EU, but also each individual region is charged with achieving the national or the EU targets whether or not it makes sense (ESPON and Universidade de Santiago de Compostela, 2012). Moreover, in 2011, the Commission acknowledged that it was not required that all the regions reach the EU2020 goals, accepting that for some regions it was simply too difficult. It even added that it was neither realistic nor desirable that all regions reach the same target. Nowadays, it is evident that the national targets are very heterogeneous and their sum country per country does not guarantee the achievement of the EU2020 goals by 2020 (ESPON and Universidade de Santiago de Compostela, 2012).

- Polycentricity -

The concept of “polycentricity” became part of the European spatial planning with the adoption of the Leipzig principles in 1994 and the European Spatial Development Perspective (ESDP) in 1999. “Polycentricity” in terms of policy and spatial planning is coined as the promotion of balanced and multiscalar urban networks in which core areas and peripheries benefit from a social and economic cooperation (Nordregio, 2005). However, the concept is applied differently depending on the context. At the macro (European) level, polycentricity is a development model that seeks to establish growth poles across the European territory in order to enhance regional development more evenly. At the meso (inter-regional) level, polycentricity is cooperation and sharing of existing assets and urban functions between two or more cities. Consequently, cities complement each other functionally and have a joined access to urban functions for their population and firms. At the micro (intra-regional) level, polycentricity is even more emphasized cooperation as cities and towns may improve their economic performance through networking within the region.

In that scope, with objectives to achieve economic and social cohesion, balanced competitiveness and sustainable development, the European spatial and polycentric development model proposed:

- Creating several areas of global economic integration;
- Strengthening a balanced system of metropolitan regions and city clusters;
- Promoting integrated urban development strategies which include nearby rural areas;
- Strengthening cooperation on particular topics (local transport, links between universities and research centres, management of the cultural heritage, integration of

new migrants) through cross-border and transnational networks (European Commission, 1999).

Indeed, in the ESDP, polycentricity opposed to a monocentric development in which service provision and territorial management competence are concentrated to a single (major) centre, and became a synonym for balanced development, reduction of regional disparities, increase of European competitiveness, sustainable development and integration of European regions (Nordregio, 2005).

Furthermore, the ESDP not only addressed urbanised regions, but also less dense and economically weaker regions. In that respect, the ESDP (European Commission, 1999) recommended integrated development strategy for towns, urban regions and rural areas which, among others, underline the importance of:

- Expanding the strategic role of the metropolitan regions and the "gateway cities" giving access to the Union territory (large ports, airports, trade fair and exhibition cities, cultural centres) by paying particular attention to the peripheral regions;
- Checking urban expansion by building on the idea of the "compact city" (short distances);
- Improving the economic base by using the territory's specific potential and establishing innovative, diversified and job-creating economic activities;
- Promoting a mixture of functions and social groups to combat the social exclusion, restructure areas in crisis and derelict industrial land;
- Rediscovering multi-functionality in an agriculture aiming at quality (local products, country tourism, renewable energy), expanding activities relating to the new technologies and exchanging experiences with other urban and rural areas.

In other words, the ESDP encouraged the creation of networks of smaller cities and towns because cooperation between urban centres to develop functional complements may be the only possibility for them to achieve viable markets and to maintain economic institutions and services, which could not be achieved by the towns on their own (European Commission, 1999).

Nevertheless, as a strategic policy document, the ESDP cannot prescribe future actions and its direct application in the Member States. It can only enrich decision situations with conceptual frames which in turn can improve the quality of decision being taken. Hence, a document like the ESDP provides insights to understand the spatial organisation of a concrete area and gives indications for policy actions. However, for detail study of application of polycentricity in spatial planning, it is necessary to examine each country and its particular institutional context.

Overall, the polycentric policies tend to stimulate the growth of centres and regions outside the core, the functional division of labour among cities and rural areas and cooperation between neighbouring cities and their rural areas. The majority of European countries have introduced the polycentricity concept in national policies and public discussions about

territorial policies. However, this does not mean that the concept has everywhere been accompanied by concrete policy instruments (Nordregio, 2005).

- Territorial cohesion -

The concept and the policy goal of European territorial cohesion has been in recent years a popular subject for spatial planners, geographers and political scientists (Van Well, 2012). Even though the EU has decreed that it is an essential goal for its Member States, there is still no definition or operationalization of what territorial cohesion is. As stated by Faludi (2007), territorial cohesion is a purposely vague, negotiated concept which allows governments to define it in accordance with their own interests. Nevertheless, it seems that there have been some common understandings of the political goal that concept bears (Van Well, 2012). First, it should ensure the development in all regions (urban, rural, sparely populated, peripheral, coastal, and mountainous) in new and in old Member States by respecting their own territorial capital. Second, it should find the balance between territorial measures to increase economic competitiveness, ensure social cohesion and strive for sustainable development (Van Well, 2012).

As a political goal, the concept of territorial cohesion was first mentioned in the Amsterdam Treaty in 1997 (Mirwaldt et al., 2009). It was considered as an outcome of the provision of services of general interest in all types of territories (Waterhout, 2007). In 1999, social and economic cohesion became normative objectives of the European Spatial Development Perspective (ESDP) on polycentric development, equal access to infrastructure and knowledge and responsible management of natural and cultural resources. Following the Territorial Agenda in 2007, the Green Paper of Territorial Cohesion (CEC, 2008) outlined a policy response consisting of three dimensions: (i) concentration of resources; (ii) connectivity of regions; (iii) importance of transnational and/or inter-regional cooperation. In 2009, a questionnaire was launched among key stakeholders in EU institutions, national, regional and local governments, organizations and other partners across Europe in order to collect a useful body of knowledge for further academic and policy-relevant research. From these contributions, a number of policy and academic categorizations of territorial cohesion have been made. One of them is produced by the DG Regio for the “Conference on Cohesion policy and territorial development: Make use of the territorial potential!” in Kiruna in 2009. The Conference defined four main areas relevant for territorial cohesion (CEC, 2009):

- Cooperation between territories for fostering European integration;
- Fostering liveable urban and rural communities and strengthening “territorial programming” in cohesion policy;
- Coordination of policies to achieve greater policy coherence;
- Analysis and data collection for evidence-based policy-making.

Besides the contribution of the DG Regio, the ESPON INTERCO (2010) proposed an interesting conceptualization of territorial cohesion as:

- Smart growth in a competitive and polycentric Europe;
- Inclusive, balanced development and fair access to services;
- Local development conditions and geographical specificities;
- Environmental dimension and sustainable development;
- Governance and coordination of policies and territorial impacts.

Furthermore, with the objective to understand the implications of the Cohesion policy and the Territorial Cooperation Objective of Cohesion Policy, Mirwaldt et al. (2009) analysed the national responses to these documents across Europe and identified five areas of understanding of what the territorial cohesion is:

- Strengthening polycentric development and growth poles;
- Sustainable development and energy;
- Aid to marginalized areas with specific territorial handicap;
- Improving accessibility through infrastructure investment;
- Creating equitable living conditions.

In sum, the interpretations of territorial cohesion vary throughout Europe and among the European institutions, organizations and local stakeholders of member states as to "whether a common understanding and definition of territorial cohesions should be sought at all, and to what extent a common definition would actually aid in the formulation and implementation of the Cohesion policy" (Van Well, 2012, p. 1557). Despite its various definitions, territorial cohesion is a European "phenomenon" and is considered to be important objective and tool for future development of Europe.

- Territorial governance -

Spurred on by the European political debate on territorial cohesion, territorial governance has been conceptualized as a means to achieve endogenous territorial development via the organization of new "constellations of actors, institutions and interests" (Gualini, 2008, p. 16). More precisely, territorial governance can be understood as the policy, politics and administration of the territory at local, regional, national and European levels. It concerns patterns of cooperation both between units of government and between governmental and non-governmental actors (Lidström, 2007). Davoudi et al. (2008) characterised territorial governance as "the process of territorial organization of the multiplicity of relations that characterize interactions among actors and different, but non-conflictual interests" (p. 352). Also, according to the author, territorial governance is different from governance because its object is the territory and its aim is to regulate, govern and manage territorial dynamics (Davoudi et al., 2008). In other words, territorial governance implies both horizontal and vertical coordination and can be described, analysed and evaluated by looking at the structural context, the policies of the institutional realm and the results and processes of actions, programmes and projects for territorial cohesion (Davoudi et al., 2008).

Among the policy-related documents, the OECD's Territorial Outlook of 2001 (OECD, 2001) was the first one to define the concept of territorial governance and to set policies across OECD countries. The definition of territorial governance mainly focused on the distribution of roles and responsibilities among different levels of government (supranational, national and sub-national) and the underlying processes of negotiation and consensus-building. Moreover, the OECD stressed the strengthening of sub-national powers and responsibilities, the emergence of more flexible institutional relationships and the formation of new spatial structures for territorial governance:

> "Not only have specific tasks been re-allocated to different agencies and the repartition of revenues revised, but in addition, more flexible institutional relationships have evolved. A wide range of governmental and non-governmental actors, including the voluntary sector and private enterprises, gradually constitute a new and more or less formal policy network within which solutions to common problems are jointly discussed and policy solutions developed. […] Central governments have, in some cases, begun to promote the formation of new spatial structure for territorial governance (inter-communal frameworks, regional platforms, territorial pacts, etc.). These new structure promise more coordinated spatial planning and more coherent allocation of public resources across whole territories." (OECD, 2001, p. 142)

In 2006, by the Resolution on Territorial Governance, the Council of Ministers responsible for spatial/regional planning (CEMAT) stated that territorial governance was the "emergence and the implementation of innovative shared forms of planning and managing of socio-spatial dynamics" in which the "traditional leading role of the state is challenged by far more inclusive and co-responsible engagement of key-actors in spatial development" (CEMAT, 2006, p. 7). Furthermore, the CEMAT set out eight "vectors of action" related to territorial governance (Table 3.1).

Table 3.1: "Vectors of action" in the context of territorial governance

1. Jointly devised strategies: deepening the development of discussed, concerted and contractualized processes among territorial actors and stakeholders, in the building of territorial visions and strategies.
2. Decentralization and other forms of restructuring of spatial development responsibilities at regional and municipal levels, in terms of strategic planning and policy coherence, but also at city and community levels, in terms of more operational development of projects.
3. Vertical institutional cooperation (public-public), holding to the principles of subsidiarity and reciprocity, linking efforts and responsibilities at different public administrative levels, enabling synchronic dynamics in the achievement of spatial objectives.
4. Horizontal institutional cooperation (public-public), expanding projects where different public bodies are co-responsible for different sectorial policies, especially at regional and local levels.
5. Trans-national and cross-border institutional cooperation, expanding the practices developed in contexts like Interreg and several other international spatial development cooperative initiatives among all Council of Europe Member States and

neighbouring countries.

6. Horizontal public-private cooperation and partnership, especially with private business, developing the contractualization of partnerships.
7. Participative civic and NGO involvement, increasing participatory possibilities for civil society's multiple forms of expressions in spatial development processes and projects.
8. Deliberative civic and NGO involvement, encouraging areas and forums of possible co-responsibility on the part of civil society.

Source: CEMAT (2006)

In 2008, the European Green Paper on Territorial Cohesion (CEC, 2008) aimed at stimulating discussion about territorial cohesion and its implication for policy-making. Regarding territorial governance, The Green Paper reached a consensus on the four areas of action: (i) coordinated public policies at different levels; (ii) better account of territorial impacts; (iii) improved multi-level governance; (iv) the need for functional approaches (e.g. consideration of river basins, mountain areas, networks of towns, metropolitan areas, deprived neighbourhoods) (European Commission, 2009).

The latter, related to the territorial impacts and adopting a **functional approach** implied the need for separate geographies for separate problems or issues, rather than relying on the general-purpose administrative borders for all areas of policy (Faludi, 2010; Stead, 2014). In other words, there has been a call for a more flexible approach to geography that "considers both smaller regions and larger ones" (European Commission, 2008, p. 7) and for a place-based approach with a particular emphasis on sub-national government and governance. This marked the break with old paradigms of regional policy and announced new ones (Table 3.2):

Table 3.2: Old and new paradigms of regional policy

	Old paradigm	New paradigm
Objectives	Compensating temporarily for location disadvantages of lagging regions	Tapping underutilized potential in all regions for enhancing regional competitiveness
Unit of intervention	Administrative units	Functional economic areas
Strategies	Sectorial approach	Integrated development projects
Tools	Subsidies and state aids	Mixed of soft and hard capital (capital stock, labour market, business environment, social capital and networks)
Actors	Central government	Different levels of government

Source: OECD (2009)

> "Regional policy should, as its description implies, be applied to the different sorts of regions, in the ordinary meaning of this word or, to use another term, to territories. A sub-national focus needs to be encouraged with an emphasis on "place-based" policies which integrate with policies on sectors such as sustainable development and access to services." (European Commission, 2008, p. 7)

The general acknowledgment of a functional and more flexible approach to governance of European territories is important for the "City-network" theory since it recognizes specificities of territories and a possibility that local networks may develop regardless administrative borders. In that scope, building on Castells (1996) division of "spaces of flows" and "spaces of places" as well as on the governance typology proposed by Hooghe and Marks (2003), Blatter (2004) proposed an interesting distinction between territorial governance and functional governance (Table 3.3). The former is rather formalized (clear geographic scales and jurisdictions) and stable with respect to time and space, while the latter is characterized by networked interaction, multiple scales and variable geometries. Functional governance is less stable over space and time and oriented towards specific tasks or policy problems (Stead, 2014).

Table 3.3: Characteristics of territorial and functional types of governance

	Territorial governance (spaces of places)	**Functional governance (spaces of flows)**
Structural pattern of interaction	Hierarchy: monocentricity	Network: polycentricity
Functional scope	Broad (all/many tasks)	Narrow (one/few tasks)
Geographic scale	Bundled/clear-cut scales: congruent boundaries	Multiple/fuzzy scales: variable geometry
Institutional stability	Stable/rigid with respect to time and space	Fluid/flexible with respect to time and space

Source: Blatter (2004)

Nevertheless, the difficulties for territorial governance are likely to emerge due to the heterogeneity of local actors that compose territories. The intersection of various scales of decision implies, thus, the necessity for inter-organizational coordination. Even in the case of industrial districts, which are considered to be a spontaneous emergence of networks, does not exclude the need for coordination with local public actors (Brusco, 1986; Mistri, 1998). However, the common problem of European countries are networks that are the result of proactive policies (cluster policies), because national and local actors find themselves involved in a common action, as developers as well as public policy tool (Marty, 2006). From the perspective of local authorities, the implementation of such cluster policies may profoundly change the territorial dynamics (Chabault, 2009).

Overall, according to the ESPON TANGO report (2013), territorial governance matters for several reasons. First, territorial governance approach coordinates the actions of actors and institutions which result in ensuring that policies and strategies are efficient and equitable to achieve growth. Second, it integrates policy sectors by territorial knowledge, dialogue, partnerships and networks. Third, it mobilises stakeholder participation by ensuring the allocation of both human and financial resource in their interest. Fourth, it is adaptive to changing contexts which enable national, regional and local authorities to respond to crises. Finally, it stands for the "place-based" and "soft" or the functional territorial approach to challenge prevailing perceptions and routines of actors and institutions being locked in "hard" spaces.

- Territorial competition and cooperation -

The scientific literature defined territorial competition as “the actions undertaken by the economic and political actors in a specific geographical area in order to ensure the increase in the living standards for the inhabitants of the respective territory” (Constantin, 2006, p. 71). Different levels of territorial competition (city, region, state levels) (Poot, 2000), various types in terms of variable kinds of local coalitions, of varying degrees of strengths, involving different mixes of interests (in spatial and sectoral terms) were studied over the last several decades (Chein and Gordon, 2008). As argued by Porter (1996), a country may offer to firms competitive advantages represented as special conditions in order to make them prosper and grow. In that way, it contributes to the reinforcement of its competitive capacity on both local and global markets (Porter, 1996). The competitive advantages depend on public policies since at different levels governing authorities consider the territory they administrate as competing for access to the global market, capital, new knowledge, technologies and resources (Constantin, 2006). In that sense, public policies are accompanied by a series of instruments such as grant support, relaxation of regulation, tax exemption, business allowances and strategic allocation of funding with the objective to gain new capital and resources on the market (Roberts and Sykes, 2000).

Yet, in the European context, territorial competition has been gradually developed over the years under strict rules and supervision of the European Commission. The Treaty of Rome, signed in 1957, set the first rules of a newly established European single market: a customs union, the progressive approximation of legislation between member states, the establishment of the four freedoms of movement for goods, services, capital and labour and a unified system of economic competition rules (Colomb and Santinha, 2014). The Economic and Monetary Union, with the creation of the euro, took that process even further. Nowadays, competition is one of the few policy areas in which the European Union has an exclusive competence not shared with the member states. The EU competition policy comprises four key elements: anti-trust regulations, merger regulations, the regulation of aid provided by states and the liberalization of monopolies and state enterprises (Colomb and Santinha, 2014). They have a major influence on economic activity, investment flows, human mobility and the behaviour of private and public actors in Europe (van Ravesteyn and Evers, 2004).

The regulation of state aid and regional aid for firms and territories, and the regulation of services of general interest are considered to be the critical issues for territorial competition in Europe (Colomb and Santinha, 2014). Firstly, the state and regional aid is a financial support for firms or specific economic sectors with the aim to attract economic activities to specific areas or to support existing industries facing difficulties. It can have different forms: tax exemptions, loans at preferential interest rates, direct subsidies, acquisition of land and buildings on favourable terms, etc. What seems to be problematic is the fact that the aid creates a distortion of competition in the European single market by giving an advantage to less efficient firms that are nationally protected (Wishlade, 2003; Molle, 2007). Each member state must inform the European Commission of any plans to grant state aid and cannot implement those plans without its approval (Colomb and Santinha, 2014). Likewise, the regional aid that targets regional disparities is also regulated by the European Guidelines for

National Regional Aid (CEC, 2006b) which had identified the eligible regions, the aid types and authorized costs, the types of eligible firms and the maximum aid level (Wishlade, 2003; Molle, 2007). As a consequence, the design of regional, urban and rural development by the national and regional governments has little "room for manoeuvre" and there are urban and rural areas "that are neither well placed to benefit from policies focused on innovation or other horizontal priorities, nor sufficiently disadvantaged to qualify for regional aid, either at the national or Community levels" (Wishlade, 2008, p. 763). One of the consequences is also the shift from a regional development policy aiming at assisting backward areas or declining regions towards the policy aiming at improving further the performance of the already successful cities and regions seen "as national champions, in particular capital cities" (Crouch and Le Galèse, 2012, p. 406).

Secondly, in terms of services of general interest (SGI) such as transport, postal services, telecommunications, and the supply of electricity, gas and water, which used to be protected from the market's fluctuations and organized as monopolies, are forced to enter into a competition (McGowan, 2000). The problematic issue is that competition may limit the pursuit of social and territorial cohesion (Wishlade, 2003). Consequently, because SGI are mostly developed in densely populated areas, and the providers are guided by market dynamics, the higher prices are set for SGI's provision in less developed and remote areas (Molle, 2007). So far many trade unions, public service defence organizations and left wing parties in the European Parliament have expressed their concerns about the implication of the European liberalization for the SGI and many have called for the adoption of a clear legal framework at the European level which would guarantee the protection of social services in the name of social and territorial cohesion (Colomb and Santinha, 2014).

In terms of territorial cooperation, the literature in the political economy drew up two approaches. On the one hand, scholars mainly from the North American context focused on inter-jurisdictional cooperation as a variant of the rational choice theory (Steinacker, 2004; Post, 2004; Feoick, 2007). Their objective was to explore the factors that shape the actions of individual decision-makers and that affect their actions when faced with the opportunity to engage in inter-municipal cooperation. As a result, scholars in favour of this approach emphasized the importance of factors of transaction costs and benefits for cooperation (Schneider and Teske, 1992; Andrew, 2009; Hawkins, 2009). In other words, the rational choice approach considered the way variables of transaction costs (e.g. information and coordination costs, negotiation costs, monitoring costs, political costs, etc.) affect decisions to enter into cooperative relationships (Nelles, 2010).

On the other hand, literature in the regional governance discipline centred predominantly on the forms and politics of regional partnerships in Europe and on generally more comparative and broader governance arrangements across city-regions (Hulst and van Montfort, 2007). In that respect, this approach analysed the evolution of specific projects (Salet and Gualini, 2007; Otgaar et al., 2008) and the impact of institutional environment (Frug, 1999; Lambergts et al., 2008). Some of the factors cited by the literature included the power and autonomy of political leaders, availability and distribution of local resources and financial autonomy (Norris, 2001; Lefevre, 2004), the influence of political parties (Fedele and Moini, 2007),

pre-existing governance structures (Fürst, 2006), and the influence of legislation made by higher levels of government (Otgaar et al., 2008).

Considering the European context, over the last decade, a great number of policy documents have addressed the role of territorial cooperation in regional development (ESPON TERCO, 2013). Cooperation of actors across national borders, different policy sectors and policy levels is considered to be crucial to deal with environmental, economic and social challenges (CEC, 2008). The main objective of territorial cooperation is to overcome the negative effects of borders as barriers, to maximise potential synergies, to promote joint solutions to common problems and harmonious and balanced integration of the entire territory (ESPON TERCO, 2013). Over time, the expectations of territorial cooperation have expanded to encompass its contribution to economic development and competitiveness, territorial integration, city networking, good neighbourhood relations, labour markets and the unification of natural ecosystems divided by borders (ESPON TERCO, 2013).

The European Commission distinguish between several types of territorial cooperation (ESPON TERCO, 2013):

- *Twining city cooperation* – the units are cities or municipalities which are either adjacent (twin cities) or distant (sister cities) and which signed twinning agreements.
- *Cross-border cooperation* takes place among larger administrative units, such as NUTS3 regions, which are neighbours across a national border. An example of such cooperation would be the INTERREG A programme.
- *Inter-regional cooperation* concerns NUTS2 regions located in different countries which are not directly neighbouring across a national border. An example of such cooperation would be the INTERREG C programme.
- *Transnational cooperation* includes NUTS2 regions cooperating within close proximity to each other with boundaries of some larger geographical macro-region (i.e. Baltic Sea, Alpine, Mediterranean regions, etc.). An example of such cooperation would be the INTERREG B programme.
- *Transcontinental cooperation* considers regions and cities in the EU (at NUTS3, NUTS2 and municipality levels) undertaking cooperation with equivalent non-EU territorial units located in other continents.

The European Commission has been particularly in favour of cross-border cooperation as a way to promote higher levels of territorial cohesion and solidarity between the Member States and regions of the European Union as well as a way to pursue a balanced and sustainable development among different territories (European Commission, 1999; European Commission, 2012a, 2012b). As a result, the INTERREG cooperation programmes were created in 1989 that made territorial cooperation and cohesion a cornerstone of policy, especially in the events of joining new Members States of Eastern Europe. Since then overcoming the artificial barriers placed by borders and fostering transnational and inter-regional linkages have been in particular an important aim of cohesion policy (European Commission, 2010b).

Furthermore, the EU2020 explicitly mentioned cross-border cooperation as the key pre-condition to foster excellence and smart specialization (European Commission, 2010a). At the same time, it called for further cooperation and harmonization of legal systems across Europe as a way of avoiding bottlenecks and favour cross-border activity and exchanges by citizens and firms (European Commission, 2010a). The Territorial Agenda, agreed by ministers from all member states in 2011, was a policy paper aiming at mobilizing the potentials of European regions and cities through integrated spatial development. This policy document considered territorial integration in cross-border and transnational functional regions as one of territorial priorities for the development of the European Union by: (a) recognising that actions at the cross-border, transnational and inter-regional level have a pivotal role to play in the implementation of territorial priorities across Europe; (b) supporting transnational and cross-border integration of regions going beyond cooperation projects, and (c) recommending that territorial cooperation initiatives are driven towards long-term objectives of territorial cohesion (European Commission, 2011).

When it comes to empirical evidence of the benefits of territorial cooperation, the ESPON ULYSSES (2013) project reported positive effects on territories if their cooperation relied on the use of historical and cultural links, similarity of languages, a long history of cooperation and a long-established framework. Moreover, it seems that social and attitudinal changes as well as procedural changes may occur as a result of territorial cooperation. Likewise, physical barriers may play a positive and uniting role, as neighbours need to come together to work out joint solutions. A variety of cooperation programmes may benefit to territories, as it may provide opportunities to develop relations at less intense levels which can subsequently be followed up with more intense efforts.

Overall, territorial competition and cooperation have been one of the main development instruments in Europe (European Commission, 2009). On the one hand, strict regulations of territorial competition on a single market have aimed at ensuring transparency, equality and equity in development of all territories. Yet, many issues regarding state and regional aid and services of general interest have been raised (Colomb and Santinha, 2014). On the other hand, territorial cooperation has assumed relevance at different territorial scales (local, regional and trans-national) by fostering continued networks and coordination of actions between regions of different member states that may have different governance systems and levels of performance (ESPON ULYSSES, 2013).

In the following subsection we will provide with some application of the new “European” concepts of governance, polycentricity, cohesion, cooperation and coopetition in policy and planning practices of some member states.

3.1.2 Variety of practices across Europe

The membership within the European Union implies that power within states is decentralized, with ever more decision being made at the local rather than the national level. The European integration has created conditions where regions may not need the state to survive

internationally (Kincaid Jolly, 2006). Indeed, since the 1990s, regions have linked to one another and have related directly to the central organs of the European Community, thus receiving a substantial share of their budgets from European institutions (Borras-Alomar, Christiansen and Rodriguez-Pose, 1994). The number of offices in Brussels representing regional authorities from member states has grown exponentially over the past twenty years (Moore, 2007). As argued by Borras-Alomar, Christiansen and Rodriguez-Pose (1994), there may be a shift from the old state-centric world in which regions were subordinate parts of nation-states. Yet, "the fact that regions gain access to new partners and new sources of funding, does not mean, per se, that their dependence on decisions taken by the respective national government has diminished" (p. 50). In other words, the way regions come into closer contact may be seen as cooperation, but it may also accelerate territorial competition for investment and Community funds in the single market. Hence, during the last three decades, coopetition moved from a state level towards all territorial levels (not only regional one) which are now able to apply directly for the European investment and capital and deploy those resources in a more autonomous way than ever before.

Having this in mind, this part of the subsection observes a variety of approaches to address the issues of territorial governance, polycentric policies and coopetition throughout Europe. In that respect, we refer to the results of several ESPON project which have been conducted since the 2000s and which have provided useful empirical insights into different aspects of approaches to territorial governance, polycentric policies and spatial planning, general typology of territorial cooperation, networking of twinning cities, examples of cross-border coopetition and practices of inter-municipal coopetition.

- Approaches to territorial governance -

The ESPON TANGO (2013) project had for the objective to draw and synthesize conclusions about territorial governance throughout Europe. More precisely, its aim was to understand the processes by which actors and institutions at different levels formulate and implement policies, programmes and projects to achieve a certain territorial goal. The project observed 12 case studies: Baltic Sea Region, Stockholm agglomeration, Rotterdam-The Hague Region, River Rhine Basin, Lombardy Region, South Loire Region, Manchester agglomeration, North Shields Fish Quay, Pecs agglomeration, Southern Transdanubian Region, Ljubljana urban region and Trilateral Nature Park Goricko-Raab-Örség (Figure 3.1).

Figure 3.1: Case study areas main territorial focus

Source: ESPON TANGO (2013)

Concerning territorial governance, the project found some interesting distinctions and resemblances between case studies. Firstly, it seems that there is a distinction between distribution of formal power and informal power at the transnational (cross-border) level and at the local level. For instance, in the cases of involving transnational actors, the exercised power was of a normative character, rather than regulatory (e.g. Baltic Sea Region, Trilateral Nature Park Goricko-Raab-Örség, Southern Transdanubian Region). At the local level, however, it seems that the largest city or region generally has a greater chance of dictating the

agenda than does a smaller settlement in the area (e.g. Manchester agglomeration, South Loire Region). In terms of cooperation of actors and institution, various forms took place (forums, conferences and workshops) which had for the goal to scope out the current knowledge base, to identify technical solutions and to explore various courses of actions (e.g. South Loire Region, Pecs agglomeration, Trilateral Nature Park Goricko-Raab-Örség). When it comes to multi-level cooperation, the case studies illuminated on enabling factors of the coordination of actors: previous cooperation among actors (e.g. Trilateral Nature Park Goricko-Raab-Örség), specific inter-municipal arrangements (e.g. Rotterdam-The Hague Region), desire to create an image to be presented to the outside (e.g. Baltic Sea Region) and a unified political landscape (the same political party dominates multiple governance levels) (e.g. Manchester agglomeration, Lombardy Region).

Secondly, the "softer" functional territories seems to address cross-sectorial integration more explicitly than do the administrative spaces, since the "softer" spaces have a non-binding character which allows them to be more experimental in their approaches to integrate policy sectors. Synergies among actors were often done through a dialogue among networks or partners associated with the drafting of programmes or strategies among trans-regional, transnational or cross-border actors (e.g. Baltic Sea Region, River Rhine Basin). There were three ways that cases dealt with sectorial conflicts. One way was organizing forums where actors with sectorial interest could participate and report their interests and positions (e.g. South Lore Region). Second way was to overcome differences through cooperation and dialogue between actors in order to create a win-win situation (Baltic Sea Region, Trilateral Natural Park Goricko-Raab-Örség). Third way was boosting institutions and their capacity to deal more effectively and equitably with conflicting sectorial interests (greater decentralization of powers to lower levels) (e.g. Manchester agglomeration).

Thirdly, in some cases we can observe the establishment of practices which allow identifying who should participate in territorial governance processes (e.g. South Loire Region). Other case studies seem to have hardly any consistency in how this process is performed (e.g. Stockholm agglomeration) which in some cases led to the selection of actors based on personal relations (e.g. Ljubljana urban region, Pecs agglomeration). In terms of territorial governance processes, the case studies reported a number of deficits when the design of these processes was undefined and unclear which in turn hampered further mobilization of actors (e.g. Manchester agglomeration, Baltic Sea Region) or where influence of actors is clearly limited (e.g. Pecs agglomeration).

Fourthly, what is apparently required for institutional learning seems to be stability of institutional arrangements (e.g. River Rhine Basin), various means to store and develop knowledge such as report or monitoring system (e.g. Rotterdam-The Hague, South Loire Region, Ljubljana urban region) and mechanisms to maintain knowledge in a situation of actors' fluctuation (e.g. Pecs agglomeration). In "successful" cases, the anticipation of future developments seems to be built-in in the policy, programme or project (e.g. Baltic Sea Region, River Rhine Basin) or are part of the strategy, scenario or monitoring work (e.g. Manchester agglomeration, Rotterdam-The Hague Region).

Finally, the case studies demonstrated two different types of intervention areas. The first one is the territorial scope pre-defined by the jurisdictional boundaries of the lead institutions (e.g. Stockholm agglomeration, South Loire Region). The other one is the territorial scope based on functional / issue-based criteria such as catchment area of river, nature conservation, labour market region (e.g. River Rhine Basin, Trilateral Nature Park Goricko-Raab-Örség). In addition, it seems that a "soft" or functional approach may challenge prevailing perceptions and routines of actors and institutions being locked in "hard" spaces, which can contribute to a more relational territorial understanding (e.g. River Rhine Basin, Manchester agglomeration).

- Polycentric policies and spatial planning -

One of the earliest expressions of polycentricity emerged in the early 1960s in France with the introduction of the concept "*métropoles d'équilibre*" as part of the policy approach aiming at economic balance of the French territory. Policy focus on a few privileged metropolitan areas with industry, services and amenities was considered to have beneficial effects for the entire country (DATAR, 2003). The "*métropoles d'équilibre*" (Lille-Roubaix-Tourcoing, Nancy-Metz, Strasbourg, Lyon-Grenoble-Saint Etienne, Marseille, Toulouse, Bordeaux, Nantes-Saint Nazaire, Rennes, Clermont-Ferrand, Dijon and Nice) were chosen cities located at the outer edge of the French hexagon. During the 1970s, the policy of counterweight metropolitan areas was replaced by a policy that put the emphasis on French medium-sized towns and rural areas.

In Greece in the 1970s, the concept of "rival cities" or large cities other than Athens became an anchor point for future economic and urban development. Later in the 1980s, the policy turned toward the approach that emphasized urban-rural partnerships due to the fact that the hinterland was for many years neglected by public policy and subordinated to development of "rival cities" and Athens.

Furthermore, in several countries such as Germany and Baltic republics, the concept of central places was particularly in use in the past. The political aim behind this type of application of polycentricity is less a territorial distribution of economic development, but more a provision of services (Nordregio, 2005). In other words, this approach tried to align urban growth of an urban centre to its position within the hierarchical system.

Today's applications of polycentricity in spatial planning vary from country to country. The Nordregio (2005) provided quite broad but interesting picture of implications of polycentricity in spatial planning of Member States.

Firstly, despite a variety of application of polycentricity in policies and planning across Europe, they can be grouped in two categories according to the report (Table 3.4). The first group of application aims at the diminishing of existing urban disparities between cities within a country which would result in a better balance within the urban system. In that case, policies try to "flatten" the hierarchy in the urban system by improving the development potential of certain groups of cities: peripheral cities, cities of the lagging regions, medium-

sized cities, villages, etc. The second group of application focuses on enhancing competitiveness of parts of the urban system. In that respect, policies identify cities and urban regions that have to compete on a certain spatial scale. They also emphasize endogenous potential or spatial quality, increasing local and regional organizing capacity (administrative reform) and cooperation in urban networks.

Table 3.4: Objectives of polycentricity application in policy and planning in European countries

OBJECTIVES	COUNTRY
Diminishing urban disparities	Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Italy, Latvia, Norway, Poland, Portugal, Slovenia
Enhancing urban competitiveness	Austria, Belgium, Denmark, Estonia, Finland, Germany, Greece, Ireland, Italy, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovenia, Sweden, Switzerland, United Kingdom

Source: Nordregio, 2005

Secondly, policy instruments that are used with the objective to implement polycentricity into practice also vary across European countries. Some countries use *spatial implementation instruments* in the form of a regulation, a programme or a budget aiming to generate a direct impact on the spatial and economic development of a specified area. Often only one government organisation (agency, department of ministry) have the implementation responsibility and relatively firm control over the application of the instrument (Table 3.5). Other countries use *non-spatial instruments* such as administrative reform, EU funding and budget equalisation which may generate a direct impact on the spatial development, but were initially design for different purposes. For example, the decentralization of government and budget equalisation measures require a relative equal geographical distribution over the country. Hence, it is likely that such implementation will be led by the ministries of finance or interior, and not by planner (Table 3.6). Finally, some countries use *strategic planning instruments* in a form of spatial visions, regional economic strategies and planning guidelines that impact in an indirect way the territorial development. These instruments are often non-binding, but they aim at generating secondary decision-making processes by a wide variety of actors. Moreover, strategic planning instruments emphasise the policy process rather than the policy document itself (Table 3.7).

Table 3.5: Spatial implementation of polycentricity instruments and their use in Europe

INSTRUMENT	USE AT NATIONAL LEVEL	USE AT REGIONAL LEVEL
Regional policy investment programme focusing at lagging regions	Finland, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden, UK	Austria, Germany, Italy, Spain
Providing minimum services of general economic interest	France, Hungary, Norway, Slovenia, Sweden	

Developing infrastructure	Bulgaria, Germany, Greece, Hungary, Poland, Romania, Slovenia	Germany
Location based taxes	Czech Republic, Poland, Slovakia, Slovenia, Austria, Norway	
Relocating (decentralising) administrative agencies	Austria, Norway	
Covenants, contracts, agreements	Estonia, France, Italy, Netherlands, Poland, Slovenia, Switzerland	
Creating cooperation and partnerships on territorial issues	Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Luxembourg, Netherlands, Portugal, Romania, Slovenia, Switzerland	Belgium, Bulgaria, Hungary, Italy, Spain, UK
Project based approach and territorial action plans	Estonia, France, Germany, Italy, Slovenia	Belgium, Italy
Land use restrictions (zoning)	Cyprus, Malta, Netherlands, Slovenia	Austria, Belgium, Germany, Switzerland
Territorial development monitoring system	Denmark, Germany, Lithuania, Poland, Slovenia	

Source: Nordregio, 2005

Among spatial instruments, on the one hand, some aim explicitly at cohesion objective like for example the regional policy investment programmes, location based taxes and providing minimum services of general interest. On the other hand, some instruments focus on competitiveness such as cooperation and partnerships, strategic projects and territorial action plans.

Table 3.6: Non-spatial implementation of polycentricity instruments and their use in Europe

Instrument	Use at national level	Use at regional level
Administrative reform	Greece, Latvia	
Budget equalisation between "rich" and "poor"	Belgium, Germany, Luxembourg	
Eu funding	Greece, Italy, Poland, Portugal, Spain, Baltic States	Poland

Source: Nordregio, 2005

Potentially non-spatial implementation instruments may contribute to polycentric development. However, as the report concluded: "Policy makers pursuing polycentric development lack the competency to decide about the application of these instruments. Nevertheless, they can contribute to the creation of favourable conditions for polycentric development" (Nordregio, 2005, p. 484).

Table 3.7: Strategic planning instruments of polycentricity and their use in Europe

	NATIONAL LEVEL		REGIONAL LEVEL	
	Polycentricity as a major aim	**Polycentricity as a non-major aim**	**Polycentricity as a major aim**	**Polycentricity as a non-major aim**
Spatial vision	Bulgaria, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Slovenia, Switzerland	Austria, Latvia, Malta, Romania, Sweden	Belgium	Austria, Germany, Italy, Spain, UK
Regional economic development strategy	France, Lithuania, Netherlands, Norway, Slovenia	Slovakia, Sweden		
Planning guidelines	Denmark, Finland, Norway, Slovenia, UK			

Source: Nordregio, 2005

One of the conclusions of the Nordregio (2005) report is that of all the European instruments, the spatial visions of polycentric development seem to be the most common and at the same time the most dependent on context: the development process, the involvement of different actors and stakeholders, the communicative power and ability to influence the actor's minds, the organizations and institutions, etc. Consequently, spatial visions play different roles with regard to polycentric development.

When it comes to the regional policies and development, on the one hand, the regional strategies address how regional development can be stimulated. On the other hand, they provide explicit or implicit conceptualization of the territory. In some countries, the regional policies are a powerful instrument for the pursuit of a polycentric development as it is the case in France, Lithuania, the Netherlands and Norway.

The Report also underlined the existence of a variety of documents that contain planning guidelines for polycentricity. In Finland, for instance, there is a single document that contains the planning guidelines, while in Norway they represent a series of documents each addressing a specific topic. Furthermore, in unitary states, it is necessary to observe relations between different policy domains at the national level in order to understand applications of polycentricity. However, in federalized unitary states (Spain and Italy) or federal states (Germany, Austria, Switzerland and Belgium), it is necessary to examine institutional factors. In Germany, for example, the national ministry of spatial planning has limited powers. Nevertheless, it can still effectively stimulate discussion on polycentric development of the national territory. In Austria, despite the existence of a standing ministerial conference on spatial planning, there are no other institutions able to disseminate planning reports and

documents and involved in public discussions. Consequently, polycentricity is not in use and barely known concept in Austria.

Overall, the polycentric policies tend to stimulate the growth of centres and regions outside the core, functional division of labour among cities and rural areas and cooperation between neighbouring cities and their rural areas. A majority of European countries have introduced the polycentricity concept in national policies and in public discussions about territorial policies. However, this does not mean that the concept has everywhere been accompanied by concrete policy instruments. As marked by the Nordregio's report (2005), polycentricity has had some "remarkable examples of application in spatial planning documents. Although without exception these documents are non-binding, their influence might be considerable. However, acquiring a direct impact on operational decisions takes time" (Nordregio, 2005, p. 509).

- General typology of territorial cooperation -

The ESPON TERCO (2013) project had for its aim to assess the relationship between territorial cooperation and the socio-economic development of the European Union and neighbouring regions (Figure 1.9). Three aspects of development were of special interest for the project: economic growth, job creation and quality of life which were analysed by using factor and cluster analyses and case studies in 19 countries.

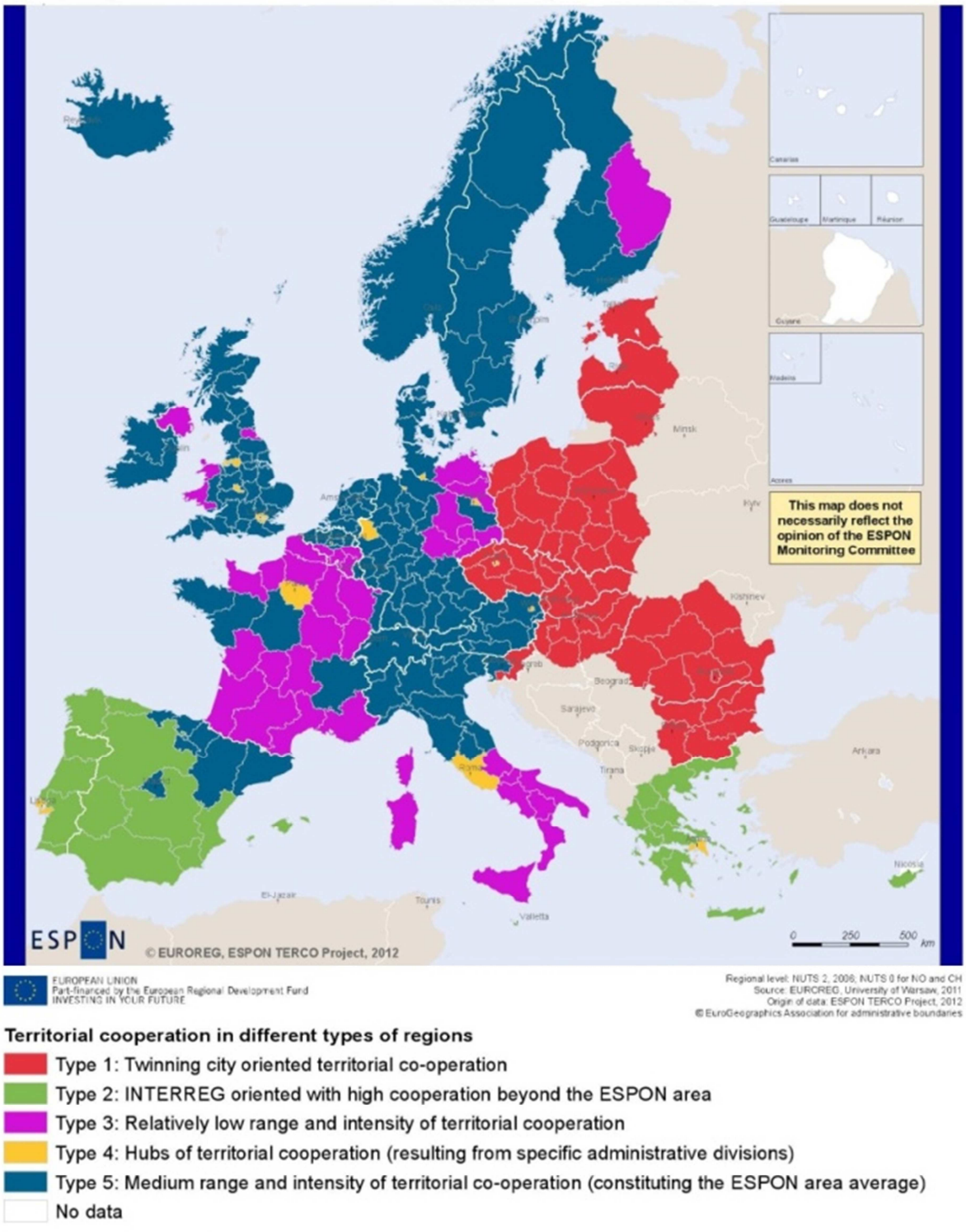
According to the ESPON TERCO report (2013) the twinning-city cooperation (Type 1) prevails in regions that can be denoted as economic peripheries and not very attractive to business and population. These regions are mostly located in the Central and Eastern Europe, in countries with low GDP, because the twinning-city cooperation seems to be relatively easy and cheap type of cooperation. At the same time, the twinning-city cooperation brings benefits in that, on the one side, it connects the regions at the edge of the European Union with the core and on the other side, the regions at the edge with neighbouring countries which are not part of the European Union.

The inter-regional (INTERREG) cooperation (Type 2) prevails in the countries with good overseas connections and which are relatively attractive to business and population. Hence they include regions of Greece, Portugal and the majority of the Spanish regions excluding Madrid, Catalonia, Navarra and the Basque Country. This type of cooperation is characterized by the largest average distance between the twinning cities within the European area and a very high share of linkages reaching beyond the European Union. On the other hand, in those regions cooperation initiatives, regional income and the number of territorial governments seem to be poorly developed.

The relatively low range and intensity of territorial cooperation (Type 3) prevails in regions that are performing below their national average, and hence are economically dependent on outside support. They include eastern Germany and southern Italy on the one hand, and the majority of the French regions, Wallonia in Belgium and certain regions in the UK on the other hand. In those regions, cooperation is relatively well developed with regard to

demographic and economic indicators, but amongst the weakest in terms of the number of municipalities. Likewise, the spatial extent to this cooperation seems to be rather modest both within and beyond the European area.

Figure 3.2: Types of territorial cooperation in different European regions



Source: ESPON TERCO, 2010, p. 21.

The hubs of territorial cooperation (Type 4) occurred in city-regions, so it mainly comprised regions which, due to the respective administrative divisions were encapsulated within the boundaries of large cities.

Finally, the medium range and intensity of territorial cooperation (Type 5) was recorded in regions with both the intensity and the range of territorial cooperation of the ESPON project average for activities of cooperation.

Considering the benefits of territorial cooperation, the ESPON TERCO report (2013) revealed territorial cooperation provided local residents in the border areas with more economic opportunities through border infrastructure and more varied cultural choice. In some countries such as Poland and Slovakia, projects were adapted to local specific needs, especially in the form of micro-projects. Gain of new skills and knowledge during the realization of cooperation projects has been evident as well as the involvement of different actors in cooperation. However, this seems to be still much of the case in old member states than in new ones since developed public sectors seems to play a crucial role in initiating knowledge transfer, flexibility in cooperation activities, in innovative approach and in long-term strategic reflection (ESPON TERCO, 2013).

- Networking of twinning cities -

The ESPON TERCO (2013) report showed that the number of twining city agreements in a certain country depends on the size of the country and in particular on the number of municipalities that can enter into such agreements. The largest number of twinning city agreements with foreign countries was recorded in Germany (3 300), France (2 500), Italy (2 000), Poland (900), Spain (900) and the UK (800). While observing the frequency of interactions between particular countries, there seems to be a very high number of mutual agreements between municipalities of France and Germany (650), France and Italy (350), Germany and Poland (310), France and the UK (240), Germany and Italy (220) and Germany and the UK (220).

Furthermore, the largest number of twinning city agreements was recorded in the Ile-de-France regions (474 agreements). The number of twinning city agreements compared to the size of population is highest in the regions of Iceland and Finland, some regions of Norway, Estonia, regions of Eastern Germany and Western Poland, the Czech Republic, Slovakia and Hungary. At the same time, the lowest number of twinning city agreements per capita is recorded in the Great Britain region, which was considered to be a result of limited competences of local authorities. Taking into account the mean number of twinning city agreements per municipality, the report showed that most regions have an average of 2-3 agreements. Higher values of the number of agreements (4-5) were recorded in regions located in the central and eastern part of Europe (Finland, Baltic countries, Poland, Slovakia, Hungary, Romania and Bulgaria).

However, as report emphasized, the intensity of cooperation is not directly related to the scope of cooperation which can be very intense, but its scope can be limited to exchanging

experience. Spatial proximity also plays an important role in establishing twinning city cooperation. As showed by the ESPON TERCO (2013), the cooperation seems to be particularly intensive with the closest neighbours, whereas interactions with remote regions occur relatively rarely. Other important factors determining twinning city cooperation include historical and cultural links. For instance, there has been an intensive cooperation between municipalities of Hungarian and Romanian regions because until 1920 they used to be the Transylvania region under the Austro-Hungarian Empire. Twinning city cooperation with municipalities in the United States takes place in almost all regions in Europe, but it is significant more frequent in the west of Europe. In addition, Irish municipalities are noticeably cooperating with municipalities in the Unites States, while Spain, Portugal, Northern regions of Italy are particularly active in cooperation with countries from Latin America. Indeed, this underlines the importance of cultural similarities and influence of history on the directions of twinning city cooperation. The same explanation is cooperation between Russia and Ukraine which are countries that share cultural similarity and spatial proximity (ESPON TERCO, 2013).

- Examples of cross-border coopetition -

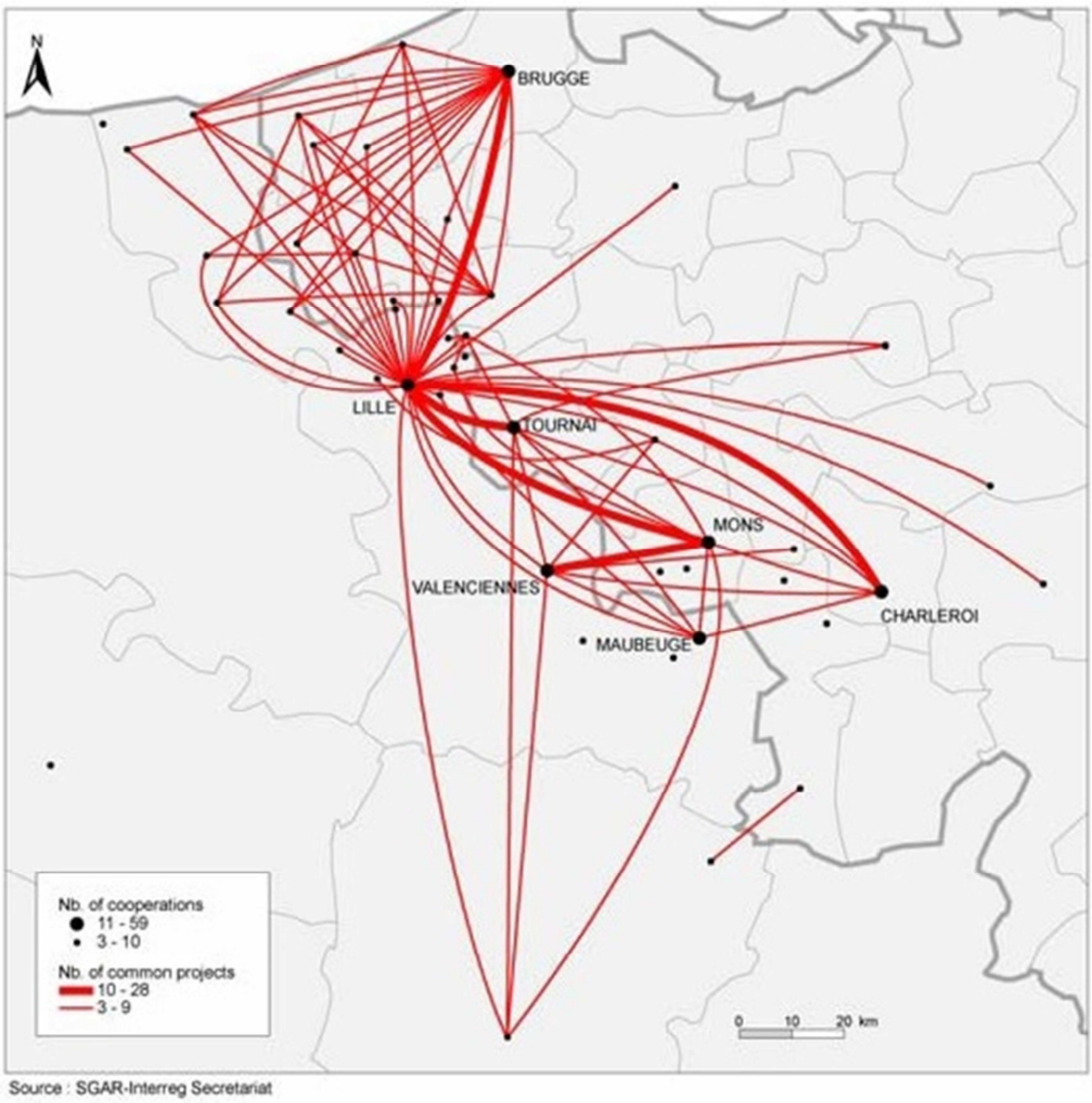
Sohn (2009) analysed the strategies and the cross-border cultural coopetition in the Greater Region between Germany, France, Belgium and Luxembourg including the city of Luxembourg, Saarbrucken, Trier, Metz, Nancy and Lièges. The author emphasized the importance of fierce competition between those cities to attract firms, capital and skilled workers whereas culture had a strategic role to play. Furthermore, Sohn identified three types of relationship between cities. First, some cities which are historic rivals may establish a temporary cooperation on a particular project. As examples, author mentioned the case of Nancy and Metz in France which had an old rivalry as the two capitals of Lorraine region. Yet, they managed to establish cooperation and to maximize the interactions between partners within a cross-border project. Second, some cities may have a strong long-lasting connection within an established network in terms of involvement of their actors in numerous projects. This kind of relationship benefits from network economies and has the greatest potential to involve other cities. Third, some cities may not have a relationship despite their spatial proximity. According to Sohn, it is usually the case of small towns uninvolved in cooperation networks and with no possibility to strengthen existing links (Sohn, 2009).

By analysing the number of cooperation projects between cities and towns in two cross-border zones (Franco-Belgian and Franco-German-Swiss), the Nordregio report (2005) concluded that cooperative relations may be led by different partners (e.g. local municipalities, administrations, civil society, associations, firms). Furthermore, according to the report major cities seem to be the ones that attract the majority of the INTERREG projects. More precisely, in the Franco-Belgian cross-border area, Lille, Valenciennes, Mons and Charleroi were cities that counted the most of projects in that area (more than 24 projects in each city). In the Franco-German-Swiss border region, cities Freiburg-in-

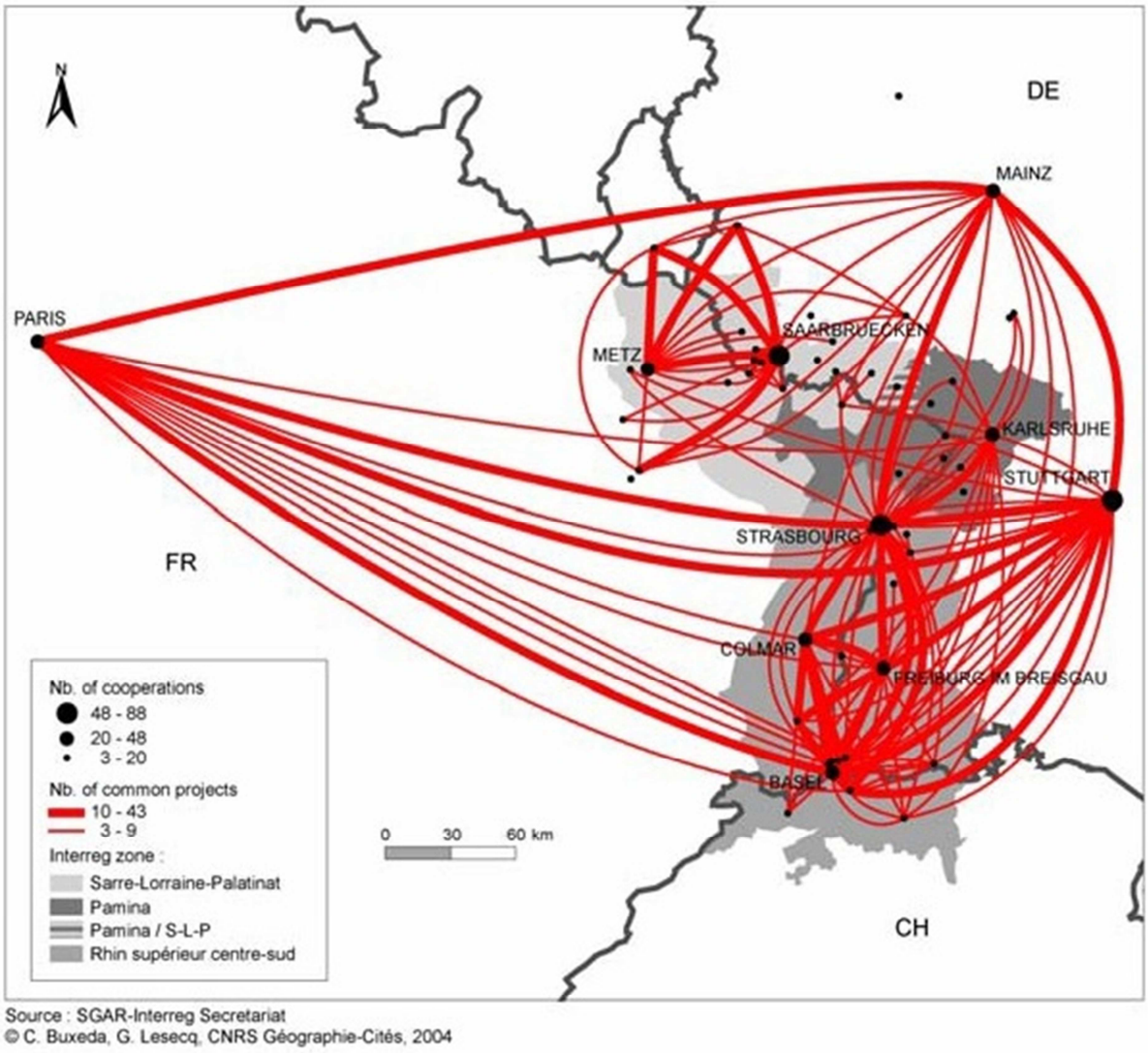
Breisgau, Strasbourg, Mulhouse and Basle attracted the highest number of projects (Figure 3.3). According to the Nordregio (2005), it seems that, although the major cities attract an important number of projects, medium and small towns were also very active in setting up cooperative projects in the context of the INTERREG programme. Indeed, what is interesting to notice is that if both cross-border zones taken into account, a large number of INTERREG cooperative associations emerge between medium and small towns. In other words, the report highlighted the importance of medium and small sized towns in the emergence of a polycentric urban structure and in networking at the local and regional levels (Nordregio, 2005).

Figure 3.3: INTERREG projects and their links in two cross-border zones

Franco-Belgian cooperation



Franco-German-Swiss cooperation



Source: Nordregio, 2005

In border regions, culture seems to be a way to strengthen exchanges between neighbours, to reconcile points of view and to forge links between areas marked by the presence of a border (Sohn, 2009). Yet, financial disparities between cities and towns, their greater or lesser autonomy in decision-making, not to mention language barriers, represents the limits for establishing a cross-border cultural project.

- Practices of inter-municipal coopetition -

The Nordregio (2005) analysis of inter-municipal cooperation in 21 member states pointed at variety of situation across Europe. Some inter-municipal partnerships have been in place for more than a decade, such as the Greater Manchester Strategic Planning Officers Group, which was set up to fill the gap left by the abolition of a forma government structure (Metropolitan County Councils). Others were established more recently during the 2000s

such as Western Lithuania 2020 which had for a goal to consolidate municipal resources and raise the profile of the area as a whole.

Regarding the size and the composition of the partnerships, according to the report (Nordregio, 2005) they range from small, single-sector networks (e.g. National Centre Midt-Vest in Denmark, Association of Municipalities of the Lima River Valley in Portugal), which count only four partners from the municipal sector, to large, multi-sector networks (Patto Territoriale del Sangone in Italy), which may count up to 108 partners from the municipalities, private sector and other agencies. 132Nevertheless, in most cases inter-municipal networks were multi-sector partnerships with partners from local government, private and voluntary sectors and other public and private agencies.

Furthermore, the report revealed four types of objectives set by the inter-municipal partnerships (Nordregio, 2005): (i) strategic development, (ii) project orientation, (iii) networking, (iv) advocacy. In other words, the partnerships attempt to better integrate regional and municipal development strategy, to foster balanced development within regions, to promote their area of activity and to establish more integrated relationships between institutions and organization internal and external to the partnership (Table 3.8).

Table 3.8: Objectives of inter-municipal partnerships and some of their application in practice

OBJECTIVES	APPLICATIONS	PARTNERSHIP
Strategic development	To find the most effective spatial arrangements for achieving the economic transformation of the region. To address the decline of the region and develop the potential of SME networks.	SYF (UK) PTS (Italy)
Projetc orientation	Collaboration between private and public sectors in the creation of a waste separating plant	SINA (Estonia)
Networksing	To coordinate planning policy across the region. To join the potential of cities and encourage cooperation between business, education and administration.	GMSG (UK)
Advocacy	Renew cooperation between the national government and the regions. Development and promotion of regional initiatives.	MIIAT (France) KVR (Germany)

Source: Nordregio, 2005

In addition, a number of partnerships claimed during the research to have been successful in developing wider strategic frameworks for development. One of them is the GMSG (UK) which has created a strategic planning framework for ten local authorities in Greater Manchester and which seems to have an influence on the development of regional planning policy for the North West of England. Project implementation was also recorded as an achievement of inter-municipal partnerships which is not surprising considering the fact that many of the partnerships are project-oriented. For instance, Kommunalverband Ruhrgebeit in Germany is focused on preservation of natural areas and improvements in waste

management, while SINA in Estonia is active in the construction of a waste separating plant in Narva. Finally, Nordregio reported many partnerships underlining among their achievement the knowledge transfer. They described themselves as mechanisms for sharing information and knowledge as well as an opportunity for individual and collective knowledge enhancement.

Moreover, by analysing the inter-municipal cooperation in France, Bachelet (2016) explained how the development of inter-municipal cooperation affected the ability of municipalities to have their own financial resources (i.e. land tax, residential tax, business tax, state grants, etc.) and their ability to conduct their own public policies. On the one hand, electoral competition changed in a sense that inter-municipal institutions imposed new rules and practices for politicians. On the other hand, programs, debates, exchanges with voters adapted to the new inter-municipal parameter. Bachelet argued that the inter-municipal cooperation strengthened the traditional political competition but at a new territorial scale. There were new positions to compete for: e.g. president, vice-president of the inter-municipality, jobs in administrative hierarchies, etc. Overall, due to the inter-municipal cooperation, the strategies of the local politicians became increasingly inter-municipal. Thus, in order to win at the inter-municipal elections, whose outcome depends on all the municipal elections of that perimeter, France has recently seen an increase of unusual alliances between politicians at the inter-municipal level which used to be opposed to one another at the municipal level (Bachelet, 2016).

3.1.3 Conclusion of section 3.1

Facing the challenge of a fiercer competition from outside Europe, of the financial crisis and problems with public finances and the process of European integration, it seems that the introduction and the implementation of new concepts such as governance, cooperation, cohesion and polycentricity are the objectives and the tools for Europe to reinvent itself. Despite the various interpretations of these concepts across the European continent which is a result of different institutional contexts, in this section we discussed the main characteristics and evolution of those new concepts.

The “polycentricity” in terms of policy and spatial planning is coined as a promotion of balanced and multiscalar urban networks in which core areas and peripheries benefit from a social and economic cooperation. However, the concept is applied at the macro (European) level as a development model that seeks to establish growth poles across the European territory in order to enhance the regional development more evenly. At the meso (inter-regional) level, the polycentricity is cooperation and sharing of existing assets and urban functions between two or more cities. At the micro (intra-regional) level, the polycentricity is even more emphasized cooperation as cities and towns may improve their economic performance through networking within the region. A majority of European countries have introduced the concept of polycentricity in their national policies and public discussions. However, as we have seen, this does not mean that the concept has everywhere been accompanied by some concrete policy instruments.

The interpretations of territorial cohesion also vary throughout Europe and among the EU institutions, organizations and local stakeholders of the Member States. However, a two-fold common understanding is that, on the one hand, it should ensure development in all regions (urban, rural, sparely populated, peripheral, coastal, and mountainous) in new and in old Member States by respecting their own territorial capital. On the other hand, it should find the balance between territorial measures to increase economic competitiveness, ensure social cohesion and strive for sustainable development.

In the European context, territorial governance matters for several reasons. First, it coordinates the actions of actors and institutions which result in ensuring that policies and strategies are efficient and equitable to achieve growth. Second, it integrates policy sectors by territorial knowledge, dialogue, partnerships and networks. Third, it mobilises stakeholder participation by ensuring the allocation of both human and financial resource in their interest. Fourth, it is adaptive to changing contexts which enable national, regional and local authorities to respond to crises. Finally, it stands for the "place-based" and "soft" or the functional territorial approach to challenge prevailing perceptions and routines of actors and institutions being locked in "hard" spaces.

Territorial cooperation and competition have had a major influence on economic activity, investment flows, human mobility and the behaviour of private and public actors in Europe. On the one hand, territorial cooperation aims to overcome the negative effects of borders as barriers, to maximise potential synergies and to promote joint. However, over time, the expectations of cooperation have expanded to encompass its contribution to economic development and competitiveness, territorial integration, city networking, good neighbourhood relations, labour markets and the unification of natural ecosystems divided by borders solutions to common problems and harmonious and balanced integration of the entire territory. On the other hand, territorial competition is one of the few policy areas in which the European Union has an exclusive competence not shared with the member states. It is strictly regulated and tracked by European institutions in order to ensure transparency, equality and equity in development of all territories within a single market.

SECTION 3.2: Relevance of towns in development strategies, policies and planning

It is considered that a more polycentric structure provides for a better distribution of growth in the long run. Likewise, cooperation between cities and regions as parts of a polycentric structure ensures spillover to their wider region (ESPON & MCRIT LTD, 2014). As polycentricity spreads the development opportunities across European cities and regions, promotes the endogenous sustainable development, unleashes the regional diversity and gradually diminishes regional disparities, the "policies must be focused on city renewal, and networking, linking cities at both regional and global scale. […] Making Europe polycentric requires to unleash regional diversity and endogenous development as a mean to reduce regional disparities, to support a balanced urban structure and a sustainable management of

natural and cultural resources" (ESPON & MCRIT LTD, 2014, p. 14). Therefore, it is evident that efficiency and quality of European territories lie in networking of cities of all sizes from local to global level as well as in empowering people and local activities to valorise their own assets at European and global scale (ESPON & MCRIT LTD, 2014).

In the light of a balanced regional development, cohesion and the sustainability of the European territory, there seems to be a general recognition in European circles that towns are an important element of the settlement hierarchy of any regions and countries, and are as such, a vital asset to Europe (ECOVAST, 2013). Having this in minds, this section has three objectives. The first objective is to explore the European policy approaches to small and medium-sized towns. Even though there is no specific and common policy for towns in particular, it is possible to identify two policy domains that indirectly deal with their roles, functions and development. The second objective is to observe some European national and regional approaches to towns. In that respect, this section provides some examples of approaches in Belgium, Spain, Italy, Sweden, France and the UK. Finally, the third objective is to discuss some interesting practices in local policymaking and planning of the development in small and medium-sized towns across Europe.

3.2.1 European policy approaches

Atkinson (2014) divided the European policy approaches to towns in two distinct domains. The first domain concerns regional development (territorial/spatial development) and the second domain relates to rural development. As there is no policy at the European level that focuses only on towns, it is necessary to overlaps regional and rural development policies in order to identify any appropriate approaches that support small and medium-sized towns.

In that respect, the first part of the subsection explores the position of towns within the regional development policies. The second part of the subsection discusses the relevance given to towns within the rural development policies.

- Regional development perspective -

The Regional Development Policy, being closely associated with the European Spatial Development Perspective (ESDP), suggested promotion of integrated spatial development strategies for city cluster within the framework of transnational and cross-border cooperation, including corresponding small cities and towns (ESDP, 1999). In other words, the recommendation of the Regional Development Policy was to strengthen the role of small and medium-sized towns as development hubs, supporting partnerships and networks at national and transnational level, improving transport links and supporting their role as providers of services of general interest (ESDP, 1999).

Despite being defined rather vaguely, within the regional development perspective, towns were emphasized for their potential to (i) achieve a more balanced spatial structure of Europe, (ii) support the development of metropolitan areas, and (iii) improve the relationship between

the hinterland and the metropolis (OIR, 2006). Moreover, according to the ESDP (1999), the towns' advantages for the regional development rely on interdependencies that may foster development of City-networks, complementarity and cooperation between cities.

Towns are also frequently mentioned in relation to the rural regions, stressing their potential for structuring the development of regions that are either less-densely populated or economically weak (OIR, 2006). In that context, towns are perceived as active regional centres that may revitalize rural regions in decline and as the focal point of development of industry, service-related activities, research, technology and tourism by reactivating endogenous factors of development. Yet, some authors argue that the ESDP failed to understand the wide range of places included in the category of small and medium-sized towns and the functions they play on their territory. The ESDP also seems to inaccurately understand towns as "primarily in terms of their location within particular metropolitan or city-regional contexts where it could be plausibly argued that polycentric urban structures existed" (Atkinson, 2014, p. 191).

In contrast to lack of the ESDP's better understanding of towns' "nature", the Fourth Cohesion Report (CEC, 2007) made a step forward by taking into consideration the roles and function and the complex relationships between urban centres and the hinterland. The Report pointed out as follows:

> "Towns can benefit rural areas through the services they provide, while people living in towns can equally benefit from being close to rural areas. Towns can, therefore, serve as centres of development for rural areas, as markets for the products produced there and a focus for employment services of all kinds and cultural and recreational activities. There is a mutual dependence between rural towns and the surrounding areas since the viability of the services the former provide is partly dependent on the demand in these surrounding areas. Consequently, cooperation between rural and urban authorities is important for spatial planning and development.
>
> Towns are important in strengthening territorial cohesion either by supporting polycentric development or by offering key services to surrounding rural areas. There are a number of examples of towns in reasonable reach of each other cooperating by sharing the functions they perform and between them providing a range of services and amenities. Such cooperation contributes to less spatial concentration and to more a balanced pattern of regional development." (CEC, 2007, p. 59)

The following Green Paper on Territorial Cohesion (CEC, 2008) put a greater emphasis on the European territorial diversity and on the position and role of towns as part of it. More precisely, the Paper underlined the importance of identifying and supporting the strengths of a diverse range of places and supporting endogenous growth as a way to create benefits for all countries and regions (Atkinson, 2014).

Finally, with the publication of the Territorial Agenda 2020 (reviewed in 2010), the role of towns in Europe's spatial and territorial development was more determinedly articulated by stating that towns are crucial for rural areas, thus it is important to improve their accessibility in order to ensure the job opportunities and services to the population of that area. The

Territorial Agenda 2020 was a result of a long policy process that adopted the principles of the ESDP dating back to 1999 and of the Leipzig charter from 2007. In fact, it provided strategic orientations for territorial development and stressed the need for more efficient and synergistic policies that would promote balanced, polycentric territorial development and the use of integrated development approaches in cities and rural regions. The role of towns was, thus, recognized as a pivotal for regional economies since the objective for the EU is to have the "most balanced urban system in the world" (CEC, 2011, p. 4).

> "The generic features of small and medium-sized towns, particularly their human scale, liveability, the conviviality of their neighbourhoods, and their geographical embeddedness and historical character in many ways constitute an ideal of sustainable urbanism. Small and medium-sized towns, therefore, essential for avoiding rural depopulation and urban drift, and are indispensable for the balanced regional development, cohesion and sustainability of the European territory" (CEC, 2011, p. 4).

- Rural development perspective -

Even though towns are not the direct subject of the Rural Development Policy (CEC, 1988), the document "The Future of Rural Society" emphasized the necessity for the economic diversification by utilising the indigenous potential of local circumstances and developing strategies appropriate to the social and economic conditions of each region (Atkinson, 2014). In other words, the rural development perspective included towns in their multi-sectorial strategy that integrates with other policy arenas and conducts a dialogue and partnerships between wide ranges of partners (CEC, 1988):

> "One course of action would be to encourage the emergence of economic sub-poles at regional level. The role of the intermediate centres (small towns) as places providing employment and services to individuals should be reinforced, whilst an effort should be made to preserve the neighbouring rural areas as residential and leisure areas, all the while observing the code for rational development of green spaces. […] This option, whilst accommodating current migratory trends, is based on the assumption that an intermediate form of development is viable, and that the relationship between town and country can be complementary and beneficial for the environment when their respective functions are treated in this way" (CEC, 1988, p. 37)

The LEADER initiative (fr. *Liaison entre Action de Développement de l'Economie Rurale*) that was replaced in 2014 by the Community-Led Local Development (CLLD) has become the best known and the most widespread tool of the EU Rural Development Policy (Atkinson, 2014). The initiative focused on small areas with the aim to construct local partnerships, to identify the area's strengths and weaknesses and to develop a sustainable strategy. In that context, local and regional networks between rural areas and small urban centres were encouraged especially in the field of learning, innovation and knowledge exchange process. Nowadays, LEADER/CLLD is considered as the mainstream of rural development of the EU and it is based on seven principles:

- Bottom-up approach which presumes that local people are the best experts to drive the development of their territory in a sense that the local community and local actors help to define a development pathways for their area consistent with their needs.
- Area-based approach which forms the basis for the development of the local partnership and strategy that targets the priorities of the area as a whole regardless administrative borders, and not specific projects or groups of projects. Furthermore, areas must meet the population criteria of between 10,000 and 150,000 inhabitants.
- Local partnership emphasizes that the people who were previously the passive "beneficiaries" of a policy become active partners and drivers of development. Partnerships must fit their area and the realities of their local context.
- An integrated and multi-sectorial strategy explores and addresses the needs and opportunities of the area in an integrated way to achieve the desired common goals. The actions and projects contained in local strategies should therefore be linked and coordinated as a coherent whole.
- Networking of local partners means involving rural people, places, action, non-rural areas in disseminating and sharing knowledge, experience, innovations, ideas and information, developing peer support, overcoming isolation and building capacity.
- Innovation refers to seeking out and fostering new solutions to local problems and to the development of the territory. This applies in strategy, delivery and animation structures and processes and in decision making and project selection.
- Cooperation goes further than networking by involving local people in working with others to undertake a joint project. It allows rural areas to address and take advantage of their diversity introducing new perspectives and insights from other areas, importing and exporting successful approaches and good practices (Europa, 2016).

Overall, "it may reasonably be suggested that they [towns] have largely been neglected in favour of an emphasis on large cities which are deemed to be the motors of Europe's economic growth and crucial to its competitiveness" (Atkinson, 2014, p. 194). Hence, even though towns could benefit from both EU policy domains (Regional Development and Rural Development) there is still no direct policy concern for towns at the European level (Atkinson, 2014).

In the next subsection we will observe the way some countries and regions have addressed the issues of small and medium-sized towns. In doing so, we will refer to the ESPON TOWN (Servillo, 2014).

3.2.2 National and regional approaches

Europe is thriving in a variety of institutional systems ranging from unitary to federal states, with a different degree of regionalization and with a different degree of political and fiscal decentralization. Yet, paradoxically, the so-called "European project" expresses the will to

gradually integrate different institutional systems while conserving their particularities. Hence, the principle of sharing a single market (and providing special financial support for the weak) and at the same time preserving the autonomy of national institutions resulted in a complex situation for an analysis of national and regional practices.

In that scope, the first part of the subsection discusses some common features of European national institutional systems. Despite a large variety of institutional organization across Europe, it is possible to draw some common trends such as decentralization, de-concentration of investment and institutional mobilization of resources and partners. Following the identification of common characteristics, the second part of the subsection explores particularities of the Belgian approach in the context of the federal organization, to small and medium-sized towns. The third part of the subsection outlines the key features of unitary "regionalized" states (Spain and Italy) approach to towns. The fourth part of the subsection observes the specific approach of Sweden to small and medium-sized towns. Finally, the last part of the subsection focuses on common approach of unitary states such as France, UK and Poland to small and medium-sized towns.

- Main features of European national institutional systems -

As we discussed in the previous chapter, the European continent displays a variety of institutional and administrative organization. Most of European countries have engaged in large decentralization processes of their political, social and economic structures, thus have given more power to regional and local authorities for various economic and social issues such as employment, industrial restructuring, higher education and R&D (Hamdouch and Moulaert, 2006). Furthermore, despite the large variety of national situations, across Europe we have witnessed some common reforms concerning the public sphere of cities such as competences, accountability or capacities to develop projects with private partners. In other words, European cities have benefited from de-concentration of investment and decentralization of decision-making and resources, they have been supported by national government policies, and local factors such as local leadership have been favoured and encouraged (ESPON SGPTD, 2012). The importance of the local mobilisation of a broad array of actors is also highly valued in many local policy initiatives which were launched across European countries (Stöhr, 1990; Demazière and Wilson, 1996). Finally, the inter-connectedness of the institutional framework, interaction modes and policies orientation are widely recognized as important for innovation and knowledge creation/diffusion/accumulation processes. "Through their concrete decisions, actions and interactions", economic actors and "pubic authorities in Europe modify the existing institutional framework" or even contribute to the building of a new one (Hamdouch and Moulaert, 2006, p. 42).

The scientific literature on relationships between policies and performance in Europe highlighted the importance of decentralization processes and the power given to local authorities, local development policies and their correspondence to the regional and national ones. The ESPON research (ESPON SGPTD, 2012) devoted to secondary tier cities (non-

capitals) and territorial development in Europe outlined three conclusions that are related to small and medium-sized towns. On one hand, the performance of cities and towns is significantly affected by national government policies – implicit or explicit, direct or indirect. In fact, cities and towns perform better where national, regional and local policy-making systems are horizontally and vertically aligned. Hamdouch and Moulaert (2006) argued that institutions shape the orientation and the content of public policies and regulations which, in turn, influence strategies and coordination modes within development processes. On the other hand, economic actors and public authorities, through their decisions, actions and interactions, can modify the existing institutional framework or even build a new one. Thus, the development process becomes a continuous flow of opportunities to influence the system and to initiate new forms of coordination (Hamdouch and Moulaert, 2006).

Concerning the European trend of de-concentration of investment and decentralisation of decision-making and resources, despite the uneven level of decentralisation (Sorens, 2009), most European countries have engaged in decentralisation of their political and administrative structures, and gave more power to regional and local authorities (e.g. employment, industrial restructuring, higher education, R&D) (Hamdouch and Moulaert, 2006). Thus, benefits for towns from the system where public and private investment and resources are spread across the (national) territory would be in the long run greater than in a more centralised system where the investment is concentrated and shared between the capital and few larger cities.

The development of towns seems also to depend upon the institutional mobilisation of resources and partners to achieve agreed long-term objectives through systematic, coherent strategies and policies. Scholars that explored the different aspects of local development as Pecqueur (1989), Stöhr (1990), Healey (1997), Magnaghi (2003), Hamdouch (2005), Knox and Mayer (2009), Demazière et al. (2012) stressed the importance of strategic planning and integrated approach as important tools that may enable local actors to identify advantages of their town and to address real needs of their communities. The importance of the local mobilisation of a broad array of actors is also a lesson to be learnt from the many local policy initiatives which were launched across European countries, to try to overcome the disadvantage of towns in terms of their accessibility, life quality and job creation (Stöhr, 1990).

Political studies of decentralization process in Europe have adopted the typology of institutional systems divided into four main groups (Table 3.9). All four types have experienced an increase in competences of sub-national levels of government in recent decades (Ismeri Applica, 2010). Moreover, the redistribution of competences to lower levels of government was particularly encouraged after the adoption and implementation of the European Cohesion Policy (Demazière, 2014).

Table 3.9: Typology of institutional systems in Europe

TYPE	MAIN FEATURES	COUNTRIES
Federalized states	Central government and regional authorities both with own legislative and administrative competences that are exercised independently and recognized by the Constitution.	Austria, Belgium and Germany
Unitary "regionalized" states	An intermediate level of government with a wide set of competences.	Italy and Spain
Unitary "northern" states	Local governments have a wide range of responsibility in relation to territorial development.	Denmark, Finland and Sweden
Unitary states	A predominant central government. The degree of decentralization is relatively high I some countries such as Slovenia and Lithuania and very limited in others like Ireland, Greece, Bulgaria and Romania.	France, Portugal, UK, Greece, Ireland, the Netherlands, Luxembourg, Czech Republic, Hungary, Poland, Bulgaria, Cyprus, Estonia, Latvia, Lithuania, Malta, Romania, Slovakia, Slovenia and Croatia.

Source: Demazière, 2014

Among European countries, only the Northern Ireland has defined the roles and functions of small and medium-sized towns and has created a policy dedicated to their particular the issues. Other European countries have very differently addressed towns which we will explore in the following section.

- Federalized state: Belgium -

As a federal state, Belgium is divided in three regions and three communities. The two largest regions are the Dutch-speaking region of Flanders in the north and the French-speaking southern region of Wallonia. The third region the Brussels-Capital Region is bilingual. Besides Flemish and French-speaking communities, in eastern Wallonia there is also a German-speaking Community. Regions are further divided into provinces, administrative districts and municipalities. During the industrial revolution, the land was divided in parcels and densely dotted with farmsteads, hamlets, towns and cities. The first Municipal law was introduced in 1836 which placed all settlements regardless the size on an equal footing by granting them the statute of municipality. During the 1960s and 1970s, with the objective to raise sufficient resources to support a local policy, the State reduced the number of municipalities by merging them from 2,359 to 596 (Demazière, 2014).

What is the particularity of the Belgian approach is the subdivision of municipalities into statistical sectors which were consistent with social, functional and morphological demarcation. In this way, a distinction was made between residential or morphological agglomerations, industrial areas, commercial districts, social housing, etc. Moreover, there is

a distinction between contiguous urban areas with a high population density and continuous development, and sectors with a "scattered habitation" (Lievois, 2013). According to the official definition, a residential or morphological agglomeration is "the landscape portion contiguously built up by houses with their gardens and courtyards, public buildings, small industrial or commercial equipment including the intervening roads, parks, sports grounds, etc. It is bordered by farmland, forests heaths and uncultivated land, between which possible a "scattered habitation" takes place. Both towns, villages and hamlets can form the base of those settlements, but they also can take the form of ribbon development, which happens frequently in our country" (Lievois, 2013, p. 5). A direct application of this areal patchwork is the delineation of residential agglomerations (including towns) on a more detailed scale level than local, provincial or regional administrative boundaries.

Furthermore, all Belgian municipalities were ranked based on existing facilities into three categories: large cities, regional cities and small towns. While the division between regional and small towns does not raise any major problems, distinguishing the lower threshold for small towns is not so clear. The starting-point in defining the scope of the small towns is that the least well equipped small town should achieve 1/3 of the facilities score of the leading group of best equipped small towns. Municipalities which fall within the 1/3 – 1/4 band are retained, provided they achieve high values on a number of other scores, and in particular provided they exercise an inter-municipality influence. In other words, they need to have a sphere of spatial influence. In addition, this delimitation of urban hierarchies in Belgium was used for the establishment of national programme of spatial planning and town and country planning during the 1960s and 1980s (Lievois, 2013).

Besides three categories of municipalities, Belgian regions also defined clusters of municipalities of different size. Their approach uses several variables: the income level of the population, economic dynamism, the demographic trends that affect directly or indirectly the revenue and expenditure of the municipalities. This resulted in distinction of 16 clusters of municipalities in Flanders, 14 in Wallonia and 5 in Brussels-city region. Each of the clusters has a specific role and function: residential clusters, rural clusters, clusters-centres of economic activity, semi-urban (or agglomerated) clusters, "centrum" clusters (large cities), and touristic cluster.

In terms of policymaking and planning, Belgian regions and all local municipalities have a strong autonomy and legitimacy over the development issues. In Flanders, for instance, the national hierarchy of municipalities was the basis of the selection of the urban areas (clusters) for the Spatial Structure Plan introduced in 1997. According to the Plan, the major cities, in general, remained unchanged, except Hasselt and Genk which were classified as a bipolar regional urban area. While Brussels remained a separate city-region, some of its Flemish municipalities became the Flemish Urban Area. Besides their grouping into clusters, all municipalities in Flanders were also precisely defined and classified into the inner and outer rings. As a result, the distinction between urban and rural areas became a key element of the "de-concentrated clustering" which was the key principle of the Plan. The methodology of urban hierarchies led to a division of municipalities in the urban-rural typologies, which led

to the definition of specific “responsibilities” and competences related to housing and limitations of economic activities.

In other words, Belgium has no particular policy for small and medium-sized towns, but they seem to be indirectly approached in the regional plans and strategies through different classifications of urban areas and clusters. The planning is handled by the regions and by the municipalities (and their clusters). For example, in Flanders, two planning objectives seem to overlap one another and responding differently to the methodology of the Regional Spatial Structure Plan. The first objective is the “metropolitan appeal” which focuses on development of four top metropolitan regions (central Flanders, the coastal areas, region Kortijk-Lille and MHAL region). The second objective is the “human scale” which emphasizes the development focus of three types of urban space: urban areas, high-quality public transport nodes and nurturing cities. Overall, different typologies of urban space that exist in Belgium include both towns and cities, and it seems that their approach is less concerned with the population size of their municipalities, rather with the functions, roles and location of municipalities within a territory.

- Unitary “regionalized” states: Spain and Italy -

There are several institutional administrative entities in Italy: regions, provinces, municipalities, metropolitan cities, mountain communities and unions of municipalities. In general, the regions take care of education, arts, environment, transport, energy and social protection; the provinces focus on water and energy resources, protection of the territory and disaster prevention; and the municipalities deal with community services, waste collection, nurseries, commercial and industrial planning and housing. In terms of planning, the regions adopt their own territorial planning law and territorial regional plan. The provinces elaborate the provincial territorial coordination plan that determines the land use, major infrastructure, lines of communication, water and land conservation systems. The municipalities have responsibilities in planning and construction through the only provided instrument: the municipal master plan (Demazière, 2014).

Italy does not have a special urban policy for cities, irrespective of their size. Yet, the urban questions have been approached through other policy initiatives (Cabodi et al., 2013). At the national level, two groups of initiatives have indirectly or directly addressed the urban challenges. First, the programs of competitiveness and economic growth, the urban programs for social and economic policy and the process of creation of metropolitan government have directly involved local actors in the policy implementation process and upgrading of urban areas. Second, the policy-oriented economic development, the social policies for equality and cohesion and the reforms of the structure of local government indirectly led to the creation of multi-level governance and the balance of powers within local authorities. Only more recently, in 2012, the Parliamentary Group for Italian Urban Agenda established the Interministerial Committee for Urban Policies with the objective to redefine the scope of urban policies and to financially support various municipal projects.

The lack of a strategy for the urban issue at the national level is also reflected at the regional scale (Cabodi et al., 2013). The reason for this lack may be related to the Italian urban structure in which very small municipalities (less than 1,000 inhabitants) and small municipalities (between 1,000 and 5,000 inhabitants) represent 70% of total Italian municipalities. Moreover, according to Cabodi et al. (2013), the urban structure has been historically characterized by a multiplicity of small municipalities that were administratively autonomous, but also gravitating towards major cities. Hence, besides the focus on their demographic thresholds and their lack of rare local functions within the national urban system, small and medium-sized towns have practically been ignored policymakers in Italy.

A completely different situation may be observed in Spain, where the 17 Autonomous Communities are the administrative level that concentrates the main government capacities (Guttierez and Russo, 2013). They, in fact, have competences in regional planning, infrastructure and local development and are responsible for the application of programmes co-financed in the framework of EU Structural Funds. The regional government has a high level of autonomy in governance of key public policy such as education, culture, health and social policies, although it shares responsibilities with the State government in tourism, trade, agriculture, industry and research. The provinces are the basic level of territorial division of central government administration, but they seem to have no relevant competences or self-government attributions compared to those of the Autonomous Communities (Demazière, 2014). However, the provinces may have an important role in inter-municipal cooperation, mainly in the provision of services for municipalities with insufficient economic capacity and they usually lead strategic plans for regional development (Guttierez and Russo, 2013). While the municipalities have a full competence in urban planning, they also may share competences with the State government and the Autonomous Communities. This has particularly been useful in cases where a (smaller rural) municipality lacks resources and capacities and strongly depends on supra-municipal cooperation for the implementation of public services and policies.

In 1983, the Catalan region was the first Autonomous Community in Spain to approve a regional law for spatial planning (Guttierez and Russo, 2013). Since then, the region has been considered as one of the most active in terms of introducing new tools and guidelines for spatial planning. The Territorial plans for its seven regional planning units have introduced specific tools for transport infrastructure, coastal areas, landscape protection, mountain areas and key economic sectors. Yet, as urban planning is a competence of municipal administrations, the key focuses of the Catalan region were improving the quality of vertical links between local and regional levels for planning at different scales, and encouraging the horizontal collaboration between municipalities. Thus, the most of the small and medium-sized towns are involved in sub-regional or local strategic development plans which became the key platforms to facilitate supra-municipal cooperation and partnership action within a common framework.

- Unitary “Northern” state: Sweden -

Sweden is considered as quite decentralized country within three administrative levels of government: state, counties and municipalities (Johansson et al., 2013). The state government has a general competence for roads, transport, education and public safety. It shares competences for social services and territorial planning with counties and municipalities. The county defines regional development strategies and deals with regional public transport, health and culture. The municipalities have general administrative competences related to culture, leisure, local roads, parks and energy supply (Demazière, 2014). The counties and the municipalities are gathered in the Swedish Association of Local Authorities and Regions (SKL) which has for the objective to organize and collect information on the regional and local levels to be prepared to take care of common interest and they also work as a lobby group (Johansson et al., 2013). Since the 1960s, there have been continuous mergers of counties due to increasing networking between municipalities and enlargement of functional local labour market. Today, many of the municipalities in the local labour markets are situated in different counties with different administrative borders (Demazière, 2014).

Even though there is no official definition of towns, Swedish municipalities, as similar to the Belgian ones, have been classified by the Swedish Association of Local Authorities and Regions (SKL) in ten groups on the basis of structural characteristics such as population, commuting patterns, tourism, travel industry and economic structure (Johansson et al., 2013). Therefore, instead of a strict categorization of municipalities according to size of population, the Swedish municipalities are classified according to their functions and main features into: metropolitan municipalities, suburban municipalities, large cities, suburban municipalities to large cities, commuter municipalities, tourism and travel industry municipalities, manufacturing municipalities, sparsely populated municipalities, small municipalities in densely populated regions, and small municipalities in sparsely populated regions.

Nevertheless, small and medium-sized towns have been studied in many governmental reports as a consequence of their structural problems (Johansson et al., 2013). In fact, they were helped by the state government through various support packages in order to avoid the structural crises that these towns have witnessed since the de-industrialization. However, since the 2000s, the state government has stopped “rescuing” towns and has opted for the approach of a transformation based on own (local) resources. Consequently, many towns have experienced an out-migration and “instead of development towards convergence based on endogenous economic growth, the opposite has in many cases been the result” (Johansson et al., 2013, p. 25). Likewise when it comes to spatial planning, since the 2000s, the regional development policy and the regional growth policy that used to focus on equalizing the differences between territories, has changed in a sense that it is now more focused on the regions’ and municipalities’ own preconditions for endogenous growth.

- Unitary states: The UK and France -

Even though the European countries have experienced the intense centralization, unitary states such as France, the UK, Czech Republic, Poland and Slovenia have remained

centralized (Demazière, 2014). Thus, competences related to infrastructure, human resources and economic activities are fully in the hands of national governments.

The United Kingdom is a unitary state but with some significant elements of devolution and decentralization to its constituent nations (Scotland and Wales) (Atkinson and Smith, 2013). The local government in the UK is structures in two different ways. In Scotland, Wales and parts of England there are Unitary, Metropolitan and London Borough Councils that have all local authority functions. On the contrary, the rest of the UK, the District and County Councils share the responsibility of the local government. Since the 1980s, the local government system in the UK has seen an increase in privatisation, the development of contracting out and quasi-markets as well as a growth in the development of partnerships between local government and other stakeholders to provide services and deliver projects. As a result, the local government became even more complex and fragmented (Atkinson and Smith, 2013).

In terms of spatial planning, at the national level, there is a set of planning policies for London, Wales, Scotland and Northern Ireland which, then, have their own spatial plans. Thus, at the national level, spatial development policymaking is devoted to policy action in areas such as transport, economic development and local welfare (Atkinson and Smith, 2013). In that context, towns have no official definition or policy approach, but they have been in focus as specific types of settlement such as market towns and coastal towns. In fact, there is no formal (governmental) agency that has an explicit responsibility to towns, but there is a campaign organization “Action for Market Towns” that seeks to draw attention to the situation of such places in the UK. The principal identification of market towns in England arose in the 2000 Rural White Paper where they were associated with their roles in rural areas. In Wales, for instance, the Spatial Plan recognized towns as important for employment, social and recreational activity and to access a wide range of services. This has led to the recognition that towns need to develop the collaborative relationships and work together in a complimentary manner if they are to provide services to populations. Moreover, in England as in Wales, the planning policy guidelines indicated that local planning authorities should identify the hierarchies and networks of retail centres in their areas that would include town centres since they provide services for extensive rural catchment areas.

Nevertheless, besides their general political recognition, according to Atkinson and Smith (2013), there is no policy focus and concerted action to address their situation from an integrated perspective. Overall, even though most powers for planning are located in the unitary authority in each region, towns are rarely defined as coherent (holistic) policy objects in spatial development policies and plans in the UK. Yet, the functions that towns play as retail centres, transport hubs, locations for employment and housing development are often cited in spatial plans and associated spatial policies (Atkinson and Smith, 2013).

A quite different situation is in France which is a strongly centralized country. France is divided into 18 administrative regions which are further subdivided into 101 provinces (departments) and 36,681 municipalities. In France, competences have always been held by the central government and its territorial representatives (prefectures). However, since the 1980s, there has been an increase in the autonomy of local authorities which resulted in the

creation of regions and in the transfer of competences to the sub-national levels. The region has competences in economic development, transport, education, vocational training, development of seaports and airports, implementation of a regional plan for quality and classification of regional nature reserves. The provinces (fr. départements) were created after the French Revolution in 1790 and for a long time represented the essential level of state administration at the local level. Since the decentralization laws their power has been substantially downsized (Demazière, 2014). Nevertheless, they are still in charge of important sectors such as social action, education and transport. Municipalities which were also created after the French Revolution, have their own administrative organization regardless of their size. Municipalities are responsible for planning, healthcare, social sector, education and culture. Despite the trend towards more devolution, and contrary to the case of the UK, the French central government exerts a strong influence through national regulations and contractual arrangements in many areas where it does not have exclusively the competence. In addition, public investment is marked by interaction between the responsibilities of different administrative levels and many competences are shared (Demazière, 2014).

At the national level, the Governmental Agency for Spatial Planning and Attractiveness (fr. DATAR) has been one of the most relevant actors in developing territorial planning methods, experimentations and foresights (Demazière et al., 2013). The DATAR conducted several studies that served as a theoretical framework prior to the implementation of actions of the General planning scheme of France. It also organized sharing of expertise between civil, economic and political representatives; it anticipated the key actions for long-term planning issues for territories such as the climate, energy or technology; it emphasized the importance of various types of urban networks (asymmetric, intensive, diverse, specialized, transversal, etc.); and it encouraged large cities to develop cooperation within and across city-regions. The latter led to the creation of a new category of supra-municipal body at the national level so-called inter-municipal cooperation (fr. EPCI) which after the recent territorial reform became an obligation for all French municipalities.

When it comes to towns, the DATAR initiated several important studies in collaboration with the National Federation of Medium-Sized towns (fr. FMVM) and the Assembly of French Clusters of Municipalities (ADCF) which resulted in the Government launching an experimental project for 20 towns. The experiment was based on the method of dialogue between three actors: local government, the State and professionals in conducting several development projects in towns. The experiences coming from these towns were useful for detecting challenges and for planning future exchanges at vertical and horizontal levels of governing (Demazière et al., 2013).

Following a positive initiative at the national level, the French Institute for Statistics and Economic Studies conducted as well several studies on subjects such as centrality, urban structure, and socio-economic aspects of development of towns. Likewise, at the regional level, towns became the topic on the agenda of regional development. However, with the creation of various forms of inter-municipal cooperation after the territorial reform, regions broadened their approach to local territories by implementing contractual policy with new inter-municipal forms of cooperation, among which many were clusters of small and

medium-sized towns (Demazière et al., 2013). From the French perspective, the contractual policy seems to be the only way to unite the territories for economic and social development which is adapted to the potential of each territory within the regional space (Demazière, 2011).

To sum up, there is a variety of institutional context ranging from unitary to federal states, the degrees of regionalization and the varying degree of political and fiscal decentralization. Some countries have a large number of small municipalities (e.g. France) leading to a territorially fragmented structure while others have much smaller numbers of large municipalities (e.g. Sweden and the UK) which has important implications for towns. In the former case the municipality is likely to cover the core of the town, while in the latter case the municipality may include a certain number of towns. Moreover, there are some interesting approaches to towns in France, Belgium and Spain where there are national and regional efforts to create a critical mass through inter-municipal clusters and cooperation. In countries such as Italy, there is a complete absence of national and regional approaches to urban issue, while in the UK, there is a political recognition of important roles towns, but there is a lack of concrete instruments that would represent an integrated "British" approach to policy action. Finally, in Sweden there has been a shift in the national approach to towns from the one that tries to "rescue" them from decline to the one that selects to act only in towns that have an endogenous potential for the development.

By taking into account the national and regional institutional framework, the following subsection will observe the planning practices and dynamics between local actors in towns from ten European countries (the UK, France, Spain, Italy, Sweden, Czech Republic, Cyprus, Slovenia, Poland and Belgium). For this purpose, as in the previous subsection, we will use case study reports from selected countries provided by researchers for the ESPON TOWN (Servillo, 2014). These reports contain some detailed information on institutional systems, planning practices and socio-economic analysis of towns.

3.2.3 Local development practices

The European institutions in favour of the polycentric development became an opportunity for towns, cities and regions to boost their growth and development. As funds and investments are at direct disposal to local actors, many towns and cities entered into a fierce competition and/or cooperation to pool up a financial support for their projects and by this to increase their social, economic and political roles within a territory. Thus, the strategies of cooperation and competition while increasing their connectivity at local, regional and European levels are a crucial challenge in front of towns.

The first part of the subsection observes the practices in towns that have their economy based on productive sector and exportation. The second part of the subsection presents some experiences from towns oriented to residential and services-oriented economy. The third part of the subsections explores the development dynamics in towns with mixed residential and productive economy. Final two parts of the subsections provides some insights into

innovative practices in towns that have their economy oriented either to industrial exportation or to residential demand.

- Practices in the export-oriented economy -

Among selected towns of the ESPON TOWN project, Hamdouch and Banovac (2014) noted that most of the case studies with the dominant productive and export-oriented economy were found in unitary states (France, Sweden, Cyprus, Czech Republic, Poland and UK). These towns seem not to experience any shift in their local economy and the productive sector (traditional manufacturing) has continuously existed as the driving part of the economy for several decades. Nevertheless, the ESPON TOWN noted some differences when it comes to their performance. A majority of them seems to be in a restructuring process, which means that they either lose population or jobs (Hamdouch and Banovac, 2014).

For instance, Dali (Cyprus) was the only case of dynamic productive town that has been gaining population and jobs during the last decade. The town is agglomerated to the capital city Nicosia, which is the key advantage that puts Dali ahead of other municipalities on the island. The town's economy that was formerly based on agriculture has shifted to industry (manufacturing, repairing, wholesale, logistics, etc.), construction and services related to industry. Nevertheless, a significant proportion of the economy is still based on agriculture, mainly in cattle rising and milk-production: Dali is the biggest milk provider on Cyprus.

The success of Dali seems to be due to a common vision and complementary partnerships between actors at three levels: national, metropolitan and local. At the national level, the central government in cooperation with the local administration prepared a *Local Plan* for Dali and its surrounding settlements with the objective to implement policies that address that particular functional rural area. This process of '*territorial restructuring*' is led by the state government across Cyprus and it is mainly based on strengthening the existing partnerships of adjacent rural communities in order to facilitate their long term alteration into new larger municipalities (Mesaritis et al., 2013).

The metropolitan level seems to be the most important level of partnership for Dali. The *Local Plan for the Southern area of Nicosia* involves Dali in the urban-rural metropolitan network with a common outlook and goals to exploit a strategic location and partnership within Nicosia metropolitan area. Dali has several benefits from cooperation with the capital: the participation in one of rare committees established by municipalities located in the metropolitan area that stimulate exchange and cooperation between local actors (for example jointly reducing the costs for common services such as garbage collection), creation of a common development agency ANEL which is focusing on application for EU funding and a common programme for active inclusion of foreign citizens.

At the municipal level, Dali has the *Master Plan* that acts as a policy-guiding framework for local and national stakeholders concerning the municipality's growth. Besides propositions concerning transportation, the natural and built environment, this *Master Plan* recommends some interesting policies such as creation of a small incubator for innovative technology in

the historical urban core, promoting the multiple uses of existing public facilities, promoting collective identity in the community through schools' curriculum and workshop, etc. (Mesaritis et al., 2013).

- Experiences with the services-oriented economy -

A majority of case studies with the predominant residential economy seems to be dynamic (gaining population and jobs) and agglomerated to neighbouring large cities (Hamdouch and Banovac, 2014). They all have their own development strategies that combine incentives for sectors such as services to population and tourism. Among them, Östersund (Sweden) and Colwyn Bay (UK) are towns that have seen the growth in population and in jobs. Their success seems to be a result more of local strategies based on cooperation and partnership between public, private and civil local actors and less to national and regional directives (Hamdouch and Banovac, 2017).

There are three common features: firstly, both towns are characterized by a high quality of life, the residential attractiveness and a touristic potential. On the one hand, Östersund plays the role of the urban centre for eight surrounding municipalities by providing them with infrastructure and services: personal services and retail, university, hospital, airport, high schools. Due to the absence of large industries, the town has maintained a healthy environment and high living quality with lots of touristic activities (Johansson et al., 2013). On the other hand, Colwyn Bay is characterized by the presence of strong residential and tourism sectors. In both towns, local authorities developed the long-term strategies and plans that strongly rely on horizontal cooperation with local partners (local organizations, businesses, etc.) (Atkinson and Smith, 2013).

Secondly, both towns acknowledged a placed-based approach in the creation of policy of their own. Östersund and its larger area are driven by a common vision of sustainability in economic, ecological and political terms which influence all political discussions and decisions. The main policy instrument of the strategic planning is the *Growth Program* accompanied by an action plan and an orientation plan. To give some examples, a strong local network is made between the Mitt University and local businesses that work together on development of the winter sport centre. The Mid Sweden Science Park and Association Quatro Helix also represent a platform for dialog between business community, council, university and sport professionals. In Colwyn Bay, the Conwy Country Borough Council, which represents the local authority, led the process through the adoption of a range of plans for the whole of its territory. They developed a *Master Plan* that put into the focus the regeneration of the town, improvement of the town's retail offer and development of new forms of tourism. Hence a number of projects were launched such as new sea defences, seafront environmental development, leisure-park and improvements of the townscape.

Finally, besides the importance of horizontal cooperation, the vertical (regional) and the "European" ones are not ignored. Östersund has been maintaining a close partnership with the Regional Council and the County Board. Besides the regional funding, the development of is largely funded from the EU funds and programmes. In fact, Östersund applied

intensively for the EU financing of its development projects such as “Peak Innovation”, “Wind Power Center”, integrated touristic project “Sundvall, Östersund, Trondheim (SÖT)”, etc. In the case of Colwyn Bay, the Conwy council found ways to work outside the box and come out with innovative approaches to accessing, combining and using different funds. Some examples are the partnerships with the Welsh government, the Welsh Rugby and the Bay Life Initiative that were useful to find sources and implement planned projects. Nevertheless, despite the well-developed and efficient public partnerships, the private sector seems to stay weak and not included enough in the process of development.

- Towns with a mixed local economy -

Hamdouch and Banovac (2014) found that case studies with almost equally important residential and productive sectors were found in France, Spain and Sweden (Hamdouch and Banovac, 2014). In most cases, they used to have predominately productive economy, which over the last decade was diversified by increasing share of jobs in residential services. For instance, Tarrega (Spain) has for the advantage a continuous cooperation between local authority and the regional Catalonian authority (Hamdouch and Banovac, 2017).

Tarrega (Spain) is situated in the western part of Catalonia which is the region characterized by agriculture, agro-industry and trade services. The town is part of a network system with two other urban centres (Cervera and Guissona) to which it is connected by a highway. The town’s key strength is its diversified economy where agriculture has the main role for the town and its hinterland. Tarrega also concentrates a significant proportion of public and private services, a large number of which is oriented to agricultural activities and companies (Gutierrez and Russo, 2013).

In terms of spatial planning, Tarrega and its hinterland are covered by the *Territorial Plan of Ponent* which is the planning instrument used in Catalonia to define the supra-municipal territorial strategies, to delimitate the main land uses and general disposing of future infrastructures. According to the *Territorial Plan*, Tarrega is seen as the key settlement for territorial balance with a potential of growth above the regional average, hence the Plan provides guidelines that strengthen further the town’s centrality. The most relevant development projects have been coordinated by local and regional authorities, such as the experimental model of governance for horizontal cooperation. In fact, this experiment was co-financed by the EU funds and is jointly coordinated by a Consortium of two local country councils and 37 municipalities (among which Tarrega). Between 2007 and 2013, the Consortium was working on implementation of several measures related to the improvement of the processes of transformation and marketing of agricultural products, the support of creation of micro-enterprises, especially in regard to the diversification of local economy, the promotion of tourism activities and the conservation and the improvement of rural cultural heritage. A good cooperation between local and regional entities contributed to strengthen the commitment and participation of local economic agents in implementation of the local development strategy. In fact, the Local Action Group composed of mostly private actors became the key forum to open the decision making process. The local community also

engaged in supporting activities related to the enhancement of agriculture and tourism (Hamdouch and Banovac, 2017).

- Innovations in productive economy -

Among the ESPON TOWN case studies, Hamdouch and Banovac (2014) noted the existence of towns with the economy oriented to industrial exportation, but also with a continuous increase of employment in the creative and knowledge sectors such as design, architecture, culture, tourism, etc. Such mixture of industrial and creative sectors in some cases has been complementing each other for decades now. Hamdouch and Banovac (2014) provided with some examples of Cyprus, Italy and Slovenia. Alba (Italy) and Athienou (Cyprus) based their success on the rooted local dynamics and the entrepreneurial *local milieu* where private and civil actors construct the vision and the development of the town. Radovljica (Slovenia) is a successful case within this category, however, its dynamics are different from those in Alba and Athineou. Radovljica is part of a conurbation that lacks cooperation and common vision in spite of numerous efforts and strategies coming from national and regional levels (Hamdouch and Banovac, 2017).

In some ways Alba (Italy) and Athienou (Cyprus) are not significantly different from one another. They are both autonomous towns with an important specialization in agriculture. Moreover, the agriculture has been developed and utilised to support local endogenous development. For example, Athineou focused on strengthening local entrepreneurship and minimal dependence on external (national or regional) capital. Its local development is based on local sources and investment from local entrepreneurs gathered in a cooperative. The Cooperative contributes largely to the development of business activities and local identity of population. It supports local entrepreneurship through common trade of local agricultural products, loans and provision of storage facilities. At the same time, Alba has a strong agro-food and wine sector that is driven by a dense network of local SMEs and some large-scale manufacturing plants. The most important actors in the economic and social growth of Alba have been the local enterprises. There are mainly young entrepreneurs with high qualifications in the agro-food sector, which is a result of the national policy to open new facilities with specialisations fitting with regional economic specificities.

In terms of spatial planning, both towns have local authorities leading the development projects more or less independently of the regional or national authorities. On the one hand, Athineou created its own *Development Plan* and the *Local Plan* that focus on boosting the organic agricultural productivity, local start-ups and local development clusters such as the Local Development Park, the Institute of Integrated Rural Development, Environmental Information Centre and the Centre for Entrepreneurship and Innovation. These clusters gather local actors involved in valorisation of local tradition, products, culture and innovation on internal and external markets. Alba, on the other, has the *Local Development Plan* and of an *Integrated Territorial Plan* coordinated with regional authorities. Furthermore, since 2000, Alba has been directly involved in ten European programmes which provide funding to enhance agro-food and tourism in the area. The aims of these projects were to promote

sustainable, quality tourism through excellence in the food and wine sector, cultural, artistic and architectural heritage as well as to improve the offer of social and healthcare services to population by implementing the Local Health Authorities.

Radovljica (Slovenia) is a service and tourist centre located in an Alpine region. It is networked with two neighbouring towns Jesenice and Bled with which it forms a conurbation. The town has developed its own strategy and has been performing quite well by investing in infrastructure projects. Most of the jobs are in the manufacturing industry such as furniture, recycling, production of electricity and optical equipment, production of vehicles, skies, trade and construction..

Differently from Alba and Athineou, the development of Radovljica was addressed by several sectoral policies created by the national government. In fact, according to the *National Spatial Development Strategy,* the town is seen as one of the 15 centres of national importance. At the sub-national level, there are several strategies and spatial plans that guide the development of Radovljica and its urban area. *The Development programme of municipality of Radovljica 2020, the Municipal Spatial Strategy and the Municipal Planning Order, the Development Program of Radovljica 2020* and *the Regional Development Programme of Gorenjska NUTS 3 Region 2014-2020* – they all define more or less the same development goals such as infrastructure, entrepreneurship, tourism and quality of life. Nevertheless, one of the main issues is a traditional rivalry between Radovljica and other neighbouring towns: Jesenice and Bled. There is a lack of cooperation, which leads to a failure to develop a wider cooperative and 'polycentric vision' for the region (Hamdouch and Banovac, 2017).

- Innovations in residential economy -

The ESPON TOWN project found a large majority of case studies with employment in residential and creative sectors has been gaining population and jobs over the last decade. In fact, Hamdouch and Banovac (2014) argued that during 1999-2010, most of those towns had a shift in their economic profile in a sense that there has been a growth in residential and creative activities. The examples provided were Dendermonde and Aarchot in Belgium and Cambrlis in Spain. These cases base their economic success on well establish culture of regional and inter-municipal cooperation that benefits from collective political representation and focus on developing approached to common issues. This may not mean that there is no competition between towns, but overall the collective action to develop a common vision is prevailing (Hamdouch and Banovac, 2017).

Dendermonde and Aarschot are located in the very centre of the Flemish Diamond (Brussels-Ghent-Antwerp) and they are both agglomerated to larger cities (Dendermonde to Brussles and Aarchot to Leuven). They are both easily accessible by public transport and there are no remote rural areas in the vicinity. Both towns have a role of service centres for the hinterland especially due to a large number of shops and schools in towns. The main objective of local authorities in both Dendermonde and Aarschot is to attract young families and qualified population. Therefore, a significant effort is put on the urban renewal and the provisions of

services to population such as a new library, a cultural centre, the refurbishment of the Central Square, etc.

In terms of strategic planning, Dendermonde is not part of any national or regional spatial planning scheme since it does not meet the national criteria of becoming the "centrum city". Nevertheless, a group of local politicians and businessmen united in a Committee that later on grew into an inter-municipal partnership Dender – Durme – Scheldt (DDS). The role of the DDS partnership is to plan economic development and prosperity of the area. As a result, *the Strategic Regional Plan Dendermonde*, created by the DDS committee, proposed a concrete vision and projects for the development of the area.

In case of Aarschot, the local authorities were successful in attracting grants from the Flemish government and the EU Regional Development Fund. An important initiator of cross-community initiatives and the mobilization of funding has been the inter-municipal partnership with Leuven named Interleuven. The partnership Interleuven complements the work of municipalities by providing expertise in housing, environment, economic activity and spatial planning. Besides Interleuven, the local authorities participate in another inter-municipal partnership, the IGO partnership, which focuses on social sector, culture, rural development and management of green areas.

Cambrlis is located in the core of the Costa Dourada, one of the main tourist destinations in Catalonia and the largest resort area in terms of accommodation capacity. It is part of the networked metropolitan system that also includes two large cities: Tarragona and Reus. The tourism has been the main factor of transformation of the local economy. It is also a founding member and the promoter of the Spanish Association of Destination for Culinary Tourism Promotion which is a partnership created to develop and promote the food-based tourism products from raw materials to the restaurants. The partnership involves different local stakeholders: the town authorities, the tourist companies, the fishermen association, the agricultural cooperative and the tourism school.

Regarding spatial planning, Cambrlis has not received outstanding direct attention in the planning and policy initiatives that have been developed at a provincial and a metropolitan level. Nevertheless, the town's authority set three important policy and planning instruments that oriented Cambrlis's growth in recent years: the *Town's Urban Planning Document* (POUM), the *Mobility Plan* and the *Urban Regeneration Program*. All three documents set a goal for the development based on quality tourism, giving priority to family, gastronomy and sports tourism. Furthermore, local authorities and private sector made partnerships with other destinations in the Costa Daurada. These alliances allow a better efficiency in touristic promotion through shared costs between contiguous municipalities and offer the complementary products in the region.

3.2.4 Conclusion of section 3.2

In the light of a balanced regional development, cohesion and the sustainability of the European territory, there seems to be a general recognition in European circles that towns are

an important element of the settlement hierarchy of any regions and countries, and are as such, a vital asset to Europe. Even though there is no specific and common policy for towns in particular, it is possible to identify two policy domains that indirectly deal with their roles, functions and development. On the one hand, despite being defined rather vaguely, the Regional Development Policy considers towns to be important for a balanced spatial structure of Europe, the development of metropolitan areas, and the relationship between the hinterland and the metropolis. Moreover, it has been underlined that the towns' advantages for the regional development rely on interdependencies that may in fact foster development of City-networks, complementarity and cooperation between cities. On the other hand, the Rural Development Policy included towns in their multi-sectorial strategy that integrates with other policy arenas and conducts a dialogue and partnerships between wide ranges of partners. In that context, towns are considered as places providing employment and services to individuals and the relationship between town and countryside can be complementary and beneficial for the entire region.

When it comes to the national and regional approaches to small and medium-sized towns, there is a variety of institutional context ranging from unitary to federal states, the degrees of regionalization and a varying degree of political and fiscal decentralization. Some countries have a large number of small municipalities (e.g. France) leading to a territorially fragmented structure while others have a much smaller number of large municipalities (e.g. Sweden and the UK) which has an important implication for towns. In the former case, the municipality is likely to cover the core of the town, while in the latter case a municipality may include a certain number of towns. Moreover, there are some interesting approaches in France, Belgium and Spain where there are the national and regional efforts to create a critical mass through the inter-municipal clusters and cooperation. In countries such Italy, there is a complete absence of national and regional approaches to urban issue, while in the UK, there is a political recognition of important roles towns perform for an area, but there is a lack of concrete instruments that would represent an integrated “British” approach to policy action. Finally, in Sweden there has been a shift in the national approach to towns from the one that tries to “rescue” them from decline to the one that selects to act only in towns that have an endogenous potential for the development.

Quite an optimistic picture of towns comes from observation of practices and experiences from European towns. The ESPON TOWN demonstrated that towns seem to choose their development strategies depending on their regional and national context. On the one hand, towns that are located in a metropolitan region may build on advantages of proximity to larger and diversified market. On the other hand, towns in rural and peripheral regions seem to have different development dynamics and it is necessary to observe them in a broader perspective: some of them have developed their own strategy based on endogenous development, some of them have not any “written” strategy but there is a “visible” development dynamic driven by private and civil sectors, and finally, some of them are the object of the regional and county policies and planning.

CONCLUSION OF CHAPTER 3

This chapter was dedicated to the "European approach" to growth and development and to the relevance of towns in European, national, regional and local policies and practices. It is not a coincidence that the "City-network" theory was initially conceptualized by the European scholars who were acquainted or even engaged in the creation of some European public policies. Indeed, Europe has fully embraced the concepts of territorial cohesions, governance, competition and cooperation, and polycentricity, and has made them the fundamental pillars of development. Yet, the differences in institutional systems and national/regional legal frameworks seem to seriously constrain their practical implementation. Many critics question the sustainability of the "European project" and raise their concerns regarding the contradictions in its functioning. For instance, the European Commission adopted a key strategy for the period 2010-2020 which aims towards a smart, sustainable and inclusive growth. The strategy has been backed up by the cohesion and regional policies, and a series of initiatives which all together need to produce some very concrete results by the year 2020: e.g. 20/20/20 targets, 75% of the 20-64 year-old population employed, 3% of the EU's GDP for R&D, 40% of 30-34 year-old population completing a university degree, etc. Yet, each member state can establish its own national targets knowing that they might be very different and might not be enough to achieve the European goals by 2020. Likewise, in the middle of the period 2010-2020, the EU2020 strategy changed its course when the Commission discovered that some regions will not be able to achieve the goals. The Commission finally admitted that it would be neither realistic nor desirable that all regions reach the same goal. Consequently, a failure of the EU2020 strategy raises questions about the purpose and the capacity (and legitimacy) of the European Commission to draw any future strategy for the entire European community.

Moreover, as we discussed in this chapter, the European Commission adopted a series of policies and recommendations for the implementation of admirable concepts such as polycentricity, governance, cohesion and cooperation. A significant amount of financial support has been at a direct disposal to regions and cities for the implementation of these concepts. At the same time, the Commission kept the regulation of competition as its exclusive competence not shared with the member states and it strictly defined regions eligible for funds (European, state and regional aid). Many critics point at the risk that in the name of equity and equality within a single market may in fact increase a distortion of competition by giving an advantage to less efficient and by letting national and regional authorities with few intervening instruments. As a result, nowadays across Europe, there are urban and rural areas that are neither good enough to qualify for innovation policies (or any other similar policy intended for advanced territories) nor are bad enough to qualify for the financial aid that targets disadvantaged territories.

In such context, towns have largely been neglected in favour of large cities. Even though some of them may have benefited from policies of regional and rural development, there is no policy that would address them directly at the European level. Yet, across Europe, there have been some interesting approaches to towns by national and regional authorities. France, Belgium and Spain for example made some effort to create a critical mass through establishment of inter-municipal clusters. More precisely, towns were involved in the sub-regional and local strategic development plans which became the platforms to facilitate inter-municipal cooperation with a common framework. In addition, the ESPON TOWN, presented in this chapter, provided an optimistic picture of European towns which despite the lack of recognition by European and national policy-makers, seem to be able to build their own development strategies based on the local assets and the regional opportunities.

CONCLUSION OF PART 1

The objective of the first part of the thesis was to contribute to the spatial planning analysis by embracing the "City-network" theory. Unlike the traditional theories which focus on the functions and the activities of major cities due to their diversity and size of labour market, the accessibility to high-rank services, a dense network of transportation, communication and research, etc., the "City-network" theory is able to complement these theories with a new perspective by referring to the beneficial effects of synergy and network externalities among and within connected spaces.

By using an interdisciplinary approach, we confronted the "City-network" theory to the mainstream theories of the neoclassical and the post-neoclassical sociology, geography and the economics. In that respect, we discussed the conceptualization of networks from the point of view of the economic sociology and the new institutional sociology which is our attempt to add a social dimension to the economic explanations of territorial dynamics. We also critically analysed the key paradigms of growth and development theories of the economic geography and the regional science so to be able to understand the evolution of scientific thinking in those particular disciplines. In order to put the "City-network" theory in a context, we explored the conceptualization of polycentricity, territorial cohesion, governance and competition/cooperation in the European policy arena. Not surprisingly, there were many common features between the "City-network" theory and the renewed approach of the European Commission to the territorial growth and development.

We started by exposing our understanding of the contribution of the "City-network" theory to the further analysis of contemporary territorial dynamics. We then analysed the key functional, socio-economic and administrative features of European towns. The reason we opted for small and medium-sized towns to be our demonstration platform for the "City-network" theory is the fact that for the last several decades spatial policies and scientific studies have tended to ignore the relevance of towns for the territorial growth and development. Yet, in Europe, towns are ten times more numerous than large cities and are home to more than 20% of population. Thus, for a researcher, it would be misleading to draw any conclusion on territorial dynamics, especially at the local level, without considering the entire urban system - including towns. Having this in mind, we acknowledged the existence of a variety of classification of urban settlements and apprehended the importance of towns' roles and functions for the urban systems. Finally, we evaluated the relevance of towns in the development strategies and policies at three administrative levels (European, national and regional) and we explored the local practices and experiences from across Europe.

PART 2:

EMPIRICAL INVESTIGATION OF THE "CITY-NETWORK" THEORY

CHAPTER 4: Construction of a Methodology for the Integrated Analysis of a Regional Urban System

There is a relatively little literature that has systematically explored the position of small and medium-sized towns within the urban hierarchy by taking into consideration, at the same time, their specific features as well as those of their region. Likewise, there seems to be a lack of empirical research on the city-networks between small and medium-sized towns. Indeed, for the last several decades, scientific studies and spatial policies have tended to focus on metropolitan areas that have been considered as the only centres of economic growth and innovation. The "City-network" theory introduced some new and interesting arguments for the urban and regional studies. The "City-network" theory does not contradict to the traditional "mainstream" theories, but it complements them by an added value from the network externalities, the horizontal exchanges, the effects of synergy and the polycentricity, the aspatial connections of agents, etc. In that context, cities exist through the networks that create them and their positioning on global and local scales depends on their economic, social, political and cultural relationships. Their functions are determined by the complementary specializations through the networks of agents from different cities. The networks of cities are characterized not only by the hierarchical connections but also the non-hierarchical relationships, the inter-cities relations and the creation of advantages through the organization of urban structure. Therefore, the "City-network" theory underlines the importance of the niche specializations in a wider networked system, the presence of higher order functions in small and medium-sized towns and the horizontal exchanges between settlements across the urban hierarchy.

Building on these arguments, small and medium-sized towns, as any other urban settlement that is part of a network, are able to achieve a critical mass and economies of scale and scope similar to those of large cities. The synergy and the "network" effects exist due to the capacity of networks to substitute the lack of diversity and the size of labour markets. Urban centres or nodes of networks are presumably functionally differentiated and specialized and they link themselves in the complementary and/or synergy networks. Thus, a diffusion of knowledge, goods, information and people happens not only in a vertical way from the upper towards the lower levels (a traditional approach), but also among cities and towns of various ranks. In such urban system, there is a need for a new type of governance which is oriented towards cooperation, the sharing of local assets and urban functions between cities and towns of different sizes in order to improve the economic performance of the network and to achieve development goals of all elements of the network.

In order to test the theoretical postulates and arguments of the "City-network" theory on an empirical study, this chapter will expose a methodology for an integrated analysis of regional urban systems. More precisely, the first section will provide general outlines of the research design including aims, questions and hypotheses as well as their operationalization into

variables, indicators and methods. The objective is to define an approach that will examine the three concepts of the "City-network" theory (polycentricity, economic networks and inter-municipal governance) and their application on the case of small and medium-sized towns. In that scope, the second section will explain our method of the functional analysis of a regional urban system. The objective of this method is to define the polycentricity through the identification of its nodes (urban centres) and the types of relations between them (territorial arrangements). The third section will expose the elements of the method of socio-economic analysis of urban centres and their functional areas. The objective is to identify the economic networks based on agglomeration, co-agglomeration and synergy between towns and other settlements within a regional system. Finally, the fourth section will present the method of the polycentric governance analysis. More precisely, the objective is to identify effectiveness, political inclusion, diversity and investment's decentralization in inter-municipal cooperation units.

SECTION 4.1: General outlines of the research design

This section has two objectives. The first objective is to present the guidelines of the reflection on the subject of analysis of regional urban system, and in particular the role of small and medium-sized towns within it. The second objective is to outline the operationalization of the reflection into variables, methods and tools that will serve in the construction of a methodology of the analysis of a regional urban system.

4.1.2 Guidelines for the reflection

The first part of this subsection will draw out the research objectives having in mind the theoretical background of the research which is based on the "City-network" theory. The second part of the subsection will list the research questions which address the subject of small and medium-sized towns within a regional urban system.

- Research objectives -

Building on the basic postulates of the "City-network" theory which underline the co-existence of vertical, horizontal and polycentric networks, polycentricity as "networked centralities" and synergy effects between poles, this research has three objectives:

1. **To relate the concept of polycentricity to the concept of small and medium-sized towns**. More precisely, to explore the position of small and medium-sized towns within the urban hierarchy, including their centrality, territorial arrangements with other settlements and functional areas.
2. **To relate the concept of economic network to the concept of small and medium-sized towns**. In other words, to examine the socio-economic characteristics of small and medium-sized towns including agglomeration, co-agglomeration and synergy

effects as creation of economic networks at three different scales: inter-firm, centre-periphery and cluster.

3. **To relate the concept of polycentric (inter-municipal) governance to the concept of small and medium-sized towns**. More precisely, to assess the financial effectiveness, investment decentralization, political inclusion and diversity of inter-municipal cooperation units consisting of small and medium-sized towns.

- Research questions -

The research is particularly interested in questions related to the correlations and the differences in polycentricity, economic networks and inter-municipal governance between towns and cities that belong to the same regional urban system. The research questions are compiled into the three groups as follows:

1. Group of research questions related to the polycentricity:

a) Correlational questions:
- Is the class of urban centres related to the size of functional area?
- Is the class of urban centres related to the number of territorial arrangements?
- Is the class of urban centres related to the type of territorial arrangements?

b) Group differences and cause-effect questions:
- What are the differences in terms of accessibility and connectivity between urban centres and other municipalities in the region?
- Which urban centres offer better access to job opportunities and to services?
- What are the differences in terms of accessibility between small, medium-sized, intermediate and large urban centres?

2. Group of research questions related to economic networks:

a) Correlational questions:
- Is the class of urban centres and functional areas related to the increase or decrease of population and/or employment?
- Is the proximity to larger urban centres related to the increase or decrease of population and/or employment in small and medium-sized urban centres?
- Is there a relationship between the change of population, employment and/or economic specialization in one functional area and the change of population, employment and/or economic specialization of the neighbouring functional area?

b) Group differences and cause-effect questions:
   - What are the differences between the classes of functional areas in terms of their socio-economic characteristics, economic specialization and performance?
   - What are the differences of towns-peripheries and towns-centres in terms of their socio-economic characteristics?
   - Which sectors of activities reflect agglomeration, co-agglomeration and synergy effects between functional areas?

3. Group of research questions related to inter-municipal governance:

a) Correlational questions:
   - Is the type of inter-municipal cooperation related to the degree of financial effectiveness?
   - Is the type of inter-municipal cooperation related to the degree of investment's decentralization?
   - Is the type of inter-municipal cooperation related to the degree of political inclusion and diversity?

b) Group differences and cause-effect questions:
   - What are the differences between the types of inter-municipal cooperation in terms of governance effectiveness, investment's decentralization, political inclusion and diversity?
   - Which inter-municipal cooperation offers greater degree of financial effectiveness, investment's decentralization and political inclusion and diversity?
   - What are the models of governance in inter-municipal cooperation consisting of small and medium-sized towns?

- Research hypotheses -

The three working hypotheses of the research are as follows:

Hypothesis 1: Towns and cities are the backbone of regional urban systems. They are the carriers of functions whose lack they compensate through vertical and horizontal networks with other settlements of different ranks under the condition that their cooperation is stronger than competition. Thus, through network externalities, towns reach economies of scale and scope, and synergy effects which enable them to become as attractive, dynamic, and growing as cities.

The "City-network" theory puts ahead economic specializations, presence of higher order functions in centres of lower order and horizontal exchanges between cities and towns across the urban hierarchy. The theory also argues that, regardless their size, towns exist through the networks that create them. More precisely, the networks of towns benefit from externalities

such as size effect, knowledge spillover, reduction of transaction costs and organizational advantages. Towns may form a network that has the same functional dimension as the one of larger cities. They benefit from the network which endows a “mass effect” that enables them to provide high-rank functions. Thus, they can perform a “metropolitan” importance on a territory where there is no larger city. Towns, as much as cities, are receivers and generators of knowledge, goods, services and information across a network. In addition, the “City-network” theory observes existence of “networked centralities” in which different urban functions are identified through inter-urban and intra-urban connections.

Hypothesis 2: The size of a settlement is not the key determinant of growth, as much as a spatial division of urban functions across the urban system. Therefore, the size of a single city or a single town in the network is less relevant than the size, type and structure of the network itself.

Economic and cultural globalisation resulted in a “network society” dominated by flows of capital, ideas, and people. In that context, towns capture the key economic roles in the global and regional economies. They are functionally differentiated, but in time of globalized networks, their functions are not determined by geographical constraints. Rather, economic actors within specialised towns connect to the actors in other towns and cities which offer complementary specialisations. In other words, specialized towns with different functions complement each other’s’ activities through the division of labour and market size. In contrast, towns with similar economic profiles benefit from synergy effects. These networks at different scales make towns to interlink, compete and to cooperate whether within or with other towns and cities. Consequently, a space is differentiated from another by specific arrangements of networks that organize functions and entities on local and distant scales to overcome the handicap of the size.

Hypothesis 3: Through inter-municipal coopetition, towns demonstrate capacities to overcome the negative effects of administrative borders as barriers, to maximise potential synergies, to promote joint solutions to common problems and a harmonious and balanced integration of their wider territory.

Cooperation and competition of actors play a structural role in networks of towns. Besides exchanges of information and ideas, towns cooperate in order to seek complementarity among each other. Cooperation in a form of territorial network provides with resources and technological knowledge that foster rapid development of innovations, access to new markets, economies of scale and sharing of risks and costs. Through cooperation, towns ensure the development of all partner-municipalities while respecting their territorial capital and identity. Moreover, through inter-municipal governance, towns coordinate actions which result in ensuring that decisions are efficient and equitable to achieve growth goals. Towns also mobilise their partner-municipalities in a network by ensuring the allocation of resources in their interest. Thus, cooperation of towns enables them to become more adaptive to changing economic situations and to respond collectively and strongly to raising challenges.

Following the above-mentioned research aims, questions and hypotheses, the next subsection will present the way the research tends to addresses these questions and to verify the three hypotheses.

4.1.2 Operationalization of the research

In the first part of the subsection, we will present the variables of the research as well as their operational definitions, classes and indicators. In the second part of the research, we will present the methods of functional, socio-economic and governance analyses including their corresponding statistical tests.

- Variables and their operational definitions -

For the purpose of the research, we identified six independent variables:

N.	INDEPENDENT VARIABLES	OPERATIONAL DEFINITION
1	Urban centres	Municipalities with a centrality function in terms of the size of population, labour market and an incoming flow of job commuters.
2	Functional areas	A group of municipalities among which one has a centrality function (urban centre) and the rest has a role of hinterland.
3	Spatial ranking within a functional area	Degree of centrality of municipalities within a functional area measured by population size, labour market size and flow of job commuters.
4	Territorial arrangements	Relationship between two municipalities that is defined by the characteristics of their labour markets and flow of job commuters.
5	Firms	Business organizations that sell goods or services to make a profit.
6	Inter-municipal cooperation (EPCI)	Group of municipalities that form an inter-municipal cooperation which is a result of political decision and arrangement.

Furthermore, the independent variables were tested in relation to the following dependent variables:

	N.	DEPENDENT VARIABLES	OPERATIONAL DEFINITION
POLY-CENTRICITY	1	Spatial radiance	The size of a functional area that is determined by the intensity of flows of job commuters between peripheral municipalities and the urban centre.
	2	Functional networks	Variety of territorial arrangements between urban centres.
	3	Accessibility and connectivity	Access to job opportunities, commercial and public services within a functional area as well as the existence of road and rail infrastructure.

ECONOMIC NETWORKS	4	Economies of scale and scope	Competition and cooperation between firms within a functional area
	5	Agglomeration economies	Benefits from sharing similar labour, input and knowledge spillover between firms of the same sector within a functional area.
	6	Co-agglomeration economies	Benefits from sharing similar labour, input and knowledge spillover between firms of different sectors within a functional area.
	7	Synergy effects	Impact of increase or decrease of employment in a specific sector in one functional area over the other.
INTER-MUNICIPAL GOVERNANCE	8	Financial effectiveness	Degree of financial autonomy measured by the self-financing capacities and debt regulation over a period of time.
	9	Decentralized investment	Increase or decrease of investments in municipalities-members of an EPCI over a period of time.
	10	Political inclusion	Degree of representation of each municipality on the leading positions in an EPCI.
	11	Political diversity	Variety of elected political parties within an EPCI after the municipal elections 2015.

- Methods and tools for the analysis -

In order to address the position of towns in the urban system as well as their relation to the concept of polycentricity, the first research method will be based on the functional analysis. More precisely, the functional analysis will identify urban centres and their relationships with other settlements though several analytical steps: (i) the identification of urban centres, functional areas and their features; (ii) the distinction between lower and upper tiers of urban hierarchy; (iii) the analysis of intensity of flow among identified centres and their functional areas. The functional analysis will combine descriptive statistical tests (average, mean, frequency, quartiles, etc.) and the QGIS 2.12 software to examine the settlements' position in the urban hierarchy.

The identification of economic networks in the regional system will be in focus of the socio-economic analysis which is also a second research method. More precisely, through a system of indicators and statistical tests (correlation, t-tests, one-way ANOVA, etc.), we will examine the settlements' socio-economic structure, the provision of services, the economic performance and the evolution of local economy, particularly in those aspects that differentiate small and medium-sized towns from other types of settlements. This research method will be conducted by the use of statistical software IBM SPSS Statistics 24 and GraphPad InState 3.0.

Finally, the third research method refers to the governance assessment of inter-municipal cooperation units (EPCI). More precisely, by using a system of indicators and statistical tests (correlation, t-tests, one-way ANOVA, etc.), we will explore the differences among inter-

municipal cooperation of towns and cities in terms of their financial effectiveness, decentralization of investment, political diversity and inclusion of municipalities in the decision-making. This research method will also be conducted by the use of statistical software IBM SPSS Statistics 24 and GraphPad InState 3.0.

4.1.3 Conclusion of section 4.1

The research has three objectives. The first objective is to relate the concept of polycentricity to the concept of small and medium-sized towns. The second objective is to relate the concept of economic complementarity and synergy to the concept of small and medium-sized towns. The third objective is to relate the concept of polycentric inter-municipal governance to the concept of small and medium-sized towns. The three hypotheses of the research are as follows:

- Towns are the backbone of regional urban systems. They are the carriers of functions whose lack they compensate through vertical and horizontal networks with other settlements of different ranks. Therefore, through network externalities, towns reach the agglomeration effect and become as attractive, dynamic, and growing as cities.
- The size of a settlement is not a determinant of growth, rather a spatial division of urban functions across the urban system. Therefore, the size of a single city or a single town in the network is less relevant than the size, type and structure of the network itself.
- Through inter-municipal cooperation and partnership, towns demonstrate the capacities to overcome the negative effects of administrative borders as barriers, to maximise potential synergies, to promote joint solutions to common problems and a harmonious and balanced integration of their wider territory.

In other to test the research hypothesis, three research methods are used. The first research method is based on the functional analysis and the identification of urban centres and their relationships with other settlements. It combines descriptive statistical tests and the QGIS 2.12 software to examine the settlements' position in the urban hierarchy. The second research method relies on the socio-economic analysis and a system of indicators and statistical tests. It examines the settlements' socio-economic structure, the provision of services, the economic performance and the evolution of local economies. The third research method refers to the governance assessment of inter-municipal cooperation (EPCI) and a system of indicators and statistical tests. It explores the differences among inter-municipal cooperation in terms of their financial effectiveness, decentralization of investment, political diversity and political inclusion in the decision-making.

SECTION 4.2: Methods of the functional analysis of regional urban systems

The following section has two objectives. The first objective is to identify all urban centres and their functional areas within a regional system by using the core-hinterland analysis. The second objective is two-fold. On the one hand, the aim is to distinguish between lower and upper tiers of urban hierarchy using the analysis of relations between urban centres. On the other hand, the objective is to identify territorial arrangements (isolation, network, and agglomeration) by using the analysis of the intensity and directionality of flows among urban centres.

4.2.1 Identification of urban centres and their functional areas

In the first part of the subsection, we will describe the method used for the identification of urban centres within a regional system. In the second part of the subsection, we will present the method to delimitate functional areas containing municipalities and an urban centre.

- Identification of urban centres -

From the functional perspective, cities and towns are understood as nodes (centres) in national and regional urban systems. They have centrality functions that serve wider territories and they qualitatively differ from other settlements with no centrality function. Centres are differentiated among each other according to the strength and significance of their centrality functions which can be also called a territorial (regional) influence. According the central place theory, metropolises, cities, intermediate cities, medium and small towns are different from one another by depending on their particular degree of centrality which ranks urban centres within an urban hierarchy.

In order to identify urban centres among all settlements within a region, we will work with local administrative unites (municipalities) by using the data[10] on:

- Number of municipal population (nPOP)
- Number of economically active population in a municipality (nACTPOP)
- Number of job in a municipality (nJOB)
- Incoming and outgoing flows of job commuters of all municipalities ($X_{(OUT)}$; $Y_{(IN)}$). Such commuting matrix includes flows between municipalities of a region as well as flows going across region's borders for the reason that regions are not necessarily perfectly self-contained travel-to-work areas.

An urban centre is defined as a municipality with a number of jobs and population that is above the regional median, and which is at the same time the main commuting destination for

[10] The functional analysis will use the census data provided by the French national institute of statistics and economic analyses (INSEE) for the year 2012.

at least one other municipality. In other words, urban centres are municipalities with a defined threshold value of minimum job and population size and with a majority of job commuters (dominant outgoing flow) from another municipality.

Our process of identification and selection of municipalities that are urban centres will include four analytical steps:

1. The calculation of the regional median of the number of jobs in each municipality using the following formula:

   Equation 4.1: Calculation of the number of jobs in a municipality

   $\sum_{n(JOB)} = \sum_{n(ACTPOP)} - [X_{(OUT)} + Y_{(IN)}]$

   $\sum_{n(JOB)}$: total number of jobs in a municipality; $\sum_{n(ACTPOP)}$: total number of economically active population living in a municipality; $X_{(OUT)}$: number of outgoing job commuters of a municipality; $Y_{(IN)}$: number of incoming job commuters from another municipality.

2. The calculation of the regional median of the number of inhabitants per municipality:

   Equation 4.2: Calculation of the median

   $\{(n + 1) \div 2\}^{th}$ value

   n: number of values in a set of data on the total number of inhabitants in all municipalities within a region. Median is the middle value.

3. The directional assignment of the highest outgoing flow from each municipality. In other words, the identification of destinations of the maximal flows.

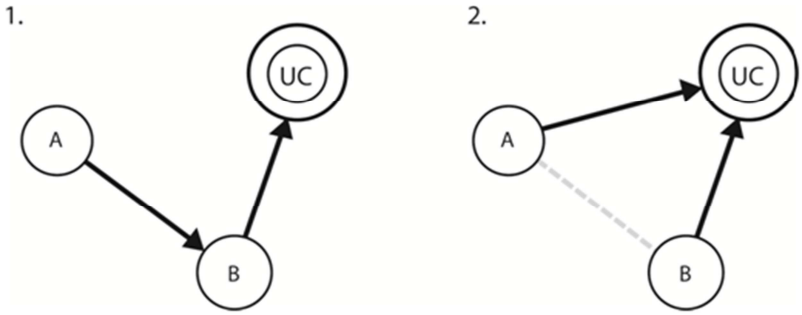
4. The database intersection of two working datasets and final delimitation of urban centres.

- Delimitation of functional areas -

The functional approach assumes that if the economically active population of one municipality commutes daily to another municipality, those entities belong to the same functional area (Servillo, 2014). The commuting networks between all municipalities shape an urban functional area which has been in scientific literature also referred to as a travel-to-work area or a local labour market area. Therefore, functional areas will be delimited by attributing the settlements to their urban centres according to the direction of maximal flows from each municipality. In other words, municipalities will be linked to the urban centre via the criterion of the strongest commuting-to-work flow. In case where the largest flow from a municipality is not directed to one of the identified urban centres, the municipality will be linked to the centre with which it has the second strongest flow. In case there are no

secondary flows, the municipality will be linked to the urban centre that is the main commuting destination for the municipality that represents its strongest flow (Figure 4.1).

Figure 4.1: Assignment of municipalities to urban centres in case there are no secondary flows



Source: Sykora and Mulicek, 2014

As the territory of functional areas, at this stage, is spatially fragmented, we will proceed with the consolidation of functional areas into spatially continued territories. Thus, some municipalities will be reassigned to other centres by using the secondary or tertiary outgoing flow to ensure continuous and not fragmented territories of functional areas.

The outcome is a dataset of functional areas that represents the set of municipalities assigned to territorially coherent areas and their urban centres. Each of the functional areas is organized around its urban centres which represent the urban nodes with certain levels of centrality that, in a way, reflects the size of functional area.

In the next subsection, we will proceed with the characterization of urban hierarchy and with the identification of territorial arrangements between urban centres.

4.2.2 Urban hierarchy and territorial arrangements

In the first part of this subsection, we will define a method to distinguish between the lower and the upper tiers of urban hierarchy, i.e. to distinguish between small and medium-sized towns and larger cities. In the second part of the subsection, we will present a method to identify three territorial arrangements between urban centres: agglomeration, network and isolation. In the second part of the subsection, we will calculate the distance between urban centres that have either agglomerated or networking relationships between one another.

- Defining the functional position within an urban hierarchy –

At this stage, the urban centres have various sizes, centralities and positions within the urban hierarchy; they include both towns and cities. Unlike the quantitative thresholds used by different countries to distinguish between towns and cities, the functional approach argues that towns as much as cities have a role of urban centres of their functional areas. Thus, towns and cities are not only defined by the size of population, but also by their territorial

influence. Moreover, towns and cities, which are also urban centres, concentrate functions used not only by the population and firms located within their own functional area, but also by the firms and population from other functional areas.

In that context, in order to distinguish between different levels (classes of urban centres) within an urban hierarchy, we will use the matrix of commuting flows between previously identified urban centres. For each urban centre, we will identify the number of flows of which it was a destination. The more frequently an urban centre is a destination of other centres, the higher its functional significance is in the urban hierarchy. As they are urban centres with more than one outgoing flow, we will split its value to more than one urban centre. Put in other words, instead of simply counting all flows, we will add to each centre either value 1 for one centre for which it is a destination or a proportional share of the value 1 (0.5, 0.33, 0.25, 0.2, etc.) for the cases it is a destination for two or more centres.

As a result, by combining the information on their population size and the value of their functional position in the urban, we will be able to distinguish six classes of urban centres: (i) metropolis, (ii) large city, (iii) intermediate city, (iv) medium-sized town, (v) small town, (vi) very small town[11].

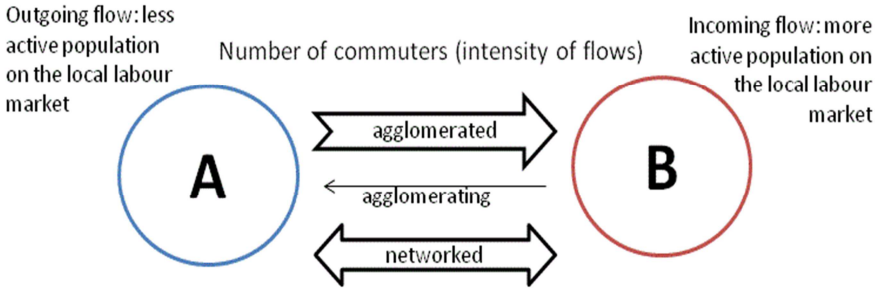
- Attributing the territorial arrangements –

In order to identify the territorial arrangements among urban centres, we will work with all flows in the commuting matrix. More precisely, the flows will be observed in relation to the economically active population of the source-centre (centre A) and in relation to the number of jobs in the destination-centre (centre B). As some flows between urban centres are particularly low (the number of commuters is very small), we will perform several tests in order to define the appropriate threshold for the flow to be considered as "significant" for the further analyses.

Hence, the first test will consider the criteria used in ESPON TOWN project which eliminated all flows that accounted for less than 5% of economically active population (leaving from centre A to work in centre B). The second test will consider the median threshold as the most relevant for the distinction of significant flows. The third test will consider the average as the most relevant threshold. Finally, the fourth test will take into consideration only those flows that represent the third and the fourth quartiles of all flows from centre A to centre B.

[11] In our case study, we identified six classes and their size thresholds as follows: (i) metropolis (> 2 million); (ii) large city (100,000 – 2 million); intermediate city (30,000 – 100,000); medium-sized town (10,000 – 30,000); small town (2,000 – 10,000); very small town (< 2,000).

Figure 4.2: Territorial arrangements between two urban centres



Source: author, 2016

Once the appropriate threshold is found[12], we will proceed with the following analytical steps to identify the territorial arrangements between urban centres (Figure 4.2):

1. The calculation of the share of outgoing population in the total number of economically active population of the source-centre (centre A);
2. The elimination of all flows that accounted for less than the average share in the total number of economically active population (leaving from centre A to work in centre B)[13]. By this, we will eliminate all flows that are not relevant for the further research.
3. The identification of urban centres that have no relevant outgoing flow and that have no incoming flow. They are classified as isolated urban centres[14].
4. The evaluation of the rest of the flows in relation to the total number of jobs in the destination-centre (centre B) in order to find out how important is the incoming flow for the labour market in the destination-centre. As in the previous step, we will use the threshold of average share in the total number of jobs[15].
5. The identification of urban centres that have flows below the threshold of average share in the total number of jobs. They are classified as agglomerated urban centres.
6. The identification of urban centres that have flows above the threshold of average share in the total number of jobs. They are classified as networked urban centres.

Overall, the isolated urban centres are defined as those with no relevant outgoing flow of commuters towards other urban centres and/or with no incoming flow of commuters from other urban centres. The agglomerated urban centres are defined as those whose outgoing flow of commuters towards centre-destination represents an important number of its active population. At the same time, it has no important impact on the labour market of destination-centre. The networked urban centres are those with an outgoing flow of commuters towards another urban centre which, at the same time, makes an impact on the labour market of both source-centre and destination-centre.

[12] In our case study, we chose to apply the criterion of the average threshold. See the chapter 5.
[13] In our case study, the threshold for the average share of outgoing commuters in total number of economically active population was 1%. See the chapter 5.
[14] In our case study, we found no isolated urban centre. See the chapter 5.
[15] In our case study, the threshold for the average share of incoming commuters in total number of jobs was 1.2%. See the chapter 5.

In the next subsection, we will present the statistical tests used to address the questions related to polycentricity and to the results of the functional analysis.

4.2.3 Statistical tests related to polycentricity

In the first part of this subsection, we will outline correlational questions that are related to the results of the functional analysis. In the second part of this subsection, we will present questions related to group differences that came out after the functional analysis. All statistical tests will be conducted by using software IBM SPSS Statistics 24 and GraphPad InState 3.0. In the third part of the subsection, we will justify the use of indicators assigned to the three aspects of polycentricity: influential radiance, regional polycentricity and accessibility.

- Correlational questions -

The questions related to polycentricity in terms of exploration of the relation of the class of the urban centres and the features of their functional areas and territorial arrangements are as follows:

1. Is the class of urban centres related to the size of functional area?
2. Is the class of urban centres related to the number of territorial arrangements?
3. Is the class of urban centres related to the type of territorial arrangements?

In order to answer to these questions, two statistical tests will be used:

- The Pearson Correlation Coefficient (r);
- The Spearman Rho Correlation coefficient (R)

The Pearson correlation coefficient is used to measure the strength of a linear association between two variables, where the value r = 1 means a perfect positive correlation and the value r = -1 means a perfect negative correlation.

Equation 4.3: Pearson correlation coefficient

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$$

$\sum xy$: the sum of the products of paired scores; $\sum x^2$: the sum of squared x scores; $\sum y^2$: the sum of squared y scores.

The requirements for Pearson's correlation coefficient:

- The scale of measurement should be interval or ratio

- The variables should be approximately normally distributed
- The association should be linear
- There should be no outliers in the data

The Spearman's Rho is a non-parametric test used to measure the strength of association between two variables, where the value R = 1 means a perfect positive correlation and the value R = -1 means a perfect negative correlation.

Equation 4.4: Spearman correlation coefficient

$$\rho = 1 - \frac{6\sum d_i^2}{n(n^2-1)}$$

d_i : the difference in paired ranks; n: the number of cases.

The requirements for the Spearman's correlation coefficient:

- The scale of measurement must be ordinal (or interval, ratio)
- The data must be in the form of matched pairs
- The association must be monotonic (i.e., variables increase in value together, or one increases while the other decreases)

The two correlational coefficients will be used depending on the distribution of variables and whether their association is linear or monotonic. Tests will also take into consideration only urban centres that are located in the Centre-Val de Loire region since their functional areas are within the borders of the region. The functional areas of urban centres located outside the region contain only a small number of the municipalities from the Centre-Val de Loire region and a large number of municipalities from other neighbouring regions. As such they *de facto* participate in the dynamics of other neighbouring regions which is not the interest of this research. Due to these reasons, the cross-regional functional areas will not be analysed in this research.

- Group differences -

The questions related to polycentricity in terms of identification of differences in connectivity to the rail and road network and in accessibility to job opportunities, commercial, public services are as follows:

1. What are the differences in terms of accessibility and connectivity between urban centres and other municipalities in the region?
2. Which urban centres offer better access to job opportunities and to services?
3. What are the differences in accessibility between small, medium-sized, intermediate and large urban centres?

In order to answer to these questions, two statistical tests will be used by the use of software SPSS and GraphPad InState:

- The unpaired t-test (t) and Mann-Witney test for corresponding nonparametric data;
- The one-way analysis of variance (ANOVA) (F) and Kruskall-Wallis test for corresponding nonparametric data.

The unpaired t-test is used to verify whether the mean of a variable differs between two groups, assuming that data are sampled from Gaussian populations. In other words, it tests the null hypothesis that the population means related to two independent, random samples from an approximately normal distribution are equal (Dumolard et al., 2003).

Equation 4.5: Unpaired t-test for two independent groups

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

$$s^2 = \frac{\sum_{j=1}^{n_1}(x_j - \bar{x}_1)^2 + \sum_{i=1}^{n_2}(x_i - \bar{x}_2)^2}{n_1 + n_2 - 2}$$

x bar 1 and x bar 2 are the sample means; s^2 is the pooled sample variance; n_1 and n_2 are the sample sizes; t is a quartile with $n_1 + n_2 - 2$ degrees of freedom.

As the t-test assumes that the data are sampled from a population that follows a Gaussian normal distribution. In cases where the distribution was not normal, the corresponding nonparametric test was used: Mann-Witney test. This test ranks all the values from low to high, and compares the mean rank in the two groups. The Mann-Witney test does not assume that the populations follow Gaussian distribution, but it does assume that the shape of the two distributions is identical, even though the means may differ.

The one-way analysis of variance (so-called ANOVA) is used to test whether the mean of a single variable differs among three or more groups (Dumolard et al., 2003).

Equation 4.6: One-way analysis of variance (ANOVA) for three or more groups

$$\mathrm{F} = \frac{MST}{MSE}; \quad MST = \frac{SST}{p-1}; \quad SST = \sum n(x - \bar{x})^2; \quad MSE = \frac{SSE}{N-p}; \quad SSE = \sum (n-1)S^2$$

F is ANOVA coefficient; MST is the mean sum of squares due to treatment; MSE is the mean sum of squares due to error; SST is the sum of squares due to treatment; p is total number of population; n is total number of samples in population; SSE is the sum of squares due to error; S is standard deviation of the samples; N is total number of observations.

The requirements:

- The response variables residuals are normally distributed
- The variances of populations are equal
- The responses for a given group are independent and identically distributed normal random variables (not a simple random sample)

As ANOVA assumes that the data are sampled from a population that follows a Gaussian normal distribution, in cases where the distribution was not normal, the corresponding nonparametric test was used: Kruskal-Wallis test. It is a nonparametric test used to compare three of more unpaired groups. The Kruskal-Wallis test ranks all the values from low to high regardless to which group each value belongs. If two values are the same, they both get the average of the two ranks for which they tie. It then sums the ranks in each group and reports their significance.

These statistical tests will only take into consideration small, medium-sized, intermediate and large urban centres. Since the metropolis represents one sample, it is not sufficient for the analysis of variance which requires at least two samples.

- Chosen indicators -

With the objective to explore the polycentricity in the regional urban system, the functional analysis will address its three aspects:

- **The spatial radiance** of an urban centre is defined as the size of its functional area. It will be measured by the number of municipalities existing within a functional area. Here we assume that each urban centre attracts commuters and radiates its influence on the neighbouring municipalities as an important functional centre.
- **The functional networks** are identified through the variety of the number and of the type of territorial arrangements between two or more urban centres. They will be measured by the number of territorial arrangements per urban centre. The assumption is that the commuting matrix of urban centres represents, the most accurately, the existence of a network where exchange of goods, people and information happens at the regional level.
- **The accessibility** is defined as access to jobs and services and it will be measured though four indicators: (i) the ratio of services to residents; (ii) the proportion of jobs in retail sector; (iii) the proportion of jobs in public sector; and (iv) the proportion of active population living and working in a same municipality. Here we assume that accessibility to jobs and services is the highest in places with their dense offer and whose residents commute less to a job to another place. The connectivity is defined through the existence of direct access to the rail and road infrastructure.

N.	VARIABLES	INDICATORS
1	Spatial radiance	Total number of municipalities within a functional area.
2	Functional networks	Total number of territorial arrangements per urban centre.
3	Accessibility and connectivity	Ratio of services to residents. Proportion of employment in retail sector. Proportion of employment in public sector. Proportion of active population who live and work in a municipality.

4.2.4 Conclusion of section 4.2

The functional analysis has two objectives. First, it is to identify urban centres and their functional areas. Second, it is to position urban centres within an urban hierarchy and to define their territorial arrangements. Therefore, the urban centres are defined as nodes in national and regional urban systems that have centrality functions and that serve wider territories. More precisely, urban centres are municipalities with an "important" number of jobs and inhabitants (above the regional median) that are also a commuting destination of other municipalities (attractive destinations). Moreover, a functional area is defined as a territory consisting of commuting networks of municipalities among which one has the role of a centre and the others have the role of hinterland. In other words, municipalities are linked to an urban centre through their commuting flow within a functional area.

Furthermore, each urban centre was ranked according to its functional position within an urban hierarchy. According to the functional approach, towns as much as cities have roles of urban centre and are characterized not only by demographic size, but also by their territorial influence (e.g. attraction of commuters, consumers and capital). Hence, by observing the job commuting between urban centres and analysing their share in the commuting matrix of the entire region, each urban centre was attributed with a specific value of functional position in the urban hierarchy. As a result, six functional classes were distinguished: metropolis, large centre, intermediate centre, medium-sized centre, small centre and very small centre.

Finally, the three territorial arrangements were identified based on characteristics of commuting between urban centres and their data on active population and the number of jobs in centres-sources and centres-destinations. First, the isolated urban centres have no relevant outgoing and/or incoming flow of commuters with other urban centres. Second, the agglomerated urban centres have an outgoing flow of commuters towards another centre which represents an important number of its active population. At the same time, it has no impact on the labour market of the destination-centre. The networked urban centres have an outgoing flow of commuters towards the other centre which leads to an impact on the labour market of both source-centre and destination-centre.

SECTION 4.3: Methods of socio-economic analysis of urban centres and their functional areas

The following section has for its objective to identify economic networks in the Centre-Val de Loire region. More precisely, the section will expose the elements of the socio-economic analysis of urban centres and their functional areas at three spatial scales: inter-firm, centre-periphery and cluster. The first inter-firm scale will explore economies of scale and scope by observing the local economy and firms' structure. The second centre-periphery scale will explore the socio-economic differences between previously identified urban centres and their peripheries. The second cluster scale will examine economies of agglomeration, co-agglomeration and synergy between functional areas that belong to the same sectorial cluster.

4.3.1 Economic networks

The first part of this subsection will describe the profiling of functional areas as well as the attribution of typology according to their specializations. The second part of the subsection will expose the creation of typology of firms in order to be able to identify economies of scale and scope within functional areas. The third part of the subsection will classify urban centres and functional areas according to their economic performances. The fourth part of the subsection will explain the way we identified clusters and their "unique" dynamics of agglomeration, co-agglomeration and synergy.

- Profiling the functional areas -

From the perspective of the "City-network" theory, urban centres are functionally differentiated and they link themselves in networks. In their structure, these networks are not only hierarchical, but also the non-hierarchical ones. Hence, a diffusion of knowledge, goods, information and people happens both vertically from the upper towards the lower levels and horizontally among settlements of various ranks. The size of a single city or a single town in the network is less relevant than the size, type and structure of the network itself. Overall, the "City-network" theory stresses the importance to cities' specializations in particular markets, the presence of higher order functions in centres of lower order and the horizontal exchanges between cities and towns across the urban hierarchy.

In order to identify the profile of functional areas, we will work with previously identified urban centres and functional areas using the data on:

- The number of population in the functional area (urban centres and hinterland together).
- The location coefficient of 26 economic sectors comprising (i) **the productive export oriented sectors**: agriculture, agro-industry, textile industry, wood industry, metallurgy, auto-industry, electro-industry, chemical and pharmaceutical industry, waste and water processing industry, other industries, transportation and

communication, construction, wholesale, R&D, business services; and (ii) **the residential (local) demand sectors**: retail, financial and assurance services, real estate, media, hotels and restaurants, education, culture, public services, healthcare, social services, personal services[16].

Our process of economic profiling of the functional areas will include four analytical steps:

1. The calculation of the location coefficient of 26 economic sectors in all functional areas using the following formula:

Equation 4.7: Calculation of the location coefficient

$$\mathrm{LC} = \frac{\left(\frac{E_{xy}}{\sum E_{xy}}\right)}{\left(\frac{\sum E_x}{\sum E}\right)}$$

E_{xy}: the number of an activity in a sector x of an area y; E_x: the total number of all activities of the type x in the region; E: the total of all types of activities in the region. The greater the value of the index, the greater is the degree of localization of a certain type of activity.

Known also as the location quotient, the location coefficient is used to express the relationship between an area's share of a particular industry and the regional or national shares. Thus, the location coefficient for a given area equals % employed in a field in a given area per % employed regionally in that field.

2. The calculation of the regional median of the localization coefficient for each economic sector:

Equation 4.8: Calculation of the median

$\{(n + 1) \div 2\}^{th}$ value

n: number of values in a set of data on the total number of activities in all functional areas. Median is the middle value.

3. The identification of the highest location coefficients for each sector in functional areas.

4. Attributing the characteristics of the following typology:
    a. **Diversified productive**: above-median location coefficient in at least seven out of 15 productive and export-oriented sectors: agriculture, agro-industry, textile industry, wood industry, metallurgy, auto-industry, electro-industry,

[16] We refer to the division of employment into 2 spheres (productive and residential) that was proposed by the National Institute of Statistics and Economic Studies (INSEE). The database on employment was published in 2015 and refers to the year 2012.

chemical and pharmaceutical industry, waste and water processing industry, other industries, transportation and communication, construction, wholesale, R&D, business services. Under-representation of activities in residential and local demand-oriented sectors.

b. **Specialized productive**: above-median location coefficient in less than seven out of 15 productive and export-oriented sectors: agriculture, agro-industry, textile industry, wood industry, metallurgy, auto-industry, electro-industry, chemical and pharmaceutical industry, waste and water processing industry, other industries, transportation and communication, construction, wholesale, R&D, business services. Under-representation of activities in residential and local demand-oriented sectors.
c. **Residential**: above-median location coefficient in residential and local demand-oriented sectors: retail, financial and assurance services, real estate, media, hotels and restaurants, education, culture, public services, healthcare, social services, personal services. Under-representation of productive and export-oriented sectors.
d. **Mixed**: above-median location coefficient is equally represented in productive and export-oriented sectors and in residential and local demand-oriented sectors. In other words, they do not fulfil the criteria of the three profiles listed above.

- Identification of economies of scale and scope -

As presented in the first chapter, economies of scale and scope are the fundamental concept of the theory of firms. Its basic postulate is that firms realize economies if technology allows production costs to raise proportionately less than output when output increases and/or through joint production of two or more products. In other words, a certain firm size assures creation of economies of scale and added values beyond which economies are exhausted and no added value is created. Likewise, through vertically related stages of production and joint production, firms achieve economies of scope and lower their production costs which would not be possible if they kept production independent. Consequently, a sector that is characterized by economies of scale and economies of scope will be made of large and diversified firms. Respectively, a sector that has neither economies of scale nor scope will have many small specialized firms.

In order to identify economies of scale and scope at the scale of functional areas, we will work with three classes of local firms: micro-firms (less than 10 employees), SMEs (less than 200 employees) and large firms (more than 200 employees).

The data that will be used are:

- Number of micro-firms, SMEs and large firms[17] in productive sectors.

[17] We refer to the classification of firms into 3 categories that was proposed by the European Commision (see the website: http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en). The database

- Number of micro-firms, SMEs and large firms in residential sectors.

Our process of detecting economies of scale and scope in functional areas will include four analytical steps:

1. The calculation of the share of micro-firms, SMEs and large firms in a functional area

Equation 4.9: Share of firms in functional areas (*i*)

$$x_{(i)} = \frac{N(x_i)\text{ x }100}{\sum_i(x+y+z)} \;;\; y_{(i)} = \frac{N(y_i)\text{ x }100}{\sum_i(x+y+z)} \;;\; z_{(i)} = \frac{N(z_i)\text{ x }100}{\sum_i(x+y+z)}$$

x is share of a micro-firm in a functional area; N is total number of micro-firms in a functional area; $\sum$ is the sum of all firms in a functional areas; *y* is the number of SMEs; *z* is the number of large firms.

2. The calculation of the share of each type of firms in two sectors

Equation 4.10: Share of firms in productive (*j*) and residential (*k*) sectors

$$x_{(j)} = \frac{N(x_j)\text{ x }100}{\sum_j(x+y+z)} \;;\; x_{(k)} = \frac{N(x_k)\text{ x }100}{\sum_k(x+y+z)}$$

x is share of one type of firms (micro-firm, SME or large firm) in a sector *j* or *k*; N is total number of firms in a sector; $\sum$ is the sum of all firms in a sector *j* or *k*.

3. The identification of the highest shares for each sector and each type of firms in functional areas.

4. Attributing the characteristics of the following typology to functional areas:
    a. **Productive sector based on micro-firms:** the share of micro-firms in a productive sector exceeds the share of SMEs and there is no large firm of the same sector in the functional area.
    b. **Residential sector based on micro-**firms: the share of micro-firms in a residential sector exceeds the share of SMEs and there is no large firm of the same sector in the functional area.
    c. **Productive sector based on SMEs**: the share of SMEs in a productive sector exceeds the share of micro-firms and there is no large firm of the same sector in the functional area.
    d. **Residential sector based on SMEs**: the share of SMEs in a residential sector exceeds the share of micro-firms and there is no large firm of the same sector in the functional area.

---

of French firms was published by the National Institute of Statistics and Economic Studies (INSEE) in 2015 and refers to the year 2012.

e. **Productive sector based on an oligopoly:** there are at least two large firms in a productive sector which employ each more than 200 workers in that sector.
f. **Residential sector based on an oligopoly:** there are at least two large firms in a residential sector which employ each more than 200 workers in that sector.
g. **Productive sector based on a monopoly:** there is only one large firm in a productive sector which employs more than 200 workers in that sector.
h. **Residential sector based on monopoly:** there is only one large firm in a residential sector which employs more than 200 workers in that sector.

- Characterizing small and medium-sized towns -

In order to create the typology of economic performance, we will work with previously identified urban centres, hinterland and functional areas by using the data on:

- The population change for the period 2012-1999[18] in urban centres, hinterland and functional areas.
- The employment change for the period 2012-1999 in urban centres, hinterland and functional areas[19].

The attribution of types of economic performance to urban centres, hinterland and functional areas will follow these conditions:

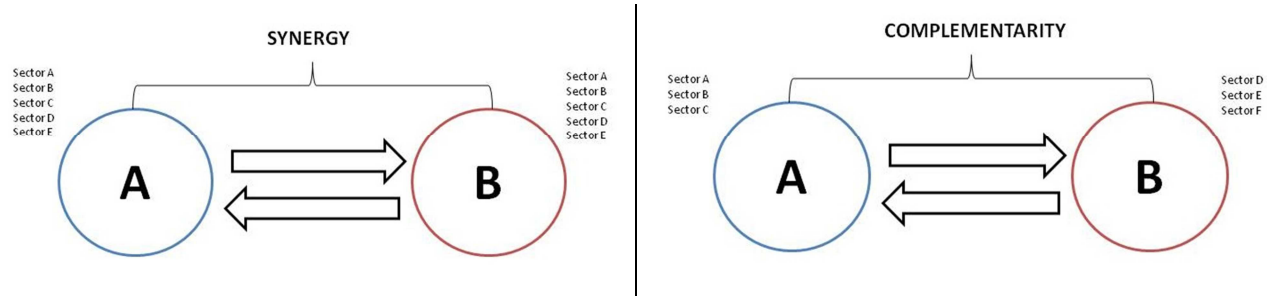
a. **Dynamic**: positive population and employment changes (2012-1999)
b. **Declining**: negative population and employment changes (2012-1999)
c. **Restructuring**: positive population change accompanied by negative employment change or vice versa negative population change accompanied by positive employment change (2012-1999)

- Identification of cluster dynamics -

Agglomeration and co-agglomeration economies focus on the clusters of firms and activities that are the result of their close proximity. In the case of agglomeration economies, firms of the same sector benefit from sharing similar labour pool, intermediate input and knowledge spillover and form the so-called Marshall's industrial clusters. In the case of co-agglomeration economies, the spillover of complementary knowledge happens also across diverse industries and sectors in so-called Jacob's cluster of multiple industries.

[18] We use the database of population and employment published by the INSEE in 2015 which refers to the census results in 2012 and 1999.
[19] Idem.

Figure 4.3: Generators of synergy (agglomeration) and complementarity (co-agglomeration)



Source: author, 2016

Put in the context of cities and towns, the "City-network" theory defines the network of economic complementarity as linkages between specialized centres that have different functions and that complement each others' activities through the division of labour and market size. This notion corresponds to co-agglomeration economies in the economic theories. Likewise, the network of economic synergy is defined as linkages between centres with similar economic profile that benefit from the network effects which correspond to agglomeration economies in economic theories (Figure 4.3).

The data that will be used to identify cluster dynamics of agglomeration and co-agglomeration in the Centre-Val de Loire region:

- The employment and the number of firms in agriculture.
- The employment and the number of firms in industry comprising agro-industry, electro-industry, other industry.
- The employment and the number of firms in high-rank productive services comprising R&D, business services, media and telecommunication.
- The employment and the number of firms in low-rank productive services comprising transportation, logistics, construction and wholesale.
- The employment and the number of firms in residential sector comprising retail, financial and assurance services, real estate, media, hotels and restaurants, education, culture, public services, healthcare, social services, personal services[20].

Our process of detecting sectorial cluster dynamics of agglomeration and co-agglomeration among functional areas will include five analytical steps:

1. The calculation of the regional median of the share of employment for each economic sector (see Equation 4.8).

[20] We use the database of employment published by the INSEE in 2015 which refers to the census results in 2012.

2. The identification of the functional areas with the highest share (the third quartile or Q3) of employment in each sector in the region. Therefore, we take into consideration only the 25% of the results that lie above Q3.

3. The localization of functional areas on a map in order to identify five sectorial clusters (agricultural, industrial, high-rank productive, low-rank productive and residential) containing the functional areas that make the 3rd quartile of employment in respective sector: agriculture, industry, high-rank productive services, low-rank productive services, residential services).

4. The localization of micro-firms, SMEs and large firms within each sectorial cluster in order to identify their distribution in space (concentration around one or more centres and/or dispersion across the sectorial cluster).

5. Attributing the characteristics of the following typology to economic networks:
    a. **The agglomeration network**: firms of the same sector located in the cluster that has the highest share of employment in that particular sector in the region.
    b. **The co-agglomeration network**: firms of the different sectors located in the cluster that has the highest share of employment in one particular sector in the region.

Furthermore, as we described in the first chapter, the recent economic studies pointed at the existence of inter-city knowledge spillover and synergy effects between firms of different cities. More precisely, firms agglomerated in one city may also enable firms in the neighbouring cities to access the skilled labour pool and technology at a lower cost. Unlike agglomeration and co-agglomeration economies which focus on districts, inter-city spillover and synergy effects include a wider area of two or more towns in a large functional cluster or area.

The data that will be used to identify cluster dynamics of synergy in the Centre-Val de Loire region:

- The Pearson correlation coefficient in 15 economic sectors: public administration, agriculture, construction, inter-firm trade, R&D, culture and leisure, distribution, education, maintenance and reparation, manufacturing, management, transportation and logistics, intellectual services, healthcare, social services and local services[21].

The process of detecting synergy between functional areas of a sectorial cluster will include three analytical steps:

1. The calculation of the change of employment in each economic sector in 2012 compared to 1999.

[21] We refer to the division of employment into 15 categories that was proposed by the National Institute of Statistics and Economic Studies (INSEE). The database "Analyse fonctionnelle des emplois" was published in 2015 and refers to the year 2012 and 1999.

2. The calculation of the correlation coefficients (see Equation 4.3) between the changes of all economic sectors in all functional areas in the region.

3. The calculation of the correlation coefficients between the changes of all economic sectors in functional areas of a sectorial cluster.

4. The identification of significant correlation coefficients that exist between the functional areas of a sectorial cluster, but do not exist between the functional areas of the rest of the region.

In that way, we will be able to identify “unique” correlations between different categories of jobs in sectorial clusters that do not exist at the regional level. These “unique” correlations represent synergies between functional areas belonging to a specific sectorial cluster.

In the next subsection, we will present statistical tests used to address the questions related to economic networks and to the results of the socio-economic analysis.

4.3.2 Statistical tests related to economic networks

In the first part of this subsection, we will outline correlational questions that are related to the results of the socio-economic analysis. In the second part of this subsection, we will present questions related to group differences that came out after the socio-economic analysis. All statistical tests will be conducted by using software IBM SPSS Statistics 24 and GraphPad InState 3.0. In the third part of the subsection, we will resume the indicators used for the analysis of economic networks.

- Correlational questions -

The questions related to the economic networks in terms of exploration of the relation of the class of urban centres and the features of their functional areas are as follows:

1. Is the class of urban centres and functional areas related to the increase or decrease of population and/or employment?
2. Is the proximity to larger urban centres related to the increase or decrease of population and/or employment in small and medium-sized urban centres?
3. Is there a relationship between the change of population, employment and/or economic specialization in one functional area and the change of population, employment and/or economic specialization of the neighbouring functional area?

In order to answer to these questions, two statistical tests will be used:

- The Pearson Correlation Coefficient (r)
- The Spearman Rho Correlation coefficient (R)

The Pearson correlation coefficient is used to measure the strength of a linear association between two variables, where the value r = 1 means a perfect positive correlation and the value r = -1 means a perfect negative correlation (see Equation 4.3).

The Spearman's Rho is a non-parametric test used to measure the strength of association between two variables, where the value $r = 1$ means a perfect positive correlation and the value $r = -1$ means a perfect negative correlation (see Equation 4.4).

As in the previous functional analysis, these statistical tests will take into consideration only urban centres, hinterland and functional areas that are located in the Centre-Val de Loire region since they are limited by the administrative borders of the region. The cross-regional functional areas will not be analyzed in this research.

- Group differences -

The questions related to economic networks in terms of identification of differences in economic structure and relations of urban centres, hinterland and their functional areas:

1. What are the differences between the classes of functional areas in terms of their socio-economic characteristics, economic specialization and performance?
2. What are the differences of towns-peripheries and towns-centres in terms of their socio-economic characteristics?
3. Which sectors of activities reflect agglomeration, co-agglomeration and synergy effects between functional areas?

In order to answer to these questions, two statistical tests will be used:

- The unpaired t-test (t) and Mann-Witney test for corresponding nonparametric data (see Equation 4.5);
- The one-way analysis of variance (ANOVA) (F) and Kruskall-Wallis test for corresponding nonparametric data (see Equation 4.6).

The unpaired t-test is used to verify whether the mean (or median) of variable differs between two groups, assuming that data are sampled from Gaussian populations. In other words, it tests the null hypothesis that the population means related to two independent, random samples from an approximately normal distribution are equal (Dumolard et al., 2003).

As t-test assumes that the data are sampled from a population that follows a Gaussian normal distribution, in cases where the distribution was not normal, the corresponding nonparametric test was used: Mann-Witney test. This test ranks all the values from low to high, and

compares the mean rank in the two groups. The Mann-Witney test does not assume that the populations follow Gaussian distribution, but it does assume that the shape of the two distributions is identical, even though the means may differ.

The one-way analysis of variance (ANOVA) is used to test whether the mean (or median) of a single variable differs among three or more groups.

As ANOVA assumes that the data are sampled from a population that follows a Gaussian normal distribution, in cases where the distribution was not normal, the corresponding nonparametric test was used: Kruskal-Wallis test. It is a nonparametric test used to compare three of more unpaired groups. The Kruskal-Wallis test ranks all the values from low to high regardless to which group each value belongs. If two values are the same, they both get the average of the two ranks for which they tie. It then sums the ranks in each group and reports their significance. These statistical tests will only take into consideration small, medium-sized, intermediate and large urban centres and their functional areas.

- Chosen indicators -

With the objective to explore the economic networks between urban centres, the socio-economic analysis will address their four aspects:

- **Economies of scale and scope** are defined as economies if technology allows production costs to rise proportionately less than output when output increases and joint production of two or more products. They will be measured by the share of micro-firms, SMEs and large firms in productive economy and residential economy. Here we assume that the economies of scale and scope may be identified through the analysis of the structure of local economies and their firms which cooperate and/or compete for the external or local markets, workforce, and resources. Thus, sectors in different functional areas may be organized as (i) network of micro-forms and/or SMEs; (ii) oligopoly, (iii) monopoly.
- **Agglomeration and co-agglomeration economies** are defined as linkages between specialized firms with different functions that complement each other's activities or between firms with the similar economic profile that benefit from sharing labour pool, resources and knowledge spillover. They will be measured by the share of employment in different economic sectors, and by the share of firms by sector and by size in the local economy. Here we assume that through the labour division, market sharing and networking, towns form sectorial clusters in which they may achieve a critical mass and thus represent as important contributor to the local development as cities.
- **Synergy effects** are defined as the impact of increase or decrease of activities in a specific sector in one place over the increase or decrease of activities in another place. They will be measured by the correlation coefficient between the changes of jobs in sectors over the period 1999-2012. Here we assume that functional areas that belong to a sectorial cluster demonstrate "unique" correlations between different categories

of jobs that do not exist in the rest of the region. Thus, due to existence of cluster, towns follow a particular trajectory that is determined by its environment.

N.	VARIABLES	INDICATORS
1	Economies of scale and scope	Share of each firms' class in productive economy Share of each firms' class residential economy
2	Agglomeration economies	Share of firms by sector and by size. Share of employment by sector
3	Co-agglomeration economies	Share of firms by sector and by size. Share of employment by sector
4	Synergy effects	Correlation coefficient between the changes in sectorial jobs in the period 1999-2012

4.3.3 Conclusion of section 4.3

The socio-economic analysis has three objectives. First, it is to identify economies of scale and scope in the Centre-Val de Loire region. In that respect, local economies that are characterized by economies of scale and scope have large and diversified firms, while local economies that do not have economies of scale and scope have many specialized micro-firms and SMEs. The structure of firms in an economy indicates the presence or the absence of competition and cooperation, as well as the eventual difficulties for new entries into the market. The second objective of the socio-economic analysis is to characterize and distinguish between urban centres, peripheries and functional areas. The "City-network" theory argues that urban centres are functionally differentiated and link themselves with other settlement in networks. These networks are not necessarily hierarchical, but may also be non-hierarchical as a diffusion of knowledge, goods, information and people happens both vertically from the upper towards the lower levels and horizontally among settlements of various ranks. The third objective is to identify agglomeration, co-agglomeration and synergy between functional areas that belong to the same sectorial cluster. In the case of agglomeration economies, firms of the same sector benefit from sharing similar labour pool, intermediate input and knowledge spillover and form so-called Marshall's industrial clusters. In the case of co-agglomeration economies however, spillover of complementary knowledge may happen across diverse sectors in so-called Jacob's cluster of multiple industries. Put in the context of cities and towns, the "City-network" theory defines the network of economic complementarity as linkages between specialized centres that have different functions and that complement each others' activities through the division of labour and market size which corresponds to the notion of co-agglomeration economies. Likewise, the network of economic synergy is defined as linkages between centres with similar economic profile that benefit from the network effects which correspond to agglomeration economies.

Moreover, the recent economic studies point at the existence of inter-city knowledge spillover and synergy effects between firms of different cities. More precisely, firms agglomerated in one city may also enable firms in the neighbouring cities to access the skilled labour pool and technology at a lower cost. Unlike agglomeration and co-

agglomeration economies which focus on districts, inter-city spillover and synergy effects include a wider area of two or more towns in a large functional cluster or area. For the purpose of the research, we defined synergy effects as the impact of increase or decrease of activities in a specific sector in town or city over the increase or decrease of activities in another town or city.

In addition, by using different statistical tests, we profiled the functional areas and urban centres according to their socio-economic characteristics, performance and evolution of the local economy into: diversified productive, specialized productive, residential, mixed, dynamic, declining, and restructuring.

SECTION 4.4: Methods of governance assessment in inter-municipal cooperation units

The following section has for its objective to assess governance in selected inter-municipal cooperation units of the Centre-Val de Loire region. More precisely, the section will outline the different aspects of governance in the context of inter-municipal cooperation that consist of previously identified urban centres with a special focus on small and medium-sized towns.

4.4.1 Inter-municipal cooperation

The first part of this subsection will describe the position of urban centres in different forms of inter-municipal cooperation. The second part of the subsection will expose the selection and categorization of inter-municipal cooperation for the purposes of the research. The third part of the subsection will explain the process of assessment of effectiveness, decentralization, diversity and inclusion within inter-municipal cooperation.

- Setting the urban centres in inter-municipal cooperation -

In European context, territorial governance coordinates the actions of actors and institutions in ensuring that policies and strategies are efficient and equitable in achieving their goals. It also integrates policy sectors by nurturing territorial knowledge, dialogue, partnerships and networks and it mobilizes stakeholder participation by ensuring the allocation of resource in their interest. In the same sense, territorial cooperation, in the European context, has been referred to as one of the main strategies to boost growth, development and cohesion, to overcome the negative effects of borders as barriers and to maximise potential synergies. Inter-municipal cooperation, in particular, has been praised to better integrate regional and municipal development strategy, to foster balanced development within regions, to promote their area of activity and to establish more integrated relationships between institutions and organizations.

The inter-municipal cooperation in France (EPCI) is required for all municipalities and it focuses on the joint management of public services and on the collective management of local development project. Furthermore, it has its own inter-municipal council represented by elected officials of each member-municipality and an executive body consisting of elected president and vice-presidents.

In order to assess the inter-municipal governance, we will work with the EPCIs that contain at least one of the previously identified urban centres by using the data on:

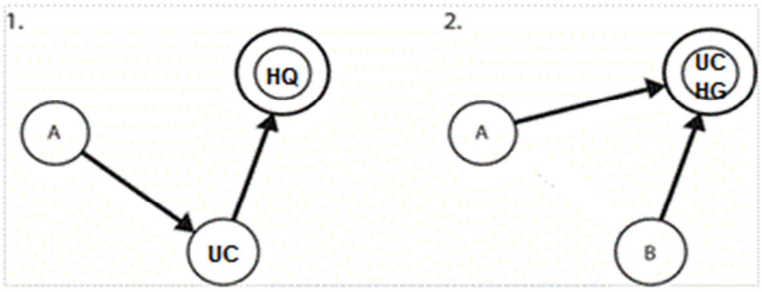
- The number of population in each member-municipality of an EPCI[22]
- The class the urban centre (small, medium-sized, intermediate, large)
- The headquarters of EPCIs

Our process of setting the urban centres within the EPCI will consist of four analytical steps:

1. The localization of EPCIs, urban centres and municipalities that are the headquarters of inter-municipal cooperation by using the QGIS 2.12 software.

2. The assignment of all urban centres to one of EPCIs and to one headquarters. In cases where an urban centres is not a headquarters of an EPCI, the urban centre will be assigned to a municipality which has the headquarters role of EPCI (Figure 4.4).

Figure 4.4: Assignment of municipalities to headquarters municipality



Source: author, 2016

3. The database intersection of two working datasets in cases where urban centres are not the headquarters[23].

4. The final selection of EPCIs that contain urban centres either as their headquarters or the member-municipalities.

[22] We refer to the database published by the INSEE in 2016 which contains the list of municipalities and their EPCIs in 2015.
[23] Among 45 identified urban centres located in the region Centre-Val de Loire, 10 of them were not the headquarters of their EPCI, but were subordinated to a smaller municipality. See the chapter 5.

- Categorizing the inter-municipal cooperation in the region -

At this stage, the EPCIs have various sizes and centralities in terms of the number of member-municipalities and their functions. They include both towns and cities. They are also different in type: cooperation of municipalities (combining small and medium-sized municipalities) or cooperation of agglomeration (combining large and small municipalities).

In order to distinguish between different categories (classes) of EPCIs within the region, we will use the size of their headquarters. The population thresholds were determined in the previous analysis of the functional position of urban centres in the urban hierarchy.

Thus, we will be able to distinguish six classes of EPCI: (i) metropolitan, (ii) large, (iii) intermediate, (iv) medium-sized, (v) small, (vi) very small or rural[24].

Yet, only five were located in the Centre-Val de Loire region: (i) large, (ii) intermediate, (iii) medium-sized, (iv) small, (v) very small or rural.

- Characterizing the cooperation between small and medium-sized towns -

In order to explore different aspects of inter-municipal governance such as financial effectiveness, decentralization of investment, political inclusion and diversity, we will work with previously identified and categorized EPCIs by using the data on:

- The change of self-financing coefficient[25] for the period 2007-2014 of the selected EPCIs calculated in euros per inhabitant.[26]
- The change of debt for the period 2007-2014 of the selected EPCIs calculated in euros per inhabitant.[27]
- The change of investment for the period 2007-2014 of municipalities located in the selected EPCIs calculated in euros per inhabitant.[28]
- The share of representatives of each municipality in the executive board of the selected EPCIs: presidents and vice-presidents.[29]
- The proportion of each political party in the council of EPCIs after the local election 2015.[30]

[24] In our case study, we identified six classes and their size thresholds as follows: (i) metropolis (> 2 million); (ii) large city (100,000 – 2 million); intermediate city (30,000 – 100,000); medium-sized town (10,000 – 30,000); small town (2,000 – 10,000); very small town or rural (< 2,000).
[25] The self-financing coefficient is defined as the possibility of a municipality to finance its large operations once it pays all expenditure and debts. It is an equivalent to a purchasing power and it takes into consideration operating expenses, debt and revenues.
[26] We refer to the database published by the French government on the website: http://www.collectivites-locales.gouv.fr.
[27] Idem.
[28] Idem.
[29] We refer to the online information provided by local authorities of member municipalities and/or their EPCI. The Law "Code général des collectivités territoriales", 5211-6-1
[30] We refer to the database published by the Journal Le Monde on the website: http://www.lemonde.fr/centre-val-de-loire/

The process of creating a typology of inter-municipal governance will include several analytical steps:

1. The calculation of the self-financing coefficient (SFC) for the selected EPCIs using the following formula:

Equation 4.11: Calculating self-financing coefficient

$$\text{SFC} = \frac{(E + D)}{(R)}$$

E: operating expenses; D: repayment of debt; R: operating revenues.

2. The calculation of the change of self-financing coefficient and of the debt in 2014 compared to 2007.

3. Attributing the characteristics of the following typology:
    a. **Financially effective**: positive change of self-financing coefficient and negative change of debt (2014-2007)
    b. **Financially ineffective**: negative change of self-financing coefficient and positive change of debt (2014-2007)
    c. **Over-spending**: positive change of self-financing coefficient and positive change of debt (2014-2007)
    d. **Debt-controlling**: negative change of self-financing coefficient and negative change of debt (2014-2007

4. The calculation of the change of the total investment in 2014 compared to 2007 in all municipalities of selected EPCIs.

5. Attributing the characteristics of the following typology:
    a. **Decentralizing investment**: positive change of investment in 2014 compared to 2007.
    b. **Centralizing investment**: negative change of investment in 2014 compared to 2007.

6. The calculation of the share of representatives of each municipality in the executive board of selected EPCIs.

7. Attributing the characteristics of the following typology:
    a. **Highly inclusive**: representation of more than 60% of municipalities in the executive board of the EPCIs.
    b. **Moderately inclusive**: representation of more than 40% and less than 60% of municipalities in the executive board of the EPCIs.
    c. **Exclusive**: representation of less than 40% of municipalities in the executive board of the EPCIs.

8. The calculation of the share of political parties[31] in selected EPCIs that won the local municipal elections in 2015. Identification of minimal and maximal number of parties in selected EPCIs in order to establish thresholds[32].

9. Attributing the characteristics of the following typology:
    a. **Highly diverse**: representation of at least 5 different political parties within an EPCI.
    b. **Moderately diverse**: representation of 4 different political parties within an EPCI.
    c. **Less diverse**: representation of 3 different political parties or less within an EPCI

4.4.2 Statistical tests related to inter-municipal governance

In the first part of this subsection, we will outline correlational questions that are related to the governance assessment. In the second part of this subsection, we will present questions related to group differences that came up after the governance assessment. All statistical tests will be conducted by using software IBM SPSS Statistics 24 and GraphPad InState 3.0. In the third part of the subsection, we will outline the indicators used for the assessment of inter-municipal governance.

- Correlational questions -

The questions related to the inter-municipal governance in terms of exploration of relationships between the class of inter-municipal cooperation units (EPCI) and the dynamics of its four aspects (financial effectiveness, investment's decentralizations, political inclusion and diversity) are as follows:

1. Is the class of inter-municipal cooperation related to the degree of financial effectiveness?
2. Is the class of inter-municipal cooperation related to the degree of investment's decentralization?
3. Is the class of inter-municipal cooperation related to the degree of political inclusion and diversity?

[31] In our case study the political parties that won the municipal elections in the region were: French communist party (COM), independent candidates (DIV), independent right candidates (DVD), independent left candidates (DVG), far-left party (EXG), National front (FN), Democratic movement party (MDM), New centre party (NC), Left party (PG), Radical left party (RDG), Socialist party (SOC), Union of democrats and independent candidates (UDI) and Union for the popular movement (UMP).

[32] In our case study, the minimal number of different political parties in an EPCI was 2, and the maximal number of different political parties in an EPCI was 8.

In order to answer to these questions, two statistical tests will be used:

- The Pearson Correlation Coefficient (r)
- The Spearman Rho Correlation coefficient (R)

The Pearson correlation coefficient is used to measure the strength of a linear association between two variables, where the value r = 1 means a perfect positive correlation and the value r = -1 means a perfect negative correlation.

The Spearman's Rho is a non-parametric test used to measure the strength of association between two variables, where the value r = 1 means a perfect positive correlation and the value r = -1 means a perfect negative correlation.

These statistical tests will take into consideration only the units of inter-municipal cooperation (EPCI) that contain previously identified urban centres. The urban centres located outside the region as well as the EPCIs that do not contain an urban centre will not be analyzed in this research.

- Group differences -

The questions related to the inter-municipal governance in terms of identification of differences and similarities between inter-municipal cooperation units (EPCI) containing municipalities of various functions, roles and sizes are as follows:

1. What are the differences between the classes of inter-municipal cooperation in terms of governance effectiveness, investment decentralization and political diversity?
2. Which inter-municipal cooperation units offer greater degree of financial effectiveness, investment decentralization and political inclusion and diversity?
3. What are the models of governance in inter-municipal cooperation units consisting of small and medium-sized towns?

In order to answer to these questions, two statistical tests will be used:

- The unpaired t test (t) and Mann-Witney test for corresponding nonparametric data;
- The one-way analysis of variance (ANOVA) (F) and Kruskall-Wallis test for corresponding nonparametric data.

The unpaired t-test is used to verify whether the mean (or median) of variable differs between two groups, assuming that data are sampled from Gaussian populations. In other words, it tests the null hypothesis that the population means related to two independent, random samples from an approximately normal distribution are equal.

As t-test assumes that the data are sampled from a population that follows a Gaussian normal distribution, in cases where the distribution was not normal, the corresponding nonparametric test was used: Mann-Witney test. This test ranks all the values from low to high, and

compares the mean rank in the two groups. The Mann-Witney test does not assume that the populations follow Gaussian distribution, but it does assume that the shape of the two distributions is identical, even though the means may differ.

The one-way analysis of variance (ANOVA) is used to test whether the mean (or median) of a single variable differs among three or more groups.

As ANOVA assumes that the data are sampled from a population that follows a Gaussian normal distribution, in cases where the distribution was not normal, the corresponding nonparametric test was used: Kruskal-Wallis test. It is a nonparametric test used to compare three of more unpaired groups. The Kruskal-Wallis test ranks all the values from low to high regardless to which group each value belongs. If two values are the same, they both get the average of the two ranks for which they tie. It then sums the ranks in each group and reports their significance.

These statistical tests will take into consideration the five classes of inter-municipal cooperation (very small, small, medium-sized, intermediate and large) in questions related to financial efficiency and decentralization of investment. In contrast, only three classes of inter-municipal cooperation (very small, small and medium-sized) will be taken into consideration for the questions related to political inclusion and political diversity for the reason of data availability.

- Chosen indicators -

With the objective to explore the differences in inter-municipal governance of EPCI containing the urban centres, the governance assessment will address these four aspects:

- **Financial effectiveness** is defined as the degree of financial autonomy measured by the self-financing capacities and debt regulation over time. It will be measured by the change of self-financing ratio and by the change in debt over the period 2007-2014. Here we assume that the efficient and effective management of funds indicates the capacity of inter-municipal governance to accomplish the objectives of their cooperation.
- **Decentralized investment** is defined as increase or decrease of investments in municipalities which are the members of the same EPCI. It will be measured by the change of investment over the period 2007-2014. The assumption is that the allocation of capital investment in a balanced way across the EPCI assures the strength of cooperation of member municipalities.
- **Political inclusion** is defined as the degree of representation of municipalities on the leading positions in an EPCI. It will be measured by the share of political representatives of each member-municipality in the executive board (as presidents and vice-presidents) of the EPCI. By this, we presume that the equal access to decision-making position in an EPCI for all member-municipalities generates a greater level of equality and a more shared approach in addressing the issues of their cooperation.

- **Political diversity** is defined as a variety of political parties' representatives within an EPCI. It will be measured by the proportion of each political party elected in municipalities of an EPCI following the municipal elections in 2015. The assumption is that the variety of political parties within an inter-municipal cooperation is more likely to develop a democratic dialogue and to influence decisions without suffering bias or reprisal.

N.	VARIABLES	INDICATORS
1	Financial effectiveness	Change of self-financing coefficient (EUR/inh.) in the period 2007-2014. Change of debt (EUR/inh.) in the period 2007-2014.
2	Decentralized investment	Change of investment (EUR/inh.) in the period 2007-2014.
3	Political inclusion	Share of representatives of each municipality in the executive board (presidents and vice-presidents).
4	Political diversity	Proportion of each political party.

4.4.3 Conclusion of section 4.4

The "City-network" theory underlines the importance of territorial governance in coordination of actors and institutions in ensuring that policies and strategies are efficient and equitable and that the resources are allocated in the interest of all stakeholders. Likewise, territorial cooperation is seen as critical to boost growth, development and cohesion, to maximise potential synergies and to overcome the negative effects of borders as barriers. The inter-municipal cooperation in France is required for all municipalities and it focuses on a joint management of public services and on a collective management of local development project.

Having this in mind, the objective of the governance assessment was to identify the position of urban centres in inter-municipal cooperation as well as the differences and similarities in their functioning. More precisely, we selected the inter-municipal cooperation containing urban centres and analyzed the four key aspects of their governance: financial effectiveness, decentralization of investment, political inclusion and political diversity.

Finally, by using different statistical tests, we profiled the selected inter-municipal cooperation units by taking into consideration the key aspects of governance. Thus, we identified inter-municipal cooperation units that were financially effective, ineffective, over-investing, debt-controlling, investment decentralizing, centralizing, including, excluding, highly diverse and less diverse.

List of equations used in the research

Equation 4.1: Calculation of the number of jobs in a municipality

$\sum_{n(JOB)} = \sum_{n(ACTPOP)} - [X_{(OUT)} + Y_{(IN)}]$

$\sum_{n(JOB)}$: total number of jobs in a municipality; $\sum_{n(ACTPOP)}$: total number of economically active population living in a municipality; $X_{(OUT)}$: number of outgoing job commuters of a municipality; $Y_{(IN)}$: number of incoming job commuters from another municipality.

Equation 4.2: Calculation of the median

$\{(n + 1) \div 2\}^{th}$ value

n: number of values in a set of data on the total number of inhabitants in all municipalities within a region. Median is the middle value.

Equation 4.3: Pearson correlation coefficient

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}}$$

$\sum xy$: the sum of the products of paired scores; $\sum x^2$: the sum of squared x scores; $\sum y^2$: the sum of squared y scores.

Equation 4.4: Spearman correlation coefficient

$$\rho = 1 - \frac{6\sum d_i^2}{n(n^2 - 1)}$$

d_i : the difference in paired ranks; n: the number of cases.

Equation 4.5: Unpaired t-test for two independent groups

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \quad s^2 = \frac{\sum_{j=1}^{n_1}(x_j - \bar{x}_1)^2 + \sum_{i=1}^{n_2}(x_i - \bar{x}_2)^2}{n_1 + n_2 - 2}$$

x bar 1 and x bar 2 are the sample means; s^2 is the pooled sample variance; n_1 and n_2 are the sample sizes; t is a quantile with $n_1 + n_2 - 2$ degrees of freedom.

Equation 4.6: One-way analysis of variance (ANOVA) for three or more groups

$$F = \frac{MST}{MSE}; \quad MST = \frac{SST}{p-1}; \quad SST = \sum n(x - \bar{x})^2; \quad MSE = \frac{SSE}{N-p}; \quad SSE = \sum (n-1)S^2$$

F is ANOVA coefficient; MST is the mean sum of squares due to treatment; MSE is the mean sum of squares due to error; SST is the sum of squares due to treatment; p is total number of population; n is total number of samples in population; SSE is the sum of squares due to error; S is standard deviation of the samples; N is total number of observations.

Equation 4.7: Calculation of the location coefficient

$$\mathrm{LC} = \frac{\left(\frac{E_{xy}}{\sum E_{xy}}\right)}{\left(\frac{\sum E_x}{\sum E}\right)}$$

E_{xy}: the number of an activity in a sector x of an area y; E_x: the total number of all activities of the type x in the region; E: the total of all types of activities in the region. The greater the value of the index, the greater is the degree of localization of a certain type of activity.

Equation 4.8: Share of firms in functional areas (*i*)

$$x_{(i)} = \frac{N(x_i)\ \mathrm{x}\ 100}{\sum_i (x+y+z)}\ ;\ y_{(i)} = \frac{N(y_i)\ \mathrm{x}\ 100}{\sum_i (x+y+z)}\ ;\ z_{(i)} = \frac{N(z_i)\ \mathrm{x}\ 100}{\sum_i (x+y+z)}$$

x is share of a micro-firm in a functional area; N is total number of micro-firms in a functional area; $\sum$ is the sum of all firms in a functional areas; *y* is the number of SMEs; *z* is the number of large firms.

Equation 4.9: Share of firms in productive (*j*) and residential (*k*) sectors

$$x_{(j)} = \frac{N(x_j)\ \mathrm{x}\ 100}{\sum_j (x+y+z)}\ ;\ x_{(k)} = \frac{N(x_k)\ \mathrm{x}\ 100}{\sum_k (x+y+z)}$$

x is share of one type of firms (micro-firm, SME or large firm) in a sector *j* or *k*; N is total number of firms in a sector; $\sum$ is the sum of all firms in a sector *j* or *k*.

Equation 4.10: Calculating self-financing coefficient

$$\mathrm{SFC} = \frac{(E+D)}{(R)}$$

E: operating expenses; D: repayment of debt; R: operating revenues.

CONCLUSION OF CHAPTER 4

This chapter was dedicated to the construction of the methodology for an integrated analysis of regional urban systems. In our particular focus were the networks of towns and the three theoretical postulates of the "City-network" theory: spatial polycentricity, economic networks, and polycentric governance. The research methodology was based on the three working hypotheses. The first hypothesis assumes that towns are the backbone of regional urban systems. They are the carriers of functions whose lack they compensate through vertical and horizontal networks with other settlements of different ranks. The second hypothesis confirms that the size of a settlement is not the key determinant of growth, rather a spatial division of urban functions across the urban system. The third hypothesis points that, through inter-municipal coopetition, towns demonstrate capacities to overcome the negative effects of administrative borders as barriers, to maximise potential synergies, to promote joint solutions to common problems and a harmonious and balanced integration of their wider territory. The three working hypotheses represented the basis for a construction of three research methods for an integrated territorial analysis: the functional analysis, the socio-economic analysis, the governance assessment.

The functional analysis had for the objectives to identify the urban centres and their relationships with other settlements of a regional urban system. The urban centres were defined as nodes of national and regional urban systems that had a centrality function and that served to a wider territory. Each urban centre was ranked according to its functional position within the regional hierarchy. Towns, as much as cities, had roles of urban centres and were characterized not only by a demographic size, but also by their territorial influence over commuters, consumers and capital. Consequently, the six classes of urban centres were distinguished: metropolis, large centre, intermediate centre, medium-sized centre, small centre and very small centre.

The socio-economic analysis had for the objective to identify the economic networks within a regional urban system. The "City-network" theory defined the network of economic complementarity as linkages between the specialized centres that have different functions and that complement each others' activities through the division of labour and market size. Likewise, the network of economic synergy was defined as linkages between the centres with a similar economic profile that benefit from the network effects. Following those definitions, we identified small and medium-sized functional areas that are able to achieve economies of scale and scope, and that are the generators of complementarity and synergy while being part of different sectorial clusters.

Finally, the governance assessment had for the objective to identify the position of urban centres in inter-municipal cooperation as well as the differences and similarities in their functioning. The "City-network" theory underlined the importance of territorial governance in coordination of actors and institutions in ensuring that policies and strategies are efficient and equitable and that the resources are allocated in the interest of all stakeholders. Likewise,

territorial cooperation was seen as critical to boost growth, development and cohesion, to maximise potential synergies and to overcome the negative effects of borders as barriers. Having this in mind, we selected the inter-municipal cooperation containing the urban centres and we pursued with the analysis of the four key aspects of governance: financial effectiveness, decentralization of investment, political inclusion and diversity.

CHAPTER 5: Small and Medium-Sized Towns in the Spatial and Socio-Economic Context of the Centre-Val de Loire Region, France

France has an impressive tradition of addressing the issues of towns, both in a theoretical way through different scientific disciplines and in a practical way via national, regional and local policies. The reasons for this might be in a large number of towns in France that has maintained an autonomous administrative organization since the territorial reform of Napoleon in the 19th century. In fact, in France more than 2,000 small towns and 1,300 medium-sized towns have housed about 24% of the French population. Therefore, the State had to include them in the national planning strategies that took place after the World War II. Since the 1960s, the Government's objective has been to establish a polycentric and balanced territory which, at first, meant granting a new status of "metropoles d'équilibre" (in eng. metropolises of balance) to nine cities, and later it meant the introduction of triennial contracts for towns in order to improve their quality of life and economic development. The latter was considered a positive step forward made by the State as, on the one hand, local municipalities were mobilized as to define their local strategies and, on the other hand, the focus was set more on qualitative than quantitative effects such as social segregation and congestion.

After the period of consolidation of the French urban system that took place in the 1980s and which resulted in a greater empowerment of regions, in the 1990s, the demand for even more balances between territories by respecting contextual specificities was put forward. The intense discussions on territorial issues in France involved not only officials and professionals, but also scholars and public institutions. For instance, the DATAR state agency has been one of the most relevant actors in developing territorial planning methods, experimentations and foresights since its creation in the 1960s. The DATAR has, in fact, reassembled hundreds of researchers and representatives from civil, economic and political spheres to share their expertise for a prospective reflection on the future of French territory. In addition, France has a remarkable number of prominent universities in Paris, Marseille, Bordeaux, Brest, Grenoble, Lille, Lyon, Nantes, Reims, Rennes, Toulouse and Tours that offer master's degree in urban and regional planning. Every year, there are hundreds of new graduates who start working in planning agencies and public institutions across France, including those of small and medium-sized towns.

The case study of this research is the French region of Centre-Val de Loire. It is located in the Loire valley between the Paris metropolitan region in the north, and the Central Massif in the south. It counts more than 1,800 municipalities among which six are provincial capitals. The Regional Council has been actively involved in development of small and medium-sized towns. For instance, in the early 2000s, it launched a policy called "Medium-sized towns"

which was later broadened to a contractual policy targeting inter-municipal cooperation involving small and medium-sized towns. Moreover, the Regional Council established a network of officials coming from towns which turned into a forum of elected representatives who meet twice a year in order to discuss the common issues and challenges. Small and medium-sized towns have also been in the focus of local scholars. For example, in 2010, universities of Tours, Orléans, Poitiers and La Rochelle, with the sponsorship of the Regional Council, organized an international conference on small and medium-sized towns which attracted over 200 researchers and professionals from the country and abroad. In addition, the University of Tours was commissioned to conduct several studies on the development of towns which all suggest that there is a live dialogue between scholars and professionals on the issues of towns of the region.

For the above-mentioned reasons, this chapter will expose results of the research on networks in the Centre-Val de Loire region with a special focus on small and medium-sized towns. More precisely, the first section will provide an outline of the national and regional characteristics in which small and medium-sized towns endure. The objective is to explain the spatial and socio-economic context of the Centre-Val de Loire region. The second section will explore the polycentricity of regional urban system. In that light, the objective is to evaluate spatial radiance, accessibility, connectivity and the functional networks of regional urban settlements. The third section will present the research results on economic networks within the regional urban system. In other words, the objective is to characterize the socio-economic differences between urban settlements and to identify the dynamics of agglomeration, co-agglomeration and synergy effects in the region.

SECTION 5.1: Exploring the polycentricity of the regional urban system

According to the recently published report “OECD regions at a glance” (OECD, 2016), in 2014, almost a half of the population of the OECD countries (46%) lived in urban regions. At the same time, in almost all countries, rural regions have seen a decrease in population. Likewise, the places where people live and work do not know for administrative boundaries. Thus, for instance, a person may inhabit one city or region, get to work in another and, on the weekends, practice a sport in a third (OECD, 2016). Nowadays, spaces interact through a broad set of linkages such as job commuting, production systems, or inter-firm cooperation which often cross local administrative boundaries and form a socio-economic area of their own (a so-called functional region). The OECD underlined that the “functional region can better guide the way national and city governments plan infrastructure, transportation, housing, schools and space for culture and recreation [and] can trigger a change in the way policies are planned and implemented, better integrating and adapting them to the local needs” (OECD, 2016, p. 16).

Building on this argument, the following section will present the results of the functional analysis conducted on the Centre-Val de Loire region in France. The section has three

objectives. The first objective is to observe the general characteristics of the French territory and to set towns in the context of the Centre-Val de Loire region. The second objective is to identify the typology of spaces of the Centre-Val de Loire region. More precisely, we will explore the location and some general characteristics of urban centres, hinterland and functional areas within the regional system. The third objective is to present the key spatial dynamics in the Centre-Val de Loire region. In other words, we will observe the level of spatial radiance of urban centres across the region, the differences in accessibility to jobs, commercial and public services, the connectivity of urban centres via railway and road networks, and finally, a variety of territorial arrangements between urban centres.

5.1.1 Spatial context of the Centre-Val de Loire region

The context in a sense of institutions, governance and administrative organization is important as it sets the "scene" for emergence and maintenance of networks. In order to understand the causes behind trajectories, networks and dynamics creating and affecting the regional urban system, it is necessary to observe their evolution in time and space. Having this in mind, the first part of the subsection will explain some particularities of the composition and division of territorial units in France. The second part of this subsection will present the general features of the regional urban system Centre-Val de Loire. The third part of the subsection will introduce the main characteristics of the socio-economic environment in the Centre-Val de Loire region including demographic and employment change, occupational structure, housing stock, local economies profiles and firms' clusters.

- Territorial composition -

France is divided into 18 administrative regions (NUTS 2), 13 of which are in the mainland and five are overseas regions. The regions are further subdivided into 101 provinces (in fr. departements) (NUTS 3) and 36,681 municipalities (LAU 2). Out of 65.4 million of inhabitants, 63.5 million live in the mainland and 1.9 million live in the overseas territories (INSEE, 2012).

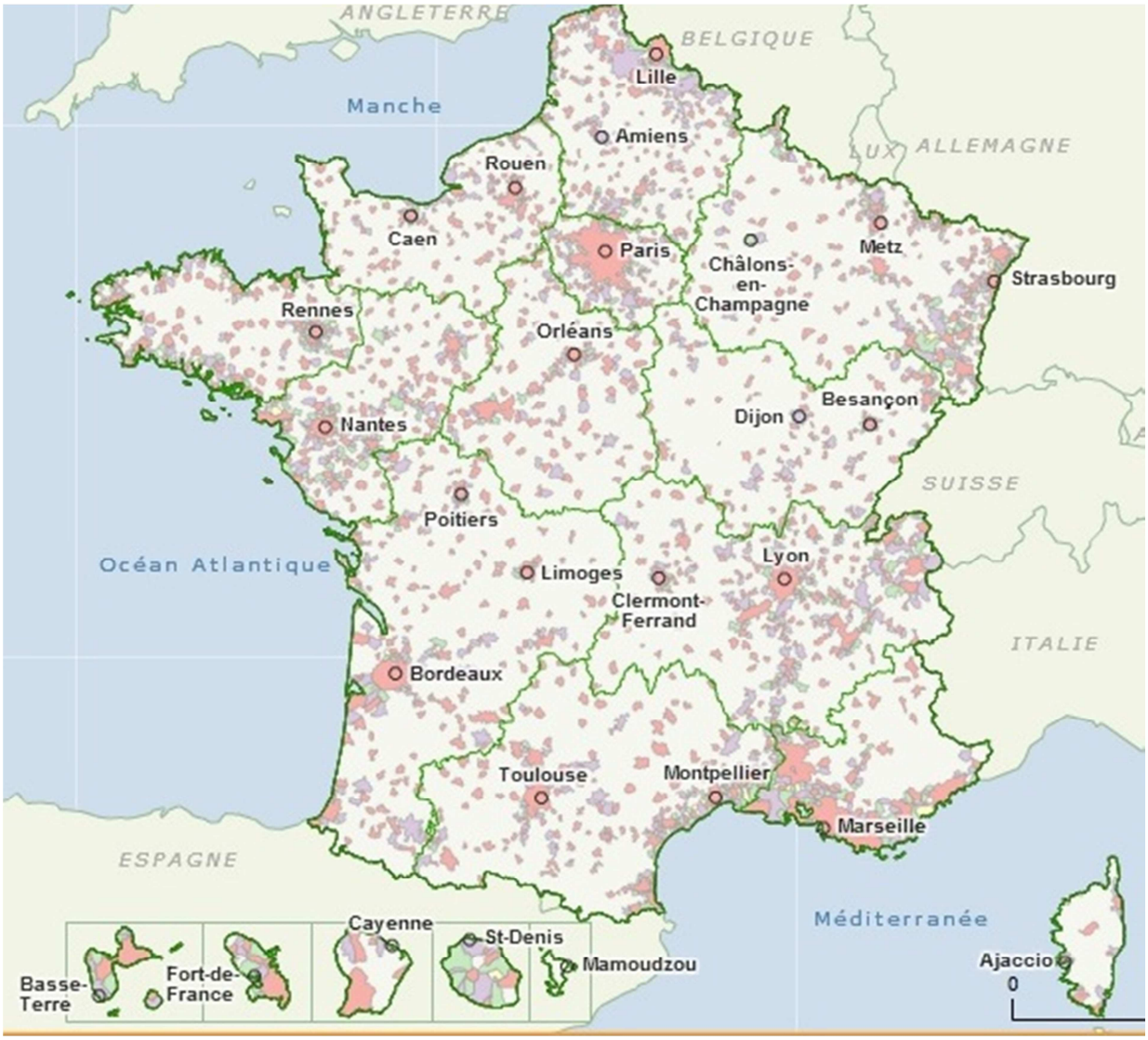
As compared to other European countries like the UK, Belgium or Germany, France has a distinctive history of industrialisation and urbanisation (Farthing and Carrière, 2007). During the post-war period, both cities and towns enjoyed a substantial growth of population and employment. Processes of urban sprawl did not gain a momentum until the 1980s, whereas in Britain, for instance, it was a particular feature of all major cities already in the period between two World Wars. For this reason and because of the greater size and lower density of population in the country, urban sprawl has only recently become an important policy issue in France (Demazière et al., 2013).

The recognition of modern trends that influence the territory (e.g. urbanisation, urban sprawl, and rebirth of the rural) initiated several attempts to adapt the analysis of the urban system. In 1954, the National Office of Statistics and Economic Studies (INSEE) introduced a new unit

of analysis, the term “urban centre” (in fr. unité urbaine) which is based on the morphological definition of territorial units (Figure 5.1).

Since the 1960s, the increasing use of cars and house ownership has resulted in more citizens settling in rural municipalities, while maintaining the frequent contact with a neighbouring city. Such intertwining of rural areas and urban lifestyle blurred the boundaries of the city. As a result, the INSEE proposed a new term, area of industrial and urban settlement (in fr. zones de peuplement industriel et urbain, ZPIU). The ZPIU was used to measure and describe the main features of urban sprawl. However, in the 1990s, the ZPIU was replaced by a new term that has enabled a better interpretation of contemporary dynamics: travel-to-work areas (in fr. aire urbaine). These areas took into consideration urban sprawl and migration trends, thus, they encompassed a much larger area than the one of urban centres as they consisted of both rural and urban municipalities (Figure 5.2).

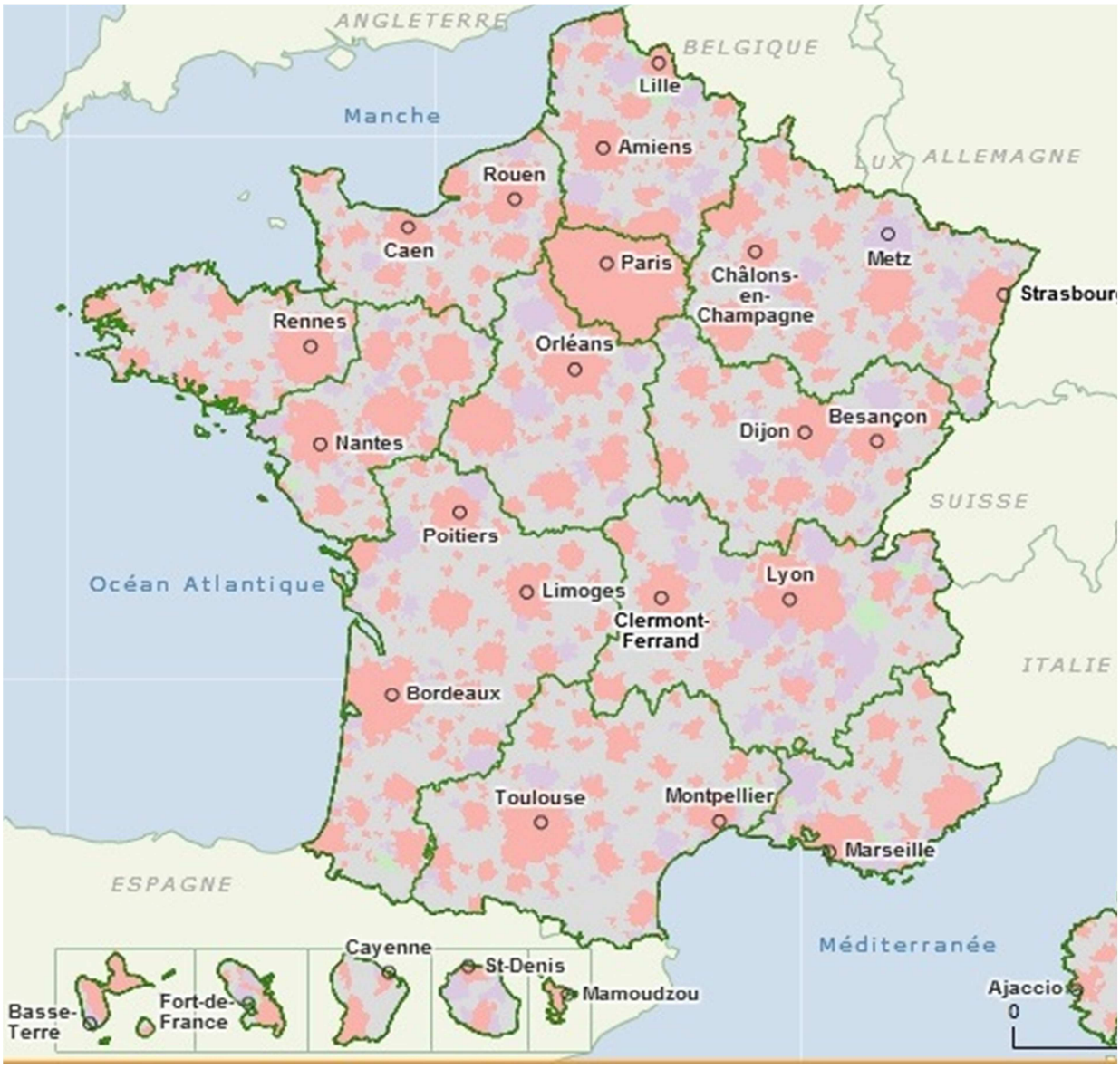
Figure 5.1: Territorial composition of NUTS 2 (regions) and INSEE’s urban centres



Source: Observatoire des Territoires, Datar, 2016 – IGN GéoFla.

Overall, each of these territorial units represents an area with different sizes of population and space, administrative status and dynamics, which also leaves space for the critics to question their relevance for an analysis or an action (Demazière et al., 2013). Besides a problematic definition of territorial units, the expansion of suburbanized areas in France continues its course. Between 1992 and 2004, it reached 6,900 km^2 which is an increase of 20%. At the same time, the population grew only 6%. These numbers show a risk of the negative consequences of the urban sprawl for the environment. The urbanization happens more rapidly than the increase of population, which as a consequence leads to: (i) the creation of low-density suburbanized spaces on one unpopulated areas; and to (ii) the weakening of urban centres which experience population losses in favour of suburbanized spaces.

Figure 5.2: Territorial composition of NUTS 2 (regions) and INSEE's travel-to-work areas



Source: Observatoire des Territoires, Datar, 2016 – IGN GéoFla.

The cities occupy 22% of the French territory and are home to 47.9 million people, or 77.5% of the population. Among the largest agglomerations, 12 are metropolitan ones each with more than half a million people, and 29 are large urban city-regions with more than 200,000 people. Paris metropolitan agglomeration is the largest one. It has 12.1 million people spread over 412 municipalities. It is followed by the smaller metropolitan agglomerations of Lyon, Marseille, Toulouse, Lille and Bordeaux, each with more than one million inhabitants (INSEE, 2012).

As a result of such complex territorial dynamics, the term "town" remains insufficiently defined both in terms of population thresholds and in terms of their place in planning (Demazière et al., 2012). According to the INSEE, there are nearly 2,000 small towns in France (urban centres from 5,000 to 20,000 people) which contain more than 6.6 million (11% of the French population). Likewise, 1,300 medium-sized towns (from 20,000 to 100,000 people) count more than 8 million inhabitants (13% of the French population) (INSEE, 2011). Indeed, the conceptualization of a town seems to come directly from practitioners, officials, city managers, planners and promoters of development policies who seem to agree that towns are a separate category facing challenges different from those of larger cities (Léo et al., 2012). Hence, in the French context, towns are more a category of urban planning policies, and less a stabilized concept in human geography and regional economy (Béhar, 2009).

- General features of the regional urban system -

The Centre-Val de Loire region is located in the Loire valley between the Paris metropolitan region in the north, and the Central Massif in the south. With 2.6 million inhabitants in 2013 (about 4% of the French population) and a density of 66 inhabitants per km^2, the region is sparsely populated with the highest population density concentrated in the Loire valley. It is also one of the most populated regions of the larger Paris Basin and well as the one of the fastest growing regions (+0.4% of new inhabitants per year in average between 1999 and 2009). To the west, the region has experienced competition coming from the Atlantic coastline which attracts students and job seekers, especially from the cities such as Rennes, Nantes and Bordeaux. To the south, the region has seen the population's decline and aging which seems also to be a trend in the neighbouring southern provinces of Limousin and Auvergne (Figure 5.3).

The region is composed of six provinces (NUTS 3) and polarized around two cities: Tours (475,000 inhabitants) and Orléans (416,978 inhabitants). There are 1,841 municipalities (LAU 2), among which six have a status of provincial capitals: Orléans, Tours, Bourges, Blois, Châteauroux and Chartres. Concerning inter-municipal cooperation, out of 131 inter-municipal communities in the region in 2015, eight were cooperation of agglomerations (Blois, Bourges, Chartres, Châteauroux, Dreux, Montargis, Orléans and Tours) and 123 were cooperation of municipalities (Figure 5.4).

Figure 5.3: Location of the Centre-Val de Loire region

Source: Observatoire des Territoires, Datar 2016 – IGN GéoFla

The suburbanization is considered to be one of the major trends affecting the regional cities and towns (Demazière et al., 2013). In general, the hinterland has become more attractive to population than the urban centre due to a lower price of housing and less taxation. As a result, suburban municipalities are able to compete with established towns to attract firms and households. Almost all large cities and towns in the Centre-Val de Loire region have experienced the urban sprawl. Besides their own urban sprawl towards one another, cities and towns in the northern regional area have a situation of spreading influence of the Paris metropolitan area. The large and intermediate cities (e.g., Orléans, Tours and Bourges) have spread in all directions by agglomerating some neighbouring towns into their outer-rings (i.e. the town of Amboise was agglomerated by a large city of Tours). Concerning other towns in the region, they seem to have stabilised their outer-ring over the last 20 years and to have experienced less intense urban sprawl. On the other side, after a long period of population's decrease prior to the 1990s, villages and rural areas seem to have regained population, especially the ones located in the Loire valley (Demazière et al., 2013).

Figure 5.4: Map of the Region Centre-Val de Loire

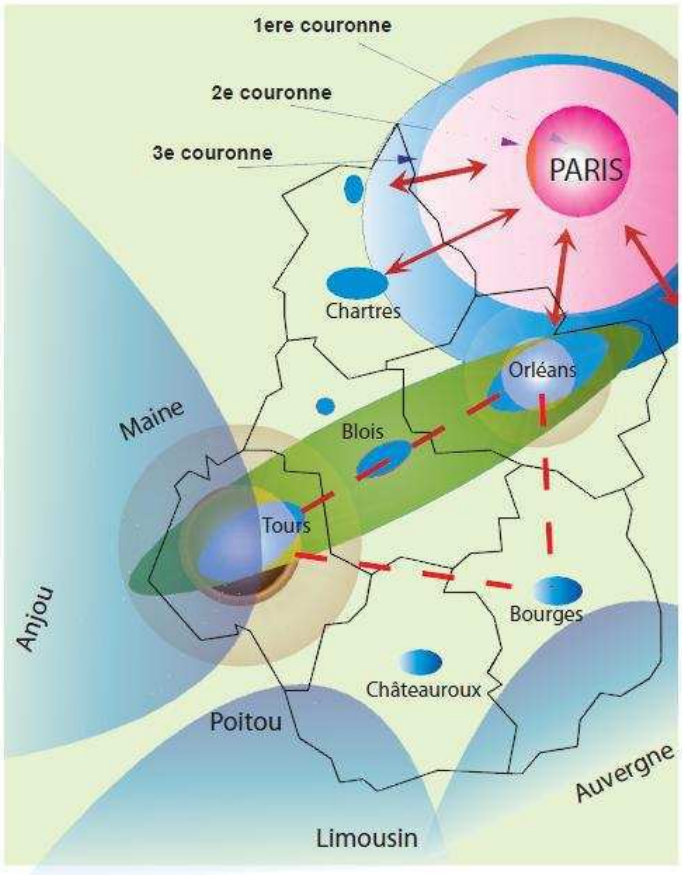
Source: Région Centre-Val de Loire, 2016

In terms of residential migration, the flows are high both in terms of arrivals and departures. There are 200,000 newcomers and almost as many departures in the last five years. More precisely, the region attracts Parisians who represent nearly half of new residential arrivals. The sub-regional mobility is also important. Over a period of the last five years, 370,000 inhabitants changed their municipality of residence for another one within the region. Thus, one in eight inhabitants is a newcomer either from another municipality of the region or outside the region. In terms the mobility of population towards the outskirts of cities (urban sprawl), more than 60,000 economically active inhabitants do not live in the same area of their work and they benefit from financially more accessible housing. Thus, in general, jobs

stay concentrated in large urban centre, while the population growth happens in suburban areas (Conseil régional du Centre, 2013).

Cities such as Tours, Bourges, Châteauroux, Blois and Orléans attract economically active population with nearly three out of four newcomers. They are also hosting a young population attracted by universities. Yet, a high proportion of population lives in more accessible suburban areas. Small and medium-sized towns located in the south, such as Le Blanc, La Châtre, Argenton-sur-Creuse, Sancerre, Aubigny and Saint-Amand-Montrond, have seen the growth in population mainly related to the suburbanization of larger cities (Bourges and Châteauroux) and to the arrival of retired population. Yet, these towns have shown less dynamism in terms of provision of jobs and services to its population. Furthermore, small and medium-sized town such as Montargis, Gien, Vendôme, Loches and Romorantin-Lanthenay, besides a positive net migration for economically active and retired categories of population, have also witnessed a more positive dynamic in employment as they have benefited from the proximity to major economic centres of the Loire valley (Orléans and Tours) and of the Paris metropolitan region. Finally, towns such as Chinon, Châteaudun and Pithiviers have had a strong out-commuting of economically active population. In fact, their out-commuting flow is characterized by a larger commuting distance (e.g. Paris, Tours and Orléans) which is possible due to the existence of transportation infrastructure (e.g. high-speed train, TGV) (Conseil régional du Centre, 2013).

Figure 5.5: Three different territorial contexts within the Centre-Val de Loire region



Source: Report CRCI, 2006

Furthermore, Demazière et al. (2013) argued that cities and towns of the Centre-Val de Loire region are conditioned by their context in which they operate in conjunction with other settlements and where they rely on networks with the surrounding territory. In fact, according to the authors, such relationships and interrelations form territorial contexts or "plaques territoriales" which is a term originally proposed by the French economist Claude Lacour. Demazière et al. (2013) noted that the term of territorial contexts could be applied to the case of the Centre-Val de Loire region where they set trajectories for their towns and cities (Demazière and Boutet, 2001; Demazière et al., 2013). Three territorial contexts were identified in the region, and each had its own social, economic and urban dynamics: the northern area, the Loire Valley and the southern area (Figure 5.5).

The northern area of the region comprises two provinces (Loiret and Eure-et-Loir) and it is directly under the influence of the metropolitan region of Paris. The proximity to Paris has resulted in some tremendous economic benefits for the area as many companies relocate in search for closer, cheaper and accessible regions. In 2008, the Centre-Val de Loire region was ranked the 3rd in attracting companies from Paris. In addition, the north of the region attracts households from Paris who wish to change lifestyle and live in the province. A large part of them commutes daily to the various job centres in the metropolitan region.

The Loire Valley has also saw firms' relocation and migrations from the metropolitan region of Paris. In economic, demographic, functional or cultural terms, the Loire Valley is considered to be the backbone of the region. First, it is the area that concentrates regional employment, trade, and agricultural specializations (horticulture, vine growing), and it is the main touristic destination (e.g. the Loire castles). Second, it is the most populated and the most urbanized area of the region. Third, the Loire Valley is polarized between the two economically largest and fastest growing cities: Tours and Orléans (Figure 5.5).

The southern part of the Centre-Val de Loire region is located at the margins of the Central Massif and it is characterized by prevalence of rural areas. It comprises three provinces (Indre, Cher and Indre-et-Loire) which have profiles and features similar to the ones of the neighbouring regions Limousin and Auvergne: natural heritage, industry in difficulties, emigration and population aging, distance from the major roads or railway networks. Without any leading city, the southern area of the region is rich in towns that are struggling to find a way for their economic development (Demazière et al., 2013).

- Regional socio-economic environment -

Over the last 10 years, the Centre-Val de Loire region has had an increase in population over 65 years old (65+) and a decrease in number of population under 20 years old. In 2009, the former represented 25% of total regional population compared to 23% in 1999. Respectively, the latter represented 24% of the total population compared to 26% in 1999. Yet, there are some differences between types of settlements and their territorial context. Towns, especially those located in the southern part of the region, seem to have a higher average increase of population 65+ than intermediate and large cities (Demazière et al., 2013).

Regarding the occupational structure, Demazière et al. (2013) reported that it was equally distributed among three categories: labour workers, employees and intermediate occupations such as sales and services. The occupations such as farmers, craftsmen and higher professional occupations represented less than 7% in the regional occupational structure. In addition, at the regional level, the number of labour workers decreased in favour of higher professional occupations (labour workers: -1.9 percentage points; higher professional occupations: +1.5 percentage points) during the period from 1999 to 2009. Considering the differences between cities and towns, the large and intermediate cities have seen a higher decrease of labour workers and a higher increase of professional occupations than towns. In addition, in the large regional cities, the loss of employees, farmers, traders and labour workers has been replaced by an increase of intermediate occupations and professional occupations which has not been the case in small and medium-sized towns (Demazière et al., 2013).

With the trend of aging population, the share of retirees has increased in the region over the last 10 years and nowadays represents in average 40% in the occupational structure of towns. Moreover, in some towns, there has been a more pronounced change towards the tertiary vocations (e.g. managers). Due to their administrative roles in the wider area and to the existence of services, infrastructure and local strategies some towns have attracted a high-income population. In addition, some occupational categories such as managerial, administrative and higher professional occupations were determined by the location of a town in the region. In that respect, the towns of the Loire valley have had the highest rate of managers and professionals (5.1% in average) compared to the towns in other parts of the region (Demazière et al., 2013).

Considering the housing stock, the share of unoccupied dwellings depends on the type of urban settlements and its location in the region (Demazière et al., 2013). In general, large and intermediate cities have had less unoccupied dwellings than small and medium-sized towns (7.6% in average). Yet, there are some differences related to the territorial context. Towns located in the southern part of the region have recorded higher percentages of vacant dwellings than towns located in other parts of the region. The prices of land and real estate have also been determined by (i) the location in the urban centre or the suburbs, and (ii) by the municipal property ownership tax and residence tax. For instance, the Loire valley due to its attractiveness to businesses and population has had the highest prices of square meter and the highest tax rates in the region. In contrast, the southern part of the region has been less attractive and thus the prices of land and real estate have been lower.

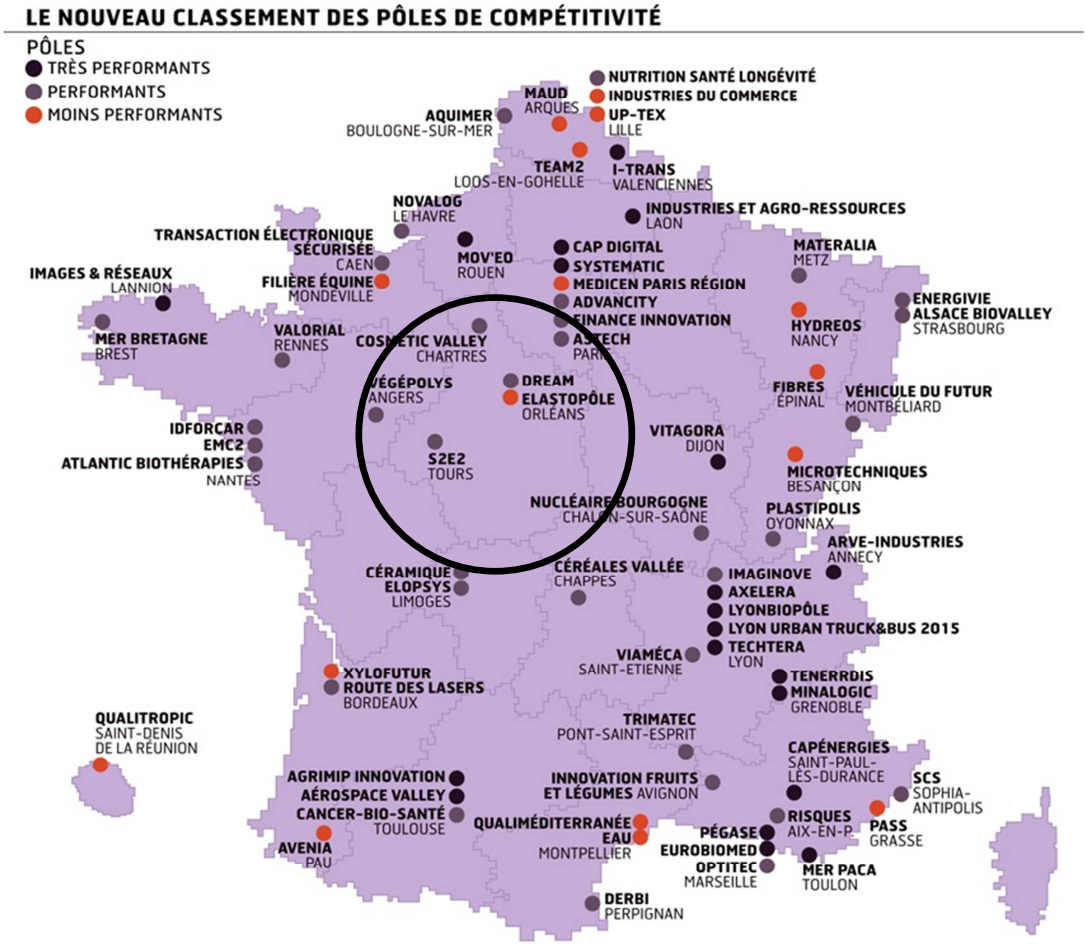
Over the last ten years, the sectors of agriculture and industry have had a decrease of jobs which has been compensated by an increase of employment in retail, transport, public services and construction (Demazière et al., 2013). Such trend seems common to all French regions at the national scale. For example, the traditional industries such as textiles, clothing and defence in the Centre-Val de Loire region have been particularly affected by the modern technological development and competitiveness. Since the 1960s, there have been many textile businesses closures and the restructuring of defence industries (i.e. Giat and MBDA) which led to the significant job losses. The most recent closures due to changes in the global

economy happened in the city of Dreux (Philips) and in towns: Châteaudun (Flextronic, Paulstra) and Vendôme (Thyssenkrupp). Nevertheless, the industry has retained a leading role in the regional development. The share of industry in the regional labour market has been significantly higher than at the national level (17.4% compared to 13.9% in 2012). The top five regional industrial sectors are: mechanics, food industry, metallurgy, chemicals and pharmaceuticals (Demazière et al., 2013).

The dynamic partnership between companies, research centres and training organizations has led to a creation of four prominent regional clusters (in fr. pôles de compétitivité): Cosmetic Valley (cosmetics), S2E2 (electric power systems), Elastopole (rubber and pneumatics) and DREAM (water treatment) (Figure 5.6).

Besides these clusters which have been part of a national policy to foster the relationship between firms and public research, in the Centre-Val de Loire region there are also several smaller clusters (not based on the research) such as: Pharma Valley (pharmaceuticals), Pôle automobile (automotive), Aérocentre (aeronautics), Shop expert Valley (trade), Nékoé (services of innovation), PICF (precision mechanics), Agrodynamics and sustainable development (bio-products), ARIAC (food).

Figure 5.6: Location of French clusters (in fr. pole de compétitivité)



Source: Eterritoire, 2016

Last but not least, when it comes to tourism, the Loire valley with its castles and nature has been listed as the UNESCO's heritage site and has been attracting tourists from all over the world. In 2009, tourism generated 26,000 jobs mostly in sectors of food service and accommodation which represented 3% of the regional employment (Demazière et al., 2013). In addition to the cultural heritage, the natural heritage and landscape have been one of the key-factors of regional attractiveness. The most famous one is the "The Loire by bike" which is a bikeway interregional project that extends over 600 kilometres and enables visits to castles, gardens and green areas across the Loire valley. In 2009, the Loire valley recorded more than 300,000 cyclists' passes, or an average of 827 passes per day, while the project revenue was estimated at 5 million Euros.

In the following subsection, we will present the results of the functional analysis which focuses on the polycentric spatial organization of the Centre-Val de Loire region. More precisely, we will classify three types of spaces: urban centres, hinterland and functional areas.

5.1.2 Typology of spaces

The first objective of the research was to relate the concept of polycentricity to the concept of small and medium-sized towns. In that respect, in the previous chapter we presented the methods used in the functional analysis of regional urban system that explored the regional urban hierarchy, centrality, territorial arrangements between settlements and functional areas. The functional analysis combined descriptive statistical tests and the QGIS software to examine the settlements' position in the urban hierarchy. In that scope, in the first part of the subsection we will provide some general features of location and classification of urban centres. In the second part of the subsection we will characterize the hinterland of urban centres. In the third part of the subsection we will identify the functional areas of the regional system which comprise one urban centre and its hinterland.

- Urban centres -

The functional analysis identified 54 urban centres (Figure 5.7). More precisely, the urban system of the Centre-Val de Loire region consists of:

- a metropolis (Paris) with more than 2 million inhabitants;
- 2 large centres (Tours and Orléans) with more than 100,000 inhabitants;
- 7 intermediate centres (Bourges, Blois, Chartres, Châteauroux, Dreux, Monluçon and Nevers) with between 30,000 and 100,000 inhabitants;
- 13 medium-sized centres between 10,000 and 30,000 inhabitants;
- 31 small centres between 2,000 and 10,000 inhabitants.

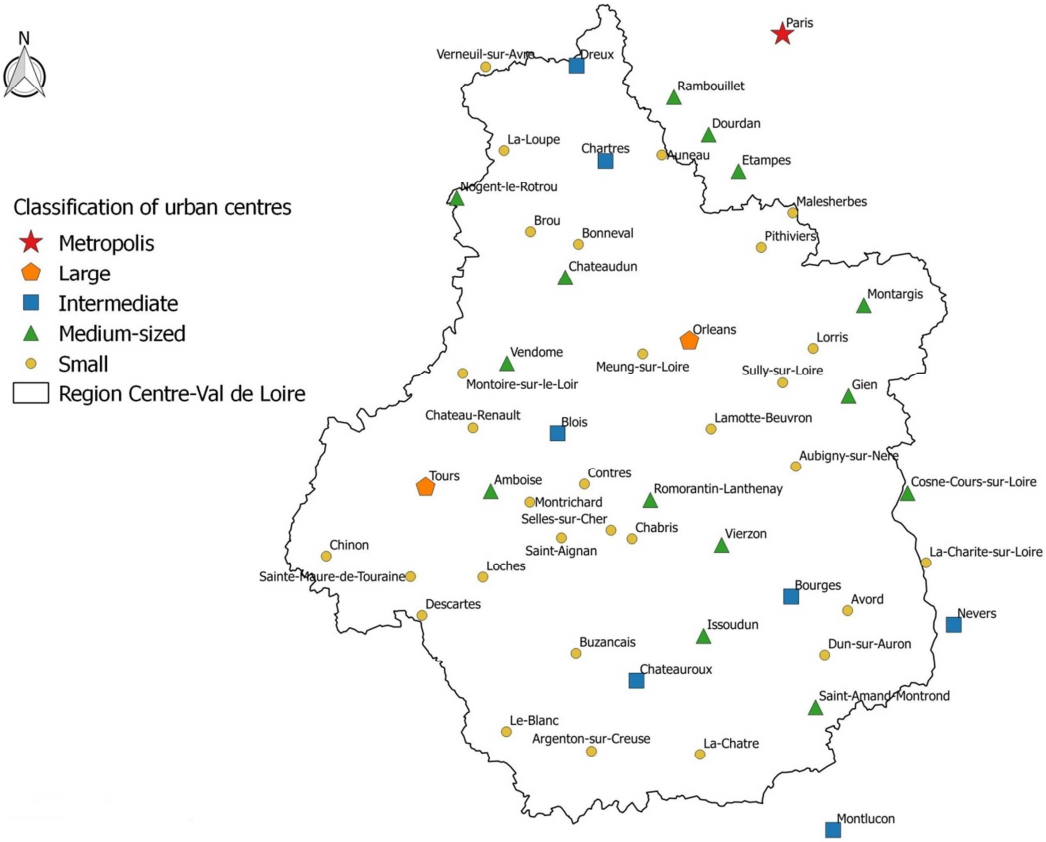
Interestingly, nine urban centres are located outside the Centre-Val de Loire region:

- Paris, Rambouillet, Dourdan and Etampes are the urban centres of the north-eastern Ile-de-France region;
- Verneuil-sur-Avre is located in the north-western Normandy region;
- Nevers, La Charité-sur-Loire and Cosné-Cours-sur-Loire are the urban centres of the western Bourgogne-Franche-Comté region;
- Monluçon is located in the neighbouring southern Auvergne-Rhône-Alpes region.

The fact that some urban centres of the Centre-Val de Loire region are located outside the regional borders affirms the argument that nowadays the interaction between spaces often crosses local administrative boundaries. Moreover, a better accessibility and transportation infrastructure has made places closer and people, information and goods daily travel greater distances than ever before to reach their final destinations. Nine cities and towns located outside the region evidently play an important role in the socio-economic dynamics of the Centre-Val de Loire, so their significance for the regional development should be seriously taken into consideration by the regional authority and included into regional policies and plans.

Figure 5.7: Identified urban centres[33]

Urban centres of the regional system



Source: author, 2015

[33] For a detailed list of urban centres, see the Annex.

Considering small and medium-sized urban centres, they appear to prevail in the regional urban system as they constitute 81% of all urban centres in the Centre-Val de Loire region. They seem to be spread across the territory and at different distances from one another.

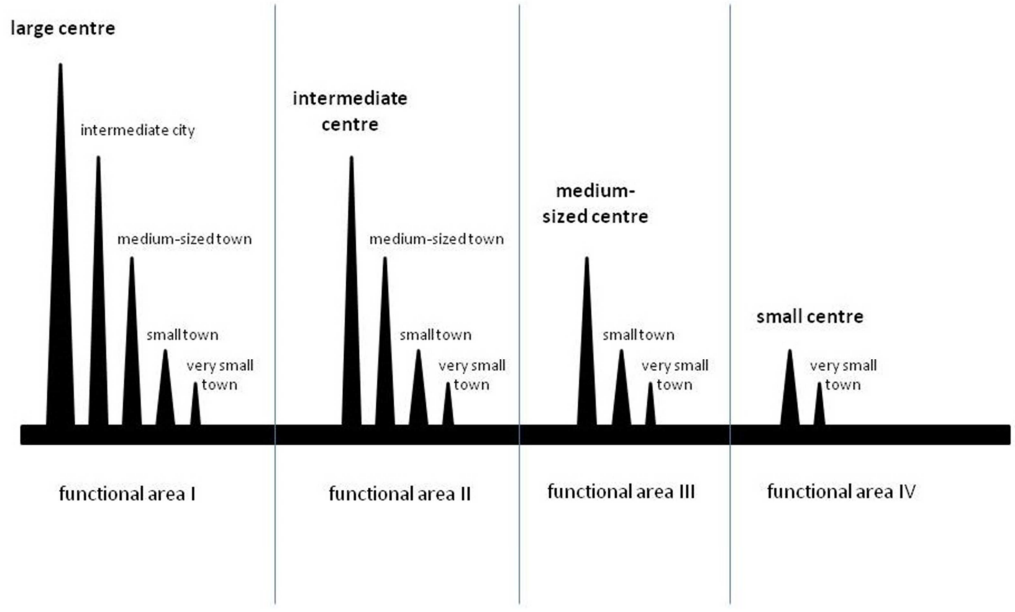
- Hinterland -

When it comes to the municipalities that are in the hinterland of the identified urban centres:

- 1 is an intermediate city (Joué-les-Tours) located in the functional area of Tours;
- 17 are medium-sized towns located in functional areas of large and intermediate centres of Tours, Orléans, Montargis, Chartres and Dreux;
- 159 are small towns located in functional areas of large, intermediate and medium-sized centres;
- 1,620 are very small towns and villages with less than 2,000 inhabitants located in functional areas across the region.

The results related to the distribution of centrality across the regional urban system underline the existence of Christaller's type of hierarchy (Figure 5.8).

Figure 5.8: Distribution of centrality across the regional urban system



Source: author, 2016

More precisely, we found that the intermediate-sized municipality which is not an urban centre could only be found in the hinterland of a large centre (e.g. Joué-les-Tours is "subordinated" to Tours). Likewise, medium-sized municipalities with no centrality to be urban centres could only be found in the hinterland of large and intermediate urban centres. Respectively, small municipalities that are not urban centres could only be found in the hinterland of large, intermediate and medium-sized centres. In general, the role of urban

centre is attributed to the largest places in an area, while the degree of centrality decreases alongside the size of a place.

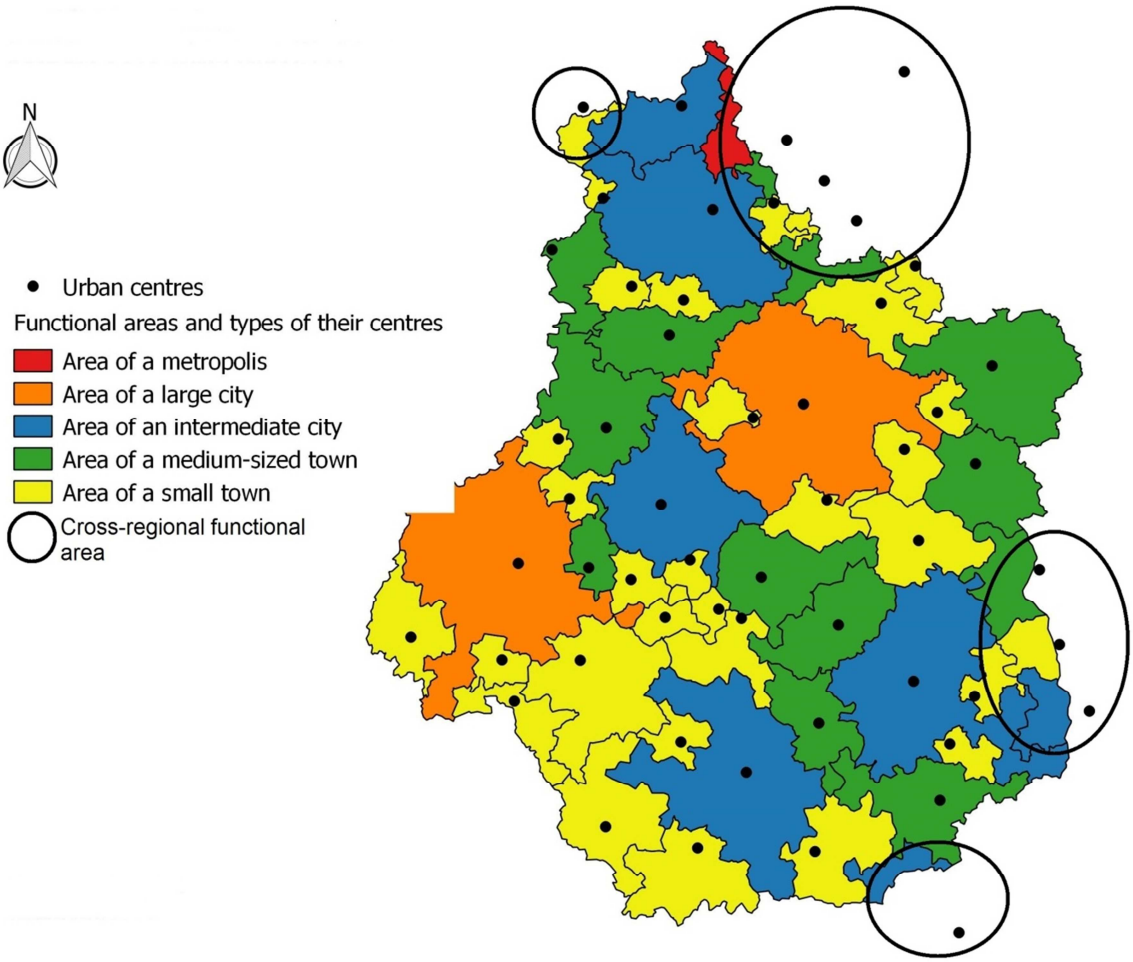
- Functional areas -

The functional areas comprise an urban centre and its hinterland. As there are 54 urban centres, out of which nine are located outside the region, the Centre-Val de Loire counts 45 functional areas within its administrative borders (Figure 5.9).

The nine urban centres that are located in the neighbouring regions attract job-commuters from municipalities located in the Centre-Val de Loire region which resulted in a creation of nine cross-regional functional areas. These areas have a particular dynamic that disregards the regional jurisdiction in a sense that a municipality may, de jure, belong to one zone (region and/or EPCI) but, de facto from the social and economic point of view, it is related to another zone (region and/or EPCI).

Figure 5.9: Identified functional areas[34]

Functional areas of the regional system



Source: author, 2015

[34] For a detailed list of municipalities and their functional areas, see the Anex.

The functional areas represent a more or less closed socio-economic system comprised of an urban centre and its hinterland consisting of municipalities and rural areas that are attracted to it. It is an area that functions together as a basic territorial unit of our research. The size and the relevance of functional areas for the regional growth and development vary as it will be demonstrated in the further functional and socio-economic analyses.

In the following subsection we will examine the key differences between classes of urban centres and functional areas. More precisely, we will present the results of the analysis of three indicators: spatial radiance, accessibility and connectivity, and functional networks.

5.1.3 Spatial arrangements

The operational definitions of the three indicators chosen for the functional analysis of the regional urban system were presented in the previous chapter. The spatial radiance is an indicator that will measure the degree of attractiveness of an urban centre for the neighbouring municipalities. The accessibility-connectivity is an indicator that will demonstrate the quality of attractiveness in the sense of jobs and services provision. Finally, the functional network is an indicator that will explore the variety of territorial arrangements between the urban centres. Therefore, in the first part of the subsection we will explore the size of functional areas among the different classes of urban centres. In the second part of the subsection we will discuss the differences in accessibility and connectivity among urban centres and between urban centres and their hinterland. In the third part of the subsection we will identify and classify functional networks between urban centres based on the commuting flow and its impact on local labour markets.

- Spatial radiance of urban centres -

Determined by the intensity of job commuting flows between peripheral municipalities and the urban centre, the spatial radiance was measured by the total number of municipalities within a functional area (Table 5.1). Tours and Orléans are the urban centres with the largest functional areas in the region (the average of 144 municipalities). The functional areas with intermediate urban centres count in average 98 municipalities, while the functional areas with medium-sized urban centres comprise in average 40 municipalities. Finally, the functional areas of small urban centres count in average 18 municipalities.

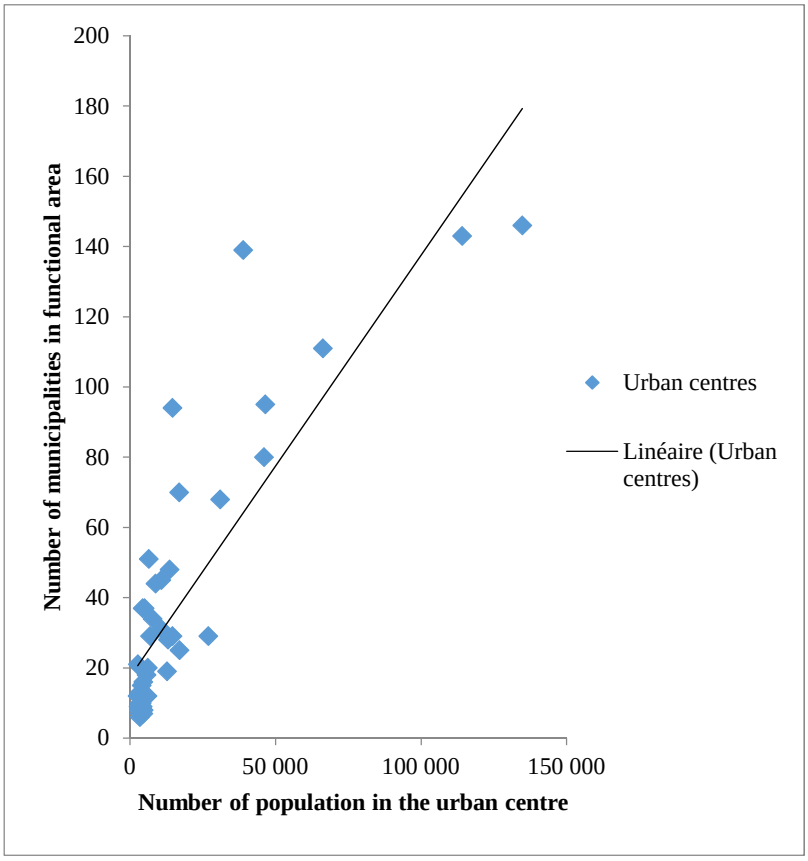
Table 5.1: Number of municipalities in the functional areas (average, minimal and maximal)

Size of the centre	Average	Min	Max
Large centre	144	143	146
Intermediate centre	98	68	139
Medium-sized centre	40	19	94
Small centre	18	6	51

Source: author, 2015

Moreover, there is a strong positive correlation between the class of urban centres and the size of functional areas (Figure 5.10). In general, we may observe that the larger the urban centre, the greater the number of municipalities in the functional area. Thus, the size of an urban centre seems to be related to its spatial radiance over an area.

Figure 5.10: Pearson correlation coefficient between the size of urban centres and the size of functional areas



Source: author, 2015

The value of r is 0.8526. This is a strong positive correlation, which means that high X variable scores go with high Y variable scores (and vice versa).

The value of r^2, the coefficient of determination, is 0.7269. The P-Value is < 0.00001. The result is significant at $p < 0.05$.

Result details and calculation:

X Values
$\sum$ = 762273
Mean = 16939.4
$\sum(X - M_x)^2 = SS_x$ = 32655389426.8

Y Values
$\sum$ = 1698
Mean = 37.733
$\sum(Y - M_y)^2 = SS_y$ = 64782.8

X and Y Combined
N = 45
$\sum(X - M_x)(Y - M_y)$ = 39217234.8

R Calculation
$r = \sum((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}$
$r = 39217234.8 / \sqrt{((32655389426.8)(64782.8))} = 0.8526$
r = 0.8526

Where:
X: X values
Y: Y values
M_x: Mean of X values
M_y: Mean of Y values
$X - M_x$ & $Y - M_y$: Deviation scores
$(X - M_x)^2$ & $(Y - M_y)^2$: Deviation squared
$(X - M_x)(Y - M_y)$: Product of deviation scores

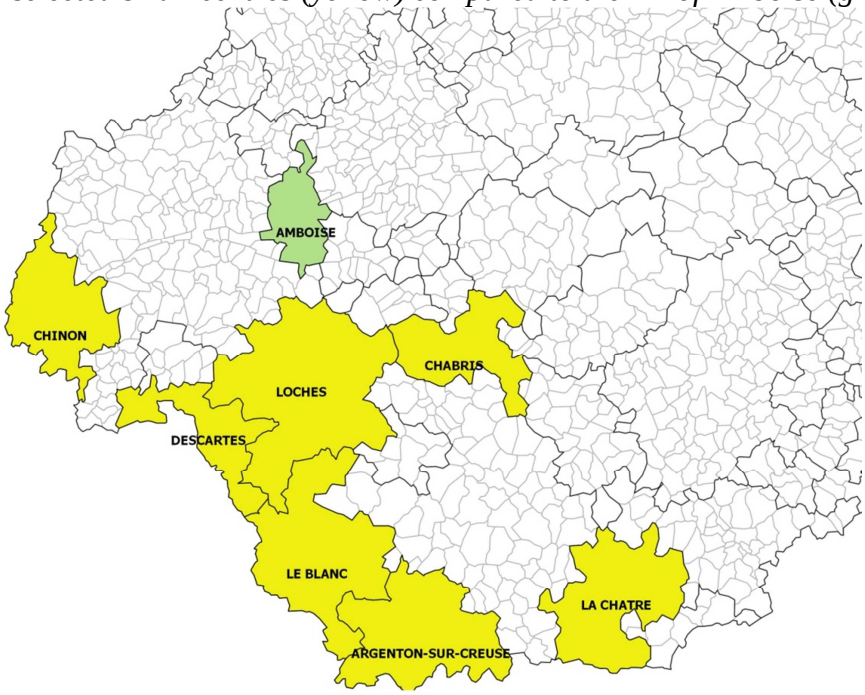
Such observation confirms the argument of the central place theory according to which central places are the locations of overlapping market areas which lead to a hierarchically structured systems of cities and towns. The towns tend to concentrate activities of low order; smaller cities concentrate activities of higher order and the largest cities concentrate activities of the highest order.

Nevertheless, there are exceptional cases of functional areas with small urban centres to be larger than the functional areas of medium-sized urban centres. For instance, Chabris, Descartes, La Châtre, Argenton-sur-Creuse, Loches, Le Blanc and Chinon are small urban

centres whose functional areas are larger than the one of Amboise, a medium-sized urban centre (Figure 5.11).

Figure 5.11: Comparison of selected functional areas (FA)

FA of selected small centres (yellow) compared to the FA of Amboise (green)



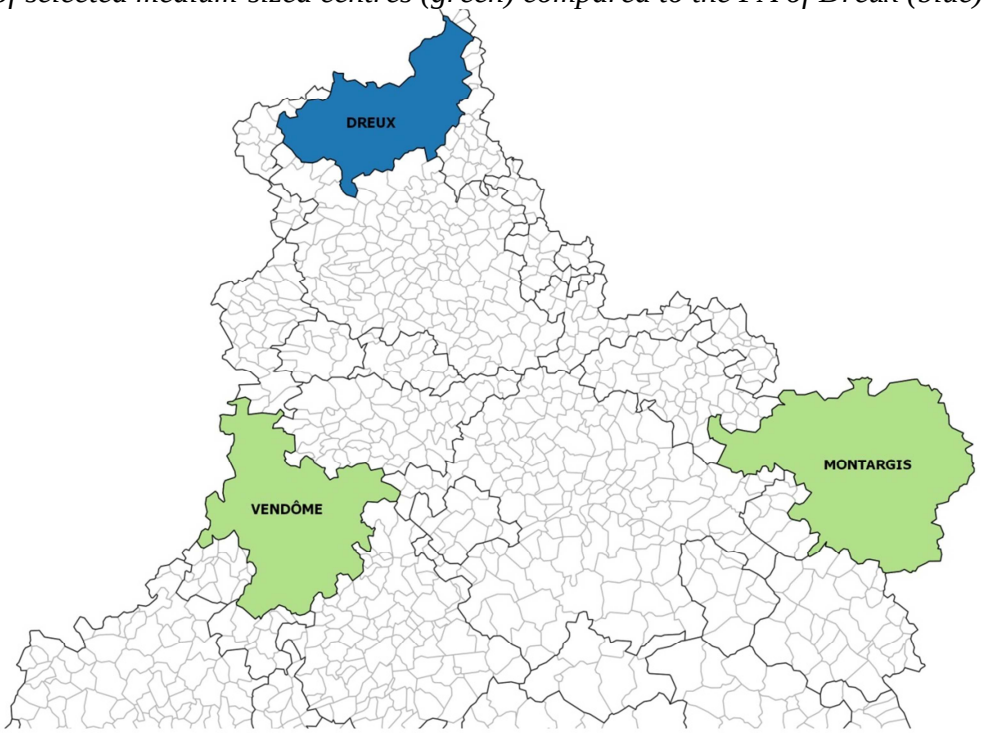
Source: author, 2016

However, if observing closely, a majority of those small functional areas do not comprise any other town than the one that is the urban centre. They are made of predominately rural municipalities. At the same time, the functional area of Amboise has, besides rural municipalities, two additional small towns with around 3,000 inhabitants and a medium-sized urban centre. Thus, when it comes to the spatial radiance of these exceptionally large and small functional areas, it is necessary to underline that an urban centre located in the middle of rural area has no “real” competition for the influence over a larger territory. In contrast, an urban centre that is located in an area that comprises rural and urban municipalities might have its influence constrained to a smaller number of municipalities due to the proximity of other urban centres. In this case, the urban centre of Amboise is located in between two larger urban centres (Tours and Blois) which have a wider spatial radiance over a territory, thus the spatial radiance of Amboise appears rather constrained by these dynamics.

Likewise, there are cases of functional areas of medium-sized urban centres to be larger than those of the intermediate urban centres. For example, Montargis and Vendôme are medium-sized urban centres whose functional areas are larger than the one of Dreux which is an intermediate urban centre (Figure 5.12). Yet again, the number of rural municipalities in the functional areas of Montargis and Vendôme is larger than the number of rural municipalities in the functional area of Dreux. At the same time, Dreux has spatial radiance over five small towns and one medium-sized town which is a larger number of urban municipalities than in the case of Montargis and Vendôme.

Figure 5.12: Comparison of selected functional areas (FA)

FA of selected medium-sized centres (green) compared to the FA of Dreux (blue)



Source: author, 2016

- Accessibility and connectivity -

Defined by the access to job opportunities, commercial, and public services, and population living and working in the same municipality, accessibility is proven to be different in the urban centres compared to the municipalities of the same size which are not the urban centres (Table 5.2). There is a significant difference in the number of services available to population in the small urban centres compared to the small municipalities which are not the urban centres. More precisely, accessibility to services is significantly better in the small urban centres than in other small municipalities. Likewise, a significant difference between these two categories is also in the share of population living and working in the same municipality which is in favour of the small urban centres. However, there is no significant difference between the small urban centre and other small municipalities in terms of accessibility to retail and public services.

Considering the medium-sized urban centres and the rest of municipalities of medium size, the only significant difference is found in the share of population living and working in the same municipality. Thus, accessibility to the labour market seems to be better in the medium-sized urban centres than in the medium-sized municipalities which are not the urban centres. Considering other indicators of accessibility such as services per capita, and access to retail and public services, there is no significant difference between the medium-sized urban centres and the medium-sized municipalities which are not the urban centres (Table 5.2).

Table 5.2: T-test between urban centres and municipalities which are not urban centres in 2012

ACCESSIBILITY	Small centres		Rest of small municipalities	F test	Two-tailed P
All services	24.6%	≠	12.3%	1.358	< 0.0001
Retail	9.1%	=	8.3%	5.553	0.5639
Public services	5.4%	=	5.3%	2.031	0.8399
Living and working in the same municipality	18.9%	≠	10.2%	2.602	< 0.0001

ACCESSIBILITY	Medium-sized centres		Rest of medium-sized municipalities	F test	Two-tailed P
All services	28.1%	=	22.7%	11.649	0.2505
Retail	9.1%	=	10.3%	4.659	0.376
Public services	7.9%	=	6.8%	1.828	0.4026
Living and working in the same municipality	20.1%	≠	10.1%	4.161	< 0.0001

Source: author, 2015

If compared between the four classes of urban centres (small, medium-sized, intermediate and large), accessibility of services is significantly different only between the small and intermediate urban centres. Thus, it may be suggested that the urban centres in general do not significantly differ in access of their population to services. Likewise, in terms of accessibility to retail and to local labour market, there is also no difference between the classes of urban centres. However, the strong significant difference between the urban centres is found in their accessibility to public services. More precisely, population in the small and medium-sized urban centres has less access to public services compared to the population of the intermediate and large urban centres (Table 5.3).

Table 5.3: One-way ANOVA on four classes of urban centres in 2012

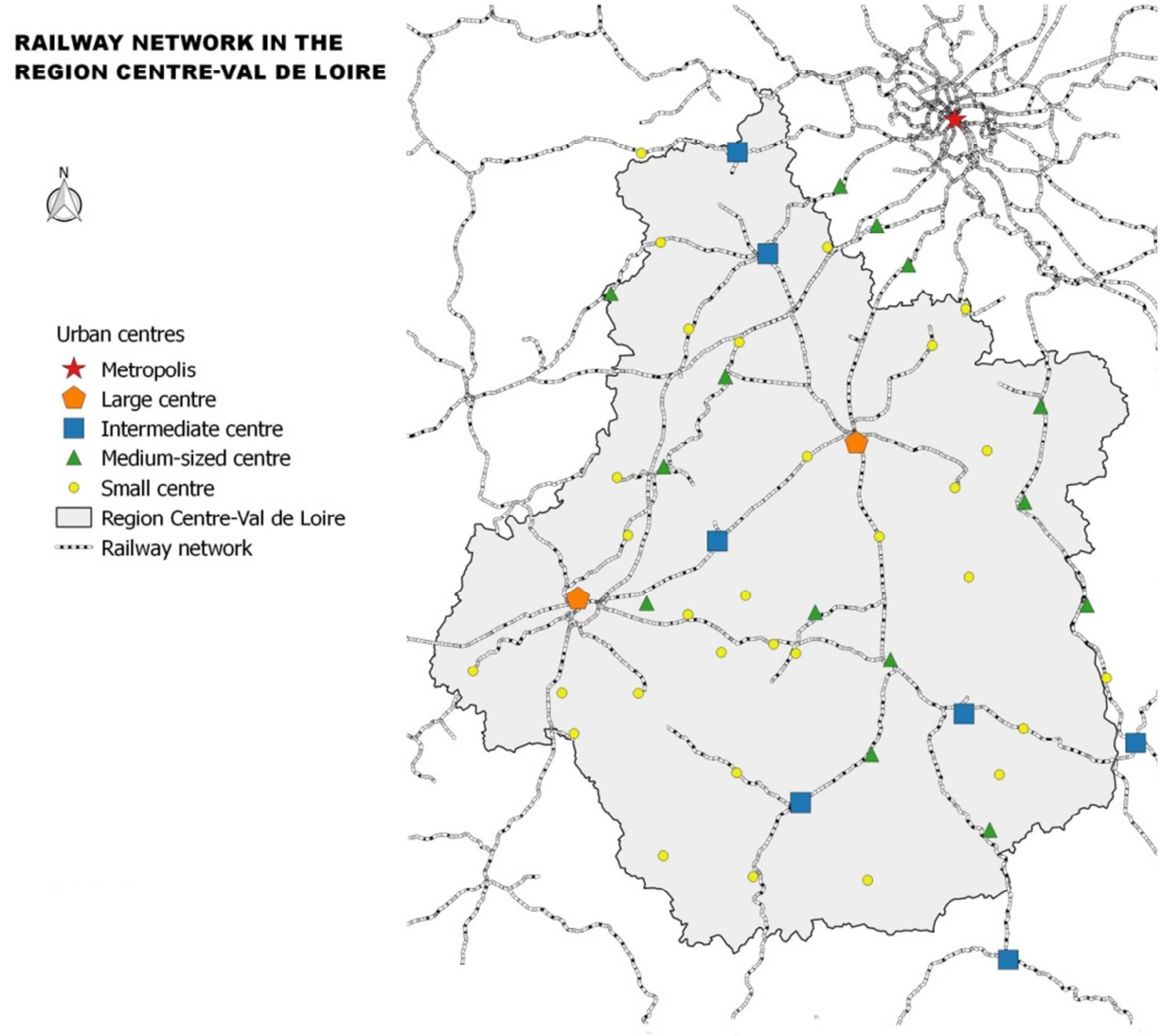
CLASSES OF URBAN CENTRES	Ratio services per residents	Proportion of jobs in retail	Proportion of jobs in public sector	Share of population living and working in the same municipality
Small vs Medium-sized	0	0	* (<)	0
Small vs Intermediate	** (<)	0	*** (<)	0
Small vs Large	0	0	* (<)	0
Medium-sized vs Intermediate	0	0	0	0
Medium-sized vs Large	0	0	0	0
Intermediate vs Large	0	0	0	0

Note: 0 indicates that there was no significant difference in average values, * indicates significance at 95%, ** indicates significance to 99%, *** indicates significance to 99.9%, < indicates lower value.

Source: author, 2015

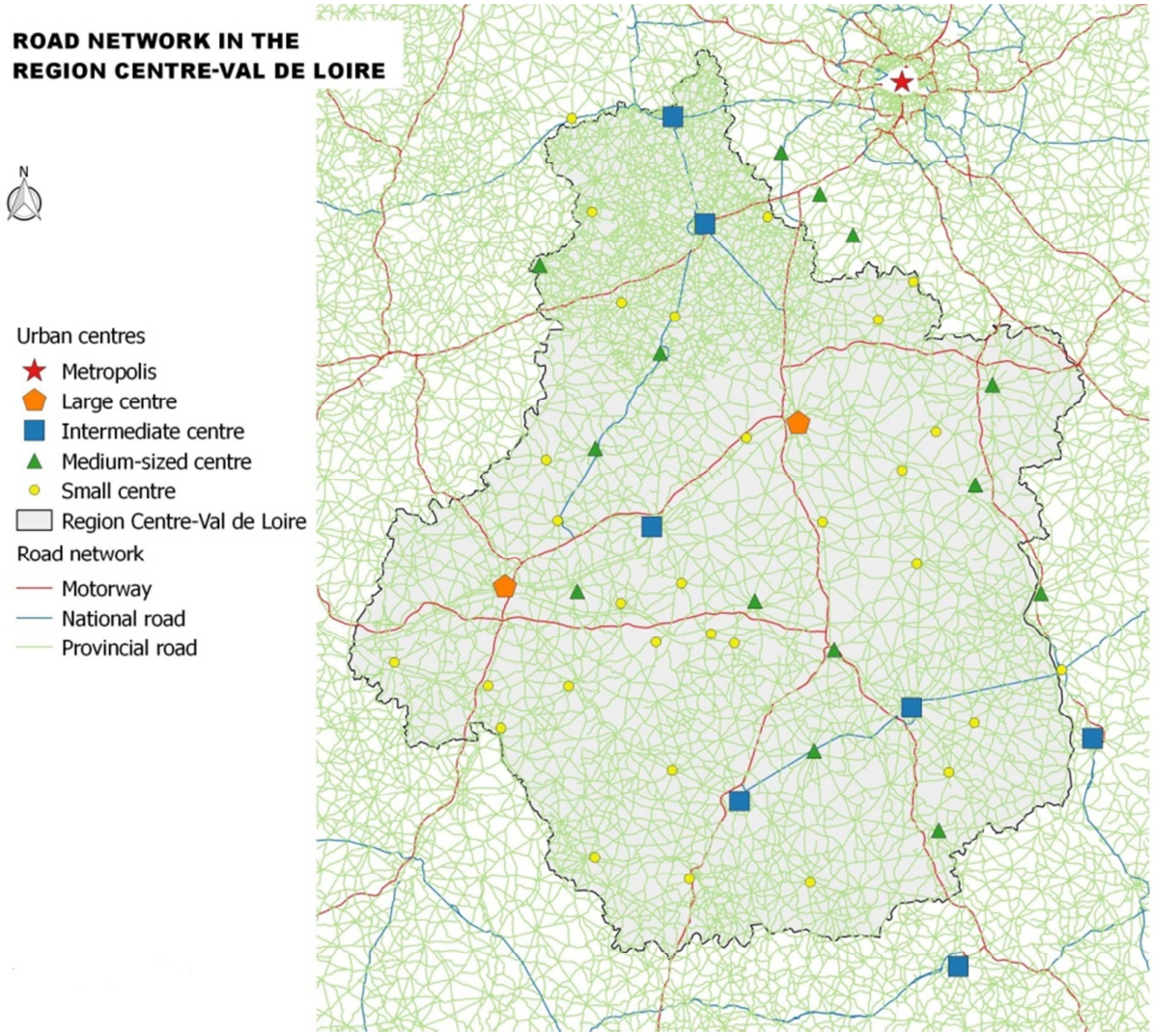
The observation of the infrastructural connectivity by railway and road network among 54 urban centres indicates that 7 small centres (Lorris, Aubigny-sur-Nère, Dun-sur-Auron, La Châtre, Contres, Saint-Aignan and Le Blanc) have no direct access to the railway (Figure 5.13). Nevertheless, the road network comprising motorways, national roads and provincial roads is rather dense and connects all urban centres of the region (Figure 5.14).

Figure 5.13: Railway network in the Centre-Val de Loire region



Source: author, 2015 based on the IGN Map data

Figure 5.14: Road network in the Centre-Val de Loire region



Source: author, 2015 based on the IGN Map data

In terms of average commuting distance between the urban centres, job-commuters from the large centres of Tours and Orléans travel in average the longest distance (186 km) to go to work (in Paris) (Table 5.4). Moreover, job-commuters from the intermediate centres travel in average 47 km to work. Yet, some flows from the intermediate centres are shorter than their class average such as in the case of commuting from Bourges to Avord (21 km) and in the case of commuting from Chartres to Auneau (25 km). Likewise, some commuting distances are longer than their class average as, for example, again in cases of Chartres and Dreux whose job-commuters also travel to the metropolis (Paris) which is about 90 km far.

Table 5.4: Commuting distance (in km) between urban centres in 2012

Size of urban centres	Average	Min	Max
Large urban centres	186	132	240
Intermediate urban centres	47	21	92
Medium-sized urban centres	61	16	226
Small urban centres	41	9	223

Source: author, 2015

When it comes to job-commuting from th emedium-sized urban centres towards other urban centres in the region, the majority of commuters travel in average 61 km from home to work. Nevertheless, some distances for job-commuters from medium-sized centres are shorter: from Châteaudun to Bonneval (16 km); from Vendôme to Montoire-sur-le-Loir (18 km). Likewise, commuting from medium-sized centres such as Vendôme, Montargis, Gien, Châteaudun and Amboise to the metropolis (Paris) is the farthest destination for their commuters (more than 120 km).

Job-commuters from the small urban centres travel in average 41 km from home to work. However, some commuting distances are shorter such as in the case of Selles-sur-Cher and Chabris whose job-commuters travel 9 km to work. As in the case of other urban centres, the commuting distance from small centres such as Auneau, Brou, Bonneval, La Loup, Lorris, Malesherbes, Pithiviers and Saint-Aignan to the metropolis (Paris) is the longest among small urban centres and is more than 70 km long (Table 5.3).

- Functional network between urban centres -

Defined as a variety of territorial arrangements between the urban centres, functional network is measured by the number of territorial arrangements per urban centre (Table 5.5). Tours and Orléans are the urban centres with the least territorial arrangements (one per each). The intermediate urban centres have in average two arrangements with other urban centres; the medium-sized urban centres have in average three arrangements with other urban centres; and the small urban centres have in average two arrangements with other urban centres. Thus, the medium-sized urban centres appear to have slightly more territorial arrangements in average than other urban centres in the region.

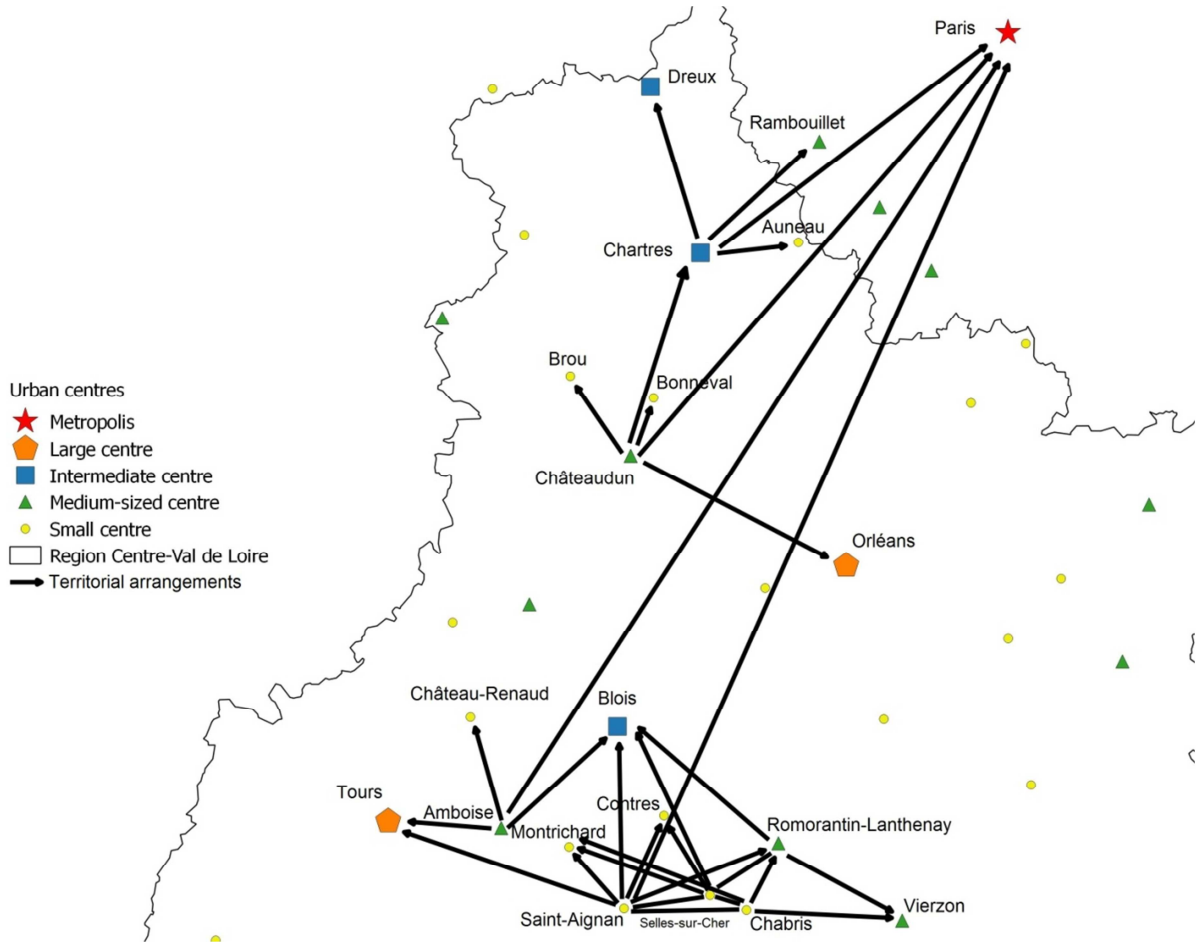
Table 5.5: Number of territorial arrangements between urban centres (average, minimal and maximal) in 2012

Size of urban centres	Average	Min	Max
Large urban centres	1	1	1
Intermediate urban centres	2	1	4
Medium-sized urban centres	3	1	5
Small urban centres	2	1	8

Source: author, 2015

Yet, there are cases of urban centres with a particularly high number of territorial arrangements with other urban centres. For example, Chartres has the highest number of territorial relationships among intermediate urban centres (four); Châteaudun, Romorantin-Lanthenay and Amboise have the highest number of territorial relationships among medium-sized urban centres (five for Châteaudun and four for Romorantin-Lanthenay and Amboise); Saint-Aignan, Selles-sur-Cher and Chabris have the highest number of territorial relationships among small urban centres (eight for Saint-Aignan and six for Selles-sur-Cher and Chabris) (Figure 5.15).

Figure 5.15: Selected urban centres with the highest number of territorial relations

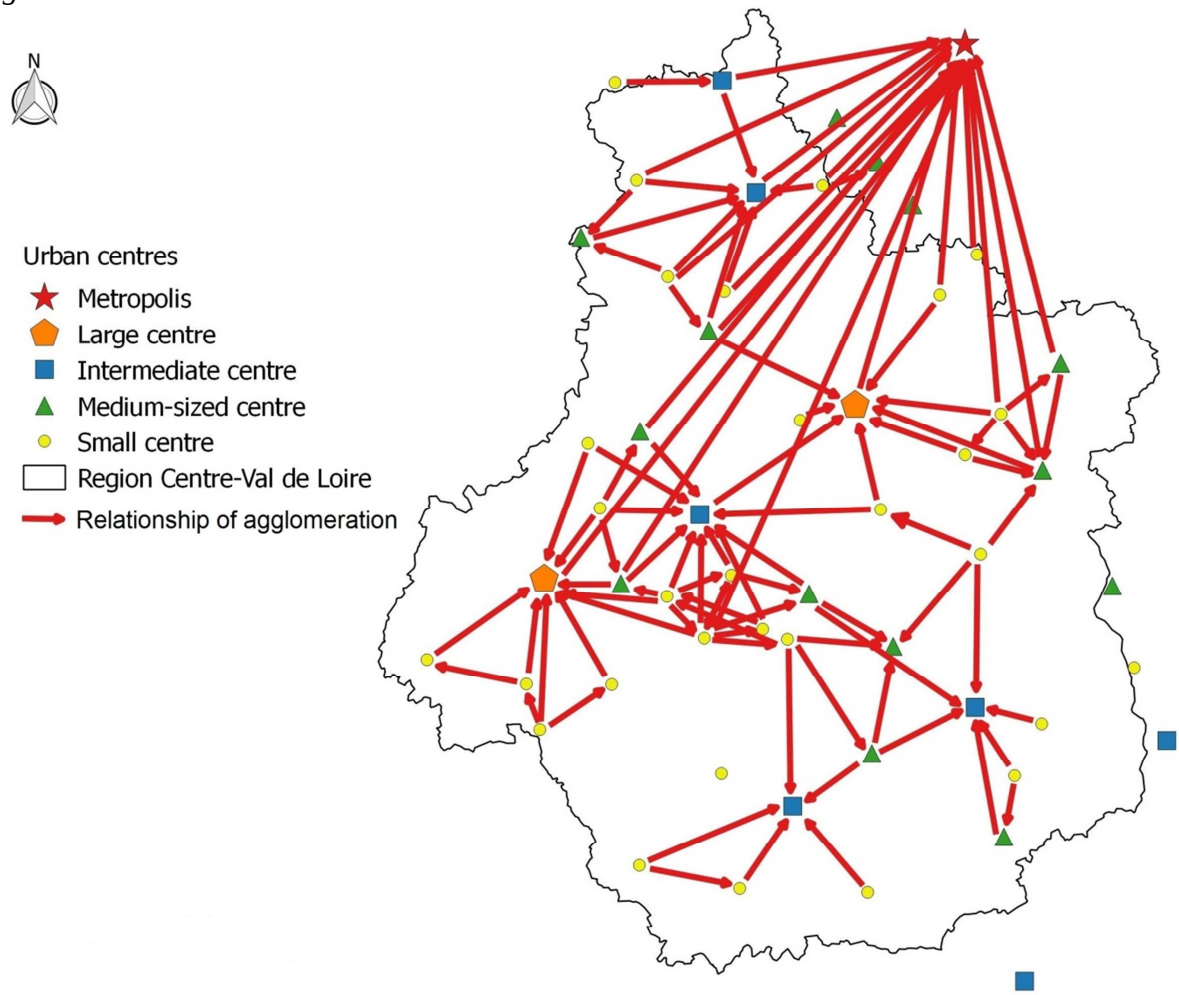


Source: author, 2016

Furthermore, among 125 identified territorial arrangements between urban centres, 96 (76%) of them represent relationships of agglomeration, and 29 (24%) of them represent relationships of networking (Figure 5.16 and Figure 5.17). This suggests that a majority of urban centres experience important outgoing flow of active population towards another urban centre which consequently has an impact on its local labour market. In other words, a majority of urban centres appears to be “subordinated” and dependent (in terms of labour market) on other urban centres. In contrast, fewer centres are networked in a sense that they share their labour markets with no “subordination” of one centre to the other.

Figure 5.16: Territorial arrangements between agglomerated urban centres

Agglomerated urban centres



Source: author, 2015

Moreover, among the agglomerated centres, the large ones (Tours and Orléans) have in average only one such relationship (with the metropolis, Paris). The intermediate urban centres have also in average only one relationship of agglomeration with the urban centres of a higher rank or of the same rank. For instance, Chartres is an intermediate centre that is agglomerated to the metropolis (Paris), Blois is agglomerated to a large urban centre (Orléans), Dreux is agglomerated to the metropolis (Paris) and to another intermediate urban centre (Chartres).

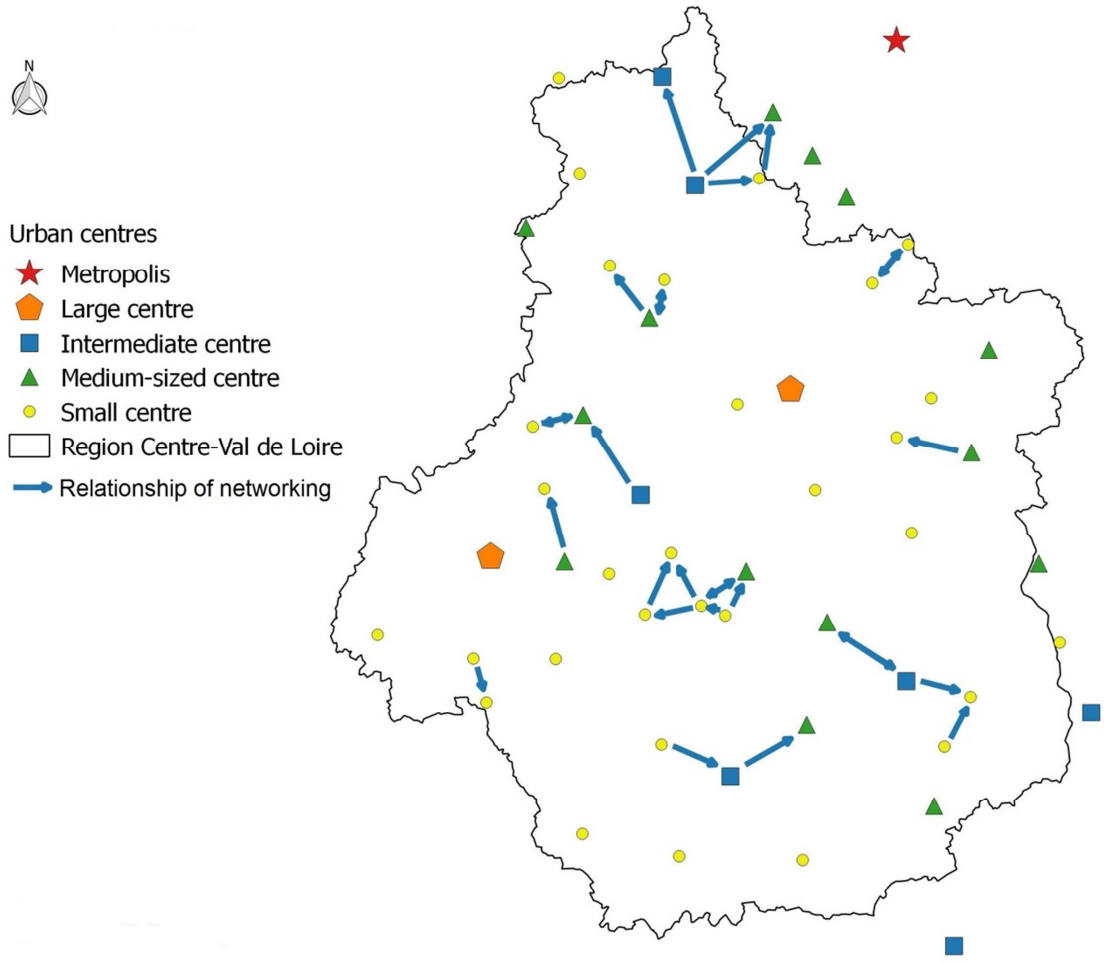
Considering the medium-sized urban centres, they have in average two relationships of agglomeration. In most cases, they are agglomerated to the urban centres of a higher rank: Paris, Tours, Orléans, Blois, Chartres, Châteauroux and Bourges. Nevertheless, there are some medium-sized urban centres that are agglomerated to another urban centre of the same size. For example, Issoudun and Romorantin-Lanthenay are medium-sized urban centres that are both agglomerated to Vierzon which is another medium-sized urban centre. Montargis is a medium-sized urban centre agglomerated to Gien, a medium-sized urban centre as well. When it comes to small urban centres, they have in average three relationships of agglomeration with other centres of a higher rank, but also of the same rank. For instance,

Descartes is a small urban centre agglomerated to Loches which is another small urban centre; Le Blanc is agglomerated to Argenton-sur-Creuse; Contres is agglomerated to Saint-Aignan; Auneau is agglomerated to Dourdan (Figure 5.16).

The fact that there are agglomeration relationships between the medium-sized and small urban centres indicates the existence of different degrees of attractiveness in local labour markets. More precisely, it seems that some of those centres succeed to attract the workforce not only from within their functional areas but also from other neighbouring urban centres. Hence, despite holding the same rank in the urban hierarchy, some urban centres have a higher degree of labour attractiveness than other urban centres of the same size. In the Centre-Val de Loire region, that is the case of Vierzon and Gien among medium-sized centres and Loches, Argenton-sur-Creuse, Saint-Aignan and Dourdan among small urban centres. These exceptional urban centres demonstrate that the centrality in terms of the labour market is not only a function of the size and the hierarchical position as its direct consequence (the argument of the central place theory), but there are also other forces of attractiveness in the urban system that favour smaller urban centres over the larger ones.

Figure 5.17: Territorial arrangements between networked urban centres

Networked urban centres



Source: author, 2015

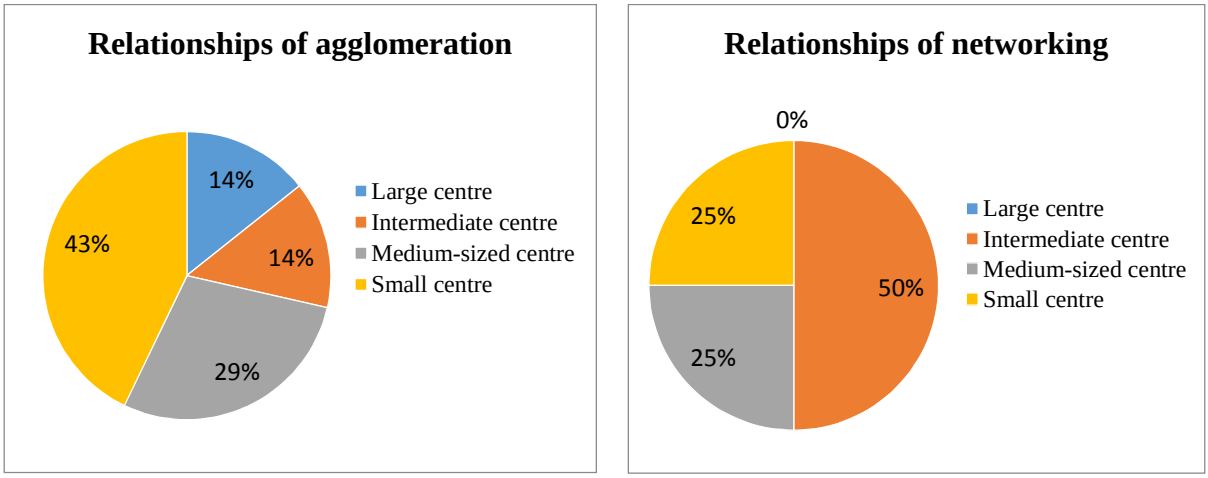
Networked relationships between the urban centres are much less frequent in this regional urban system. The large urban centres have no networked relationship at all (Figure 5.17). The intermediate urban centres have in average two relationships of networking in most cases with the centres of a lower rank. For instance, Blois is an intermediate centre that is networked with Vendôme which is a medium-sized centre. Bourges is an intermediate centre that is networked with a medium-sized centre (Vierzon) and a small centre (Avord). Châteauroux is an intermediate urban centre that is networked with Issoudun, a medium-sized centre. Chartres is an intermediate centre that is networked with an intermediate (Dreux), a medium-sized (Rambouillet) and a small (Auneau) urban centre.

The medium-sized urban centres have in average one relationship of networking with another centre of a lower rank. To give some examples, Amboise is a medium-sized centre that is networked with Château-Renault, a small centre. Châteaudun is a medium-sized centre that is networked with two small centres (Bonneval and Brou). Gien is a medium-sized centre that is networked with Sully-sur-Loire, a small urban centre.

Considering the small urban centres, they also have in average one relationship of networking, but with the centres of different ranks. For instance, Buzançais is a small urban centre that is networked with an intermediate urban centre (Châteauroux); Montoire-sur-le-Loir is a small urban centre that is networked with Vendôme, a medium-sized urban centre; Selles-sur-Cher is a small urban centre that is networked with a medium-sized urban centre (Romorantin-Lanthenay) and a small urban centre (Saint-Aignan) (Figure 5.17).

The networked relationships between the urban centres of different classes points at the fact that some centres may share local workforce pool which consequently may lead to a balance of labour markets of urban centres involved in such territorial arrangement. In contrast to territorial relationships of agglomeration in which one centre is the provider and the other is the receiver of workforce, in networked territorial relationships, both centres are providers and receivers of workforce. In the regional urban system of Centre-Val de Loire, these networks are less frequent and more local in a sense that they are more constrained by spatial proximity of urban centres involved in such territorial arrangement.

Figure 5.18: Type of territorial arrangements between urban centres (average %)



Source: author, 2015

In general, the small urban centres are most likely to be agglomerated to the urban centres of a higher rank. In contrast, the intermediate and large urban centres are less likely to be in that situation due to their higher rank in the regional urban system. However, in spite of their relatively high rank in the system, the intermediate urban centres are involved in a half of all territorial arrangements of networking in the region. The other half of all territorial arrangements of networking consists of the small and medium-sized urban centres. Thus, we may observe two different dynamics in the regional urban systems. On the one hand, the metropolis and large urban centres rely on in-coming flow from the smaller centres which in turn has an important impact on labour markets of the latter. Yet, at a lower local level, some urban centres that are lower in rank share their workforce and create a labour pool through a balanced network of intermediate, medium-sized and small urban centres.

5.1.4 Conclusion of section 5.1

The functional analysis proved the prevalence of small and medium-sized urban centres in the regional urban system of Centre-Val de Loire which suggests their important role in provision of functions for the rest of the territory. The medium-sized urban centres appear to provide functions to the neighbouring small towns, very small towns and villages, while the small urban centres seem to provide functions to the neighbouring very small towns and villages. The results also indicate that a better accessibility to services and labour market is in th esmall urban centres compared to the small municipalities that are not the urban centres. Likewise, a better accessibility to labour market is found in the medium-sized urban centres rather than in the medium-sized municipalities that are not the eurban centres. Thus, affirming the Christaller's sense of hierarchy, the urban centres in the Centre-Val de Loire region seem to have a spatial radiance over the settlements of a lower rank and some may even prevail over municipalities of the same class by offering more important functions. Moreover, compared to the intermediate and large urban centres, the small and medium-sized centres do not differ in either connectivity to other urban centres or in accessibility to services and labour market. However, they do differ in accessibility to public services which are found to be more accessible in the intermediate and large urban centres. Finally, considering the territorial arrangements between the urban centres, the small and medium-sized centres appear to be the generators of the regional flow and polycentricity since they maintain the highest number of territorial relationships with other urban centres in the region.

In the following section, we will present the results of the socio-economic analysis of urban centres and their functional areas. More precisely, we will explore the dynamics between firms, urban centres and hinterland and sectorial clusters.

SECTION 5.2: Exploring the economic networks of the regional urban system

The second objective of the research was to relate the concept of economic network to the concept of small and medium-sized towns. In that respect, in the previous chapter we presented the methods used in the socio-economic analysis of the regional urban system that explored the dynamics at three different spatial scales: inter-firm, centre-periphery and clusters. The socio-economic analysis used three software SPSS Statistics, GraphPad InState and QGIS in order to examine the differences in socio-economic functioning of cities and towns and the creation of economic networks at different spatial scales. In that respect, the following section has three objectives. The first objective is to present the economic dynamics that take place at the level of firms located in the Centre-Val de Loire region. In other words, we will explore firms' localization by type and sector as well as their capabilities to reach economies of scale and scope. The second objective is to present the economic dynamics taking place at the level of urban centres and hinterland. More precisely, we will analyze the differences between centres and peripheries in terms of economic performance, spatial location of economic sectors and models of development. The third objective is to analyse the dynamics at the level of clusters of functional areas in the Centre-Val de Loire region. Thus, we will focus on the selected functional areas in order to explore sectorial agglomeration, co-agglomeration and synergy effects that take place in a group of functional areas that share a common economic trajectory.

5.2.1 Inter-firms' dynamics

As argued by the scientific research on networks of actors which we presented in the first chapter, economic activities, productivity and innovation are embedded in existing social conditions. The economic agents (firms) within a town connect to the agents in other towns and cities as they look for new sources of information, ideas, knowledge, etc. Their relationship may be based on both competition and cooperation, yet the basic postulate is that there is an exchange between actors that enables innovations, access to new markets, economies of scale and sharing of risks and costs. In the first part of this subsection we will present the typology of firms according to their localization in different functional areas. In the second part of the subsection we will explore the capabilities of local firms to reach economies of scale and scope across the functional areas in the region.

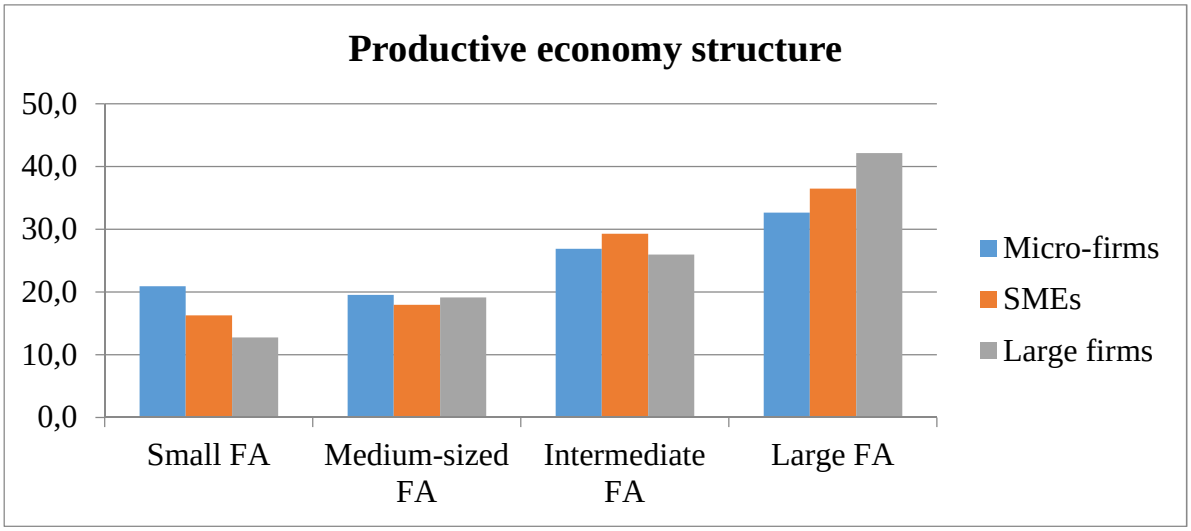
- Typology of local firms -

When it comes to the firms of the Centre-Val de Loire region, there are important differences between the two type of local economy (productive and residential) and between the classes of functional areas (small, medium-sized, intermediate and large) (Figure 5.19 and Figure 5.20).

As regards to the productive economy, the functional areas of Tours and Orléans concentrate over 9,300 firms of all sizes (or 34% of total firms) which are active in productive sectors. In other words, those are the areas that contain a majority of regional productive micro-firms (33%), SMEs (37%) and large firms (42%). The intermediate functional areas count over 7,600 firms of all sizes (or 27% of total firms) in the productive economy. Yet, productive SMEs seem to slightly prevail (29%) over micro-firms and large firms in these areas. Considering the medium-sized functional areas, they host more than 5,300 firms (or 19% of total firms) among which all three types of firms are almost equally represented. Around 19% of regional productive micro-firms, SMEs and large firms are located in the medium-sized functional areas. In contrast, the small functional areas host slightly more firms than the medium-sized ones (more than 5,500 firms or 20% of total) due to the fact that 21% of regional productive micro-firms are located in the small areas compared to 19% of regional micro-firms in th emedium-sized areas. Yet, the regional productive SMEs and the large firms tend to located more in the medium-sized functional areas than in the small functional areas (Figure 5.19)

Therefore, the distribution of firms (in number and by type) active in the productive economy appears to be closely related to the class of functional areas. The larger is the functional area, the greater is the size of firms and the greater is the concentration of productive firms. For instance, the productive economy of the large functional areas is mainly based on large firms. The productive economy of the intermediate functional areas is made of predominately SMEs. The productive economy of the medium-sized functional areas has all three types of firms (micro-firms, SMEs, and large firms) almost equally represented. Finally, the productive economy of the small functional areas tends to be predominately made of micro-firms while the number of SMEs and large firms is the lowest in the region.

Figure 5.19: Localization of productive economy firms by type in the four classes of functional areas in 2012 (%)

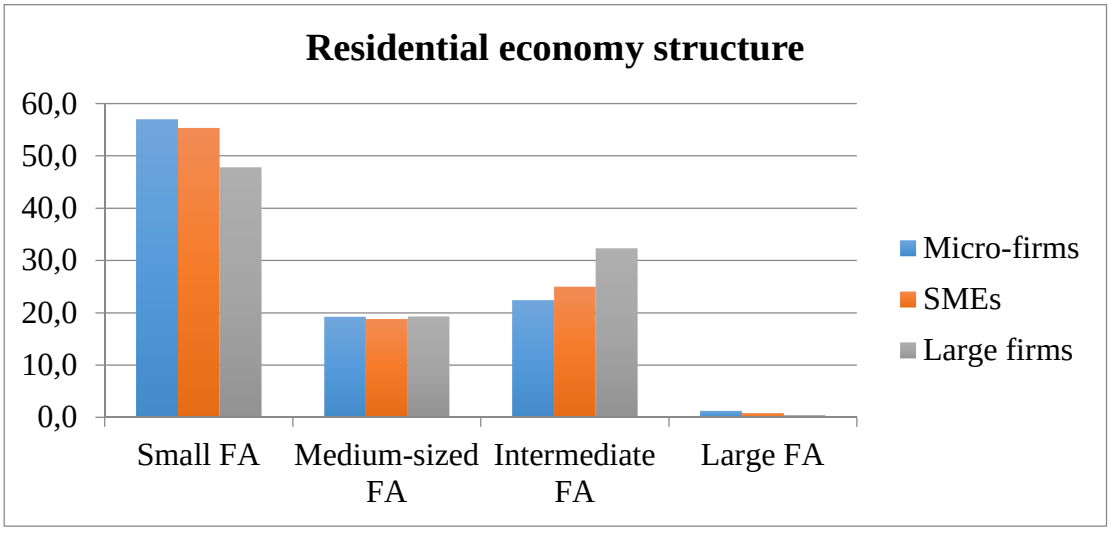


Source: author, 2016

In contrast, when it comes to the residential economy, the large functional areas of Tours and Orléans concentrate the least firms (around 460 firms or 1.2% of total firms) which are active

in residential sectors. In fact, the large functional areas host the smallest share of regional firms oriented to the residential economy. The intermediate functional areas count over 9,000 firms of all sizes (or 23% of total firms) in the residential sectors. Moreover, large firms seem to prevail (32%) over micro-firms and SMEs. Considering the medium-sized functional areas, they host more than 7,500 firms (or 19% of total firms) among which all three types of firms are equally represented. Around 19% of regional micro-firms, SMEs and large firms active in the residential economy are located in the medium-sized functional areas. Surprisingly, more than 22,300 residential economy firms are located in the small functional areas which make a majority of all firms in the region (57% of total firms) (Figure 5.20).

Figure 5.20: Localization of residential economy firms by type in the four classes of functional areas in 2012 (%)



Source: author, 2016

The number of residential economy firms of all sizes, which is by far the highest in small functional areas as compared to the rest of the region, suggests the orientation of local economy of smaller areas towards the residential demand and services to population. Their economy appears to be made of predominately micro-firms and SMEs. In contrast, the number of firms in the residential economy of other areas is quite lower compared to the small ones. Especially, there are few firms in the two large functional areas of Tours and Orléans.

- Economies of scale and scope -

If observed more in detail, the structure of firms in productive and residential local economies across functional areas indicates the division into two categories of, on the one hand, the small and medium-sized areas and of the intermediate and large areas on the other (Table 5.6 and Table 5.7).

Considering the six sectors of the productive economy, the large functional areas (Tours and Orléans) tend to host few large firms that form an oligopoly in most productive sectors:

electro-industry, ITC, R&D, and transportation and logistics. Agro-industry seems to be differently structured in the large functional areas: the one of Tours is structured of micro-firms and the one of Orléans is structured as an oligopoly. Agriculture is the only productive sector that is equally structured in all functional areas in the Centre-Val de Loire region: micro-firms and SMEs.

The functional areas of small and medium-sized urban centres generally seem to have different firms' structure in the productive economy in comparison to those of intermediate and large urban centres. Their productive economy is largely depending on micro-firms and SMEs. Agro-industry, electro-industry, and logistics tend to be structured of SMEs in a majority of small and medium-sized areas.

Yet, there are some slight differences. First, the small areas tend to base ITC and R&D sectors more on micro-firms and less on SMEs unlike in the medium-sized areas. Second, there are no oligopolies in the productive economy of small functional areas compared to the ones of medium-sized which have it in electro-industry and R&D (e.g. Châteaudun and Montargis). Third, monopolies in the productive economy seem to be less the case in the small functional areas than in the medium-sized functional areas: e.g. sectors of agro-industry, electro-industry, and transportation and logistics (Table 5.6).

Table 5.6: Firms' structure (productive sectors) in the functional areas in 2012 (%)

	Types of firms	Agriculture	Agro-industry	Electro-industry	ITC	R&D	Transport and logistics
Small FA	Micro-firms	89.3	42.9	8.3	77.3	53.6	0.0
	SMEs	10.7	50.0	75.0	22.7	39.3	89.3
	Oligopoly	0.0	0.0	0.0	0.0	0.0	0.0
	Monopoly	0.0	7.1	16.7	0.0	7.1	10.7
Medium FA	Micro-firms	90.0	40.0	0.0	40.0	20.0	0.0
	SMEs	10.0	50.0	50.0	60.0	70.0	70.0
	Oligopoly	0.0	0.0	10.0	0.0	10.0	0.0
	Monopoly	0.0	10.0	40.0	0.0	0.0	30.0
Intermediate FA	Micro-firms	80.0	0.0	0.0	0.0	0.0	0.0
	SMEs	20.0	60.0	40.0	60.0	0.0	40.0
	Oligopoly	0.0	20.0	60.0	0.0	80.0	40.0
	Monopoly	0.0	20.0	0.0	40.0	20.0	20.0
Large FA	Micro-firms	100.0	50.0	0.0	0.0	0.0	0.0
	SMEs	0.0	0.0	0.0	0.0	0.0	0.0
	Oligopoly	0.0	50.0	100.0	100.0	100.0	100.0
	Monopoly	0.0	0.0	0.0	0.0	0.0	0.0

Source: author, 2016

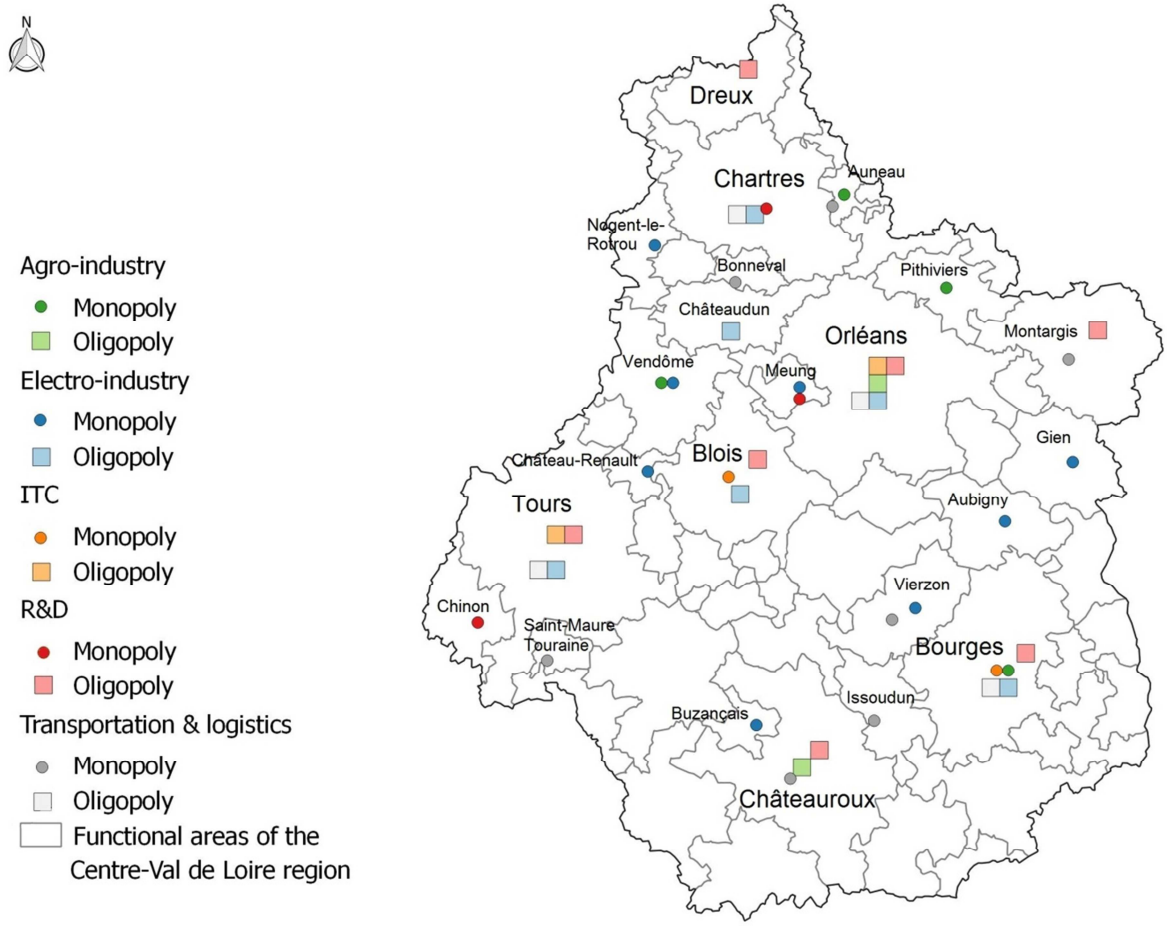
Overall, the sectors of productive economy seem to be quite differently structured in the large and intermediate functional areas compared to the small and medium-sized ones (Figure 5.21). The functional areas of large urban centres (Tours and Orléans) host oligopolies of large firms in almost entire productive economy which are capable, through coopetition, to reach economies of scale and scope. For instance, among five productive sectors, the area of

Orléans hosts all five oligopolies and the area of Tours hosts four oligopolies (electro-industry, ITC, R&D, and transportation and logistics).

The intermediate functional areas have the highest number of monopolies in the productive economy among the regional functional areas. Yet, as they also host oligopolies in diverse sectors such as agro-industry, electro-industry, R&D, and logistics, they seem also capable of reaching economies of scale and scope.

In contrast, the productive economy in the small and medium-sized functional areas is mainly based on micro-firms and SMEs. Thus, there are few areas that may reach economies of scale and scope. For instance, among the medium-sized functional areas, only those of Vendôme, Montargis and Vierzon have two large firms in productive sectors: agro-industry and/or electro-industry and/or logistics. Among the small functional areas, only those of Auneau and Meung-sur-Loire may reach economies of scale and scope as they host large firms in two productive sectors: agro-industry and logistics (Auneau) and electro-industry and R&D (Meung-sur-Loire) (Figure 5.21).

Figure 5.21: Economies of scale and scope (productive economy)



Source: author, 2016

Considering the seven sectors of the residential economy, again the differences seem to prevail between the large and intermediate functional areas in comparison to the medium-sized and small ones (Table 5.7). The large functional areas (Tours and Orléans) tend to host few large firms that form an oligopoly in the most residential sectors: construction, finances, retail and public services. Real-estate seems to be differently structured in the large functional areas: the one of Tours is structured of few large firms (oligopoly) and the one of Orléans is made of a one large firm (monopoly). Likewise, services to population in the functional area of Tours are provided by SMEs while in the functional area of Orléans they are provided by one large firm.

Table 5.7: Firms' structure (residential sectors) in the functional areas in 2012 (%)

		Construction	Finance	Real estate	Retail	Hosting services	Services population	Public services
small FA	Micro-firms	50.0	100.0	88.5	17.9	82.1	75.0	0.0
	SMEs	50.0	0.0	11.5	75.0	14.3	25.0	71.4
	Oligopoly	0.0	0.0	0.0	0.0	3.6	0.0	7.1
	Monopoly	0.0	0.0	0.0	7.1	0.0	0.0	21.4
medium FA	Micro-firms	40.0	70.0	70.0	0.0	50.0	90.0	0.0
	SMEs	60.0	20.0	30.0	50.0	50.0	10.0	0.0
	Oligopoly	0.0	0.0	0.0	0.0	0.0	0.0	60.0
	Monopoly	0.0	10.0	0.0	50.0	0.0	0.0	40.0
intermediate FA	Micro-firms	0.0	20.0	0.0	0.0	20.0	20.0	0.0
	SMEs	60.0	20.0	100.0	0.0	80.0	80.0	0.0
	Oligopoly	0.0	20.0	0.0	100.0	0.0	0.0	100.0
	Monopoly	40.0	40.0	0.0	0.0	0.0	0.0	0.0
large FA	Micro-firms	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	SMEs	0.0	0.0	0.0	0.0	100.0	50.0	0.0
	Oligopoly	100.0	100.0	50.0	100.0	0.0	0.0	100.0
	Monopoly	0.0	0.0	50.0	0.0	0.0	50.0	0.0

Source: author, 2016

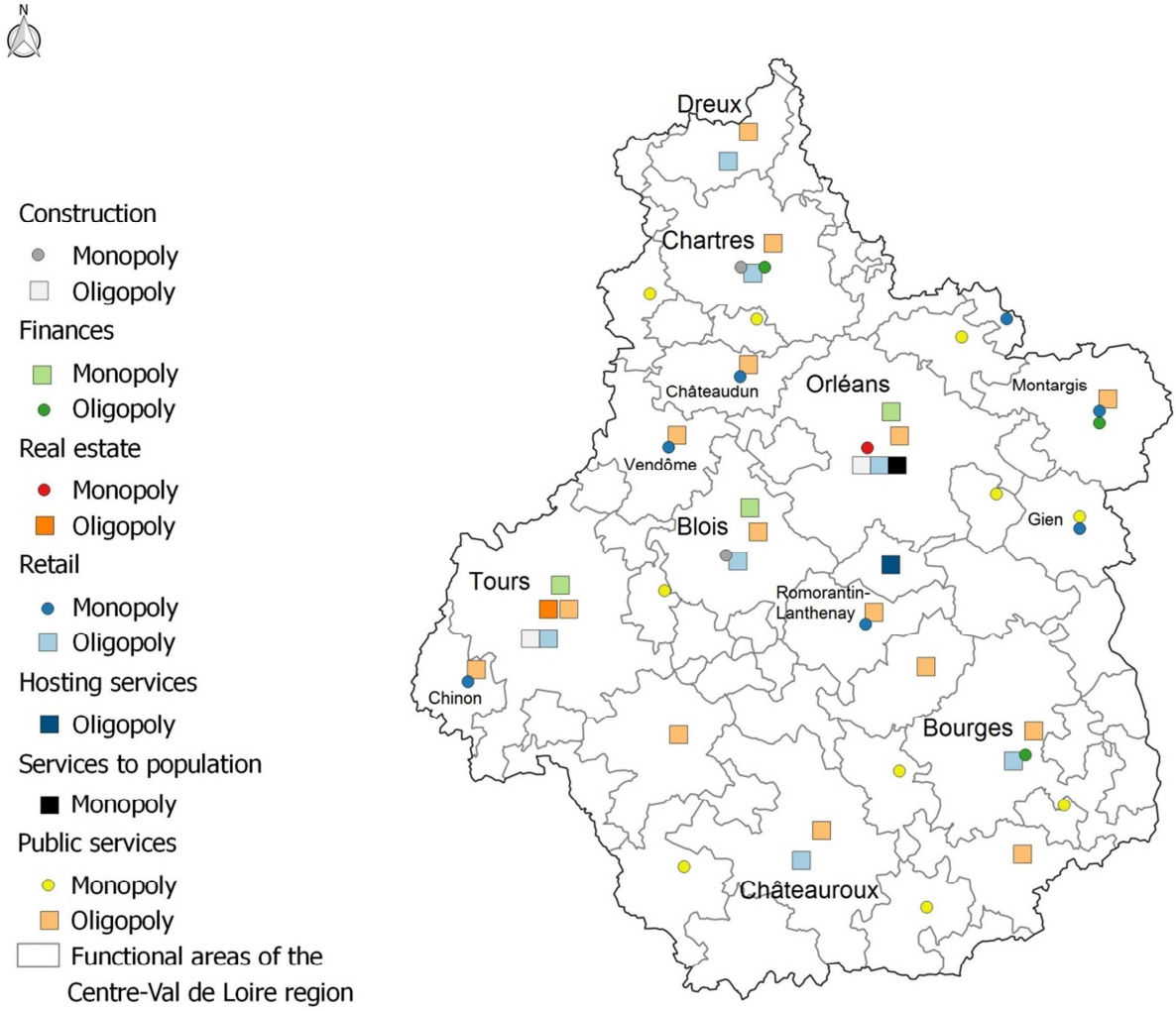
The small and medium-sized functional areas generally seem to have different firms' structure in the residential economy in comparison to those of intermediate and large urban centres. Their residential economy is largely made of micro-firms and SMEs. Sectors such as finances, real estate, hosting services and services to population tend to be structured of micro-firms, while construction sector is made of both micro-firms and SMEs.

Yet, there are some interesting differences between the small and medium-sized functional areas. First, retail and public services are mostly provided by SMEs in the small functional areas, while in the medium-sized areas they tend to be provided by large firms. Second, the small functional areas have fewer oligopolies (e.g. retail, hosting and public services) unlike the medium-sized functional areas which have in a greater number (e.g. public services, retail and finances) (Table 5.7).

Therefore, considering economies of scale and scope, the residential economy of large functional areas such as Tours and Orléans is made of oligopolies in different residential sectors which are capable to reach economies of scale and scope (Figure 5.22). For instance, both Tours and Orléans have oligopolies of large firms in construction, finances, retail and public services.

In contrast, as the residential economy in the esmall and medium-sized functional areas is mainly made of micro-firms and SMEs, only few of them are able to reach economies of scale and scope. For instance, among the medium-sized functional areas, Vendôme, Montargis, Châteaudun, Romorantin-Lanthenay and Gien have at least two large firms in residential sectors: public services and/or retail and/or finances. Among the small functional areas, only the one of Chinon appears capable of reaching economies of scale and scope as it hosts few large firms that provide public services and one large retail firm.

Figure 5.22: Economies of scale and scope (residential economy)



Source: author, 2016

Overall, the analysis of inter-firms' dynamics across the functional areas pointed at the existence of a gap between the large and intermediate areas on the one hand, and the

medium-sized and small areas on the other. The productive firms, especially the large ones, prefer to locate in large and intermediated areas. Thus, we may observe a concentration of productive firms on a few large and intermediate functional areas. As they host large firms, the large and intermediate functional areas tend to organize their productive sectors into oligopolies and monopolies which clearly reach economies of scale and scope, but which also may limit competition and new entrances. In contrast, the small and medium-sized functional areas appear to attract fewer productive firms and when they do, it is mostly the case of micro-firms and SMEs. There are few small and medium-sized functional areas that reach economies of scale and scope due to the fact that most areas have fragmented productive sectors made of many small firms.

When it comes to the firms which are oriented to local markets (residential economy), they seem to prefer location in the smaller functional areas than in the larger ones. Moreover, the residential economy in the large and intermediate functional areas again tends to be structured of one or few large firms (oligopoly and monopoly), while in the small and medium-sized functional areas the residential economy is made of micro-firms and SMEs. As in the case of productive economy, the large and intermediate functional areas host large residential firms which are capable to reach economies of scale and scope. This is again less the case of the small and medium-sized functional areas whose residential sectors are mostly made of smaller firms.

In the following subsection we will compare the socio-economic dynamics between the urban centres and their hinterland. More precisely, we will evaluate the differences between centres and peripheries in terms of economic performance, location of economic sectors and economic profiles.

5.2.2 Core – periphery dynamics

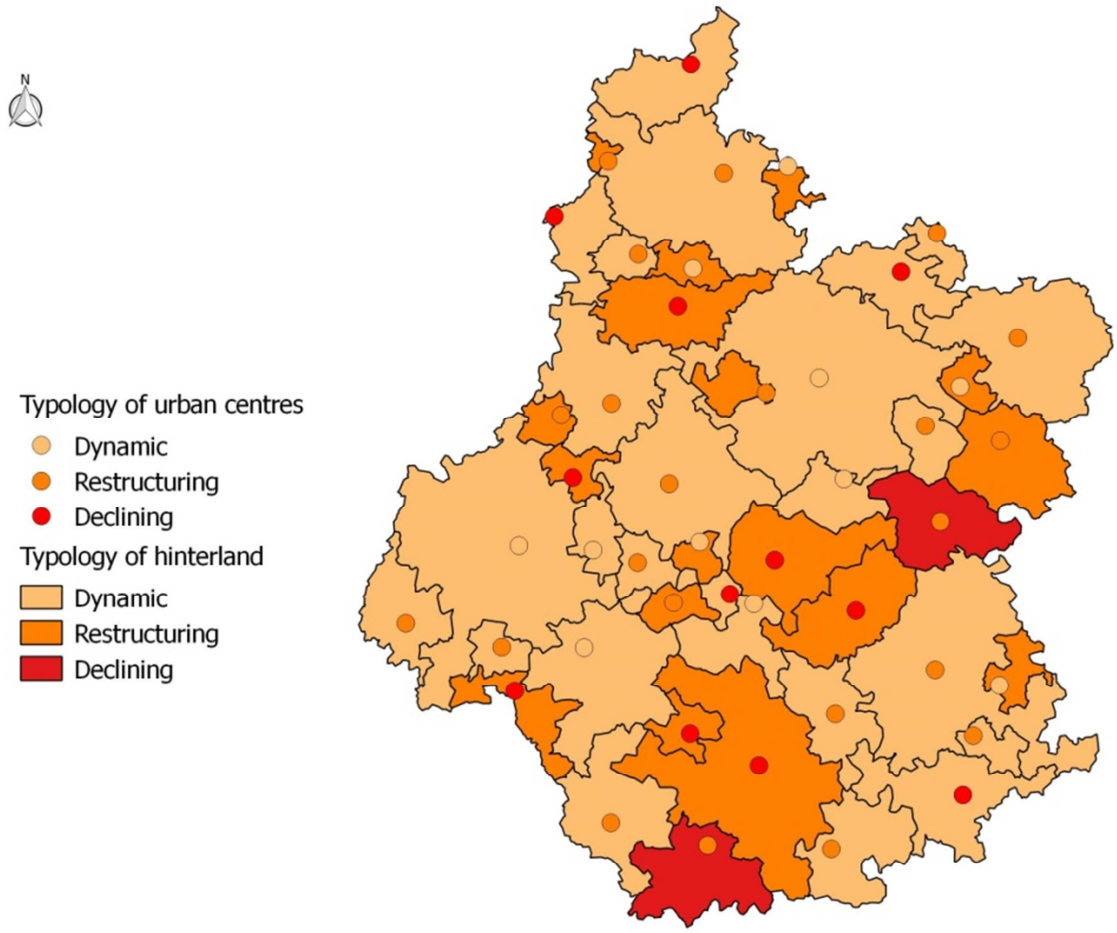
As demonstrated in the previous chapters, the traditional mainstream theories observe an urban system as mono-centrals in which peripheral areas depend on core areas, a concentration of flow, attractiveness and territorial organization. Howver, Gaschet and Lacour (2002) pointed at the presence of coordination and networking of actors and activities located across the urban system. In that scope, a periphery as much as an urban centre may experience specializations and thus change a traditional understanding of hierarchical order of an urban system.

In the first part of this subsection we will present the differences in economic performance of the urban centres and their hinterland. In the second part of the subsection we will explore the differences in localization coefficient between the four classes of urban centres and their respective hinterland. We will also create a typology of economic profiles and compare them between the centres and the peripheries. In the third part of the subsection we will cross the typologies and conclude with some models of small and medium-sized towns.

- Economic performance -

Defined by the change of population size and/or employment over the period 2012-1999, economic performance seems to vary among urban centres (Figure 5.23). The large urban centres of Tours and Orléans as well as their hinterland had a positive change of population and employment in the period 2012-1999. Thus they were the most dynamic urban centres in the Centre-Val de Loire region. During the same period, a majority of intermediate urban centres was in the process of restructuring in favour of employment which means that they gained new jobs but they lost in population. In contrast, the hinterland of intermediate centres seems to have been more attractive to population and jobs than their centres. For instance, while intermediate urban centres such as Chartres, Blois, Dreux and Bourges lost population and/or jobs, their hinterland remained dynamic and gained both new population and new jobs in the same period.

Figure 5.23: Economic performance of the four classes of urban centres and hinterland in 2012 compared to 1999 (%)



Source: author, 2016

As regards to the medium-sized urban centres, a half of them experienced a decline in the sense that they lost population and jobs over the period 2012-1999. Yet, their hinterland seems to have experienced the opposite dynamic: it increased both the number of population and jobs. When it comes to the small urban centres, they are in most cases dynamic and

restructuring in favour of new jobs. The hinterland of small urban centres seems to experience positive dynamics as well and only few cases of small hinterland is found to be in worst situation then their centres (e.g. the hinterlands of Argenton-sur-Creuse and Aubigny-sur-Nère were in decline) (Figure 5.23).

Thus, it may be suggested that the urban centres with the exception of the large ones, generally lost population, but gained new jobs over the period 2012-1999. At the same time, a large majority of hinterland, regardless the size of their centre, experienced positive dynamics in terms of increases of population and jobs. These are direct consequences related to urban sprawl. Evidently, over the period 2012-1999, population moved from centres to periphery, but maintained to work in centres. In that context, the medium-sized urban centres finished to be particularly vulnerable to decline unlike the small urban centres which benefited from such trend and ended to be more dynamic than in the previous decades.

The t-test of population and jobs changes between the urban centres and their peripheries in the period 2012-1999 suggests that there are some significant differences (Table 5.8). First, the small, medium-sized and intermediate urban centres had a negative population change (between -2% and -6%), while their peripheries had a positive population change (between +10% and +12%). The exceptions are the large urban centres and their peripheries which all had positive population changes. Second, when it comes to the employment change in the same period, the medium-sized, intermediate and large urban centres and their respective peripheries had positive changes. The exception was the hinterland of small urban centres which had a negative employment change over the period 2012-1999. Thus, the employment change in the urban centres was not significantly different from the employment change in their periphery (except in the case of small urban centres) which indicates that the creation of jobs is more resistant to remain in centres than the population. Yet, as jobs generally increased in a greater pace in peripheries than in centres, it may be suggested that the creation of new jobs tend to follow the population.

Table 5.8: T-test between the urban centres and their hinterland in 2012 compared to 1999 (%)

	Small centres	Two-tailed P	Hinterland small centres	Mid-size centres	Two-tailed P	Hinterland mid-size centres
Population change (2012-1999)	- 2.3%	≠ (P < 0.0001)	+ 10.2%	- 7.6%	≠ (0.0007)	+ 10.1%
Employment change (2012-1999)	+ 4.9%	≠ (0.0086)	- 0.7%	- 0.2%	= (0.6305)	+ 0.5%

	Intermed. centres	Two-tailed P	Hinterland intermed. centres	Large centres	Two-tailed P	Hinterland large centres
Population change (2012-1999)	- 6.4%	≠ (0.0079)	+ 12.4%	+ 1.4%	= (0.3333)	+ 17.2%
Employment change (2012-1999)	+ 1.8%	= (0.3095)	+ 2.7%	+ 8.9%	= (0.6100)	+ 11.5%

Source: author, 2015

Moreover, the correlation between the size of urban centres and population and employment changes is not significant (Table 5.9). Thus, it cannot be concluded that the increase or decrease of population and jobs is related to the size of an urban centre. Furthermore, the correlation between the proximity of a centre to a larger one and the population and employment changes is also not significant. Thus, it cannot be stated either that the increase or decrease of population or jobs in an urban centre is related to its proximity to a larger urban centre.

Table 5.9: Spearman correlation coefficient 2012 compared to 1999

Correlating variables	Coefficient scores	Stat. significance
Coefficient between the size of urban centre and the change in population (2012-1999)	R = -0.27678, P = 0.06568	Not significant
Coefficient between the size of urban centre and the change in employment (2012-1999)	R = -0.26792, P = 0.07517	Not significant
Coefficient between the distance of small and medium-sized urban centres from intermediate and large urban centres and the change in population (2012-1999)	R = -0.3098, P = 0.05838	Not significant
Coefficient between the distance of small and medium-sized urban centres from intermediate and large urban centres and the change in employment (2012-1999)	R = -0.22989, P = 0.16499	Not significant

Source: author, 2015

If observing the jobs changes before and after the financial and economic crisis of 2008, it seems that the crisis affected equally all urban centres, regardless size, by decreasing the number of employment (Table 5.10). In that scope, the small and large urban centres which, before the crisis, had the largest increases of employment among urban centres (over +10% in average) had, after the crisis, a significant decrease of employment (-2% in average). The medium-sized and intermediate urban centres which had a moderate increase of employment before the crisis (+2% for medium-sized and +6% for intermediate centres in average) had, after the crisis, the highest decrease of employment among urban centres (-5% in average).

Table 5.10: T-test between the urban centres on employment change before and after the economic and financial crisis, comparison 2012, 2007 and 1999 (%)

	Employment change 2007-1999	Two-tailed P	Employment change 2012-2007
Small centres	+ 10.1%	≠ (0.0001)	- 1.5%
Medium-sized centres	+ 2.2%	≠ (0.0308)	- 5.6%
Intermediate centres	+ 6.3%	≠ (0.0073)	- 5.1%
Large centres	+ 10.6%	≠ (0.0363)	- 1.9%

Source: author, 2015

Overall, even though there are no correlation between the size of urban centre, a proximity to a larger centre and the population and jobs change, the analysis of economic performance

suggests that urban centres are quite affected by urban sprawl. People moved from centre to periphery over the last decade. At the same time, jobs appear to follow them. Exceptions are the small urban centres which are more attractive to jobs than their periphery which might be due to the precondition for a minimal economic agglomeration for an activity to take place. As the periphery of small centres is mainly rural area, it is evident that such an environment would lack in economic activities which are not directly related to agriculture and provision of basic services to population.

- Spatial location of economic sectors -

The analysis of location of firms in the urban centres and the hinterland suggests the following (Table 5.11). First, productive micro-firms tend to prevail in the hinterland of small and medium-sized urban centres rather than in the urban centres. In contrast, there is no difference between the urban centres and the hinterland when it comes to the residential micro-firms. Second, while the productive SMEs make no difference between the urban centres and the hinterland, the residential ones prefer to locate in the small urban centres rather than in the hinterland. Yet, this is not the case of the medium-sized urban centre and their hinterland as residential SMEs are both equally represented in the medium-sized urban centres and in the hinterland. Third, large productive firms make no significant difference between the urban centres and the hinterland for their localization. However, residential large firms tend to locate more in the medium-sized urban centres rather than in the hinterland of those centres (Table 5.11).

Table 5.11: T-test between the small and medium-sized urban centres and their hinterland in 2012

	Small centres	Two-tailed P	Hinterland small centres	Mid-size centres	Two-tailed P	Hinterland mid-size centres
N° of micro-firms in the productive economy	5.8%	≠ (0.000128)	15.1%	5.6%	≠ (0.022033)	13.9%
N° of SMEs in the productive economy	8.3%	= (0.813274)	8%	6.7%	= (0.294458)	11.2%
N° of large firms in the productive economy	7.8%	= (0.297142)	4.9%	10.3%	= (0.768616)	8.8%
N° of micro-firms in the residential economy	8.1%	= (0.285704)	9.2%	9.3%	= (0.899644)	9.6%
N° of SMEs in the residential economy	7.4%	≠ (0.035575)	5.7%	8.9%	= (0.607797)	7.6%
N° of large firms in the residential economy	4.3%	= (0.096068)	1.9%	10.1%	≠ (0.002996)	2.9%

Source: author, 2016

Thus, in general, the t-test demonstrates that there are only two key differences between centres and peripheries when it comes to the location of firms. On the one hand, productive micro-firms seem to prefer the peripheries for their location. On the other hand, residential SMEs and large firms prefer centres rather than peripheries for their location. As the analysis does not show any other differences between centres and peripheries in terms of the number of firms located on their territory, there may actually be a fierce competition between urban centres and peripheries in attracting new firms.

Considering the location of economic sectors in urban centres measured by the location coefficient, it appears that there is no significant difference between the small and medium urban centres except in the sector of R&D which is more likely to be found in the medium-sized centres than in the small centres (Table 5.12). In fact, most differences are found between the small and medium-sized centres compared to the intermediate and large ones. More precisely, the small and medium-sized urban centres appear to be behind the intermediate and large urban centres in provision of residential services such as retail, financial services, real estate, hotels, restaurants and personal services. In contrast, when it comes to the productive economic sectors, there is no significant difference between urban centres except in two sectors: R&D and electro-industry. These two sectors seem to prevail in intermediate and large urban centres rather than in small and medium-sized urban centres.

Table 5.12: One-way ANOVA of location coefficient in four classes of urban centres in 2012

	ECONOMIC SECTORS	Small vs Medium-sized centres	Small vs Intermediate centres	Small vs Large centres	Medium-sized vs Intermediate centres	Medium-sized vs Large centres	Intermediate vs Large centres	P
productive, export-oriented sectors	Agriculture	0	0	0	0	0	0	P > 0.05
	Agro-industry	0	0	0	0	0	0	P > 0.05
	Textile industry	0	0	0	0	0	0	P > 0.05
	Wood industry	0	0	0	0	0	0	P > 0.05
	Metallurgy	0	0	0	0	0	0	P > 0.05
	Automobile industry	0	0	0	0	0	0	P > 0.05
	Electric and electronic industry	0	* (<)	0	0	0	0	0.0027
	Chemical industry	0	0	0	0	0	0	P > 0.05
	Water and wastewater industry	0	0	0	0	0	0	P > 0.05
	Other industries	0	0	0	0	0	0	P > 0.05
	Transportation	0	0	0	0	0	0	P > 0.05
	Construction	0	0	0	0	0	0	P > 0.05
	Wholesale	0	0	0	0	0	0	P > 0.05
	R&D	** (<)	* (<)	0	0	0	0	0.0001
	Business services	0	0	0	0	0	0	P > 0.05
demand-	Retail	0	** (<)	*** (<)	* (<)	*** (<)	0	P < 0.0001
	Financial services	0	* (<)	** (<)	0	* (<)	0	0.0006
	Real estate	0	*	0	0	0	0	0.005

		(<)					
Media and communication	0	0	*** (<)	0	** (<)	* (<)	0.0004
Hotels and restaurants	0	*** (<)	*** (<)	*** (<)	*** (<)	0	P < 0.0001
Culture and leisure	0	0	0	0	0	0	P > 0.05
Education	0	0	0	0	0	0	P > 0.05
Healthcare	0	0	0	0	0	0	P > 0.05
Social services	0	0	0	0	0	0	P > 0.05
Personal services	0	* (<)	0	0	0	0	0.0053
Public administration	0	0	0	0	0	0	P > 0.05

Notes: 0 indicates that there was no significant difference in average values, * indicates significance at 95%, ** indicates significance to 99%, *** indicates significance to 99.9%, < indicates lower value, > indicates higher value.

Source: author, 2016

On the other hand, if observing the differences in location coefficient in peripheries, there are fewer differences between the peripheries (Table 5.13). More precisely, the hinterland of large urban centres (Tours and Orléans) hosts more productive sectors (industries and R&D) and more residential sectors (hotels, restaurants, personal services and public administration) than the hinterland of other smaller urban centres. In other words, the results suggest that the peripheries of intermediate, medium-sized and small centres economically resemble to one another, while the periphery of large centre stands out with more economic activities.

Table 5.13: One-way ANOVA of location coefficient in four classes of hinterland in 2012

	ECONOMIC SECTORS	Small vs Medium-sized centred	Small vs Intermediate centred	Small vs Large centred	Medium-sized vs Intermediate centred	Medium-sized vs Large centred	Intermediate vs Large centred	P
productive, export-oriented sectors	Agriculture	0	0	0	0	0	0	P > 0.05
	Agro-industry	0	0	0	0	0	0	P > 0.05
	Textile industry	0	0	0	0	0	0	P > 0.05
	Wood industry	0	0	0	0	0	0	P > 0.05
	Metallurgy	0	0	0	0	0	0	P > 0.05
	Automobile industry	0	0	0	0	0	0	P > 0.05
	Electric and electronic industry	0	0	0	0	0	0	P > 0.05
	Chemical industry	0	0	0	0	0	0	P > 0.05
	Water and wastewater industry	0	0	0	0	0	0	P > 0.05
	Other industries	0	0	* (<)	0	0	0	0.0125
	Transportation	0	0	0	0	0	0	P > 0.05
	Construction	0	0	0	0	0	0	P > 0.05
	Wholesale	0	0	0	0	0	0	P > 0.05
	R&D	0	0	** (<)	0	** (<)	*** (<)	P < 0.0001

	Business services	0	0	0	0	0	0	P > 0.05
residential, local demand-oriented sectors	Retail	0	0	0	0	0	0	P > 0.05
	Financial services	0	0	0	0	0	0	P > 0.05
	Real estate	0	0	0	0	0	0	P > 0.05
	Media and communication	0	0	0	0	0	0	P > 0.05
	Hotels and restaurants	0	0	0	0	** (<)	* (<)	0.0105
	Culture and leisure	0	0	0	0	0	0	P > 0.05
	Education	0	0	0	0	0	0	P > 0.05
	Healthcare	0	0	0	0	0	0	P > 0.05
	Social services	0	0	0	0	0	0	P > 0.05
	Personal services	** (<)	0	0	* (<)	0	0	0.0079
	Public administration	0	0	** (<)	0	0	* (<)	0.0023

Notes: 0 indicates that there was no significant difference in average values, * indicates significance at 95%, ** indicates significance to 99%, *** indicates significance to 99.9%, < indicates lower value, > indicates higher value.

Source: author, 2016

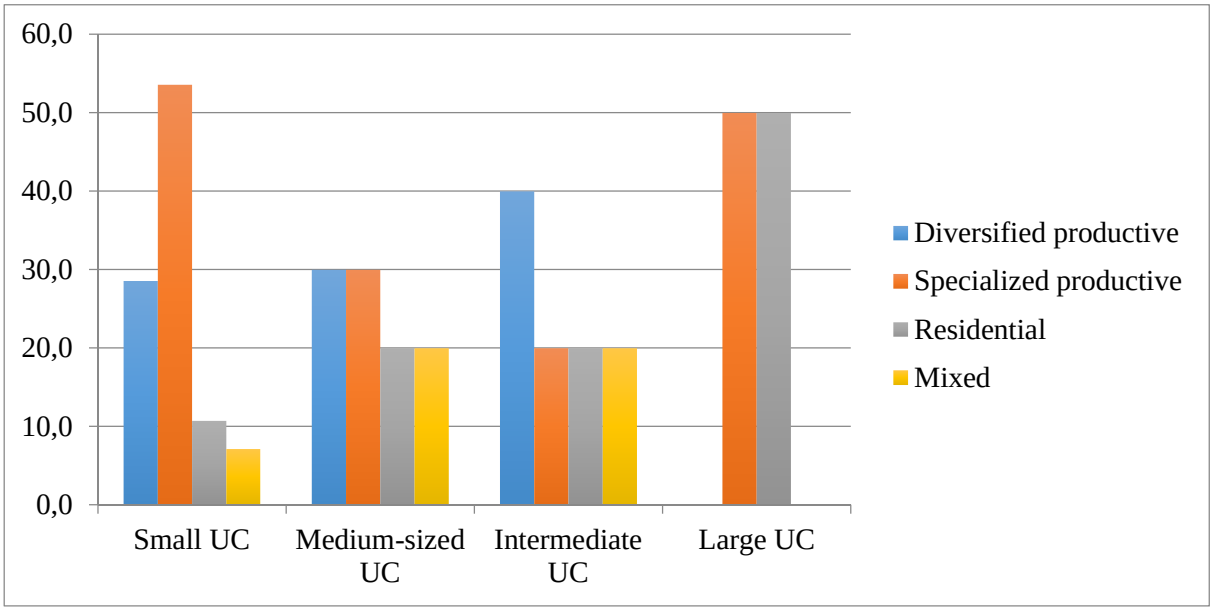
As demonstrated, the productive economy in the small and medium-sized functional areas is based on micro-firms and SMEs which tend to concentrate in peripheries rather than in urban centres. In contrast, the productive economy of the intermediate and large functional areas is based on SMEs and large firms. As there are almost no significant difference between the urban centres in location coefficient of productive activities, it may be suggested that the differences in the structure of productive economy between the towns and the cities in the Centre-Val de Loire region is only in the size of firms and less in the firms' choice of spatial location or in the diversity of productive activities as one would expect.

In contrast, even though the small and medium-sized functional areas together have a higher number of firms (of all sizes) in the residential economy as compared to the intermediate and large ones, the former appear to be quite behind the latter in provision of residential services such as retail, financial services, real estate, hotels, restaurants and personal services. Thus, the residential economy in the small and medium-sized functional areas seems to become a new economic orientation: a majority of firms active in the residential economy are located there (more in the centres and less in the periphery), and there is an increase in firms' number, etc. Yet, the share of residential activities in the local economy (measured by the location coefficient) of towns is significantly lower than in cities.

- Economic profiles -

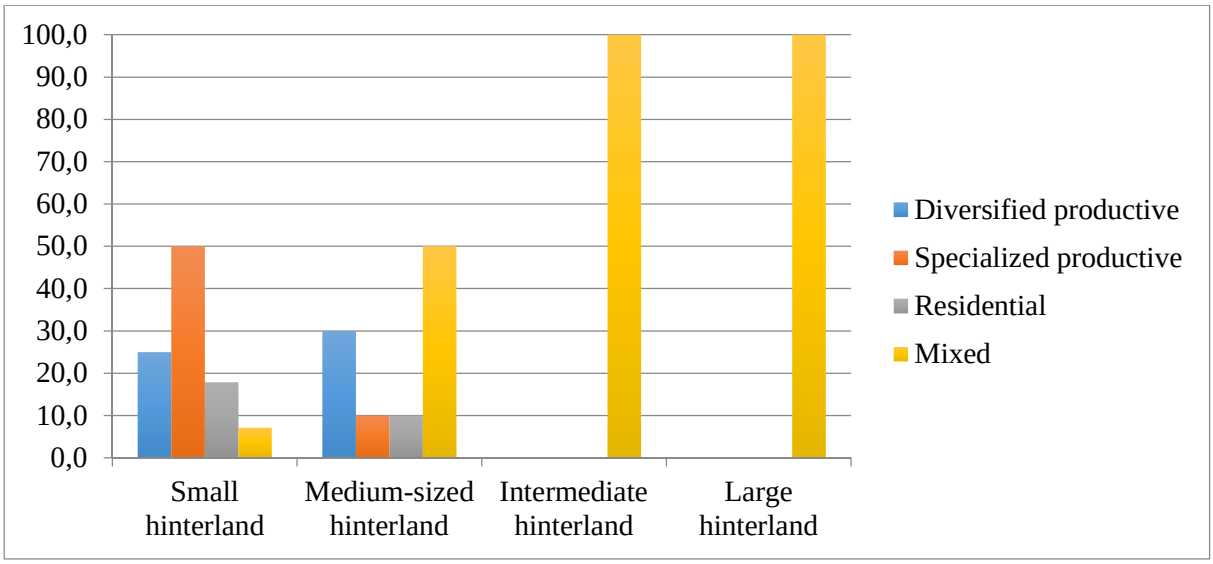
Besides the location coefficient, we observed the share of each sector within the productive and residential economic types across urban centres and hinterland (Figure 5.24 and Figure 5.25).

Figure 5.24: Economic profile of the urban centres in 2012 (%)



Source: author, 2016

Figure 5.25: Economic profile of the peripheries in 2012 (%)



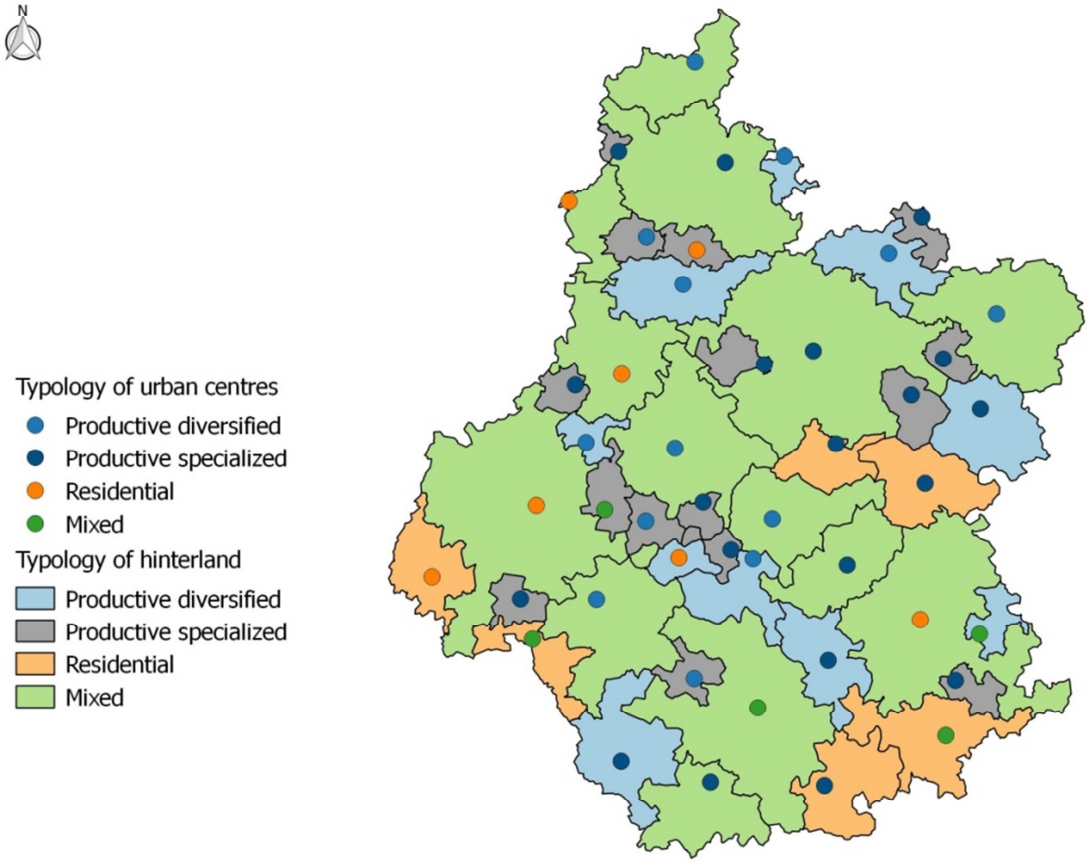
Source: author, 2016

The large urban centres have entirely different economic profiles from one another: Tours is residential while Orléans is specialized in four productive sectors: textile industry, electro-industry, business services and R&D. The intermediate urban centres mostly have a diverse productive profile in a sense that they hold a large number of different industrial sectors in their local economy. The medium-sized urban centres are also mainly productive. However, among the productive medium-sized centres, half of them is specialized in few industrial sectors, and the other half has a large number of different industrial sectors. When it comes to the small urban centres, they are mostly specialized in few productive sectors. Therefore, in general, one can observe that the urban centres are mainly productive (with an exception of

large urban centres), while the number of industrial sectors (degree of specialization) depends on the size of the urban centre. In other words, the intermediate urban centres are more diversified than the small and medium-sized urban centres which are more specialized (Figure 5.24).

The hinterland of large, intermediate and medium-sized urban centres is mostly mixed in the sense that it has almost equally highly represented productive and residential sectors in the local economy. (Figure 5.25) Yet, 30% of medium-sized urban centres have their peripheries diversified and productive which is the highest result for a hinterland in the region. In contrast to the rest of the region, a half of the hinterland of small urban centres has a productive and specialized profile. Thus, there is an evident difference in the economic profile between the peripheries of large, intermediate and medium-sized urban centres compared to the one of small urban centres. The former has a mixed economy made of diverse productive and residential activities, and the latter has an economy more or less specialized in productive activities**.**

Figure 5.26: Typology of urban centres and their hinterland in 2012



Source: author, 2016

By combining the economic profiles of urban centres and their hinterland, some interesting dynamics may be observed (Figure 5.26). With a mixed profile of hinterland, the large urban centres of Tours and Orléans are rather different: Tours is residential and Orléans is productive and specialized. Likewise, the periphery of all intermediate urban centres has a

mixed profile, yet the intermediate urban centres have different profiles. Dreux and Blois are productive and diversified; Chartres is productive and specialized; and Bourges is residential. Among intermediate urban centres, only Châteauroux has a mixed profile just like its hinterland. Thus, in general, large and intermediate urban centres seem to have mostly productive profiles and they are surrounded by a hinterland that has a mixed profile in a sense that it hosts both productive and residential sectors.

In cases of the small and medium-sized urban centres, the situation is much more diverse. The productive medium-sized centres, which make a majority among the medium-sized centres, tend to be surrounded by either a productive diversified or a mixed hinterland. The residential medium-sized urban centres such as Nogent-le-Rotrou and Vendôme are surrounded by a mixed hinterland. Finally the mixed medium-sized centres such as Saint-Amand-Montrond and Amboise have either a residential or a productive hinterland. In contrast, a majority of the small urban centres has a tendency to have their hinterland of the same profile as them: productive and specialized. There are only few exceptions: Argenton-sur-Creuse (mixed hinterland), La Châtre, Lamotte-Beuvron and Aubigny-sur-Nère (residential hinterlands). A minority of small urban centres with a residential profile (e.g. Saint-Aignan, Bonneval and Chinon) has in most cases a productive hinterland. Finally, two small centres with a mixed profile have a productive hinterland (e.g. Avord) and a residential hinterland (e.g. Descartes).

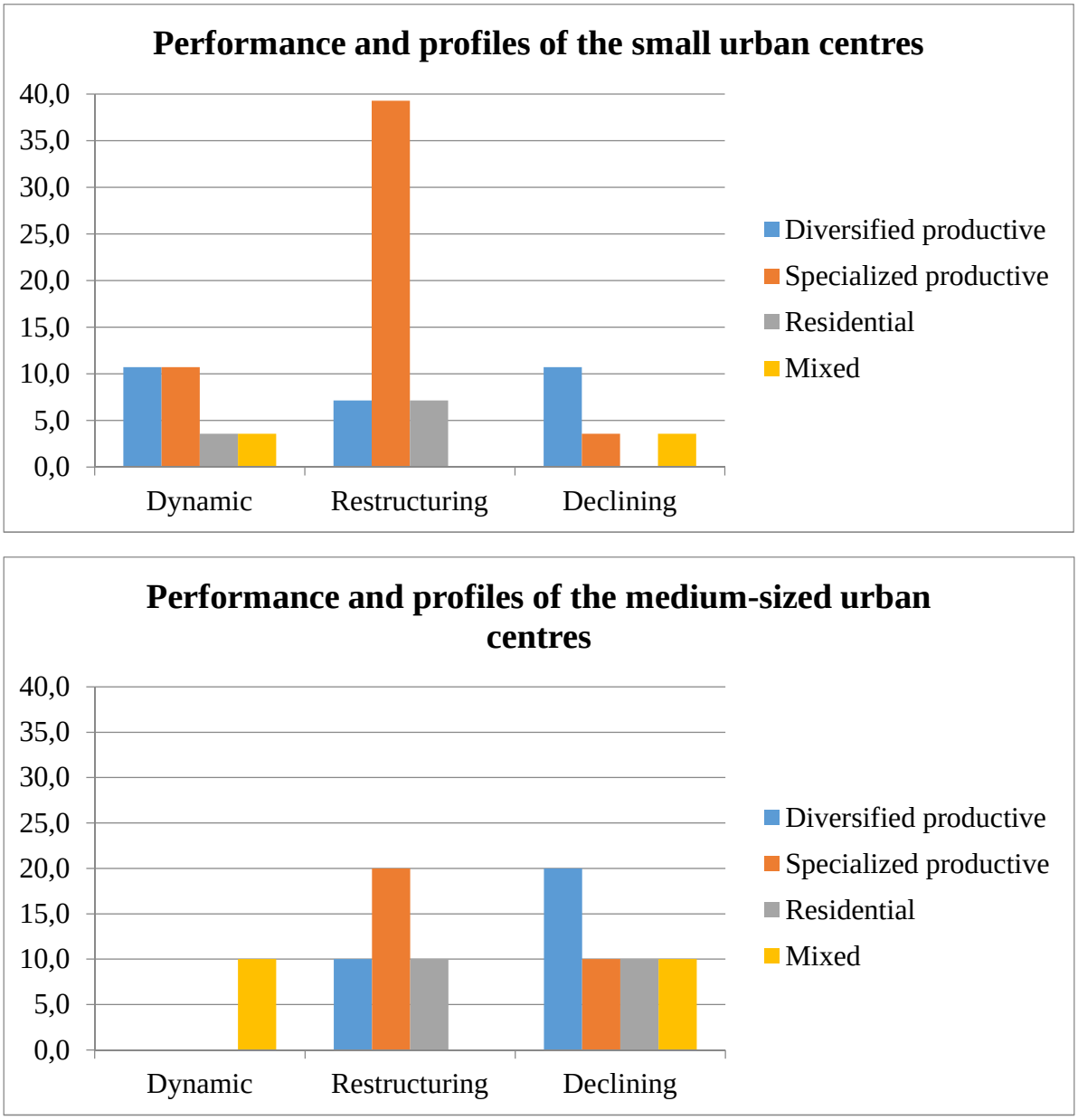
Therefore, when it comes to the small and medium-sized urban centres, the differences are evident. The medium-sized urban centres are mostly productive and have a productive or a mixed hinterland, while the small urban centres are mostly productive and specialized and they are surrounded by a productive and specialized hinterland.

- Development models -

When combining the results of economic performance and economic profile in the small and medium-sized urban centres, one can observe the important differences between these two categories (Figure 5.27). The small urban centres compared to the medium-sized ones seem to generally be more dynamic regardless their economic profile. They also appear to be more successful in attracting population and jobs while being specialized in few productive sectors.

Indeed, the small and medium-sized urban centres in decline seem to have many diversified industrial sectors in their local economy. Thus, the case study suggests that the diversification of only industrial sectors in the small and medium-sized urban centres may be related to an economic decline in population and jobs. In contrast, the productive profile of small urban centres and a mixed profile of medium-sized urban centres appear to be related to a dynamic local economy.

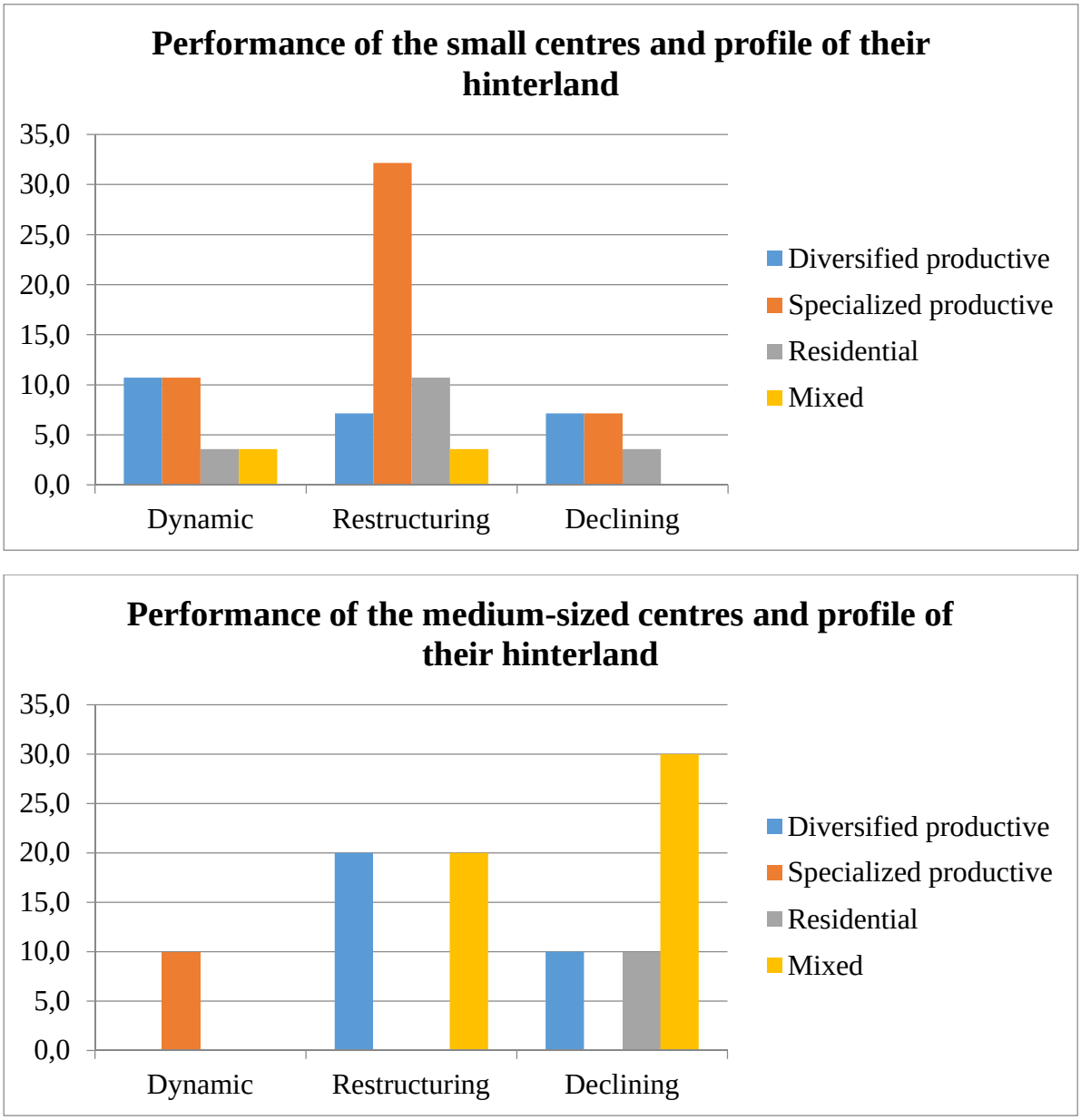
Figure 5.27: Typology I of the small and medium-sized urban centres (%)



Source: author, 2016

Moreover, the comparison of the economic performance of small and medium-sized urban centres and the profile of their hinterland highlights the following (Figure 5.28). The urban centres that are dynamic, in most cases have a productive hinterland. In contrast, there are the differences between the small and medium-urban centres in decline. While the declining small urban centres appear to have a diversified productive hinterland, the declining medium-sized urban centres seem to have a mixed productive-residential profile of their hinterland.

Figure 5.28: Typology II of the small and medium-sized urban centres (%)



Source: author, 2016

Therefore, the results suggest that the medium-sized centres which face a challenge of long-term economic decline have a periphery with a mixed economic profile. Such an observation may indicate that there is a fierce competition between the medium-sized centres and their peripheries in their efforts to attract new population and jobs. On the one hand, population generally moves to live in the periphery, and jobs tend to follow the population migrations. Consequently, the medium-sized urban centres find themselves in an economic decline. On the other hand, due to an increasing population and jobs, the periphery starts diversifying its local economy in order to provide newcomers with sufficient services. The urban development of the periphery, thus, puts it in a direct competition with the urban centre as there are new urban sub-centralities that are created in the hinterland. As analysis demonstrates, the only way for a medium-sized centre to remain dynamic in such a situation

is to diversify the entire local economy by building a mixed profile and by keeping its periphery specialized in few productive sectors and thus remaining less attractive for population migrations.

In contrast, an opposite tendency seems to prevail in the case of the small urban centres. The fact that there are productive activities in a small centre or in their periphery is a positive consequence for the entire functional area. In other words, the economically dynamic small centres are more likely to have a productive profile and a productive hinterland which suggest that in some way there might be cooperation and synergy between the small centres and their peripheries.

In the following section we will explore the key characteristics of clusters of functional areas in order to demonstrate the scale and the scope of sectorial agglomeration, co-agglomeration and synergy effects in the Centre-Val de Loire region.

5.2.3 Cluster dynamics

As we discussed in the first chapter, agglomeration economies were developed by economists and economic geographers in order to explain economic mechanisms that distribute activities in space. They observe the clusters of firms as a result of a close proximity to a large number of firms which together benefit from sharing labour, input and knowledge spillover. A distinction is made between Marshall's industrial agglomeration which happens between the firms of the same sector and Jacob's co-agglomeration of multiple industries. In addition, a new generation of economists has recently started exploring inter-city knowledge spillover and synergy effects between firms of different cities based on the assumption that firms (co-)agglomerated in one city may also enable firms in the neighbouring cities to access the skilled labour pool and technology and thus benefit from the spillover. With the objective to explore these dynamics in the context of the Centre-Val de Loire region, in the first part of the subsection we will present agglomeration dynamics of agricultural, industrial, productive and residential activities. In second part of the subsection, we will examine co-agglomeration dynamics of agricultural, industrial, productive and residential activities. In the third part of the subsection, we will identify the synergy effects among the functional areas belonging to a same sectorial cluster.

- Agglomeration -

The analysis of employment at the scale of the functional areas identified several sectorial clusters in the Centre-Val de Loire region (Figure 5.29-5.33). The first cluster is based on the agricultural sector which takes the largest share (last quartile) in local economies of functional areas. In fact, the largest share of agricultural jobs seems to be mainly found in the functional areas whose centres are small in size: e.g. Contres, Dun-sur-Auron, Bonneval, Avord, Lorris, Sully-sur-Loire, Aubigny-sur-Nère, Chinon and Le Blanc (Figure 5.29). The agricultural cluster is located in the south-east of the region and comprises seven functional

areas: Bourges, Issoudun, Lorris, Sully, Aubigny-sur-Nère, Avod and Dun-sur-Auron. Each of those functional areas counts at least 16% of agricultural jobs in local labour markets.

Moreover, the agricultural cluster hosts about 570 agricultural micro-firms and 13 SMEs (Table 5.14). Yet, firms seem not to be spread equally across the cluster, but rather agglomerate in a limited number of municipalities. On the one hand, some functional areas tend to concentrate a majority of agricultural firms in their urban centres (e.g. Lorris and Dun-sur-Auron host almost a half of the firms of their functional area). On the other hand, some functional areas concentrate firms in few municipalities in the hinterland (e.g. Bourges, Issoudun, Aubigny and Sully) (Figure 5.29).

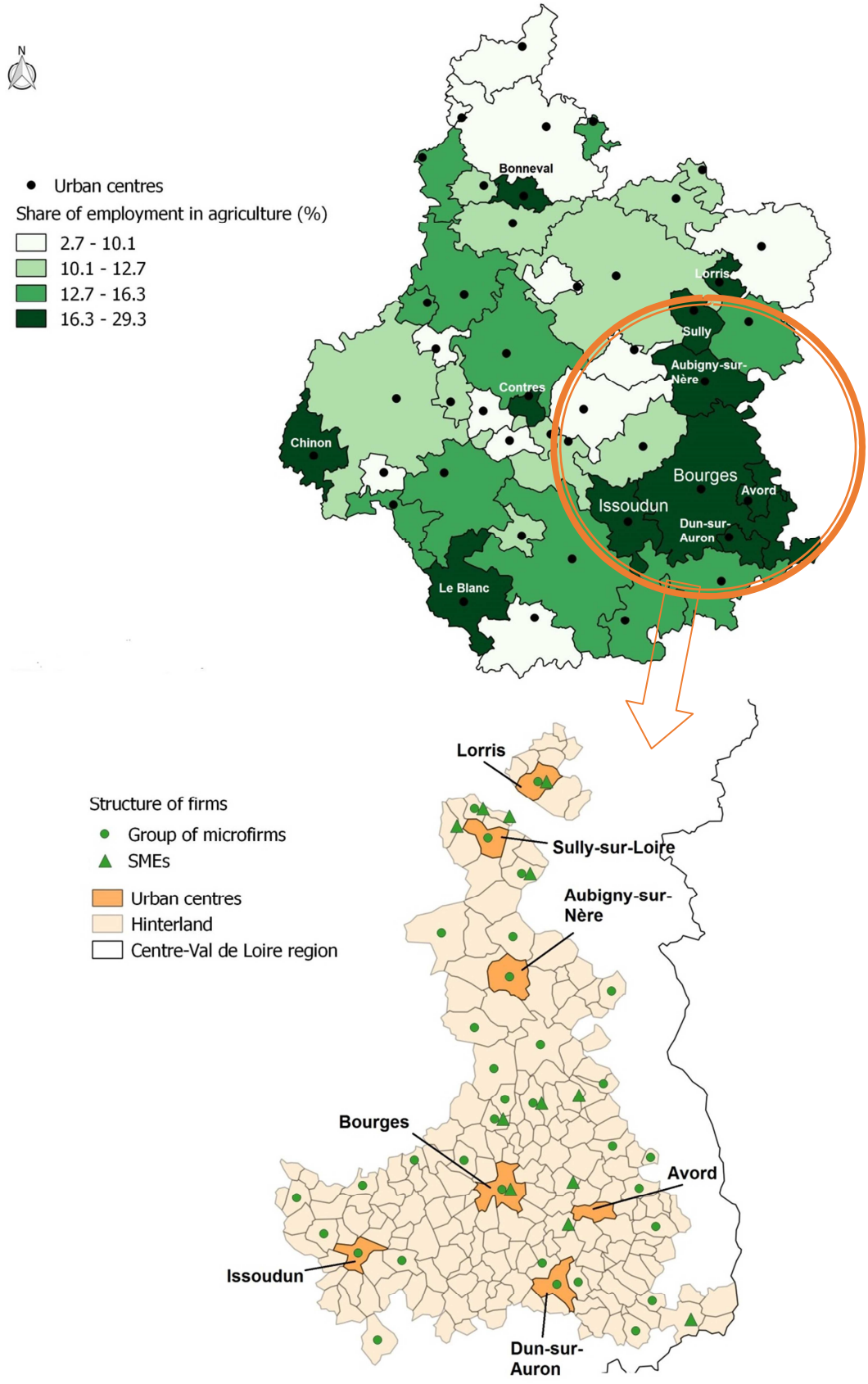
Table 5.14: Number of agricultural firms by type within the agricultural cluster in 2012

Functional areas	Micro-firms	SMEs	Large firms
Bourges	303	8	0
Issoudun	97	0	0
Lorris	19	1	0
Sully-sur-Loire	39	4	0
Aubigny-sur-Nère	57	0	0
Avord	29	0	0
Dun-sur-Auron	28	0	0

Source: author, 2016

When it comes to the changes in employment structure over the period 2012-1999 between the cluster and the rest of the region, the t-test indicates as follows (Table 5.15). First, inter-firm trade in the agricultural cluster decreased significantly by -17.6% compared to the rest of functional areas where, in contrast, it increased by +7.3%. Second, the activities in culture and leisure increased much more in the agricultural cluster than in the rest of the region (+901.2% compared to +181.9%). Third, while the retail sector in the agricultural cluster decreased by - 0.9%, it increased by +10.9% in the rest of the functional areas. Finally, the agricultural cluster had a significantly higher growth rate of maintenance and reparation (+27.7%) compared to the rest of the region (+5.3%).

Figure 5.29: Share of employment of the agricultural sector in the region and the structure of the south-eastern agricultural cluster in 2012



Source: author, 2016

Overall, it appears that the agricultural cluster had a different development compared to the rest of the region. Cultural, leisure, maintenance and reparation activities noted growth while inter-firm trade and retail declined. Nevertheless, agriculture maintained its highest share in local labour markets compared to the rest of the region.

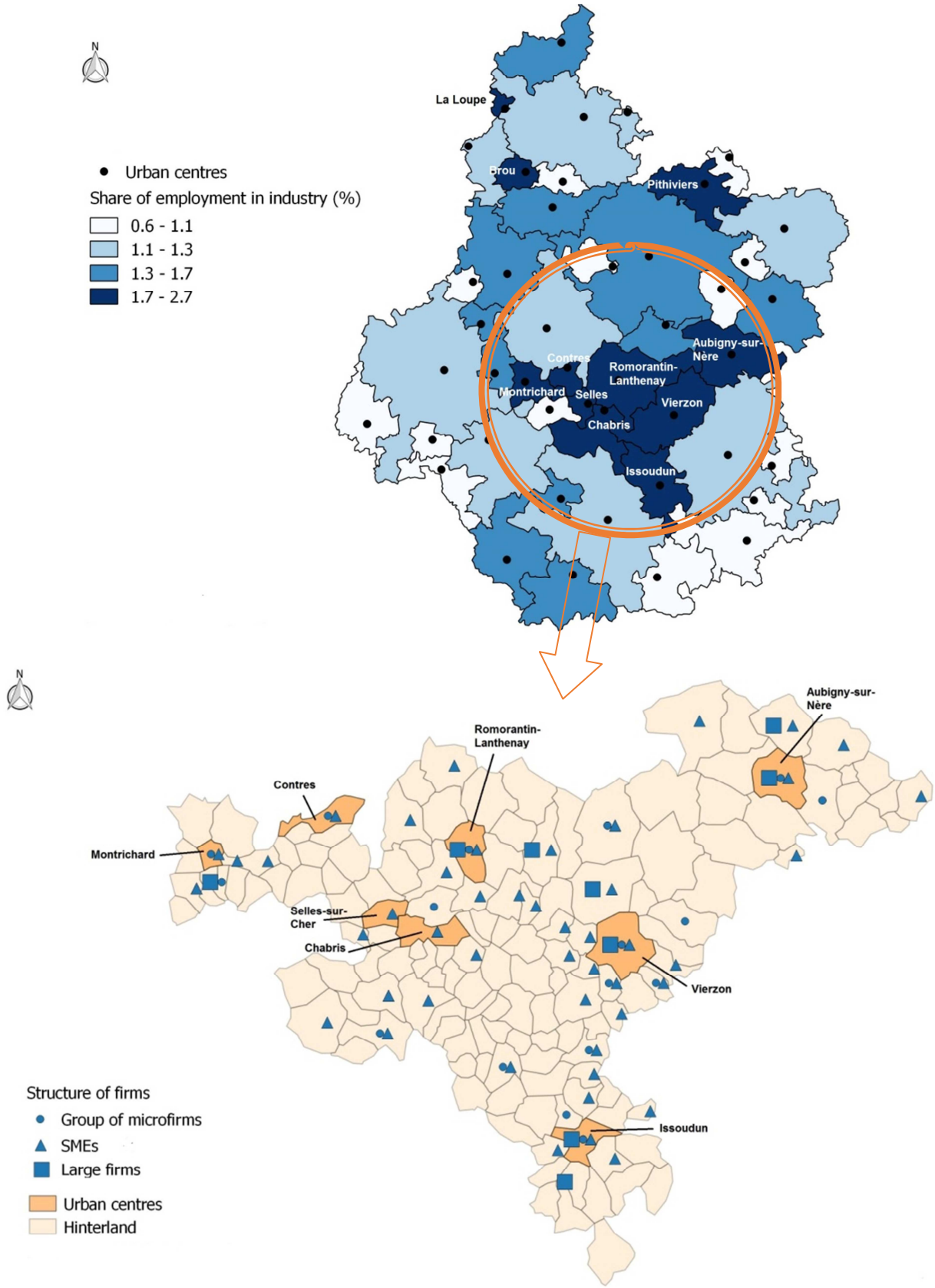
Table 5.15: T-test of employment categories between the agricultural cluster and the rest of the region (change 2012-1999)

	Agricultural cluster	Two-tailed P	The rest of the region
Public administration	+ 10.5%	= (0.337315)	+ 18.1%
Agriculture	- 28%	= (0.226491)	- 25.2%
Construction	+ 5.3%	= (0.642362)	+ 7.7%
Inter-firm trade	- 17.6%	≠ (0.022553)	+ 7.3%
R&D	+ 23.7%	= (0.953396)	+ 21.5%
Culture and leisure	+ 901.2%	≠ (0.001782)	+ 181.9%
Retail	- 0.9%	≠ (0.012431)	+ 10.9%
Education	+ 3%	= (0.669714)	- 0.7%
Maintenance and reparation	+ 27.7%	≠ (0.000128)	+ 5.3%
Manufacturing	- 7%	= (0.211028)	- 20.3%
Management	+ 31.2%	= (0.10233)	+ 16.2%
Transport & Logistics	0%	= (0.658898)	+ 4.3%
Intellectual services	+ 118.8%	= (0.142144)	+ 84.5%
Healthcare and social services	+ 51.4%	= (0.770182)	+ 47.2%
Local services	+ 6.4%	= (0.244949)	+ 14.8%

Source: author, 2016

The second cluster is based on a predominant industrial sector (Figure 5.30). More precisely, the largest share (last quartile) of industrial jobs is found only in the functional areas whose centres are small and medium-sized. The industrial cluster is located in the centre of the region and comprises eight areas: Montrichard, Selles-sur-Cher, Vierzon, Issoudun, Romorantin-Lanthenay, Chabris, Contres and Aubigny-sur-Nère. Each functional area has around 2% of industrial jobs in their local labour market.

Figure 5.30: Share of employment of the industrial sector in the region and the structure of the central industrial cluster in 2012



Source: author, 2016

The industrial cluster counts 394 industrial micro-firms, 207 SMEs and 14 large firms (Table 5.16). While micro-firms and SMEs seem to be located across the cluster, the large industrial firms appear mostly agglomerated in urban centres: e.g. Romorantin-Lanthenay, Aubigny, Vierzon and Issoudun.

Table 5.16: Number of industrial firms by type within the industrial cluster in 2012

Functional areas	Micro-firms	SMEs	Large firms
Montrichard	41	16	1
Selles-sur-Cher	17	9	1
Vierzon	87	50	3
Issoudun	55	32	3
Romorantin-Lanthenay	104	40	3
Chabris	35	16	0
Contres	24	23	0
Aubigny-sur-Nère	31	21	3

Source: author, 2016

The change in employment structure within the industrial cluster is different from the change in the rest of the region only when it comes to one key sector: manufacturing (Table 5.17). In other words, while the functional areas in the region generally experienced a huge decline of manufacturing (-24% in average) over the period 2012-1999, the industrial cluster seems to have a slower pace of the change: - 3.4%. Thus, the cluster was able to maintain the highest share of manufacturing in its local economy compared to the rest of the region.

Table 5.17: T-test of employment categories between the industrial cluster and the rest of the region (change 2012-1999)

	Industrial cluster	Two-tailed P	The rest of the region
Public administration	+ 25.4%	= (0.327227)	+ 16.6%
Agriculture	- 22.2%	= (0.86478)	- 25.8%
Construction	+ 3.6%	= (0.399178)	+ 8.7%
Inter-firm trade	+ 18.8%	= (0.328352)	+ 4.9%
R&D	+ 34.8%	= (0.703881)	+ 18.6%
Culture and leisure	+ 66.3%	= (0.62866)	+ 206.9%
Retail	+ 6.7%	= (0.394365)	+ 11.8%
Education	- 8.2%	=	+ 1%

		(0.337986)	
Maintenance and reparation	+ 4.8%	= (0.93464)	+ 5.4%
Manufacturing	- 3.4%	≠ (0.040739)	- 24%
Management	+ 14%	= (0.796087)	+ 16.7%
Transport & Logistics	+ 6.2%	= (0.831345)	+ 3.9%
Intellectual services	+ 83.2%	= (0.47665)	+ 84.8%
Healthcare and social services	+ 65%	= (0.172021)	+ 43.4%
Local services	+ 12.1%	= (0.679488)	+ 15.4%

Source: author, 2016

The high-rank productive services such as R&D, business services, media and telecommunication are generally found in the functional areas whose centres are larger in size: Dreux, Chartres, Tours and Bourges. Yet, interestingly, there are five functional areas with small urban centres (e.g. La Loupe, Meung-sur-Loire, Auneau, Malesherbes and Buzancais) which also are able to concentrate the high-rank productive services (Figure 5.31).

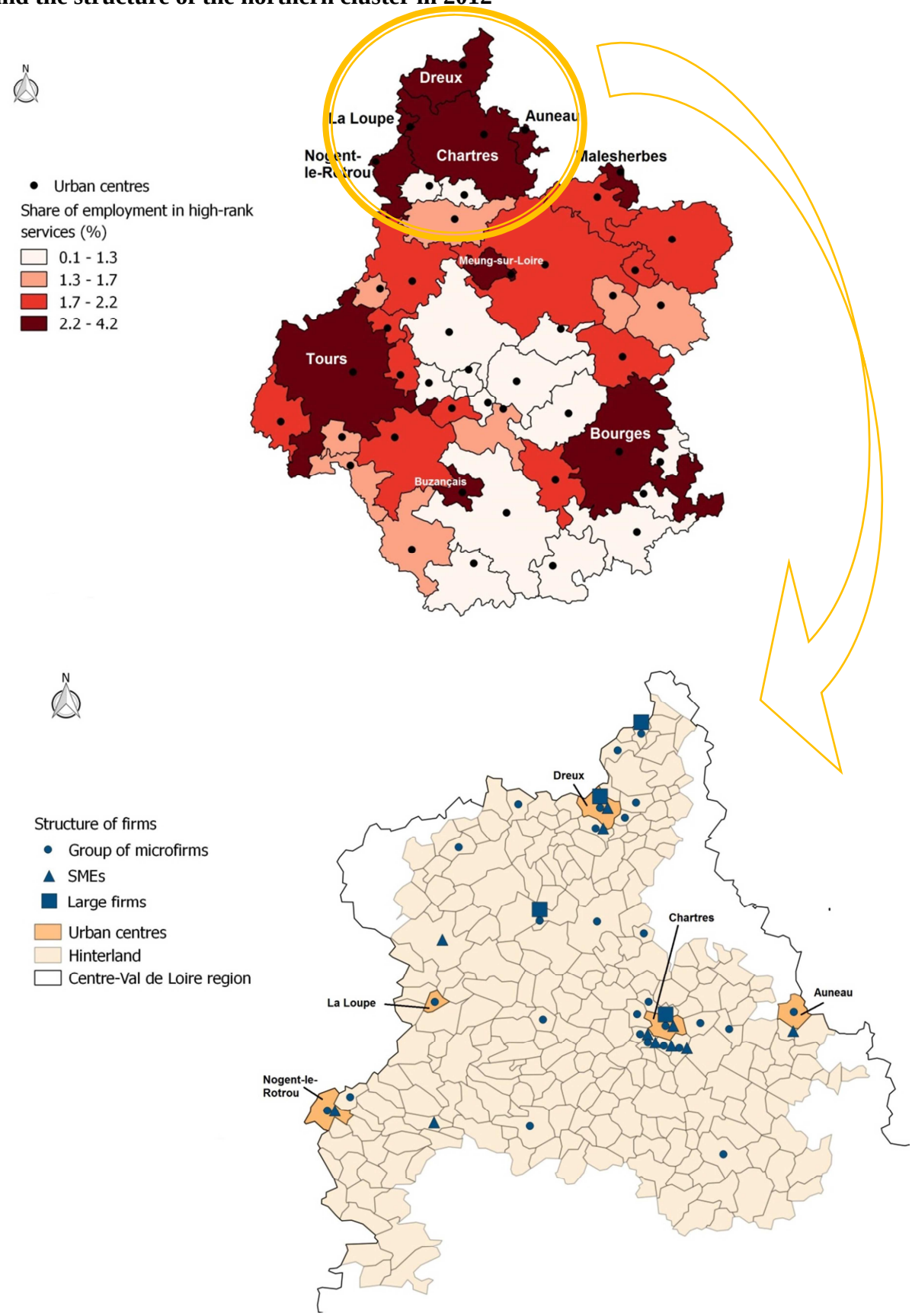
The northern cluster of high-rank productive services comprises five functional areas which are different in size: Chartres and Dreux (intermediate), Nogent-le-Rotrou (medium-sized), Auneau and La Loupe (small). These areas have at least 2.2% of employment in the high-rank productive services and agglomerate 876 micro-firms, 160 SMEs and 4 large firms in that sector (Table 5.16). A majority of those firms seems to be highly concentrated in the urban centres and/or in a close proximity to urban centres (e.g. Chartres and Dreux) (Figure 5.31).

Table 5.18: Number of the high-rank productive firms by type within the northern cluster in 2012

Functional areas	Micro-firms	SMEs	Large firms
Chartres	545	112	1
Dreux	220	32	3
Nogent-le-Rotrou	76	10	0
La Loupe	12	2	0
Auneau	23	4	0

Source: author, 2016

Figure 5.31: Share of employment of the high-rank productive services in the region and the structure of the northern cluster in 2012



Source: author, 2016

The high-rank productive cluster appears to be different from the rest of the region in one key sector: retail (Table 5.19). The t-test points at a significantly higher increase of activities of retail in the cluster (+24.3%) compared to the increase in the rest of region (+9.2%). Moreover, even though not statistically different, the cluster also had a higher positive change in inter-firm trade, R&D, intellectual services, healthcare, social and local services than it was the case in the rest of region.

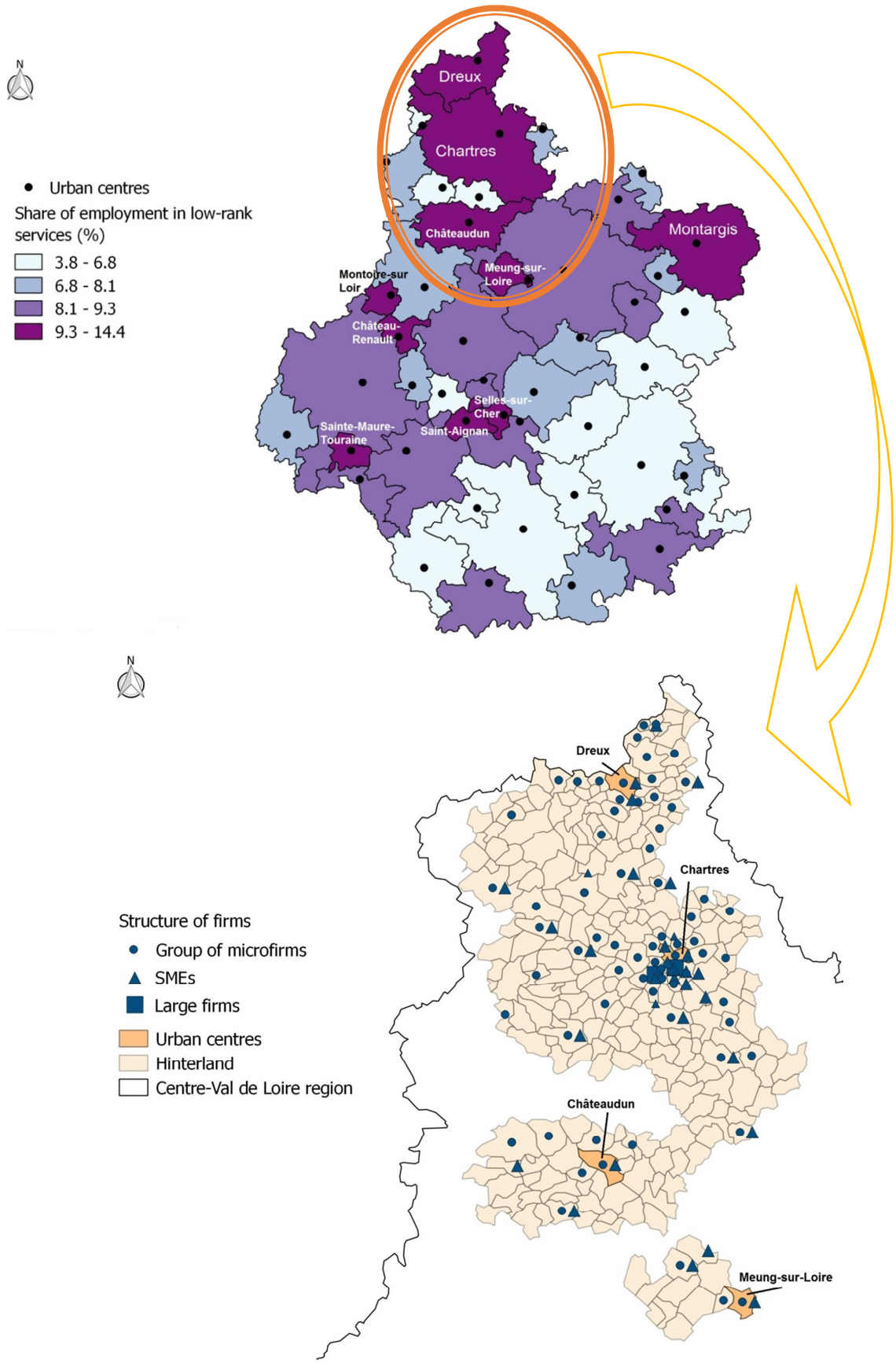
Table 5.19: T-test of employment categories between the high-rank productive cluster and the rest of the region (change 2012-1999)

	High-rank productive cluster	Two-tailed P	The rest of the region
Public administration	+ 17.6%	= (0.951213)	+ 18.1%
Agriculture	- 20.3%	= (0.277038)	- 25.2%
Construction	+ 6%	= (0.775646)	+ 7.8%
Inter-firm trade	+ 19.6%	= (0.426721)	+ 7.3%
R&D	+ 37.6%	= (0.725718)	+ 21.5%
Culture and leisure	+ 34.8%	= (0.639626)	+ 181.9%
Retail	+ 24.3%	≠ (0.035726)	+ 9.2%
Education	+ 1%	= (0.875772)	- 0.7%
Maintenance and reparation	- 7.6%	= (0.103347)	+ 5.3%
Manufacturing	- 36.1%	= (0.223213)	- 20.3%
Management	+ 11.6%	= (0.680659)	+ 16.2%
Transport & Logistics	+ 6.6%	= (0.844126)	+ 4.3%
Intellectual services	+ 86.1 %	= (0.954867)	+ 84.5%
Healthcare and social services	+ 51.1%	= (0.824182)	+ 47.2%
Local services	+ 25.8%	= (0.208896)	+ 14.8%

Source: author, 2016

When it comes to the low-rank productive services which comprise transportation and logistics, construction, and wholesale, their largest share in local labour markets is found in the functional areas with small and intermediate urban centres: e.g. Selles-sur-Cher, Sainte-Maure-de-Touraine, Meung-sur-Loire, Montoire-sur-le-Loir, Château-Renault, Saint-Aignan, Dreux and Chartres (Figure 5.32).

Figure 5.32: Share of employment of the low-rank productive services in the region and the structure of the northern cluster in 2012



Source: author, 2016

The northern cluster of the region counts four functional areas: Dreux, Chartres, Châteadun and Meung-sur-Loire. These functional areas have among the highest share of the low-rank productive services in the region (above 9.3%). The cluster has more than 1,000 micro-firms, 300 SMEs and 4 large firms in the low-rank productive services (Table 5.20). In contrast to the high-rank productive service, the low-rank services appear to be more evenly spread across the territory. Micro-firms and SMEs cluster often together in a same municipality, while the large firms one intermediate urban centre: Chartres (Figure 5.32).

Table 5.20: Number of the low-rank productive firms by type within the northern cluster in 2012

Functional areas	Micro-firms	SMEs	Large firms
Chartres	567	186	3
Dreux	291	68	0
Châteaudun	132	35	1
Meung-sur-Loire	57	11	0

Source: author, 2016

A significant difference in the change of employment structure over the period 2012-1999 between the low-rank productive cluster and the rest of the region was in two sectors (Table 5.21). First, the retail in the cluster had a higher positive change (+23.1%) than in the rest of functional areas in the region (+10.9%). Second, the cluster had a higher positive change in transportation and logistics (+26.2%) compared to the rest of the region (+4.3%). The cluster also, in average, had a greater increase of construction and local services.

Table 5.21: T-test of employment categories between the low-rank productive cluster and the rest of the region (change 2012-1999)

	Low-rank productive cluster	Two-tailed P	The rest of the region
Public administration	+ 3.5%	= (0.179528)	+ 18.1%
Agriculture	- 20.9%	= (0.406081)	- 25.2%
Construction	+ 9.6%	= (0.810705)	+ 7.8%
Inter-firm trade	+ 7.4%	= (0.994482)	+ 7.3%
R&D	- 29.6%	= (0.162607)	+ 21.5%
Culture and leisure	+ 37.8%	= (0.685392)	+ 181.9%
Retail	+ 23.1%	≠ (0.04747)	+ 10.9%
Education	- 9.1%	=	- 0.7%

		(0.473813)	
Maintenance and reparation	- 6.4%	= (0.192953)	+ 5.3%
Manufacturing	- 42%	= (0.1377482)	- 20.3%
Management	+ 9.1%	= (0.577724)	+ 16.2%
Transport & Logistics	+ 26.2%	≠ (0.045726)	+ 4.3%
Intellectual services	+ 52.6%	= (0.323541)	+ 84.5%
Healthcare and social services	+ 46.4%	= (0.967655)	+ 47.2%
Local services	+ 18.3%	= (0.729674)	+ 14.8%

Source: author, 2016

Finally, the largest share of residential activities in the local labour market is found in the functional areas located in the south-west of the region: e.g. Montrichard, Saint-Aginan Amboise, Tours, Chinon, La Châtre, Loches and Châteauroux (Figure 3.33). The residential cluster comprises eight functional areas of different sizes where each of which has more than 3.2% of jobs in residential sectors.

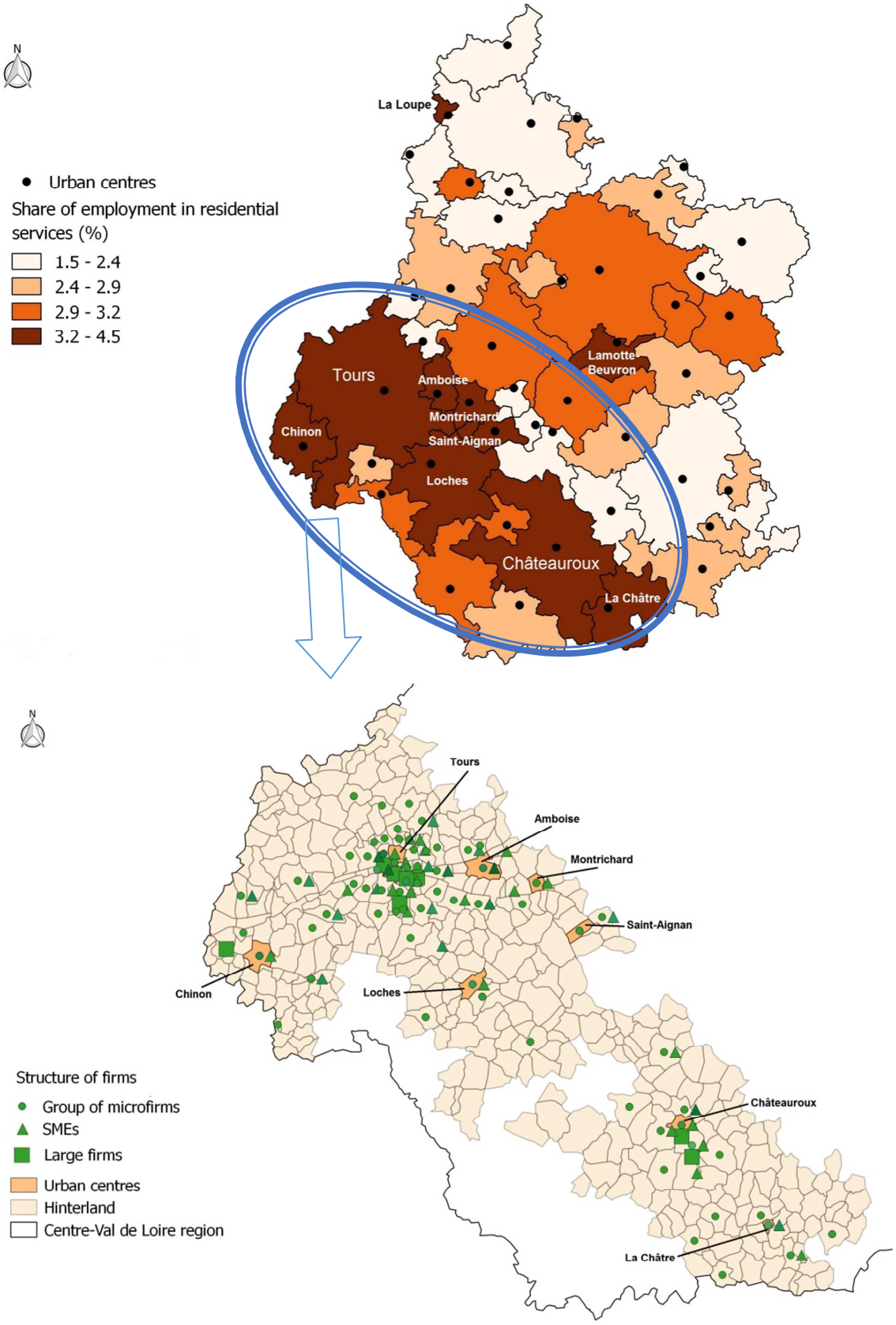
The cluster counts over 7,500 micro-firms, 1,260 SMEs and 17 large firms which provide services to population: i.e. retail, hosting, finances, real estate and services to population (Table 5.18). The urban centres of Tours and Châteauroux including their close proximity seem to agglomerate a majority of firms in the residential sector. Nevertheless, several smaller urban centres such as Chinon, Loches and Amboise host also a relatively high number of micro-firms and SMEs (about 400 micro-firms and SMEs) in comparison to the rest of the region.

Table 5.22: Number of firms with residential services by type within the cluster in 2012

Functional areas	Micro-firms	SMEs	Large firms
Tours	4,742	864	13
Châteeauroux	1,247	199	2
Loches	363	35	1
Amboise	313	45	0
Chinon	338	58	1
Montrichard	216	27	0
Saint-Aignan	107	11	0
La Châtre	231	23	0

Source: author, 2016

Figure 5.33: Share of employment of the residential sector across the functional areas and the structure of the south-western cluster in 2012



Source: author, 2016

Considering the change in employment structure in the residential cluster over the period 2012-1999, the t test pointed at the existence of a significant difference in the R&D sector (Table 2.23). More precisely, the residential cluster seems to have a significantly higher increase in R&D (+85.4%) than the rest of the region (+22.7%). Likewise, the average increase of sectors such as construction, inter-firm trade, logistics and local services in the residential cluster was higher compared to the rest of the region, even though the t test did not find them significantly different.

Table 5.23: T-test of employment categories between the residential cluster and the rest of the region (change 2012-1999)

	Residential cluster	Two-tailed P	The rest of the region
Public administration	+ 14.3%	= (0.60841)	+ 18%
Agriculture	- 22.2%	= (0.373984)	- 25.1%
Construction	+ 13.6%	= (0.248304)	+ 8%
Inter-firm trade	+ 16.7%	= (0.422057)	+ 7%
R&D	+ 85.4%	≠ (0.031384)	+ 22.7%
Culture and leisure	+ 69.9%	= (0.63927)	+ 183.6%
Retail	+ 10%	= (0.860828)	+ 10.8%
Education	- 9.6%	= (0.25857)	- 0.5%
Maintenance and reparation	+ 2.8%	= (0.675465)	+ 5.5%
Manufacturing	- 8.7%	= (0.23656)	- 20.6%
Management	+ 15.9%	= (0.968503)	+ 15.8%
Transport & Logistics	+ 7.3%	= (0.735031)	+ 4.5%
Intellectual services	+ 75.9%	= (0.691896)	+ 84.7%
Healthcare and social services	+ 31.9%	= (0.242959)	+ 47.2%
Local services	+ 18.3%	= (0.600122)	+ 14.6%

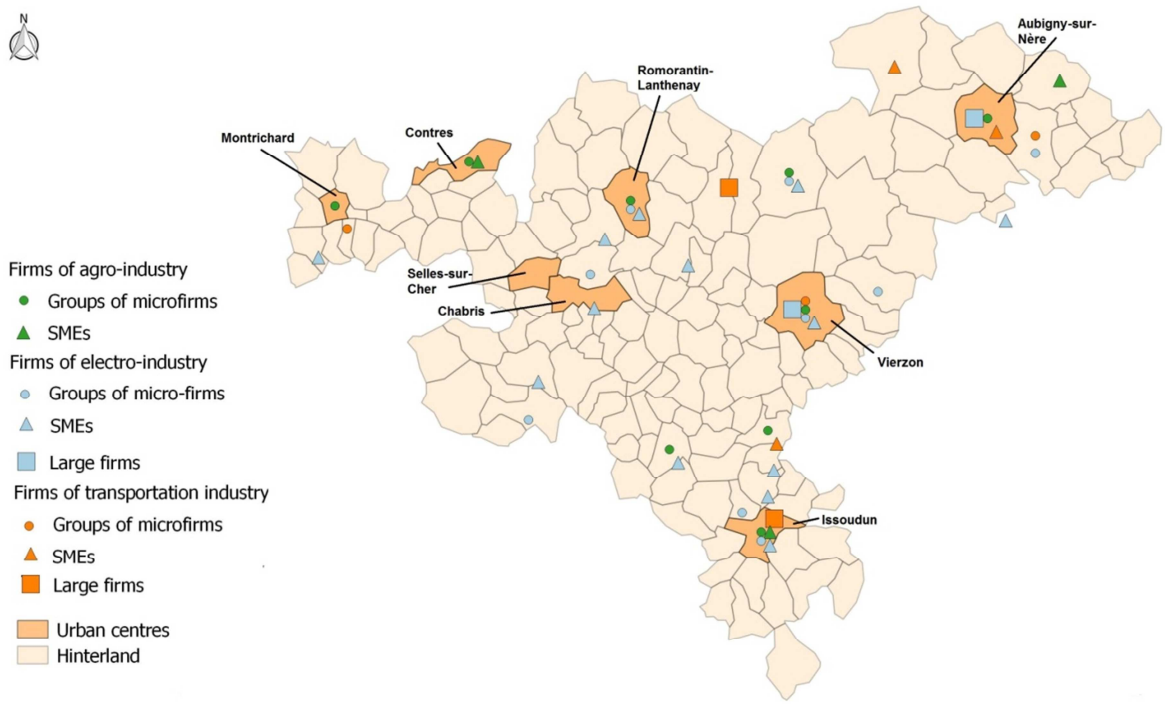
Source: author, 2016

Overall, the analysis of labour markets and spatial location of firms identified several sectorial clusters which comprise the functional areas of different sizes. The agricultural and industrial sectors seem to favour few municipalities in the hinterland compared to the high-rank and low-rank productive and residential services that generally tend to agglomerate in urban centres. In that context, small and medium-sized functional areas play an important role in agglomeration and co-agglomeration economies (alongside intermediate and large functional areas). They host a remarkable number of micro-firms and SMEs, but also the large ones. They follow a common economic trajectory of other functional areas in their proximity, thus forming a cluster that significantly differs from the rest of the region. Interestingly, they also agglomerate high-rank productive services which are considered to be the exclusive feature of larger areas, thus proving that they have know-how, financial, institutional, social and human capital to foster high-rank activities.

- Co-agglomeration -

The co-agglomeration of multiple sectors was observed within the selected groups of functional areas that were already characterized by agglomeration economies: industrial cluster, high-rank productive cluster, low-rank productive cluster and residential cluster.

Figure 5.34: Co-agglomeration of the three industrial sectors (agro-industry, electro-industry and transportation industry) in the industrial cluster in 2012



Source: author, 2016

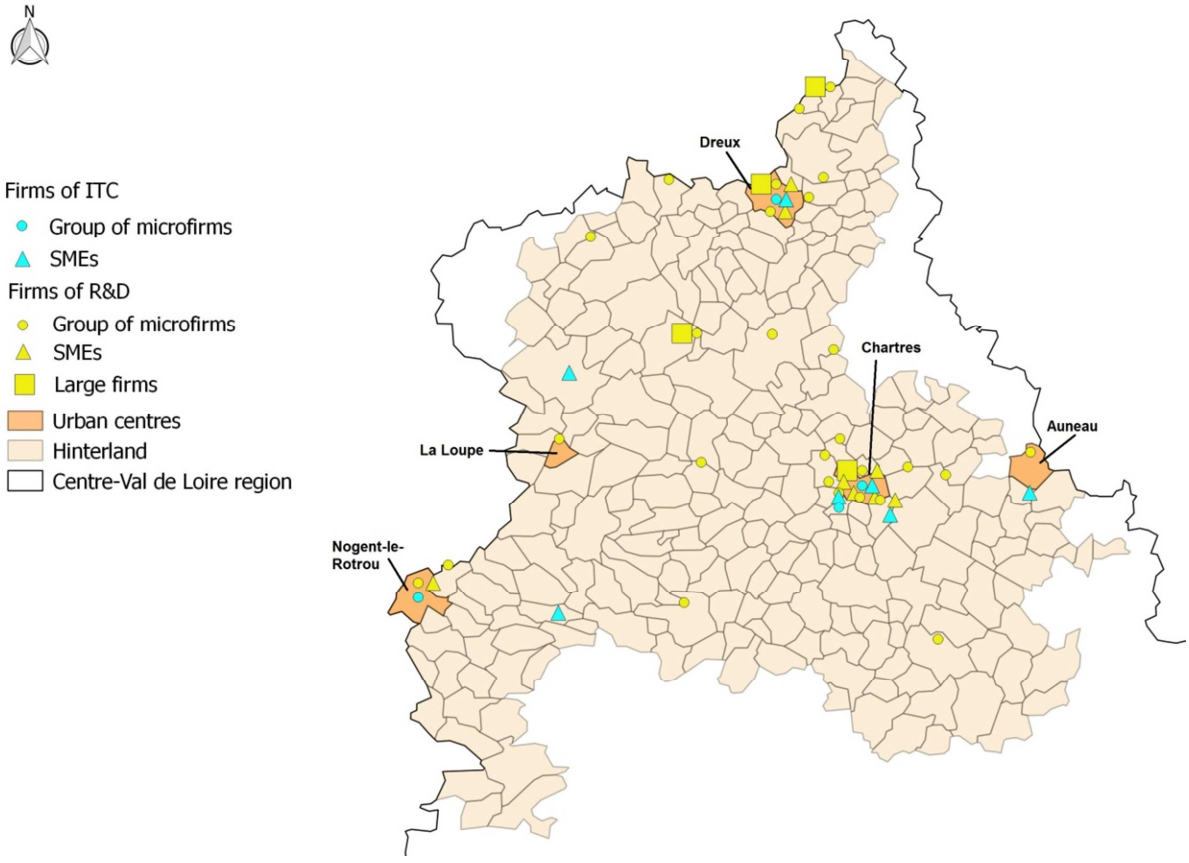
The analysis of firms' sectorial diversity in the industrial cluster indicated that there are three main co-agglomerations of agro-industry, electro-industry and transportation industry in small and medium-sized urban centres: Aubigny, Vierzon, Issoudun and Romorantin-

Lanthenay (Figure 5.34). More precisely, the urban centre of Aubigny alone co-agglomerates 5 agro-industry micro-firms, 1 transportation industry SME and 1 large electro-industry firm. Those 5 firms provide about 400 jobs. The urban centre of Issoudun hosts 5 micro-firms and 2 SMEs of agro-industry, 3 micro-firms and 2 SMEs of electro-industry and 1 large firm of transportation industry which altogether provide more than 1,200 jobs. The urban centre of Vierzon has 16 agro-industry micro-firms, 1 transportation SME, and 3 micro-firms, 7 SMEs and 1 large firm in electro-industry which together provide more than 700 jobs. The urban centre of Romorantin-Lanthenay has 13 agro-industry micro-firms, 4 electro-industry micro-firms and SMEs that provide more than 150 jobs.

Considering the co-agglomeration dynamics of high-rank and low-rank productive services (Figure 5.35 and Figure 5.36), it seems that they also generally take place in urban centres.

Regarding the high-rank productive services, the intermediate urban centre of Chartres, for instance, hosts 31 ICT micro-firms and SMEs, 325 R&D micro-firms and SMEs, and 2 large R&D firms. Its closer periphery has dozens of ITC micro-firms and SMEs. Thus, firms of ITC and R&D sectors in the urban centre of Chartres alone provide more than 3,000 high-rank productive jobs. The intermediate urban centre of Dreux has 13 ITC micro-firms and SMEs, 209 R&D micro-firms, 34 R&D SMEs and 1 large R&D firm which altogether provide around 1,000 high-rank productive jobs (Figure 5.35).

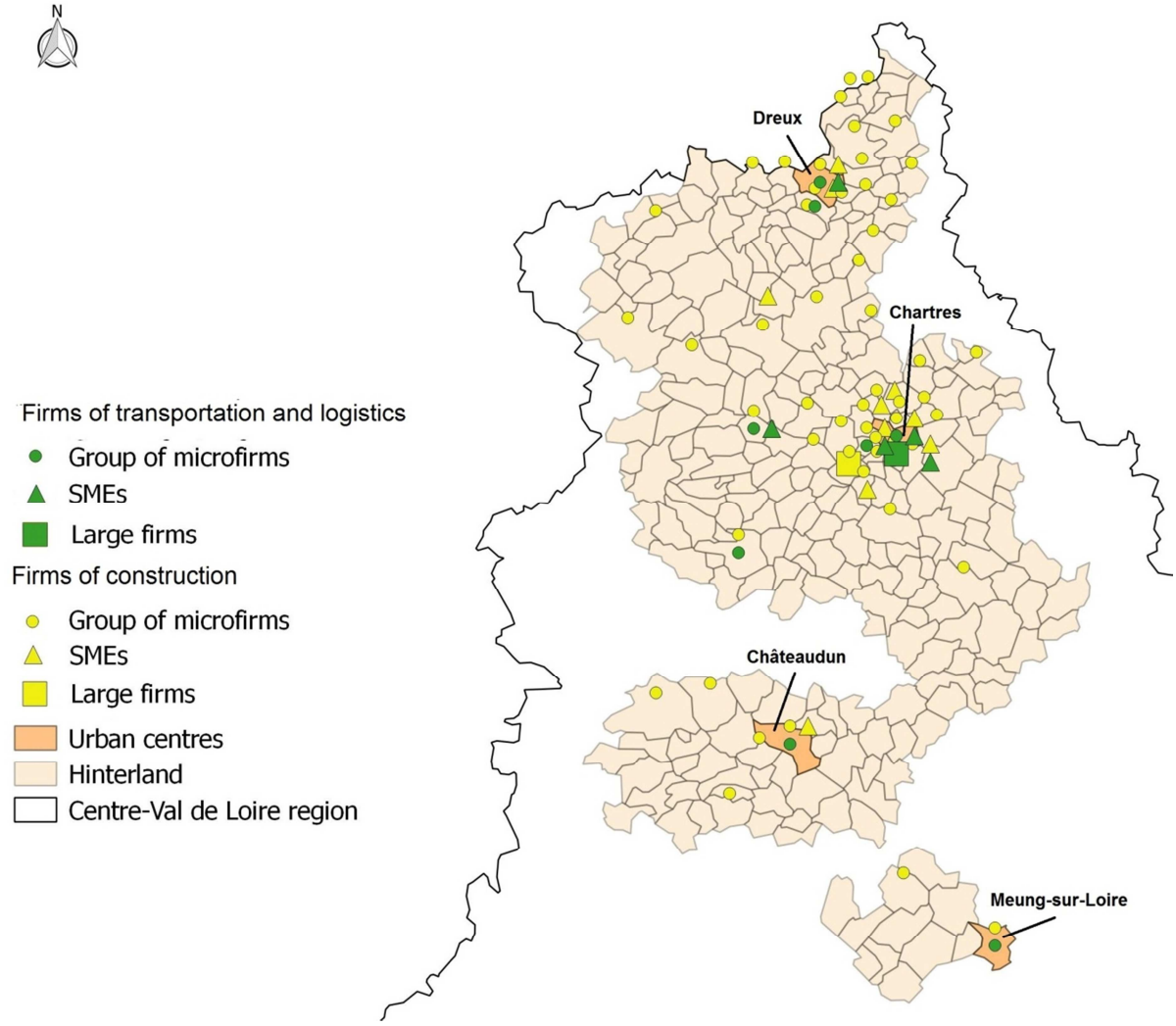
Figure 5.35: Co-agglomeration of the two high-rank productive services (ITC and R&D) in the northern cluster in 2012



Source: author, 2016

These two intermediate urban centres also co-agglomerate the low-rank productive services. The centre of Chartres has 78 micro-firms and SMEs in the construction sector, 25 micro-firms and SMEs and 2 large firms in logistics. Thus, without considering its close periphery that contains a large number of firms in the low-rank productive services, the urban centre of Chartres alone provides more than 1,600 low-rank productive jobs. Likewise, the intermediate urban centre of Dreux hosts 64 micro-firms and SMEs in the construction sector, and 24 micro-firms and SMEs in logistics which altogether provide more than 1,000 low-rank productive jobs (Figure 5.36).

Figure 5.36: Co-agglomeration of the two low-rank productive services (logistics and construction) in the northern cluster in 2012



Source: author, 2016

When it comes to the small and medium-sized urban centres, they also appear to experience the co-agglomeration dynamics in the high-rank and low-rank productive services, yet at a lower scale (Figure 5.35 and Figure 5.36).

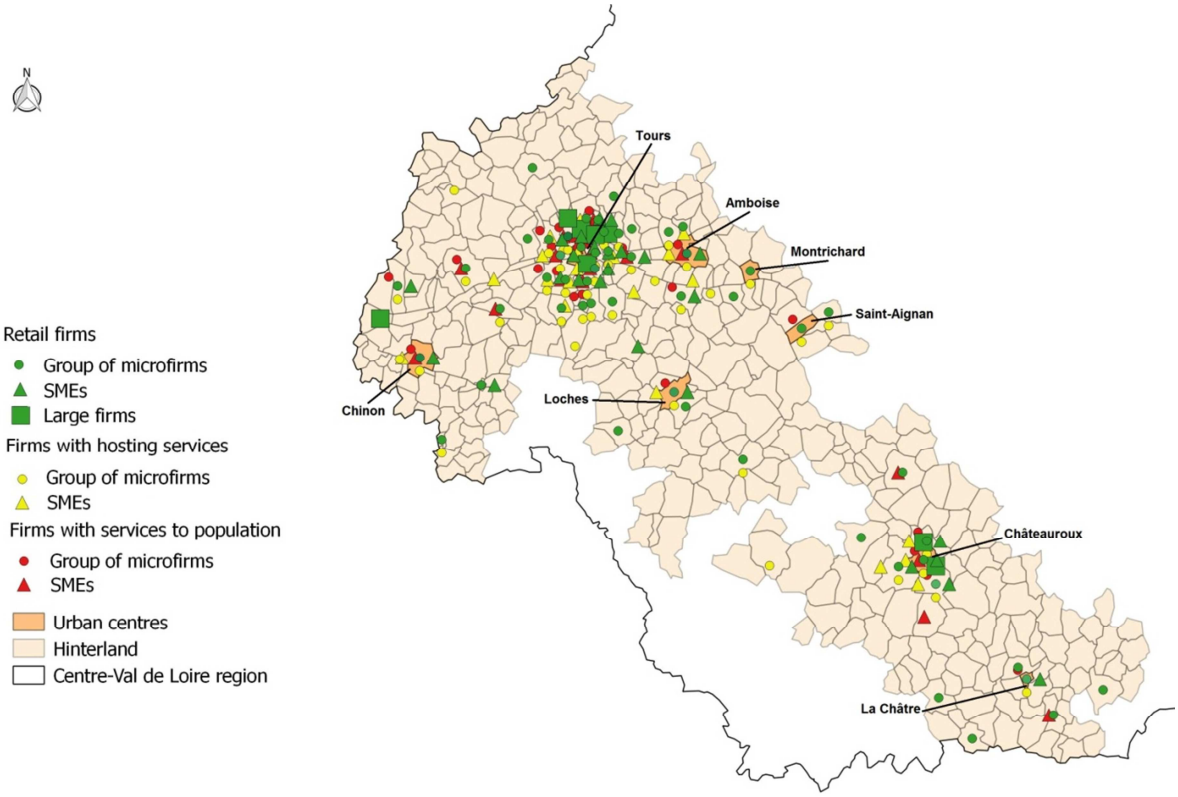
For instance, the medium-sized functional area of Nogent-le-Rotrou has more than 2.2% of employment in the high-rank productive services which is highly above the regional average.

Its urban centre counts 48 R&D micro-firms and SMEs, and 5 ICT micro-firms which provide around 350 high-rank productive jobs (Figure 5.35).

The medium-sized functional area of Châteaudun and the small functional area of Meung-sur-Loire have a high share of employment in the low-rank productive services (above 9.3%). The urban centre of Châteaudun hosts 46 micro-firms and SMEs in the construction sector and 8 micro-firms and SMEs in logistics. This co-agglomeration provides around 550 low-rank productive jobs. The urban centre of Meung-sur-Loire co-agglomerates 18 micro-firms and SMEs in the construction sector and 8 micro-firms and SMEs in logistics which provides more than 200 low-rank productive jobs in the centre (Figure 5.36).

When it comes to the co-agglomeration of different residential sectors within the residential cluster, it mainly takes place in urban centres and their close proximity (Figure 5.37).

Figure 5.37: Co-agglomeration of the three residential sectors (retail, hosting and services to population) in the residential cluster in 2012



Source: author, 2016

The urban centres of Tours and Châteauroux including their closest neighbouring municipalities prevail in co-agglomeration dynamics in the cluster. The large urban centre of Tours co-agglomerates 946 retail micro-firms and SMEs, 3 large retail firms, 516 hosting micro-firms and SMEs and 488 micro-firms and SMEs which offer services to population. They altogether provide more than 12,800 jobs in the residential sector. The intermediate urban centre of Châteauroux co-agglomerates 298 retail micro-firms and SMEs, 1 large retail firm, 96 hosting micro-firms and SMEs and 175 micro-firms and SMEs which provides more than 3,300 jobs.

Even though larger centres appear to co-agglomerate the most of the firms in the cluster, there are some smaller urban centres that also experience the co-agglomeration effects, yet at the less intense scale: e.g. Chinon, Amboise, Loches (Figure 5.37). The small urban centre of Chinon co-agglomerates 90 retail micro-firms and SMEs, 47 hosting micro-firms and SMEs, and 31 micro-firms and SMEs which offer services to population. They together make a total of 970 jobs in the residential sector. The medium-sized urban centre of Amboise counts 84 retail micro-firms and SMEs, 66 hosting micro-firms and SMEs, and 43 micro-firms and SMEs offering services to population which is a total of 1,185 jobs in the residential sector only in the urban centre. The small urban centre of Loches has 74 retail micro-firms and SMEs, 30 hosting micro-firms and SMEs, and 21 micro-firms and SMEs which provide services to population. These firms make a total of 828 jobs in the residential sector only in the urban centre.

Overall, the analysis of diversity in local labour markets and spatial location of firms in selected sectorial clusters demonstrates that co-agglomeration generally takes place in urban centres rather than in the periphery. In other words, in comparison to the periphery which seems to favour firms of the same sector, the urban centres experience cross-sectorial spillover and concentration of multi-sectorial activities. In that context, there is an evident difference between the large and intermediate urban centres compared to the small and medium-sized urban centres. Even though all urban centres experience co-agglomeration of multiple industries, the ones that are small and medium-sized have a less intense and diverse co-agglomeration in the sense that there are fewer different firms present in their area. This observation confirms the previous results indicating that smaller urban centres tend to be more specialized compared to the larger urban centres.

- Synergy -

Measured by correlation coefficient between 15 economic sectors and compared between the sectorial clusters and the rest of the region, a unique synergy between the functional areas belonging to the same sectorial cluster is found in the following economic sectors.

In comparison with the rest of the region, the functional areas of the agricultural cluster appear to have some unique correlations between several economic sectors (Table 5.24). First, in the cluster, the change of jobs in agriculture is positively correlated to the change in the inter-firm trade, which is not the case in the rest of the region. Thus, in the functional areas of the cluster the increase of agricultural jobs is correlated with the increase of jobs in inter-firm trade. Respectively, the decrease of agricultural jobs is correlated with the decrease of jobs in inter-firm trade. Second, the change of jobs in intellectual services is positively correlated to the change of jobs in local services. Hence, the increase of jobs in intellectual services is accompanied by the increase of jobs in local services, and vice versa, the decrease of jobs in intellectual services is accompanied by the decrease of jobs in local services. This is not the case in the rest of the Centre-Val de Loire region where there is no correlation between intellectual and local services.

Table 5.24: Correlation of jobs changes (2012-1999) in the agricultural cluster compared to the rest of the region

Variable 1	Variables 2	Functional areas of the cluster	The rest of the region
public administration	none		
agriculture	**inter-firm trade**	**.940****	**none**
construction	none		
inter-firm trade	**agriculture**	**.940****	**none**
R&D	none		
culture and leisure	retail	-.901**	-.500**
	maintenance/reparation	.944**	.733**
	manufacturing	.921**	.519**
	management	.932**	.579**
retail	culture/leisure	-.901**	-.500**
	maintenance/reparation	-.764*	-.494**
	manufacturing	-.787*	-.313*
education	none		
maintenance and reparation	culture/leisure	.944**	.733**
	retail	-.764*	-.494**
	manufacturing	.910**	.546**
	management	.908**	.406**
manufacturing	culture/leisure	.921**	.519**
	retail	-.787*	-.371*
	management	.851*	.661**
management	culture/leisure	.932**	.579**
	maintenance/reparation	.908**	.406**
	manufacturing	.851*	.661**
transport & logistics	none		
intellectual services	healthcare/social activities	.804*	.354**
	local services	**.790***	**none**
healthcare and social services	intellectual services	.804*	.354**
	local services	.814*	.672**
local services	**intellectual services**	**.790***	**none**
	healthcare/social services	.814*	.672**

Source: author, 2016

The analysis of synergy within the industrial cluster points at existence of many unique sectorial correlations (Table 5.25). First, the change of agricultural jobs is negatively correlated to the change of management jobs, which is not the case in the rest of the region. In other words, the functional areas that had a positive change of agricultural jobs had a negative change of management jobs. And vice versa, the functional areas that had a negative change of agricultural jobs had a positive change of management jobs. Second, the change of

jobs related to inter-firm trade is positively correlated to the change of jobs related to retail and intellectual services. More are there jobs in inter-firm trade more are there jobs in retail and intellectual services, and vice versa. Third, the change of jobs in R&D is positively correlated to the change of jobs in maintenance and reparation. Thus, the increase in R&D is accompanied by an increase in maintenance and reparation and, vice versa, the decrease in R&D is accompanied by a decrease in maintenance and reparation. Fourth, the change of jobs in retail is positively correlated to the change of jobs in inter-firm trade, healthcare and social services. In other words, the functional areas of the industrial cluster that had an increase of jobs in retail had also an increase of jobs in inter-firm trade, healthcare and social services. Respectively, the areas that had a decrease of jobs in retail had also a decrease of jobs in inter-firm trade, healthcare and social services. Finally, the change of jobs in education is positively correlated to the change of jobs in manufacturing and local services. Thus, the increase of jobs in education is accompanied by an increase of jobs in manufacturing and local services, and vice versa.

Table 5.25: Correlation of jobs changes (2012-1999) in the industrial cluster compared to the rest of the region

Variable 1	Variables 2	Functional areas of the cluster	The rest of the region
public administration	none		
agriculture	**management**	**-.830***	**none**
construction	none		
inter-firm trade	**retail**	**.844****	**none**
	intellectual services	**.794***	**none**
	healthcare/social services	.945**	.389**
	local services	.847**	.557**
R&D	**maintenance/reparation**	**.711***	**none**
culture and leisure	none		
retail	**inter-firm trade**	**.844****	**none**
	healthcare/social services	**.738***	**none**
education	**manufacturing**	**.768***	**none**
	local services	**.834***	**none**
maintenance and reparation	**R&D**	**.711***	**none**
manufacturing	**education**	**.768***	**none**
	management	**.768***	**.661****
	local services	**.755***	**.337***
management	**agriculture**	**-.830***	**none**
	manufacturing	.768*	.661**
	healthcare/social services	**.795***	**none**
	local services	.935*	.313*

transport & logistics	none		
intellectual services	**inter-firm trade**	**.794***	**none**
	healthcare/social services	.764*	.354*
healthcare and social services	inter-firm trade	.945**	.389**
	retail	**.738***	**none**
	management	**.795***	**none**
	intellectual services	.764*	.354*
	local services	.894*	.672**
local services	**inter-firm trade**	**.847****	**none**
	education	**.834***	**none**
	manufacturing	.755*	.337*
	management	.935**	.313*
	healthcare/social services	.894**	.672**

Source: author, 2016

Several sectorial correlations are found in the functional areas of the high-rank productive cluster which do not appear in the rest of the region (Table 5.26). First, the change in agricultural jobs is negatively correlated to the change in culture and leisure. This means that the areas which had an increase in agricultural jobs, also had a decrease in cultural and leisure jobs, and vice versa, the areas which had a decrease in agricultural jobs, also had an increase in cultural and leisure jobs. Second, the change of jobs related to inter-firm trade is positively correlated to the change of jobs in management and intellectual services. In other words, the increase of inter-firm trade is accompanied by an increase of jobs in management and intellectual service. Respectively, the decrease of inter-firm trade is accompanied by a decrease of jobs in management and intellectual services. Third, the change of jobs in R&D is positively correlated to the change of jobs in education and local services. Thus, the areas of the cluster that had an increase of R&D had also an increase of jobs in education and local services, and vice versa, the areas that had a decrease of R&D had also a decrease of jobs in education and local services. Finally, the change of jobs in retail is negatively correlated to the change of jobs in transportation and logistics which indicates that the areas that had an increase of jobs in retail, had in contrast, a decrease in transportation and logistics. Vice versa, the areas that had a decrease of jobs in retail had an increase of jobs in transportation and logistics.

Table 5.26: Correlation of jobs changes (2012-1999) in the high-rank productive cluster compared to the rest of the region

Variable 1	Variables 2	Functional areas of the cluster	The rest of the region
public administration	none		
agriculture	**culture/leisure**	**-.923***	**none**
construction	none		
inter-firm trade	**management**	**.983****	**none**
	intellectual services	**.881***	**none**

R&D	**education**	**.963****	**none**
	local services	**.947***	**none**
culture and leisure	**agriculture**	**-.923***	**none**
retail	**transport/logistics**	**-.935***	**none**
education	**R&D**	**.963****	**none**
	local services	**.951***	**none**
maintenance and reparation	none		
manufacturing	none		
management	**inter-firm trade**	**.983****	**none**
transport & logistics	**retail**	**-.935***	**none**
intellectual services	**inter-firm trade**	**.881***	**none**
	transport/logistics	**.934***	**none**
healthcare and social services	none		
local services	**R&D**	**.947***	**none**
	education	**.951***	**none**

Source: author, 2016

Compared to the rest of the region, the low-rank productive cluster has only one unique sectorial correlation (Table 5.27). The change of agricultural jobs is positively correlated to the change of construction jobs. Thus, in contrast to the rest of the region, the functional areas of this cluster which had an increase of agricultural jobs, had also an increase of jobs in construction; and vice versa, the decrease of agricultural jobs was accompanied by a decrease of jobs in construction. The other sectorial correlations that are found in the cluster, such as the one between culture and management, and the one between logistics and local services are also found in the rest of the region, thus they were not identified as exclusive synergy between the areas of the cluster.

Table 5.27: Correlation of jobs changes (2012-1999) in the low-rank productive cluster compared to the rest of the region

Variable 1	Variables 2	Functional areas of the cluster	The rest of the region
public administration	none		
agriculture	**construction**	**.994****	**none**
construction	**agriculture**	**.994****	**none**
inter-firm trade	none		
R&D	none		
culture and leisure	management	.991**	.579**
retail	none		
education	none		
maintenance and reparation	none		

manufacturing	none		
management	culture/leisure	.991**	.579**
transport & logistics	local services	.992**	.342*
intellectual services	none		
healthcare and social services	none		
local services	transport/logistics	.992**	.342*

Source: author, 2016

In comparison to the rest of the region, several exclusive sectorial synergies are found in the residential cluster (Table 5.28). First, the change of jobs in public administration is positively correlated to the change of jobs in culture, leisure and intellectual services. Thus, an increase of public administration in the cluster appears to be accompanied by an increase of cultural jobs and intellectual services which is not the case in the rest of the region. And vice versa, the decrease of jobs in public administration is accompanied by a decrease of culture and intellectual services. Second, the change of jobs in R&D is positively correlated to the change of jobs in culture and leisure, but also negatively correlated to healthcare and social services. In other words, the areas that had an increase of R&D, had an increase of culture and leisure, but also a decrease in healthcare and social services. In contrast, the areas that had a decrease of R&D had, at the same time, a decrease of culture and leisure and an increase in healthcare and social services. Finally, the change of jobs in manufacturing is negatively correlated to the change of jobs in intellectual services. This means that the areas in the cluster that had a growth of manufacturing had at the same time a decline in intellectual services. Vice versa, the areas that had a decline of manufacturing had an increase in intellectual services.

Table 5.28: Correlation of jobs changes (2012-1999) in the residential cluster compared to the rest of the region

Variable 1	Variables 2	Functional areas of the cluster	The rest of the region
public administration	**culture/leisure** **intellectual services**	**.879**** **.855****	**none** **none**
agriculture	retail	-.729*	-.351*
construction	none		
inter-firm trade	transportation/logistics	.769*	.349*
R&D	**culture/leisure** **healthcare/social services**	**.814*** **-.745***	**none** **none**
culture and leisure	**public administration** **R&D**	**.879**** **.814***	**none** **none**
retail	agriculture	-.729*	-.351*
education	none		
maintenance and reparation	none		

manufacturing	**intellectual services**	**-.717***	**none**
management	**healthcare/social services**	**.737***	**none**
transport & logistics	inter-firm trade	.769	.349*
intellectual services	**public administration** **manufacturing**	**.855**** **-.717***	**none** **none**
healthcare and social services	**R&D** **management**	**-.745*** **.737***	**none** **none**
local services	none		

Source: author, 2016

Overall, the comparison of sectorial synergies between the clusters and the rest of the region points at some interesting observations. The agricultural cluster seems to have exclusive synergies between on the one hand agriculture and inter-firm trade and on the other hand between intellectual services and local services. As the functional areas of the cluster are based on agricultural activities, it may be suggested that inter-firm trade complements their activities in a form of selling the agricultural products to other firms. The industrial cluster appears to have synergies between education and manufacturing which may indicate the presence of complementarity between these two activities. The exclusive synergy is also found between R&D to maintenance and reparation and between inter-firm trade, retail and intellectual services. Thus, in general, the productive sectors in the industrial cluster seem to be in a synergy with the supportive and complementary services such as R&D, intellectual services, education and inter-firm trade. The cluster of high-rank productive services creates its synergy between, on the one hand, R&D and education, and on the other hand, between inter-firm trade, management and intellectual services. These synergies are unique in the region and indicate some interesting complementarities that are taking place in the cluster. Furthermore, the cluster of low-rank productive services has two important synergies: between construction and agriculture, and between logistics and local services. Finally, the residential cluster is based on exclusive synergies between public administration, culture, leisure, and intellectual services. In other words, the more there are services to population, the more the cluster has creative and innovative sectors such as R&D, intellectual services and culture. Such complementarities of economic activities are unique in the rest of the region.

5.2.4 Conclusion of section 5.2

The socio-economic analysis was conducted on three scales: inter-firms, centre-periphery and cluster. Firstly, when it comes to the firms of the Centre-Val de Loire region, there are important differences between the residential and the productive types of local economy. The firms of the residential economy seem to prefer to locate in the smaller functional areas rather than in the larger ones. In contrast, the firms of the productive economy prefer to locate in the larger functional areas. Likewise, the small and medium-sized functional areas based their residential economy on micro-firms and SMEs, while in the large and intermediate functional areas it appears to be structured of one or few large firms (monopoly and oligopoly).

Secondly, when it comes to the differences between the urban centres and the peripheries, it was evident that the economic performance of the centres was affected by the urban sprawl. People moved from a centre to the periphery and jobs appear to follow them. Considering the economic profiles, the small and medium-sized urban centres are mainly productive. Yet there are differences in the degree of specialization. In the Centre-Val de Loire region, a half of the medium-sized centres is specialized in few industrial sectors, and the other half has a large number of different industrial sectors. The small urban centres are mostly specialized in few productive sectors. In contrast, the hinterland of medium-sized centre is mostly mixed, while the hinterland of small centres is mostly productive and specialized in few industrial sectors.

Finally, when it comes to the cluster dynamics, five sectorial clusters were identified in the Centre-Val de Loire region: agricultural, industrial, high-rank productive, low-rank productive and residential. The agricultural cluster comprises seven functional areas which concentrates micro-firms and SMEs both in urban centres and in few peripheral municipalities. The cluster also seems to have exclusive synergy between agriculture and inter-firm trade which is not found in the rest of the region. The industrial cluster has eight functional areas which are all small and medium-sized. The cluster was able to maintain manufacturing above the regional average, but also was able to co-agglomerate three different industrial sectors: agro-industry, electro-industry and transportation industry. The industrial cluster appears also to have synergies between education and manufacturing indicating that there is a presence of complementarity unseen in the rest of the region. The high-rank productive cluster comprises of five functional areas which have at least 2.2% of jobs in high-rank productive services such as ITC, R&D and business services. The cluster is structured of many micro-firms and SMEs and very few large firms which are concentrated in the urban centres and/or in their close proximity. There is also an exclusive synergy between, on the one hand, R&D and education, and on the other hand, between inter-firm trade, management and intellectual services. The low-rank productive cluster counts of four functional areas with at least 9.3% of employment in the low-rank productive services such as logistics, construction and wholesale. The cluster has many micro-firms and SMEs and few large firms spread equally across the territory. The cluster has two unique synergies: between construction and agriculture, and between logistics and local services. The residential cluster has eight functional areas and many firms of all sizes a majority of which is agglomerated in two largest urban centres. The largest urban centres are also favoured when it comes to co-the agglomeration of difference services to population. In addition, the residential cluster has several exclusive synergies between public administration, culture, leisure, and intellectual services which are not find in the rest of the region.

CONCLUSION OF CHAPTER 5

This chapter was dedicated to the results of the functional and socio-economic analyses conducted on the region urban system of Centre-Val de Loire in France. Unlike other European countries, French small and medium-sized towns seem to be the subject of various debates in scientific circles and political arenas in France. One of the reasons of such interest might be the fact that a large number of French towns has maintained an autonomous administrative organization since Napoleon's territorial reform. In addition, over 2,000 small towns and 1,300 medium-sized towns have housed more than 24% of the French population and as such have been included in national planning strategies.

This chapter started by presenting the general features of the Centre-Val de Loire region which is located in the Loire valley close to the Paris metropolitan region in the north. The region is polarized around two large cities while the urban sprawl is one of the major trends affecting the all regional settlements. The functional analysis affirmed the prevalence of small and medium-sized towns in the regional urban system which suggests their important roles for the growth and development of the entire region. Towns also appear to be both emitters and receivers of population flows, and they maintain the highest number of territorial relationships with other settlements in the region. Indeed, as some towns succeed to develop agglomeration relationships in the sense they attract the commuters not only from within their functional areas but also from other neighbouring urban centres, it demonstrates that the centrality in not only a function of the size and the hierarchical position. When it comes to the networked relationships, they seem to be the key feature of towns rather than cities. The networked centres indicate that towns share local workforce pool which may consequently lead to balanced labour markets and they appear to be less frequent in the region and more constrained by the proximity of towns. Likewise, towns in general radiate the influence over the settlements which are lower in rank. Yet, there are towns that also dominate a settlement of the same rank by offering more important functions. Moreover, compared to the cities, towns do not differ in accessibility or in connectivity to services and labour market except in the case of public services which seem to favour larger cities rather than towns.

In the chapter we also explored the main socio-economic features and differences within the regional urban system by referring to three spatial scales: inter-firms, centre-periphery and cluster. At the inter-firms level, we demonstrated that the local economy of towns is based on a density of micro-firms and SMEs. Towns very rarely host oligopoly of few large firms and monopoly of one large firm unlike cities which are more prone to have a domination of one or few large firms in an economic sector. As a consequence, towns have less capacity to reach economies of scale and scope. However their market is more open to the new entrances. At the centre-periphery level, we found that in the context of strong migrations of population from urban centres towards the periphery over the last fifteen years, towns had a significant loss of population and sometimes even jobs which appear to follow the

population. However, the important differences were found between the small and the medium-sized towns. The periphery of small centres is generally rural and lacking a minimal precondition for new economic activities to developed. As a consequence, the small centres lost population (in favour of the rural periphery), but they gained new jobs. In contrast, the periphery of medium-sized towns mostly has a mixed profile; it is more urbanized and offers more amenities than a periphery of small towns. As a result, the medium-sized centres lost both population and jobs which all tend to move to the periphery. At the cluster level, we identified five sectorial clusters in the Centre-Val de Loire region: agricultural, industrial, high-rank productive, low-rank productive and residential. Each of the clusters has particular socio-economic characteristics in terms of agglomeration and co-agglomeration scopes (e.g. location in urban centres and/or periphery), firms' structure (e.g. micro-firms, SMEs, large firm), and unique synergy between economic activities that cannot be found in the rest of the region.

CHAPTER 6: Small and Medium-Sized Towns in the Political Context of the Centre-Val de Loire Region, France

The current French institutional system is the result of devolution and decentralization which are two movements that have grown stronger over time and have known a significant acceleration since the 1980s. On the one hand, devolution is defined as a geographical shift of decision-making from the State towards the territories. The authorities of the State (e.g. perfects, public finances directors, rectors, etc.) are not elected by the people but appointed by the State with an exception in the case of mayors. The authorities of the State exercise their powers within the administrative framework which corresponds to the divisions of national territory into regions, provinces, counties and municipalities. On the other hand, through decentralization, the State has gradually transferred powers to public entities governed by councils of officers which have a power to exercise their competences and are elected by citizens.

Furthermore, the performance of cities and towns is significantly affected by national government policies – implicitly or explicitly, directly or indirectly. In fact, cities and towns perform better where national, regional and local policy-making systems are horizontally and vertically aligned. Hamdouch and Moulaert (2006) argued that institutions shape the orientation and the content of public policies and regulations which, in turn, influence strategies and coordination modes within development processes. Moreover, economic actors and public authorities, through their decisions, actions and interactions, can modify the existing institutional framework or even build a new one. Thus, the development process becomes a continuous flow of opportunities to influence the system and to initiate new forms of coordination (Hamdouch and Moulaert, 2006). In that respect, inter-municipal cooperation is considered as a creative solution for a more comprehensive planning that can encompass a wider space (Serrano and Hamdouch, 2017). It means that neighbouring towns and cities participate in elaboration of common planning projects, budgets, investments, political organization of local institutions. In addition, inter-municipal cooperation may reduce opposition and extreme competition by producing "a spatial quality which towns are able to use as a specific resource while large cities may benefit from the functional complementarity offered by towns" (Serrano and Hamdouch, 2006, p. 119).

Building on these arguments, this chapter will expose results of the research on inter-municipal governance in the Centre-Val de Loire region with a special focus on small and medium-sized towns. More precisely, the first section will provide an outline of the politico-administrative features of national and regional institutions. The objective is to contextualize the French approach to territorial issues related to the development of towns. The second section will explore inter-municipal governance in the Centre-Val de Loire region. In that

scope, the objective is to assess the structure of inter-municipal governance, and financial and political arrangements of inter-municipal cooperation units whose headquarters are small and medium-sized urban centres.

SECTION 6.1: Contextualization of the French approach to territorial issues

As discussed in previous chapters, most European countries have engaged in a large decentralization processes of political, social and economic structures by giving more power to regional and local authorities in socio-economic issues such as employment, industrial restructuring, higher education and R&D. The scientific literature on relationship between policies and performance in Europe underlined the importance of decentralization and power given to local authorities, local development policies and their correspondence to the regional and national ones (ESPON SGTPD, 2012). Indeed, the institutional mobilization of resources and broad array of actors to achieve agreed objectives is crucial for the development of towns and cities (Pecqueur, 1989; Magnaghi, 2003). France as a unitary type of state, kept the central government and its territorial representatives (prefects) in charge of important sectors such as social action, education and transport. In addition, the central government exerts a strong influence through national regulations and contractual arrangements in many areas where it does not have exclusively the competences.

Through two objectives, the following section will provide the context of the French approach to territorial growth and development. The first objective is to observe the general characteristics of the French context related to governance vertical and horizontal structure and evolution of approaches to towns at the national scale. The second objective is to set towns in the political context of the Centre-Val de Loire region, particularly in relation to the top-down approach and some local bottom-up initiatives.

6.1.1 General characteristics of the national context

France appears to be strongly centralized country. It is divided into 18 administrative regions which are further subdivided into 101 provinces and 36,681 municipalities. Since the 1980s, there has been an increase in autonomy of local authorities which led to the transfer of competences to sub-national levels. Thus, the first part of the subsection will present the evolution of decentralization that has taken place since the 1980s. The second part of the subsection will explain the vertical administrative level of governance and relating competences that comprise regions, provinces and municipalities. The third part of the subsection will outline the horizontal administrative level of governance (inter-municipal cooperation) including the recent territorial reform. The fourth part of the subsection will present the evolution of state reflection and approach to small and medium-sized towns.

- Evolution of decentralization -

In 1981, following the election of François Mitterant at the presidential elections, Gaston Defferre, mayor of Marseille was chosen for the minister of internal affairs and decentralization whose objective was to prepare the first and major reform of decentralization in France. The law was drafted in 1981, adopted in 1982, modified in 1983 and by 1986 accompanied by about 200 decrees. The law named “Decentralization Law I” introduced some significant changes in the territorial organization of the country. First, a new position of the chairman of provincial general council was created in order to replace the prefect. Second, *a priori* administrative control was replaced by *a posteriori* judicial control. Third, the Regional Chamber of Auditors as a new financial jurisdiction was created with a mission to assist prefects in a budgetary control. Fourth, the regions were promoted into the local authority with an elected council. However, in each province and region, prefects remained state representatives in charge of the protection of national interests, law, public order and administrative control.

In 1990s, several adopted laws aimed to update the “Decentralization Law I” by boosting cooperation between municipalities, local democracy and devolution: the law on the territorial administration focused on planning and territorial development (1992); the Chevenement Law aimed strengthening inter-municipal cooperation (1999); the Voynet Law addressed the planning for sustainable development (1999); the “Solidarity and Urban Renewal” Law (2000) and the Local Democracy Law (2002).

In 2003, during the presidency of Jacques Chirac, the “Decentralization Law II” was launched with a goal to conduct a transfer of new powers to local authorities and which led to the constitutional reform. In that scope, the principle of “decentralized structure”, which was put ahead, made regions its constitutional consecration. A series of laws were adopted so to define local referendum, local financial autonomy, freedoms and responsibilities for economic development, tourism, vocational training and certain types of infrastructure (i.e. roads, airports, ports, social housing, construction, education and heritage).

The decentralization took a new direction under the presidency of Nicolas Sarkozy by focusing less on power transfer from the State to local authorities and more on a simplification of local institutional system, strengthening local democracy, adapting institutions to the diversity of territories, and strong constraints of public finances due to the financial and economic crisis in 2008. In 2010, a so-called Law for the reform of local government aimed at the rationalization and the democratization of inter-municipal cooperation after the local elections in 2014. In that respect, regions and provinces got, on the one hand, better defined competences which fit each region, and on the other hand, local institutions were made more flexible in adapting to different contexts such as the one of metropolises, metropolitan regions, cluster of provinces and regions, regional and provincial evolution towards a single community, fusion of towns, etc.

Moreover, due to an increased control of public finances, local authorities became more involved in national efforts to control public debt. In 2010, a major reform of local taxation was introduced with the abolition of business tax which was replaced by the territorial

economic contribution (in fr. la contribution économique territoriale, CET). The CET included taxation based on firms' land (in fr. la cotisation foncière des enterprises, CFE) and firms' added value (in fr. la cotisation sur la valeur ajoutée des enterprises, CVAE). Likewise, after the Carrez-Thenault report on local spending, the Government decided to put a three-year freeze on financial aid from local authorities for the period 2011-2013. In contrast, it strengthened the so-called financial equalization mechanisms aiming to decrease inequalities between territories. First, the vertical equalization (exchange between the State and local authorities) increased from 4.5 billion euros in 2004 to 7.1 billion euros in 2011. Second, four new funds of horizontal equalization (exchange among local authorities themselves) had for the aim to reduce fiscal inequalities and to build communal solidarity. In addition, an effort was made to simplify standards imposed on local authorities. Consequently, an assessment of the proportion of existing regulatory measures was conducted as to propose the most efficient ones.

In 2012, with the election of François Hollande to the presidency, decentralization entered in a new stage. The aim was to restore the trust between the State and local authorities which were seen as key players for regional vitality and social ties. The trust was to be established on a dialogue and complementarity between actors.

- Vertical levels of governance -

Since 19th century, French municipalities and provinces have had a limited autonomy. However, in 1982 and 1983 by the adoption of so-called Gaston Deferre Laws, the French parliament launched a policy of decentralization. This process was conducted in three stages. The first stage in the 1980s undertook the transfer of powers and responsibilities to the newly created institutions of territorial government (in fr. collectivités territoriales). One of the introduced innovations, at this stage, was the creation of regions with full powers and recognition. The second stage started in the early 2000s and it affirmed the three vertical levels of local government: regions, provinces and municipalities. Finally, the third stage took place in 2015 with the adoption of the "New Territorial Organization of the Republic" law (the NOTRe law). It recognized and awarded the 14 biggest French agglomerations with the status of metropolises: Grand Paris, Aix-Marseille Provence, Grand Lyon, Rennes, Bordeaux, Toulouse, Nantes, Brest, Métropole européenne de Lille, Rouen-Normandie, Grenoble-Alpes, Eurométropole de Strasbourg, Nice-Côte d'Azur and Montpellier Méditerranée. The new territorial reform also reduced the number of regions from 22 to 13 and it reinforced the competences of each level of territorial government.

When it comes to the vertical levels of governance, already in the 1950s, the State designed the regional administrative bodies (in fr. circonscriptions d'action régionale) in charge of regional development. The geographical limits of these administrative regions were kept until the early 1980s when the French regions were awarded real powers and competences. The prefects who represent the State at the regional level transferred part of their powers to the elected presidents of regional councils. Overall, the regional administration consists of three bodies: (i) the regional council (elected assembly); (ii) president of the regional council

(executive elected by the council); (iii) the regional economic, social and environmental council (advisory body).

The provinces (in fr. departements) were created after the French Revolution with the objective to facilitate the administration. The spatial delimitation of provinces was made so that it was possible to arrive to a provincial capital in one day by riding a horse. Despite criticism, the provinces with their prefects assigned by the State became essential for the State administration at the local level (Demazière et al., 2013). However, since the decentralization laws, the executive power of prefects was substantially downsized in favour of elected presidents of provincial councils. Yet, the recent territorial reform has also downsized the competences of provinces, and by 2020, it is planned to eliminate them entirely from the administrative system.

The municipalities are the basic and the oldest administrative units that were introduced after the French Revolution in the 18th century. All parishes, villages, towns and cities were converted into municipalities which are nowadays the reason of their large number (more than 36,700). Since the Municipal Act in 1884, municipalities have had their own administrative organization regardless their size: (i) the municipal council (councillors are elected by direct universal suffrage); and (ii) the mayor (elected by the council).

Table 6.1: Competences of regions, provinces and municipalities

DOMAIN	REGION	PROVINCE	MUNICIPALITY
Economic development	Regional plan for economic development, innovation and internationalization (fr. SRDEII).		Tourism development.
	Direct and indirect subsidies to businesses.		
	Contract plans.		
Spatial planning	Regional plan for spatial planning, sustainable development and territorial equality (fr. SRADDET).	Rural infrastructure, land consolidation, land management, water management, rural roads.	Regulatory documents of planning (local development plans, PLU, development areas, ZAC)
	Regional transportation (regional express trains, TER), infrastructure financing (TGV lines, regional highways).	Road extension, maintenance of all roads not in the national public domain.	Municipal roads.
	Non-urban transportations (e.g. school transportation).	Non-urban road transportation.	
	Seaport and airports.	Fishing seaports	
	Waste management, air	Provincial libraries,	Municipal libraries,

	quality, natural reserves management and heritage protection.	achieves and museums; heritage protection	museums, music schools, concert halls, sports facilities; cultural events
Education	Second level high schools (fr. lycée) and vocational schools.	First level of secondary schools (fr. colleges)	Pre-elementary and elementary school.
	Vocational training and life-long learning, integration of young people in difficulty and dual education system.		
Solidarity and social cohesion		Accommodation of people with disabilities, social inclusion, disability compensation.	Associations and social actors support.
		Retirement homes, personal autonomy allowance.	
		Social assistance benefits and active solidarity income.	

Source: Direction de l'Information Légale et Administrative, 2016

For the each level of local government (regions, provinces and municipalities) a series of laws define a degree of fiscal autonomy and the way they are able to finance their activities (operation costs and new investments). First, the local tax system is based on direct and indirect taxation of local resources. In that scope, regions and provinces have a right to benefit from the tax on added value (in fr. CVAE) which is imposed on all businesses with the annual revenue above 150,000 euros. Also, they benefit from the so-called flat tax on network firms (in fr. imposition forfaitaire sur les enterprises de réseaux, IFER) which is introduced for companies in energy, rail and telecommunication sectors. The provinces also benefit directly from the property tax on buildings, and indirectly from the tourist tax, the land registration tax and the registration fees for property rights transfers. When it comes to municipalities, there are a series of direct and indirect taxes that assure their fiscal autonomy: the property tax on buildings, the property tax on undeveloped land, the housing tax, the tax on vacant housing, the property tax of firms, the added value tax, the flat tax for network firms, the garbage collection tax, the tourist tax, the spatial planning tax, the transportation tax, the land registration tax and the registration fees for property rights transfers. Second, the financial assistance for operation costs and new investments for local authorities may be handed over directly from the State. More precisely, since 1996, the State has provided a so-called "normalized envelope" which has been the major financial support for local authorities. The distribution of envelopes is controlled by the Local Finance Committee. For

example, in 2015, the financial assistance represented 55.87 billion euros out of which 36.6 billion euros were assistance for operation costs of local institutions (Collectivité territoriale, 2016). Third, the loans are intended to finance the investments in equipment and services considered as the capital assets for a local community. Unlike the financial assistance from the State, no loan can be made for covering the deficit in operation and the debt made by local authorities.

- Horizontal level of governance -

The French term “inter-municipality” (in fr. intercommunalité) refers to the various forms of cooperation of municipalities across the national territory. In spite of its existence for more than 120 years in a form of municipal unions, the inter-municipal cooperation was strengthened and simplified during the 1990s and then re-addressed in 2010 and 2015 by the territorial reform. The clustering of municipalities within public institutions and inter-municipal cooperation (EPCI) had initially two objectives:

- The joint management of certain local public services or facilities in order to better allocate costs and benefits from economies of scales. In this case, municipalities seek to form an inter-municipal cooperation or community that is relatively flexible or associative.
- The collective management of local development projects. In this case, municipalities opt for a more integrated or federal form of cooperation.

Nowadays, the inter-municipal cooperation is required for all municipalities and may take several forms:

- Union of municipalities (since 1890)
- Cooperation of municipalities (since 1992)
- Urban cooperation (since 1966)
- Cooperation of agglomeration (since 1999)
- Unions of new agglomeration (since 1983)
- Metropolises (since 2010)

In 2015, there were 2,133 inter-municipal cooperation (EPCI) in France out of which 11 were metropolises, 9 were urban cooperation, 226 were cooperation of agglomerations, 1,884 were cooperation of municipalities and 3 were unions of new agglomerations. Only 70 municipalities were not participating in any form of inter-municipal cooperation. However, most of them are located in the metropolis Grand Paris and are planned to be integrated in it during 2016.

Table 6.2: Competences of some inter-municipal forms of cooperation (EPCI)

EPCI	COMPULSORY COMPETENCES	OPTIONAL COMPETENCES
Cooperation of municipalities (< 50,000 inh.)	Economic development Spatial planning Tourism (from 2017) Management of sites for Roma (from 2017) Management of aquatic areas and prevention against floods (from 2018) Water and waste management (from 2020)	<u>Choice of 1 among:</u> Environment Housing Sports and cultural facilities Roads
Cooperation of agglomeration (> 50,000 inh.)	Economic development Spatial planning Housing Urban renewal Tourism (from 2017) Management of sites for Roma (from 2017) Management of aquatic areas and prevention against floods (from 2018) Water and waste management (from 2020)	<u>Choice of 3 among:</u> Environment Water Sports and cultural facilities Roads
Urban cooperation (> 500,000 inh.)	Economic development Spatial planning Housing Urban renewal Water Roads	-

Source: Direction de l'Information Légale et Administrative, 2016

The inter-municipal arrangements are seen as a possible solution for the municipal fragmentation and an instrument of a rational organization of territories. France, due to a large number of municipalities, comprises 40% of all municipalities of the European Union (Demazière et al., 2013). Municipalities in France have a long history and have been kept autonomous because local officials and citizens feel attached to the municipal identity and to the proximity of legal and administrative services. In that context, inter-municipal cooperation is seen as an opportunity to face the challenges of urban development and the decay of rural areas at a larger scale that would not be possible to tackle alone (Demazière et al., 2013).

Irrespective of its form, inter-municipal cooperation does not have its own tax system. Thus, it cannot vote on local tax rates nor it has tax exemption power. Their resources come mainly from the financial contributions of member municipalities and from the financial assistance of the State. In other words, inter-municipal cooperation is financed, on the one hand, from the budget of each municipality member or, on the other hand, directly by local taxpayers

(population and firms) who in addition to municipal, provincial and regional taxes pay for inter-municipal cooperation. Furthermore, the financial assistance from the State may come to inter-municipal cooperation in two forms: (i) the VAT compensation funds (in fr. fonds de compensation de la TVA) for the investment costs, (ii) the grant for equipment and services (in fr. dotation globale d'équipement) for inter-municipal cooperation that counts less than 20,000 inhabitants. In addition, inter-municipal cooperation may benefit from different fees on services they provide such as garbage collection and transportation as well as from various aids for projects from for example structural funds of the European Union.

- Evolution of the reflection and approaches to towns -

In France, it is generally considered that a small town is an urban centre (the INSEE's definition) that counts 5,000 to 20,000 inhabitants, while a medium-sized town counts from 20,000 to 100,000 inhabitants (Taulelle, 2010). However, despite a general agreement on size thresholds, there are differences between national and regional officials, on the one hand, and researchers and city-officials, on the other hand (Table 6.3).

Table 6.3: Different approaches to the definition of small and medium-sized towns

	Perspective of associations of elected officials	**Perspective of researchers**	**Perspective of the State (DATAR)**	**National institute for statistics and economic studies (INSEE)**
Small town	Municipalities of 2,500 to 25,000 inhabitants (Association des Petites Villes de France)	Urban centres of 5,000 to 20,000 inhabitants (Laborie, 1979; CERAMAC, 2003)	-	Urban centres of 5,000 to 20,000 inhabitants
Medium-sized town	Municipalities-centres of 20,000 to 100,000 inhabitants and united under EPCI (Fédération des Maires des Villes Moyennes)	Urban centres of 20,000 to 100,000 inhabitants (Lajugie, 1974)	Functional urban regions of 30,000 to 200,000 inhabitants (*Programme Villes moyennes*, 2005-09)	Urban centres of 20,000 to 100,000 inhabitants

Source: Demazière et al., 2012

These definitions are based on the approach to urban systems which compares towns to large cities. Yet, on the field, these thresholds may change from region to region as there may be few or not any large city in a region. For instance, the Centre-Val de Loire region has only two cities which go beyond the threshold of 100,000 inhabitants (Orléans and Tours). At the

same time, four other provincial capitals (Chartres, Dreux, Blois and Bourges) which are ranked below that threshold would certainly be considered as cities and not as towns. Moreover, forty years ago, Lajugie (1974), a prominent French scholar, argued that "a small town […] should be in a sparsely populated and less urbanized area considered as medium-size town, while a city two or three times bigger in size, embedded in the urban fabric of a densely populated area, does not necessarily play this role and does not always respond to that vocation" (Lajugie, 1974, p. 18). As a result, French small and medium-sized towns have been observed through a set of additional criteria: demography, functions, urban equipment, connectivity and accessibility (Carrière, 2008) or centrality (Lacour et al. 1998; Demazière, 2012).

At the beginning of the 1970s, the State made some decisive steps towards 73 medium-sized towns with which it signed the triennial contracts. The main objective of this initiative was to improve the quality of urban life and to boost economic development. The contracts were a sign of the government's will and they ensured the provision of technical expertise and coordination with local elected representatives in realization of projects (Carrier and Demazière, 2012). In fact, on the one hand, by this policy, local municipalities were mobilized so as to define local strategies. This was considered a positive step made by the State as, on the one hand, local municipalities were mobilized as to define local strategies and, on the other hand, the focus was set more on qualitative than quantitative effects such as congestion and social segregation (Fabriès-Verfaillie et al., 1994). Likewise, the diversification of functions and the strengthening of centrality in small and medium-sized towns were acknowledged as the key foundations of a consolidated urban system. Following the contracts, an association of 73 officials was created with the aim to highlight towns' attributes and to keep recalling the issues of territorial cohesion in areas that are less affected by metropolization (Demazière, 2012).

Following the period of policy implementation that aimed at consolidation of the urban system by creating "métropoles d'équilibre" in the 1960s and regions in the 1980s, the period of the 1990s was marked by the focus on the future of towns in the context of metropolization and a new division of labour (Fererol, 2010). Scholars, officials and professionals acknowledged that planning could not be based solely on large cities, and that the balance between territories could not be established by using the same approach everywhere. On the contrary, the territorial balance implies placing ahead context and the specificities of each territory (Demazière, 2011).

The intense discussions on territorial issues appeared not only in scientific circles (Taulelle, 2010; Demazière et al., 2012), but also in the political arena. The state agency for planning (fr. DATAR) has been one of the most relevant actors in developing territorial planning methods, experimentations and foresights. Its studies such as the "Scenario of the unacceptable: Image of France in 2000", published in 1971, served as a theoretical framework for the General planning scheme of France (in fr. Schéma general d'aménagement de la France). Furthermore, the DATAR published two prospective studies, the "France in 2015: Reorganization of the national territory" published in 1993 and the "France 2020: Moving territories" published in 1999, in which it adapted its analytical methods to be

consistent with the changes in public actions following the decentralization process (Demazière et al., 2013). Concerning the studies on urban systems and metropolises in the 2000s, the DATAR published the "What metropolises in Europe? Comparative analysis" and the "French urban system". Both studies underlined the importance of urban networks (asymmetric, intensive, diverse, specialized, transversal, etc.) for the development. Moreover, towns were the subject of several studies commissioned by the DATAR (Laborie, 1979; Julien and Pougnard, 2004; Béhar, 2004) in which it was made clear that towns "play intermediary roles between various urban levels, between sociability and openness to the global, between heritage and new technology, between residential economy and the productive economy" (De Roo, 2007, p. 4).

Besides the DATAR, the National Federation of Medium-Sized Towns (FMVM) and the Assembly of French Inter-Municipal Cooperation (ADCF) conducted a detailed research on medium-sized towns and their travel-to-work agglomerations over the period 2004-2006. The final report "French medium-sized towns, challenges and prospects" was published in 2007 (De Roo, 2007). The report encouraged the government to launch a public call for medium-sized towns to experiment the implementation of the four major sectorial policies: higher education, healthcare, transport and urban renewal. The experiment was based on the dialogue between local governments, the State and professionals. Once it was ended, the experiences were used to detect challenges and to plan future exchanges at vertical and horizontal administrative levels. In addition, two annual national meetings took place in 2009 and 2010 on which towns' representatives continued with their dialogue. In 2011, the INSSE published an analysis of medium-sized towns that addressed their socio-economic aspects of development.

Overall, France has a long tradition of observing, analysing, debating and experimenting on towns. Despite its complex administrative system, it seems that the French government succeeded to imagine and push forward some new forms of governance such as consolidation of regions and inter-municipal cooperation. In general, it seems that France has adopted the vision of balanced development and it has acknowledged the role of towns. However, unlike other European countries, France has also made some concrete actions to achieve these aims.

In the next subsection, we will present some key contextual particularities of the Centre-Val de Loire region when it comes to top-down and bottom-up approaches to local small and medium-sized towns.

6.1.2 Political context of the Centre-Val de Loire region

The mobilisation of a broad array of local actors has been highly valued in many local policy initiatives that have been launched across European countries (Stöhr, 1990; Demazière and Wilson, 1996). The inter-connectedness of institutions seems to be widely recognized as important precondition for growth and development based on innovation and knowledge (Hamdouch and Moulaert, 2006). Consequently, cities have benefited from the de-concentration of investment and the decentralization of decision-making and resources and

their endogenous potential (e.g. local leadership, amenities, social capital) has been supported by national government policies (ESPON SGPTD, 2012).

The first part of this subsection will present the general features in the functioning of the key regional institutions. The second part of the subsection will outline the approach of the regional authority to small and medium-sized towns. The third part of the subsection will bring out some examples of local initiatives coming from towns and local scholars that focus on the issues of towns in the Centre-Val de Loire region.

- Functioning of the key regional bodies -

The Regional Council of the Centre-Val de Loire has 77 elected representatives associated to four groups of political parties: (i) socialists, radicals and democrats (SRD) with 31 representatives (a majority), (ii) the union of the right and the centre (UDC) with 20 representatives, (iii) the green party (Ecologiste) with 9 representatives and (iv) Front National (FN) with 17 representatives. Each of six provinces has a limited number of elected representatives in the Regional Council: Loiret (20), Indre-et-Loire (20), Eure-et-Loir (12), Loir-et-Cher (9), Cher (9) and Indre (7). The regional representatives unite six times per year to discuss and vote the budget and major regional orientations. The key topics such as funds and finances, socio-economic development, education, spatial planning, transportation, culture and tourism are analysed and reported to the Council every month by special commissions. The commissions are made of local experts such as firms' CEOs, scientists, researchers, cultural institutions, sport clubs, etc. who have a special knowledge and experience in the subject.

Acting as the president since 2007, François Bonneau together with 13 vice-presidents and 8 regional councillors forms the executive board of the Regional Council in charge of budget and execution of decisions adopted by the Council.

The economic, social and environmental regional council (in fr. CESER) is an assembly of socio-economic organizations of the region appointed by the prefect to review and advise the Regional Council on decisions before the vote, but also to enrich the reflection on the future of the region. The CESER is composed of 100 members appointed by their institutions for a period of 6 years and they are organized into 4 boards, 4 commissions and 2 sections.

According to the regional financial report, the global budget of the region doubled over the period 2004-2015 (Région Centre-Val de Loire, 2015). Nevertheless, the structure of regional spending has changed in favour of operating costs such as education and transportation and less in favour of on new investments. As a result, since 2004 operating costs have increased by +92% while new investments have increased only by +15%. The regional revenue relies on taxes (54% in the budget), financial assistance of the State (31% in the budget), loans (8% in the budget), European structural funds (4%) and other funds (3%). Moreover, as compared to 2014 in 2015, the financial assistance of the State decreased by -8%, the financial

autonomy[35] progressed by 5 percentage points and the fiscal autonomy increased by 0.34% (Région Centre-Val de Loire, 2015).

Among the major projects financially supported by the Regional Council in 2015 were the vocational training for unemployed and young worth a total of 108.5 million euros, economic development based on social and solidarity economy, tourism, local services and agriculture with a total of 62 million euros, 28 million euros of funds for universities and their research programs, 206.8 million euros for improvements in public transportation and connectivity between territories, projects for protection of biodiversity, climate change, cultural and touristic activities which together got about 65 million euros of regional investments (Région Centre-Val de Loire, 2015).

- Top-down approach to towns -

Since the 1970s, the role of the regional authority, as in any other region in France, has been to enable the territorial development by implementing policies assuring the provision of services and facilities to the municipalities. In the early 2000s, the Regional Council of Centre-Val de Loire launched a policy specially tailored for its medium-sized towns. However, due to the territorial reforms, which put forward inter-municipal cooperation, the approach of the Regional Council was broadened by reserving a contractual policy for inter-municipal cooperation. As argued by Demazière (2011), the contractual policy appears to be the efficient way to unite the territories for economic and social development which, at the same time, takes into consideration the potential of each territory within the regional space.

After a period of intense consultations that involved more than 4,000 persons in 23 territorial forums, six thematic groups and three citizen panels, the Regional Council adopted the Regional Plan for Sustainable Development and Planning (SRADDT) in 2011. This document defined the vision of the future regional development thriving on knowledge society, networked territories and mobility. The accent was also put on the dialogue of actors and on a balanced urban structure, in particular between the two regional agglomerations (Tours and Orléans) and numerous towns. Moreover, the Plan was accompanied by a study of the regional employment zones which focuses on the socio-economic dynamics of larger areas of towns and cities.

Following the objectives of the Plan to maximize the development potential of each territory and to reduce disparities in living conditions of its inhabitants, the Regional Council introduced the term living areas (in fr. basin de vie) as its new territorial scale of policy action. Living areas are defined as territories of “everyday life” and they are based on job commuting dynamics, accessibility to services and facilities to population. Thus, the 23 living areas in the region are seen as the most suitable for tackling the key issues of economic, social and environmental development. Since 2012, the regional authority has been encouraging the dialogue between local actors at that particular scale, including

[35] Financial autonomy is defined as the ratio of revenues and debts which indicates the independence degree of a unit on its lenders. Fiscal autonomy is defined as the ability to determine the rates of tax revenues (Région Centre-Val de Loire, 2015).

representatives of inter-municipal cooperation, social and economic actors (CESER, chambers, firms, associations, development councils, etc.) and institutional partners (State, provinces, agencies, etc.). Consequently, the needs and priorities for future actions were outlined in a document “Ambitions 2020”. The document drafted a set of interventions of the regional authority in the living areas, which comprises intervention within the framework of its own competences and interventions based on the support of other territorial communities.

In 2015, the Regional Council has invested over 96.1 million euros in so-called regional contracts of territorial solidarity (in fr. Contrat Régionaux de Solidarité Territoriale). In that scope, six contracts between the region and provinces (in fr. conventions Région-Département) were signed for the period 2015-2020 with the objective to assure loans for high speed internet and housing of elders. Likewise, the region signed 19 contracts with cities and towns (in fr. Contrats de Ville) that provided financial support to different projects of economic development, education and urban renewal. For instance, such contracts enabled medium-sized towns of Châteaudun and Romorantin-Lanthenay to improve quality of life in their districts while in a medium-sized town of Issoudun it was meant for cultural and sport facilities (Demazière and Daviot, 2014). Moreover, by combining the loans of the European funds, the region and cities signed territorial contracts (in fr. Contrats Territoriaux) which defined the financing of thermal improvements in social housing and location zones for firms. As a result, more than 1,500 housing were renewed and 247 new were built across the region since 2014 (Région Centre-Val de Loire, 2015).

More than 3,000 regional projects worth 935 million euros were funded by the European Union which puts the Centre-Val de Loire region in the national average in quantity of funded projects. Demazière and Daviot (2014) reported some interesting results regarding the funded projects in five regional towns during the period 2007-2013. Chinon which is a small town succeeded to obtain more than 1.9 million euros of funds for impressive 19 projects related to economic development and territorial competitiveness. In contrast, Vendôme, a medium-sized town obtained only 777,000 euros for 10 projects related to economic development, competitiveness and accessibility. Romorantin-Lanthenay is a medium-sized town whose 5 projects of economic development and accessibility obtained about 360,000 euros of funds. Issoudun and Châteaudun are medium-sized towns which obtained about 110,000 euros of funds for 2 projects in economic development, accessibility and competitiveness (Demazière and Daviot, 2014).

- Local reactions and the bottom-up approach -

The Federation of Medium-Sized Towns (FMVM) is an important actor who represents and promotes the interests of towns at the national level. In 2004, the Federation and the State-owned Deposits Fund (in fr. caisse des depots et consignations) conducted a study that analysed the impact of regional policies on development projects, urban renewal, heritage and economic development in towns. In 2005, as a result of an interest and a close dialogue with the government, the Federation published its measures and recommendations for the future public actions concerning towns. In 2008, it re-confirmed its priorities and principles by

announcing its propositions in the manifest for attractive medium-sized towns and France of solidarity. More precisely, they demanded more power and resources to local institutions, stronger decentralization of public services and a support to local development in terms of investment in habitat, transportation, healthcare, education and services.

In the Centre-Val de Loire region, officials from towns and cities of different sizes created a network with the aim to weigh the choices made by the State and the region. Over years, the network has evolved into a forum of elected representatives of towns who meet twice a year in order to discuss topics such as participatory democracy, drivers of local economic development, etc. Some external organizations such as Villes au carré were also invited into the network. The latter is an association that provides expertise in conducting urban and social cohesion policies in the Centre-Val de Loire region. It is part of the national network of centres of political resources (in fr. réseau national des centres de ressources politique de la ville). Villes au carré supports creation of networks of local actors and elected officials by providing workshops, seminars, forums and trainings related to urban, economic and social development in the Centre-Val de Loire region. Considering their activities related to towns, the association has worked closely with the Regional Council and the University of Tours on studies of development of regional towns. It organized several annual forums where towns' officials meet researchers and professionals. In 2012, the association in partnership with the research laboratory CITERES of the University of Tours worked on the project "Observation of Economic Dynamics and Strategies" (ODES) of regional towns. The project was carried out with the support of the Regional Council and enabled to refocus the discussion between officials and researchers on current political and socio-economic challenges in front of towns.

Furthermore, small and medium-sized towns have been in focus of some local academics as well (Pasquet, 1999, Demazière, 2012, Demazière et al. 2014). More recently, universities of Tours, Orléans, Poitiers and La Rochelle, with the sponsorship of the Regional Council, organized an international conference on small and medium-sized towns in Tours which was attended by over 200 researchers and professionals from the country and abroad. The conference enabled an exchange of information, knowledge and experiences between scholars and practitioners. It particularly encouraged a reflection on towns in terms of their definition, place within the region, economic profile, implications of public policies and lifestyles (Villes au Carré, 2011; Urbanisme, 2011; Carrier and Demazière, 2012; Demazière et al., 2012). In addition, the University of Tours was commissioned to conduct several studies on the development of towns (Demazière, 2011, Demazière et al., 2014) which all suggests that there is a live dialogue between scholars and professionals on the issues of towns of the region.

6.1.3 Conclusion of the section 6.1

Nowadays, France is characterized by the presence of vertical and horizontal levels of governance and the evolution in thinking on territorial development. Since the World War II and especially since the 1980s, a territorial reform that took place has drastically changed the French administrative system. The process of decentralization transferred the powers and

responsibilities to new institutions of territorial government; regions got full powers and recognition; the three vertical levels of local government (regions, provinces, municipalities) were re-defined; inter-municipal cooperation was strengthened. The compulsory horizontal cooperation had two objectives. The first was the joint management of local public services in order to better allocate costs and to benefit from economies of scales. The second objective was the collective management of local development projects.

In the light of territorial reforms, small and medium-sized towns were the subject of various debates in scientific circles, but also in political arenas. The State planning agency (DATAR) has been an important actor in developing territorial planning methods, experimentations and foresights. It conducted several studies in cooperation with the National Federation of Medium-Sized Towns (FMVM) and the Assembly of Inter-Municipal Cooperation (ADCF) that focus on the issues of small and medium-sized towns. Their collaboration encouraged the government to launch a public call for medium-sized towns to experiment the implementation of four major sectoral policies: higher education, healthcare, transport and urban renewal. The experiment was based on the dialogue between local governments, the State and professionals. Once it was ended, the experiences were used to detect challenges and to plan future exchanges at vertical and horizontal administrative levels.

At the level of the Centre-Val de Loire region, the Regional Council adopted the Plan for Sustainable Development and Planning (SRADDT) in 2011. This document defined the vision of the future regional development thriving on knowledge society, networked territories and mobility. The accent was also put on the dialogue of actors and on a balanced urban structure, in particular between the two regional agglomerations (Tours and Orléans) and numerous towns. A particularity of the region is that there are only two large cities and many small and medium-sized towns. Thus, in order to achieve the development goals, the regional authority acknowledged the importance of towns and their contribution to regional growth. In that respect, several exchange networks and forums between towns' and cities' representatives were organized. This contributed to their mutual understanding of common challenges such as improvements in participatory democracy, drivers of local development and urban renewal.

SECTION 6.2: Exploring the inter-municipal governance in the Centre-Val de Loire region

As discussed in the previous chapters, cooperation and competitions may have a major influence on economic activities, human mobility and the behaviour of private and public actors. Cooperation may resolve the negative effects of borders, it may maximise local synergies and it promotes joint efforts in finding solutions to common problems. In that scope, territorial cooperation is considered as the precondition of economic development and competitiveness, territorial integration, city networking, good neighbourhood relations, extended labour markets and balanced integration of territories. Inter-municipal cooperation appears to quite affect member municipalities. Inter-municipal institutions impose new rules

and practices for local politicians, while the exchanges with voters adapt to the new inter-municipal parameter. Thus, a traditional political competition between political candidates in a municipality progressed into a new territorial scale as there are new political positions and powers to compete for.

In order to explore the inter-municipal cooperation in the Centre-Val de Loire region, the following section has three objectives. The first objective is to explore the structure of inter-municipal cooperation in the region. More precisely, we will identify the headquarters of regional EPCIs which represent the political centrality of an area. We will also identify the political hinterland which comprises municipalities of an EPCI, but do not have a political centrality. The second objective is to characterize financial arrangement between member municipalities of an EPCI. In that respect, we will observe financial effectiveness and degree of centralization of investments across EPCIs. Finally, the third objective is to examine political arrangements between member municipalities of an EPCI. Thus, we will present political diversity of EPCIs and the degree of inclusion of municipal representatives in leading positions in an EPCI.

6.2.1 Structure of inter-municipal cooperation

The first objective of the research was to relate to concept of inter-municipal cooperation to the concept of small and medium-sized towns. In that respect, in the previous chapter we presented the methods used in the governance analysis of the Centre-Val de Loire region that explore financial effectiveness, decentralization of investment, political diversity and inclusion of municipalities in the decision-making. The governance analysis combined descriptive statistical tests and QGIS software to assess the governance in inter-municipal cooperation units (EPCI). In that scope, in the first part of the subsection we will present the headquarters of inter-municipal cooperation as well as their location in the Centre Val de Loire region. In the second part of the subsection we will explore the political hinterland of inter-municipal cooperation in the sense of municipalities without the role of headquarters of inter-municipal cooperation.

- Headquarters -

In 2015 the Centre-Val de Loire region counted 126 units of inter-municipal cooperation (EPCI) (Table 6.4). The two largest EPCIs with headquarters in Tours and Orléans are each composed of 22 municipalities. The EPCIs whose headquarters are intermediate centres in average comprise 40 municipalities. Yet, the EPCI of Châteauroux for instance, appears to be relatively small with only 15 municipalities in cooperation while the EPCI of Dreux has 74 municipalities in cooperation which is the largest inter-municipal cooperation in the region.

The EPCIs whose headquarters are medium-sized centres in average have 12 municipalities in cooperation. Among them, exceptionally small EPCIs are the ones of Châteaudun and Montlouis-sur-Loire which count only 5 municipalities in cooperation. In contrast, the EPCI

of Saint-Amannd-Montrond is the largest one among medium-sized EPCIs and it has 19 municipalities in cooperation. Furthermore, the EPCIs whose headquarters are small centres in average count 13 municipalities. Among them, the smallest EPCIs comprise only 3 municipalities (e.g. Pithiviers and Mehun-sur-Yevres) while the largest EPCI has 31 municipalities (Châteaumeillant). Finally, the rural EPCIs whose headquarters are very small towns and villages (with below 2,000 inhabitants) have in average 14 rural municipalities in cooperation. Among them, the smallest one has 5 municipalities in cooperation (Neuvy-sur-Brangeon) and the largest one has 28 municipalities in cooperation (Ruffec).

Table 6.4: Number of municipalities in the EPCIs (average, minimal and maximal)

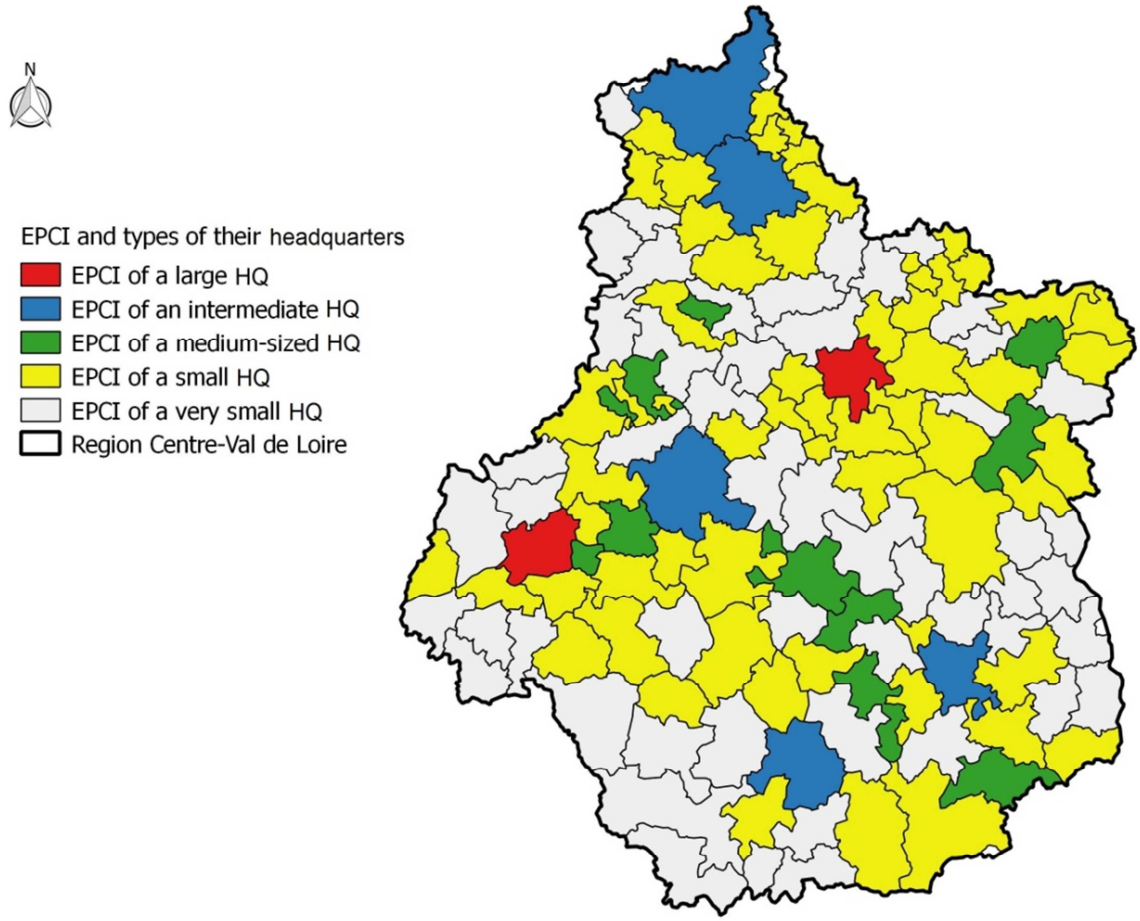
Size of the EPCI	Total	Average	Min	Max
Large headquarters	2	22	22	22
Intermediate headquarters	5	40	15	74
Medium-sized headquarters	10	12	5	19
Small headquarters	57	13	3	31
Very small headquarters	52	14	5	28

Source: author, 2016

Therefore, without taking into consideration the rural EPCIs whose headquarters are villages below 2,000 inhabitants, small and medium-sized towns together represent the headquarters of a half of regional EPCIs. More precisely, 45% of EPCI has the headquarters in small municipality, and 8% of EPCI has the headquarters in medium-sized municipality (Figure 6.1). Thus, the small and medium-sized towns coordinate more than 50% of inter-municipal cooperation in the Centre-Val de Loire region.

The EPCI with the small and medium-sized headquarters have in average fewer municipalities in cooperation as compared to the EPCI whose headquarters are the intermediate and large urban centres. Such structure may indicate that there are differences in political functioning because one may presume that the political representatives of smaller municipalities in the larger EPCIs may not have the same political power in decision-making as their counterparts in the smaller EPCIs.

Figure 6.1: Inter-municipal cooperation by type of its headquarters

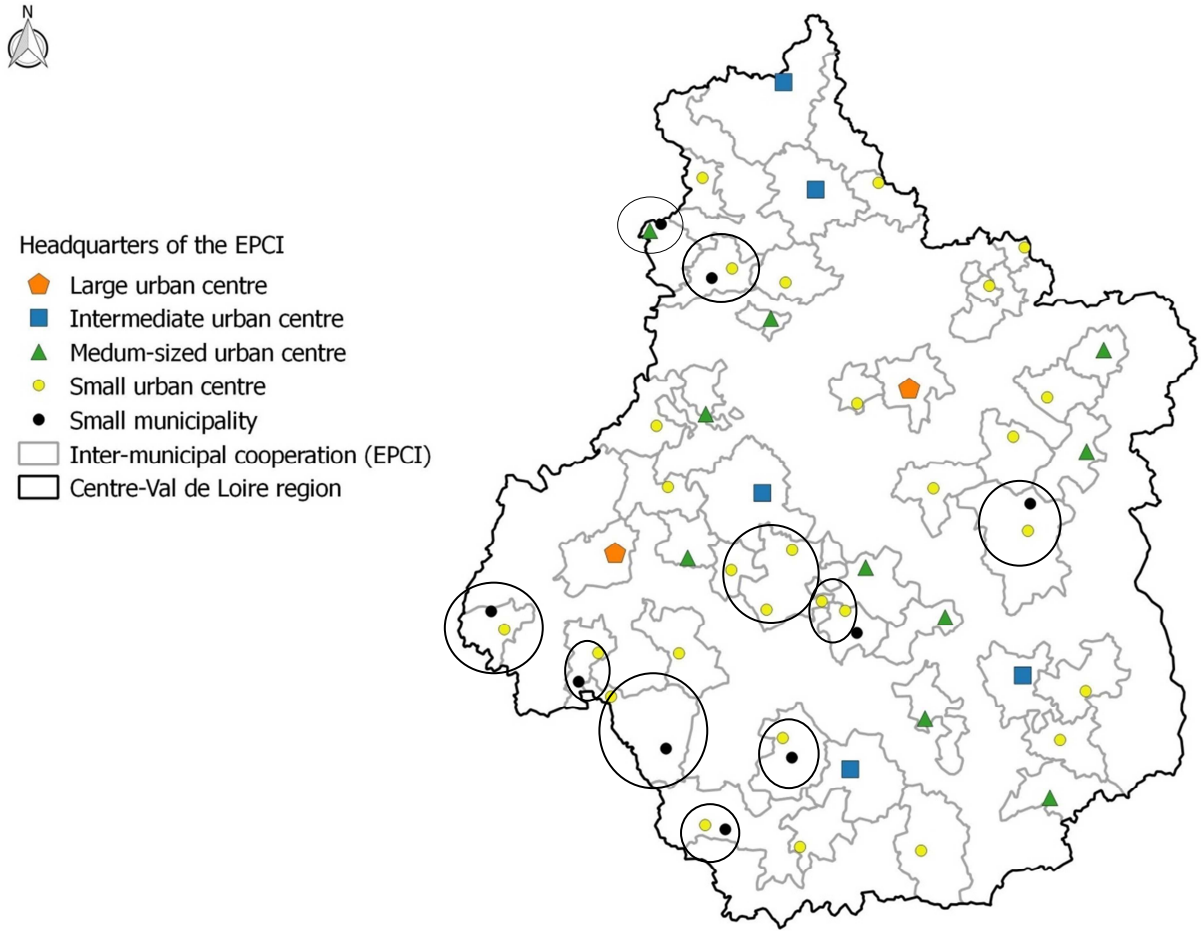


Source: author, 2016

- Political hinterland -

A majority of urban centres (34 or 76% of total number) has the role of the EPCI headquarters. In contrast, 11 urban centres (24% of total number) are not the headquarters of their EPCI, but that role is given to another municipality (Figure 6.2). This suggests that in spite of their functional and socio-economic centrality, some urban centres have a role of "political hinterland" in their EPCIs. More precisely, there are two situations where the urban centres are replaced and became "political hinterland". First, there are 9 cases of EPCIs where small and medium-sized urban centres are, by a political decision, "subordinated" to a smaller municipality headquarters of the EPCIs (e.g. Nogent-le-Rotrou, Aubigny-sur-Nère, Chinon, Brou, Descartes, Saint-Maure-de-Touraine, Le Blanc, Chabris and Buzançais). Second, there is one case of an EPCI that contains three small urban centres, and the headquarters is one of them (e.g. Saint Aignan and Selles-sur-Cher are "subordinated" to Contres, another small urban centre).

Figure 6.2: Urban centres and inter-municipal cooperation



Source: author, 2016

Nevertheless, despite these exceptional situations among the urban centres and their EPCIs, in the majority of EPCIs, a chosen headquarters is also an urban centre, which suggests that a "political centrality" tends to follow the functional and socio-economic centralities.

Overall, we detected 126 inter-municipal cooperation in the region which are smaller in size and more numerous than the functional areas. This suggests that even though some areas may have a political coordination, functionally and economically they belong to other neighbouring areas and are attracted by other urban centres. A majority of EPCIs' headquarters are urban centres which may suggest that the political centrality is related to the functional centrality. In fact, there are few situations in which the urban centres are not the headquarters of inter-municipal cooperation, thus the political function on the one hand, and the functional and socio-economic functions on the other hand are divided between the two poles of an EPCI. Moreover, a majority of EPCIs in the regions are coordinated by small and medium-sized municipalities which may suggest that the success of cooperation is very much in the hands of local towns' officials.

In the following section we will explore two types of arrangements between municipalities of an EPCI: financial and political arrangements.

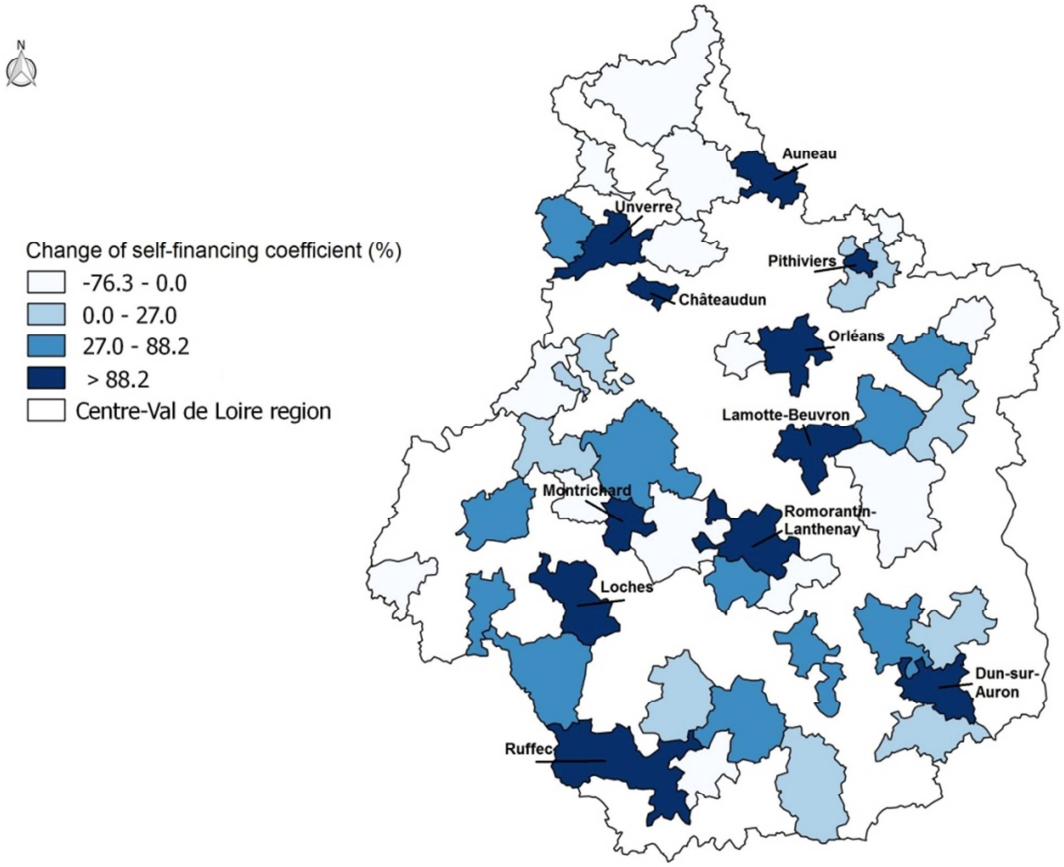
6.2.2 Financial arrangements

With the objective to explore the differences in inter-municipal cooperation, the assessment of financial arrangements will be based on two indicators: the financial effectiveness of member municipalities and the degree of decentralized investment within an EPCI. Thus, the first part of the subsection will present the evolution of self-financing coefficient and debt in the EPCIs of the Centre-Val de Loire region. The second part of the subsection will examine the degree of centralization of investment in member municipalities of an EPCI. The third part of the subsection will identify the typology of financial arrangements in the small and medium-sized EPCIs.

- Financial effectiveness -

The self-financing coefficient (SFC) indicates the possibility of an EPCI to finance its large operations once its pays all expenditure and debts. It is an equivalent to a purchasing power and it takes into consideration operating expenses, debt and revenues. The analysis of the change of SFC over the period 2007-2014 indicates that the rural, intermediate and large EPCIs had generally an increase of SFC in that period (Figure 6.3).

Figure 6.3: Change of the self-financing coefficient (SFC) in EPCIs in 2014 compared to 2007

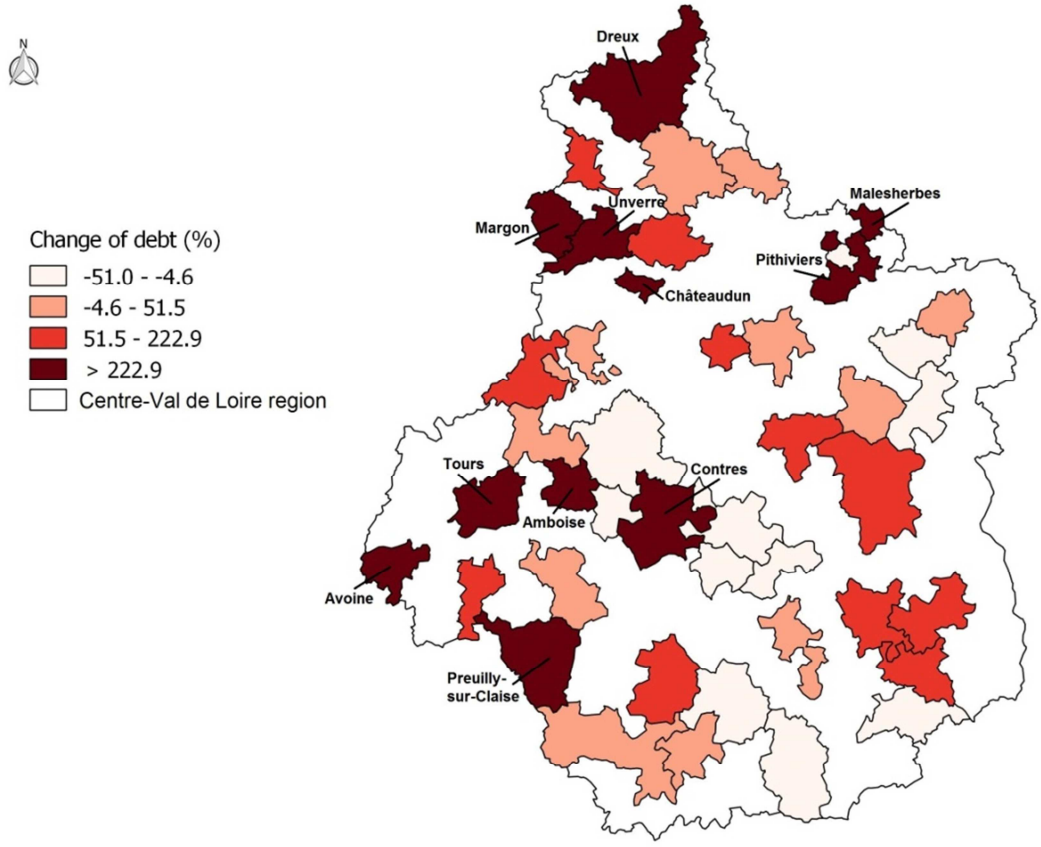


Source: author, 2016

The only exception is the intermediate EPCI of Chartres which had a decrease of -10.7% of SFC. Furthermore, an exceptionally high increase of SFC (above +88% or the last quartile) is noted in 11 small and medium-sized EPCIs: Auneau, Unverre, Châteaudun, Pithiviers, Lamotte-Beuvron, Montrichard, Romorantin-Lanthenay, Ruffec, Loches, and Dun-sur-Auron. In contrast, among small and medium-sized EPCIs with an exceptional high decrease of SFC is found in The EPCI of Bonneval, the EPCI of Argent-sur-Sauldre, the EPCI of Malesherbes, the EPCI of Meung-sur-Loire, the EPCI of La Loupe, the EPCI of Argenton-sur-Creuse, the EPCI of Vierzon and the EPCI of Montargis.

Considering the change of debt in EPCIs over the period 2007-2014, the results underline that the very small, intermediate and large EPCIs experienced generally an increase of debt over that period (Figure 6.4). The exceptions are two intermediate EPCIs of Châteauroux and the EPCI of Blois and a very small EPCI of Saint-Christophe-en-Bazelle containing the urban centre of Chabris which seem to manage to reduce their debt. Furthermore, among medium-sized EPCIs, five of them had an increase of debt (EPCI of Issoudun, EPCI of Montargis, EPCI of Vendôme, EPCI of Amboise and EPCI of Châteaudun), while four of them had a decrease of debt (EPCI of Romorantin-Lanthenay, EPCI of Gien, EPCI of Vierzon and EPCI of Saint-Amand-Montrond). When it comes to the small EPCIs, a large majority of them had an increase of debt. Yet, there are six exceptions of small EPCIs who managed to decrease their debt: the EPCI of Lorris, the EPCI of Montrichard, the EPCI of La Châtre, the EPCI of Pithiviers, the EPCI of Auneau and the EPCI of Argenton-sur-Creuse.

Figure 6.4: Change of debt in EPCIs in 2014 compared to 2007

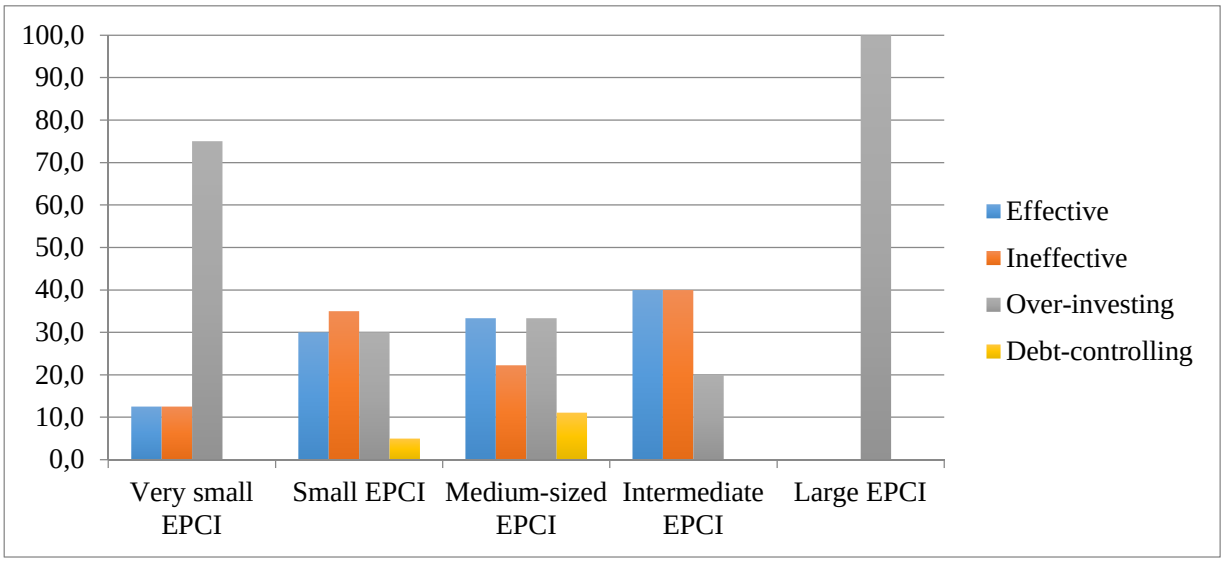


Source: author, 2016

In general, the results suggest that a majority of EPCIs in the Centre-Val de Loire region had an increase in self-financing coefficient over the period 2007-2014 which may indicate that regardless the financial and economic crisis, the EPCIs of the region managed to improve their purchasing power. When considering the change of debt over the period 2007-2014 in particular, the EPCIs in general experienced an increase of debt. However, considering the fact that the SFC of EPCIs had an increase over the same period, it may be presumed that the revenues of EPCIs (coming directly from taxpayers or from State through financial support) were able to cover the increase of debt so that the change of SFC remains positive.

Measured by the change of SFC and by the change of debt over the period 2014-2007, the financial effectiveness appears to be different among EPCI (Figure 6.5).

Figure 6.5: Financial effectiveness of the five classes of EPCIs in 2014 compared to 2007



Source: author, 2016

A large majority of rural and large EPCIs had expenses above their self-financing capacity in the sense that they experienced an increase of both SFC and debt over the period 2014-2007. This suggests that during the period 2014-2007, the rural and large EPCIs over-invested and over-spent in their functioning above their financial capacities. When it comes to the intermediate EPCIs, they were in two different situations. On the one hand, some managed to increase their SFC and to decrease debt which made them efficient in terms of financial autonomy. On the other hand, some did not manage to regulate their SFC and debt which made them ineffective in terms of financial autonomy. When it comes to the medium-sized EPCIs, the share of financially effective ones was equal to the share of over-investing ones (33% for each). Thus, the medium-sized EPCIs either succeeded to control their debt and to increase their self-financing or were over-spending above their financial capacities. Among the small EPCIs, financially ineffective ones were slightly more numerous (35%) which means that they lost financial capacities and increased their debts. Yet, 30% of small EPCIs proved to be financially effective by increasing their self-financing capacities and decreasing their debt. Likewise, 30% of small EPCIs also proved to be over-spending above their financial capacities.

In general, even though a financial situation varies among classes of EPCIs, the analysis of financial effectiveness indicates that the small and intermediate EPCIs are less financially effective than the other classes of EPCIs. In other words, the highest number of ineffective EPCIs in the sense of negative change of SFC and positive change of debt is found among the small and intermediate EPCIs. In addition, a majority of medium-sized EPCIs experienced an increase of SFC, but among them, the one half had also an increase of their debts, and the other half managed to decrease their debts. Interestingly a large majority of rural and large EPCI had positive change of SFC and debt which may suggest that these areas had increases in expenses in 2014 compared to 2007 which were able to be covered by revenues coming from local taxes, fees, contribution, regional funds and/or financial support from the State.

Furthermore, the analysis of correlation did not prove the existence of any relationship between the financial effectiveness and the size of a municipality or the class of an EPCI (Table 6.5). Thus, it cannot be argued that the increase or decrease of debt and/or of self-financing capacity is related to the municipal size or to the EPCI's class.

Table 6.5: Spearman correlation coefficient

Correlating variables	Coefficient scores	Stat. significance
Coefficient between the size of municipality and the change in SFC (2007-2014)	R = 0.06374, P = 0.1302	Not significant
Coefficient between the size of municipality and the change in debt (2007-2014)	R = 0.0243, P = 0.5646	Not significant
Coefficient between the class of EPCI and the change in SFC (2007-2014)	R = -0.09193, P = 0.5529	Not significant
Coefficient between the class of EPCI and the change in debt (2007-2014)	R = -0.2124, P = 0.1663	Not significant

Source: author based on comptes des collectivités locales, 2014, 2007

Nevertheless, the analysis of differences between the classes of EPCIs in relation to the SFC and debt in 2014 and 2007 confirmed the presence of significant differences between the smaller EPCIs and the larger ones (Table 6.6). More precisely, the very small, small and medium-sized EPCIs had lower SFC than the intermediate and large ones in 2007 and in 2014. However, in terms of debt, there were no significant differences between the EPCIs in 2014 or in 2007.

Table 6.6: One-way ANOVA on the five classes of EPCIs (2014 and 2007)

Compared classes of EPCIs	SFC in 2014	SFC in 2007	Debt in 2014	Debt in 2007
Very small vs Small	0	0	0	0
Very small vs Medium-sized	0	0	0	0
Very small vs Intermediate	0	0	0	0
Very small vs Large	* (<)	* (<)	0	0

Small vs Medium-sized	0	0	0	0
Small vs Intermediate	* (<)	* (<)	0	0
Small vs Large	*** (<)	* (<)	0	0
Medium-sized vs Intermediate	0	0	0	0
Medium-sized vs Large	* (<)	0	0	0
Intermediate vs Large	0	0	0	0

Notes: 0 indicates that there was no significant difference in average values, * indicates significance at 95%, ** indicates significance to 99%, *** indicates significance to 99.9%, < indicates lower value.

In other words, the capacity to finance its operations once it paid expenses and debts is significantly lower in the smaller EPCIs compared to the EPCIs of Tours and Orléans in both years 2007 and 2014. Therefore, the ratio of revenues over the debts in the smaller EPCIs is lower than in the two large ones. Yet, at the same time, the debts between the smaller EPCIs and the large EPCIs were not significantly different. This indicates the existence of financial disadvantages in the smaller EPCIs which appear to have lower purchasing power and debt equal to the one of large EPCIs but with higher purchasing power.

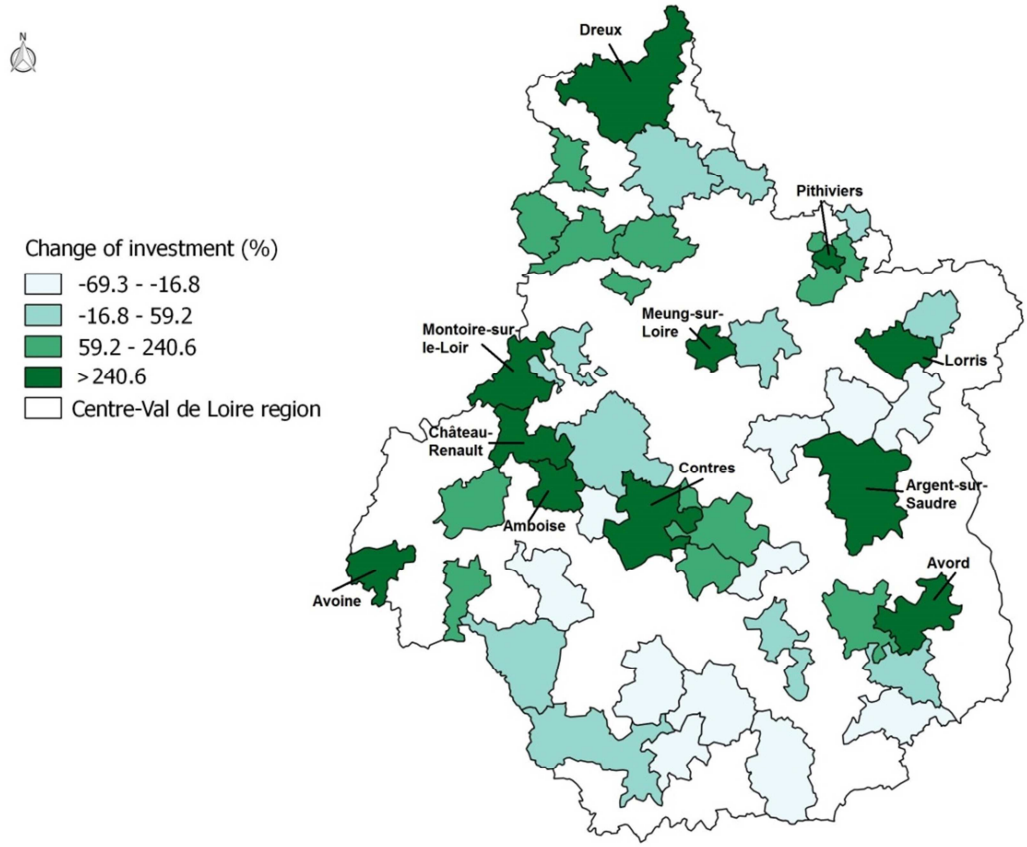
- Decentralized investment -

Considering the change of investment in selected small, medium-sized, intermediate and large EPCIs over the period 2007-2014, it is evident that a majority of EPCIs (28 EPCIs or 64% of total) had an increase of investment. In contrast, only 16 EPCIs or 36% of total EPCIs had a decrease of investment in the same period. Interestingly, among the highest rate of investment (the last quartile) are mostly the small EPCIs and one medium-sized EPCI: the EPCI of Pithiviers, the EPCI of Meung-sur-Loire, the EPCI of Montoire-sur-le-Loir, the EPCI of Château-Renault, the EPCI of Contres, the EPCI of Amboise, the EPCI of Avoine, the EPCI of Lorris, the EPCI of Avord and the EPCI of Argent-sur-Saudre. In addition, among the larger EPCIs, only the intermediate EPCI of Dreux had an exceptional increase of investment in the period 2007-2014.

In contrast, the negative change of investment in the period 2007-2014 is found in four intermediate and large EPCIs: the EPCI of Châteauroux (-33.4%), the EPCI of Blois (-9.2%), the EPCI of Chartres (-7.2%) and the EPCI of Orléans (-16.4%). Among the medium-sized EPCI, a decrease of investment is found in the EPCI of Saint-Amand-Montrond (-32.9%), the EPCI of Gien (-28%), the EPCI of Vierzon (-26%) and the EPCI of Montargis (-2.2%). Finally, considering the small EPCIs, seven of them had a decrease of investment in 2014 compared to 2007: the EPCI of Argenton-sur-Creuse (-69.3%), the EPCI of Montrichard (-60.9%), the EPCI of Sully-sur-Loire (-60%), the EPCI of Loches (-25.7%), the EPCI of

Lamotte Beuvron (-25.2%), the EPCI of La Châtre (-18.1%) and the EPCI of Malesherbes (-14.3%).

Figure 6.6: Change of investment in EPCIs in 2014 compared to 2007



Source: author, 2016

The correlation tests did not prove any existence of the relationship between the change of investment and the size of a municipality or the class of an EPCI (Table 6.7). Thus, it cannot be stated that the increase or decrease of investment in municipalities of an EPCI is related to the municipal size or to the EPCI class. In addition, the analysis of differences between the classes of EPCIs (one-way ANOVA) in relation to the investment in 2014 and 2007 did not find any significant difference between the classes of EPCIs.

Table 6.7: Spearman correlation coefficient

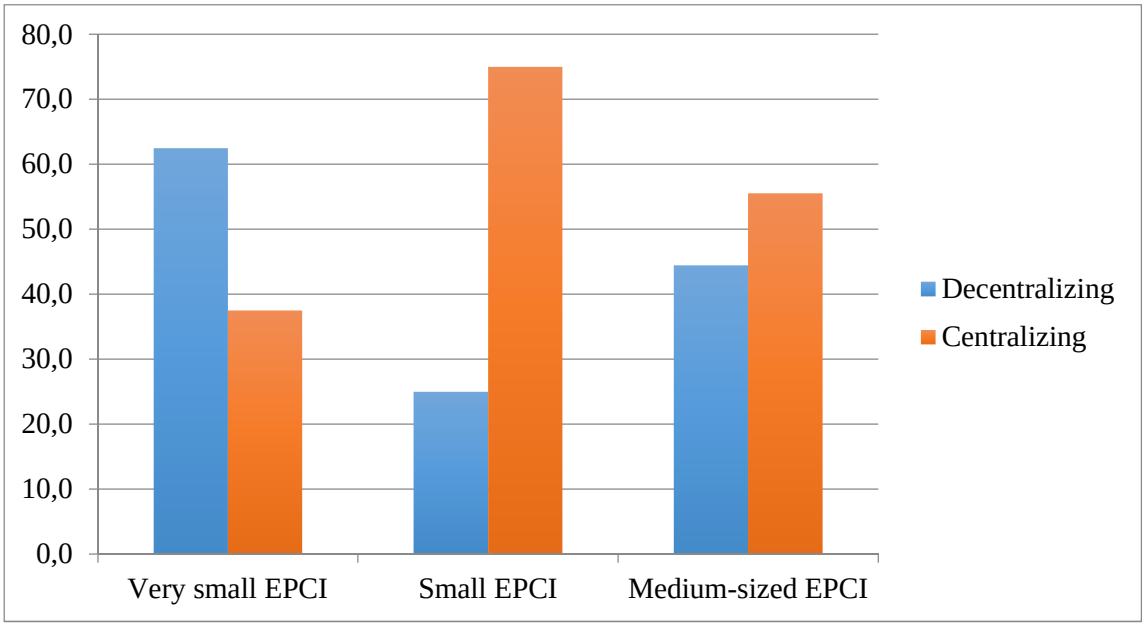
Correlating variables	Coefficient scores	Stat. significance
Coefficient between the size of municipality and the change in investment (2007-2014)	R = 0.04276, P = 0.48654	Not significant
Coefficient between the class of EPCI and the change in investment (2007-2014)	R = -0.1751, P = 0.2555	Not significant

Source: author, 2016

The degree of investments' decentralization is defined by the change of investment in municipalities that were members of rural, small and medium-sized EPCIs over the period

2014-2007 (Figure 6.7). The results of that analysis suggest that a majority of municipalities which were part of rural EPCIs experienced, in general, an increase of investment over the period 2007-2014. In other words, it appears that a large part of rural EPCIs had a balanced allocation of investment in their member-municipalities.

Figure 6.7: Investment change of member-municipalities of the three classes of EPCI in 2014 compared to 2007



Source: author, 2016

When it comes to the small and medium-sized EPCIs, the allocation of investment appears to be centralized in few member-municipalities. More precisely, in more than 70% of small EPCIs and in more than 50% of medium-sized EPCIs, the investment increased in few member-municipalities in the period 2007-2014, while in contrast a majority of municipalities had a significant decrease of investments.

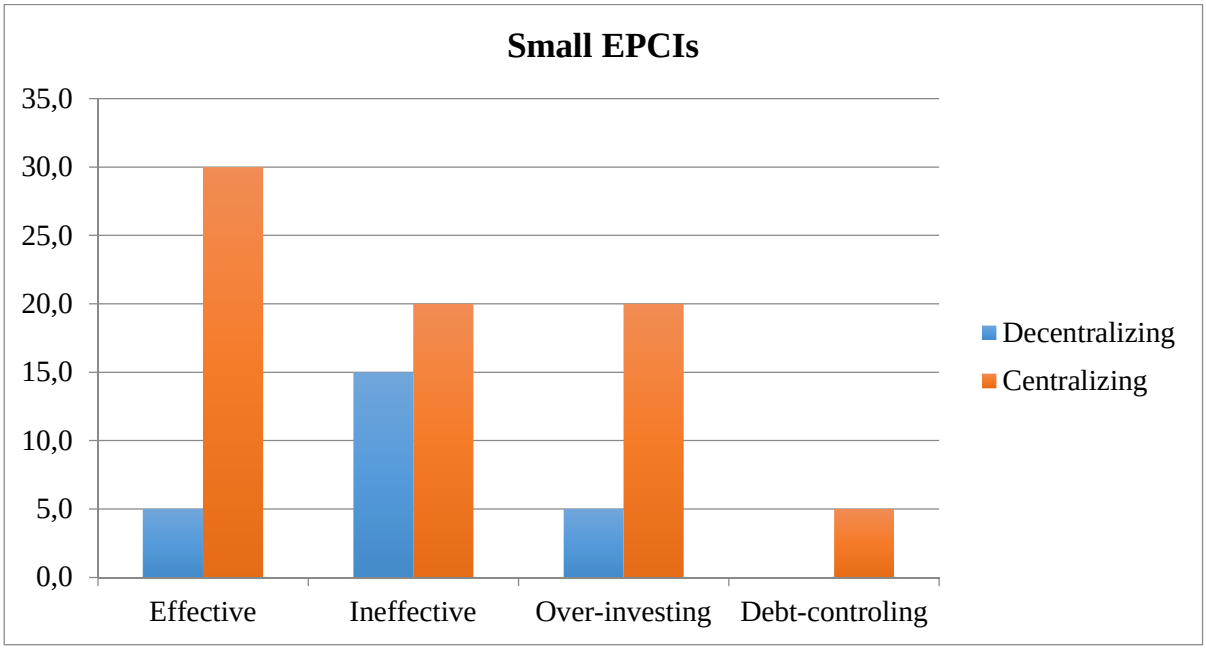
Thus, the results suggest a centralization of investment in few municipalities in the small and medium-sized EPCIs and, hence, their lack of balanced allocation of capital investment across member municipalities. In contrast, the rural EPCIs appear to have a more balanced allocation of investment across member municipalities and thus a greater financial decentralization than the small and medium-sized EPCIs.

- Typology of financial arrangements -

A comparison of results on financial effectiveness and decentralization of investment in the small and medium-sized EPCIs leads to two conclusions (Figure 6.8 and Figure 6.9). First, among financially the most effective small EPCIs, a large majority is centralizing investment in the sense that few of their municipalities have an investment increase. In contrast, among the decentralizing small EPCIs, a large majority is financially ineffective. Thus, based on these results, it may be presumed that the centralization of investment on few municipalities

in a small EPCI tends to be accompanied by financial effectiveness of that EPCI. Respectively, the decentralization of investment across member municipalities of a small EPCI tends to be accompanied by financial ineffectiveness of that EPCI (Figure 6.8).

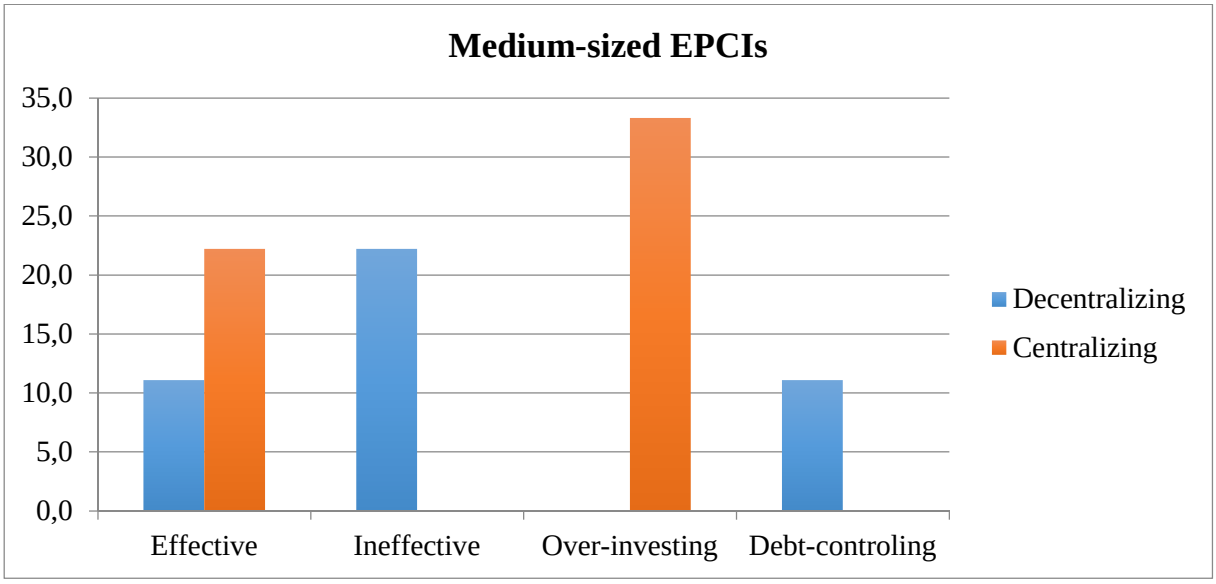
Figure 6.8: Investment centralization and financial effectiveness of member-municipalities and their small EPCIs in 2014 compared to 2007



Source: author, 2016

Second, as in small EPCIs, among financially the most effective medium-sized EPCIs, a majority is centralizing investment in the sense that few member municipalities have an increase of investment. Yet, the medium-sized EPCIs that have an increase of both self-financing coefficient and debt are also centralizing investment. Thus, it appears that medium-sized EPCIs tend to more over-spending above their financial capacities on few member municipalities than small EPCIs. In contrast, among the decentralizing medium-sized EPCIs, a large majority is financially ineffective. Thus, the results suggest that the centralization of investment on few municipalities of a medium-sized EPCI tend to be accompanied by an over-spending of that EPCI. Respectively, the decentralization of investment in medium-sized EPCIs tends to be accompanied by a financial ineffectiveness as it is the case in small EPCIs (Figure 6.9).

Figure 6.9: Investment centralization and financial effectiveness of member-municipalities and their medium-sized EPCIs in 2014 compared to 2007



Source: author, 2016

Overall, the analysis of financial arrangements across EPCIs of the Centre-Val de Loire region indicated that despite various financial situations, some common trajectories may be found in the small and medium-sized EPCIs compared to the larger ones. Firstly, the purchasing power measured by the SFC appears to be more in favour of the rural, intermediate and large EPCIs than the small and medium-sized ones. In fact, the SFC in the small and medium-sized EPCIs decreased due to either less revenues and/or more debt in local budgets. Local debt particularly increased in a majority of small EPCIs and in almost a half of medium-sized EPCIs. Consequently, the results point at prevalence of financial ineffectiveness in the small EPCIs while the situation in the medium-sized ones is slightly different. Some medium-sized EPCIs are financially effective and some increase expenses above their financial capacities. Secondly, the small EPCIs have the highest rate of investment in the region as compared to the larger ones which in contrast decrease their investment. Moreover, the allocation of investment appears to be targeting few municipalities in the small EPCIs. In the medium-sized EPCIs, the investment seems to have moderately higher rate, slightly behind small EPCIs. Likewise, the allocation of investment in a majority of medium-sized EPCIs is centralized on few member municipalities as it is the case of small EPCIs. Yet, the share of EPCIs with a decentralized allocation of investment is greater in the medium-sized EPCIs than in the small ones.

6.2.3 Political arrangements

The differences in political arrangements of inter-municipal cooperation in the Centre-Val de Loire region will be assessed by two indicators: political inclusion of municipal representatives and political diversity of representing parties. In that respect, the first part of the subsection will present the share of municipal representatives in the executive board of an

EPCI. The second part of the subsection will explore the share of each political party in the member municipality of an EPCI.

- Political inclusion -

The political inclusion is defined as a degree of representation of each member municipality in the leading positions in an EPCI. The inclusion is measured by the share of municipal representatives in the executive board of an EPCI (e.g. positions of presidents and vice-presidents). The analysis of the political inclusion is conducted on the rural, small and medium-sized EPCIs (Table 6.8). The medium-sized EPCIs have the highest average percentage of inclusion of municipal representatives in executive boards among the selected EPCIs. More precisely, in average, 64.1% of member municipalities have their political representatives on executive functions in the EPCI. In contrast, the small EPCIs have the lowest average percentage of inclusion of municipal representatives with 42.7% of total member municipalities. Slightly higher average share of municipal representatives in the executive boards have the rural EPCIs with 46% of total number of member municipalities.

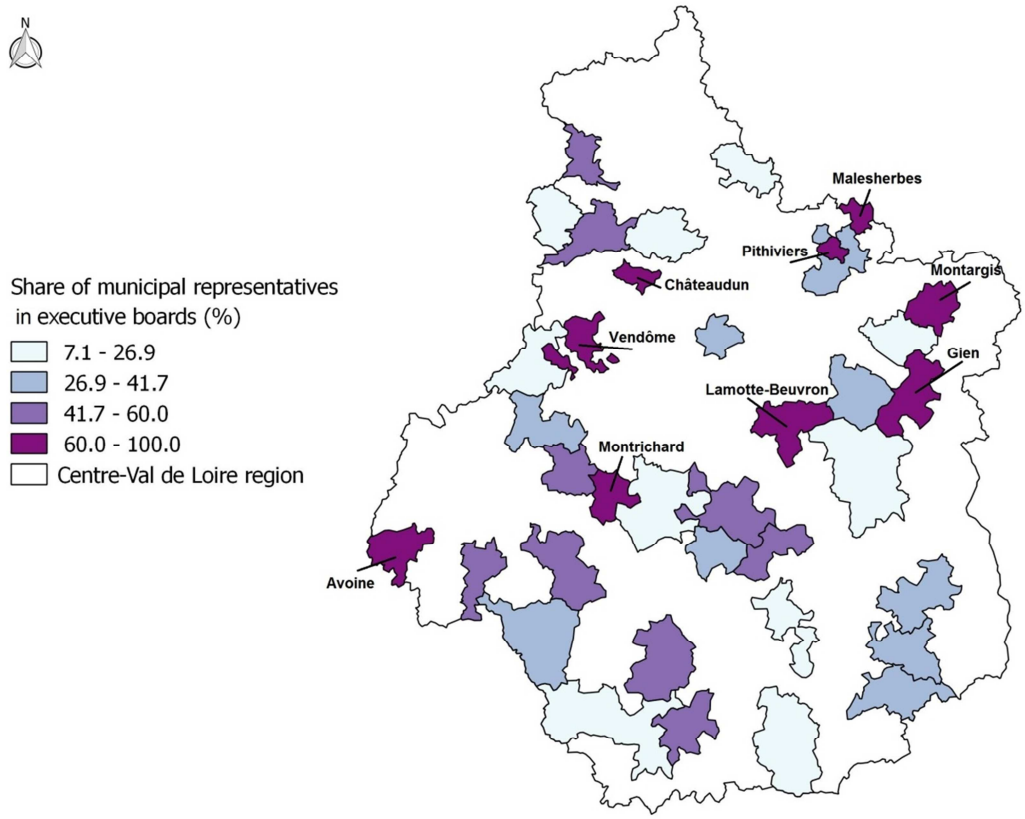
Table 6.8: Share of municipalities whose representatives are included in the executive boards of their EPCIs (average, minimum, maximum) after the local elections in 2015

Class of EPCIs	Average	Min	Max
Medium-sized	64.1%	25%	100%
Small	42.7%	7.1%	100%
Rural	46%	25%	93.8%

Source: author, 2016

Among the rural EPCIs, the ones of Ruffec and Margon appear to be the least politically inclusive. In fact, they have less than 27% of municipal representatives in executive boards, which is 19 percentage points lower than the average of rural EPCIs. In contrast, there are also politically inclusive rural EPCIs such as the one of Avoine with 94% of municipal representatives in the executive board. Even though the small EPCIs seem to be the least inclusive among the observed EPCIs, there are some exceptionally inclusive small EPCIs such as the EPCI of Lamotte-Beuvron and the EPCI of Pithiviers. They have a total 100% inclusion of municipal representatives in their executive boards. However, the small EPCI of Lorris and of Auneau are the least inclusive among the studied EPCIs with less than 15% of municipal representatives in the executive boards. Among the medium-sized EPCIs, the ones that are politically inclusive above the average of their class are: the EPCI of Châteaudun, the EPCI of Vendôme, the EPCI of the Gien and EPCI of Montargis. Yet, the medium-sized EPCIs that are less politically inclusive (below the average of their class) are: the EPCI of Issoudun, the EPCI of Saint-Amand-Montrond, the EPCI of Amboise, the EPCI of Romorantin-Lanthenay and the EPCI of Vierzon (Figure 6.10).

Figure 6.10: Political inclusion of municipal representatives in the selected EPCIs in 2015

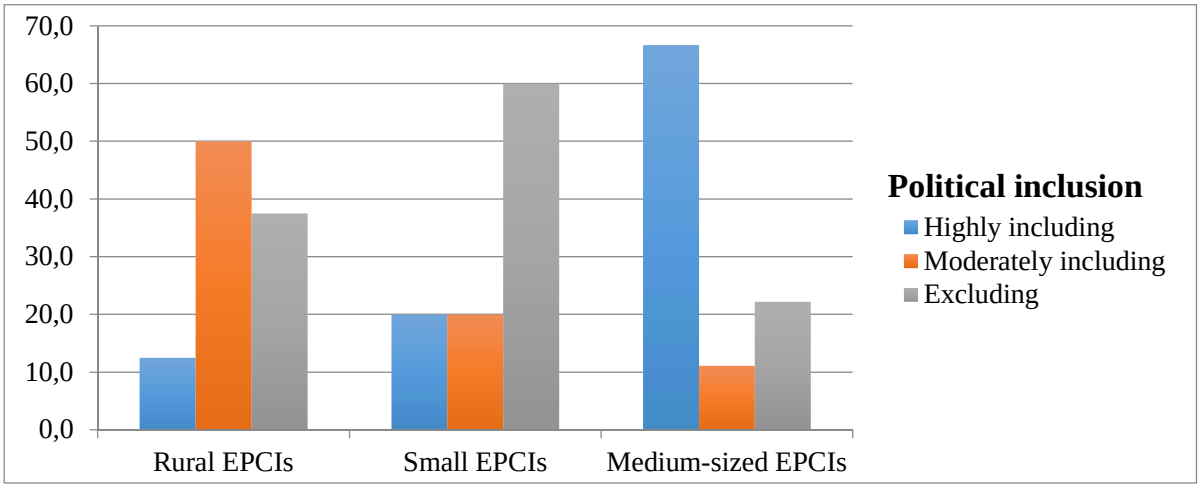


Source: author, 2016

Moreover, the analysis of political inclusion in the rural, small and medium-sized EPCIs suggests the presence of the three different dynamics in the EPCIs (Figure 6.11). The small EPCIs seem to be highly politically excluding in the sense that they attribute executive functions to a small number of municipalities in their EPCIs. In contrast, the medium-sized EPCIs appear to be highly politically including and offering to a large number of municipalities a position in executive boards. Somewhere in between are the rural EPCIs which in most of the cases seem to be moderately including and offer a function in executive boards to the half of their member municipalities.

Overall, when it comes to the political inclusion, the small and medium-sized EPCIs demonstrate to follow rather opposite political choices. On the one hand, the small EPCIs have the lowest average percentage of inclusion of municipal representatives in the executive boards among the studied EPCIs. The executive board functions are attributed exclusively to a small number of municipal representatives (less than 40% of total number of municipalities in an EPCI). On the other hand, the medium-sized EPCIs have the highest average percentage of inclusion of municipal representatives in the executive boards among the studied EPCIs. This means that the executive functions are attributed to a large number of municipal representatives (more than 60% of total number of municipal representatives in an EPCI).

Figure 6.11: Political inclusion in the selected classes of EPCIs



Source: author, 2016

- Political diversity -

The political diversity is defined as a variety of elected political parties within an EPCI after the municipal elections 2015. The diversity is measured by the proportion of each political party in an EPCI. The analysis of the political diversity conducted on the rural, small and medium-sized EPCIs suggests that there is no difference in the average number of political parties in the selected EPCIs (Table 6.9).

Table 6.9: Number of political parties within an EPCI (average, minimum, maximum) after the local elections in 2015

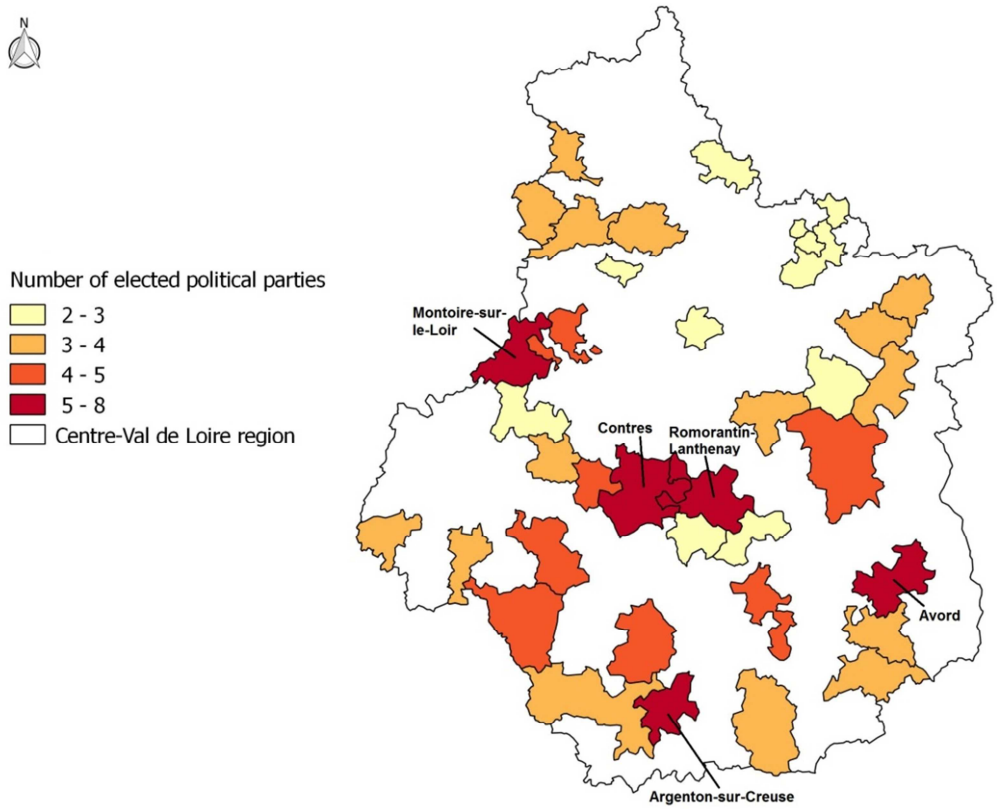
Class of EPCIs	Average	Min	Max
Medium-sized	4	3	6
Small	4	2	8
Rural	4	2	5

Source: author, 2016

Nevertheless, among the medium-sized EPCIs, those with the number of political parties above the average are: the EPCI of Romorantin-Lanthenay (6 political parties), the EPCI of Issoudun (5 political parties) and the EPCI of Vendôme (5 political parties). In contrast, the medium-sized EPCIs with the lowest number of political parties are the EPCI of Châteaudun (3 political parties) and the EPCI of Vierzon (3 political parties). Among the small EPCIs, those with the highest number of political parties are the EPCI of Montoire-sur-le-Loir (8 political parties), the EPCI of Contres (7 political parties), the EPCI of Argenton-sur-Creuse (6 political parties) and the EPCI of Avord (6 political parties). Yet, the small EPCIs with the lowest number of political parties are the EPCI of Malesherbes (2 political parties) and the EPCI of Pithiviers (2 political parties). Finally, among the rural EPCIs, the highest variety of

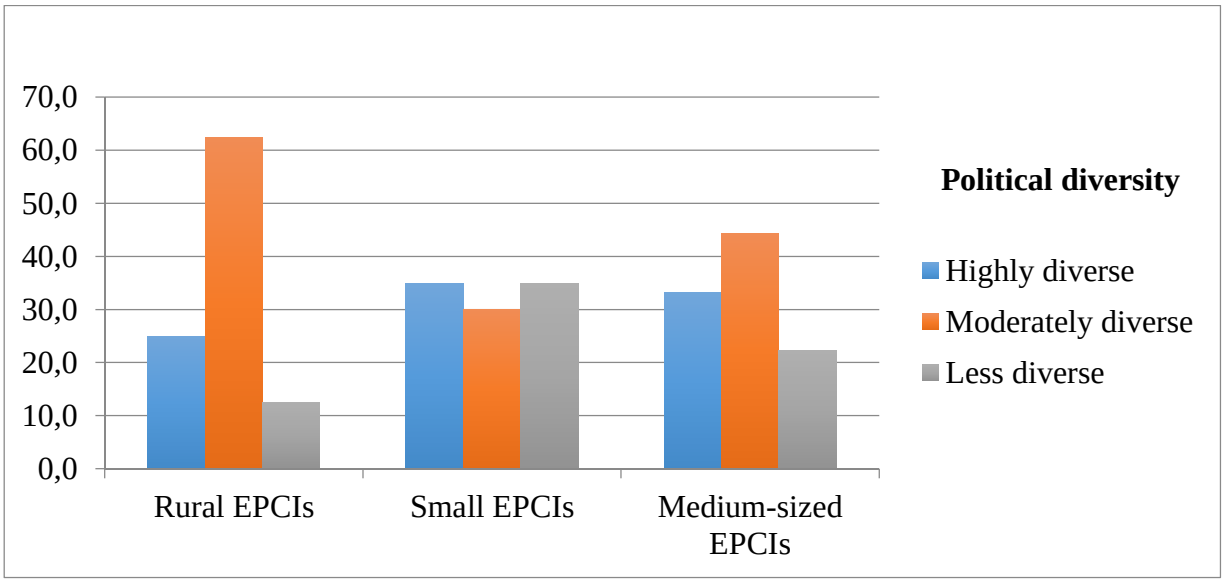
political parties have the EPCI of Preuilly-sur-Claire (5 political parties) and the EPCI of La Chapelle-Orthemale (5 political parties) (Figure 6.12)

Figure 6.12: Political diversity in the member municipalities of the selected EPCIs (2015)



Source: author, 2016

Figure 6.13: Political diversity in selected classes of EPCIs



Source: author, 2016

When it comes to the political diversity, the rural and medium-sized EPCIs seem to be mostly moderate in the political diversity in the sense that their political parties elected in their member municipalities are in the range of the average of all studied EPCIs. In contrast, the small EPCIs appear to be in two different situations. They are either highly diverse by exceeding the average number of political parties in EPCIs, or they are the least diverse in the sense that the number of political parties is inferior to the average of EPCIs (Figure 6.13).

If considering closely the elected political parties in the member municipalities of rural, small and medium-sized EPCIs, some interesting differences may be pointed out (Table 6.10). First, the right-wing parties won the majority of municipal elections in 2015 in the rural, small and medium-sized EPCIs. More precisely, 46% of municipalities in the rural EPCIs, 40.4% of municipalities in the small EPCIs and 39.8% of municipalities in the medium-sized EPCIs elected one of the right-wing parties' representatives. Second, the left-wing parties' representatives seem to mostly be elected in the municipalities of medium-sized EPCIs (31.9%) and of the rural EPCIs (30.7%). Unlike the rural and medium-sized EPCIs, the municipalities of small EPCIs tend to favour independent candidates as the alternative to the right-wing parties (a choice of 32.3% of member-municipalities of small EPCIs). Finally, the centre-parties appear to be the least recognized in the municipalities of rural EPCIs (2.9%) compared to the municipalities of the small and medium-sized EPCIs (11.5%).

Table 6.10: Number of political parties within the member municipalities of the selected EPCIs after the local elections in 2015

	Political parties	Rural EPCIs	Small EPCIs	Medium-sized EPCIs
Left-wing	Far-left party (EXG)	0	1	0
	Radical left party (RDG)	1	0	0
	Communist party (COM)	0	0	5
	Left party (PG)	0	0	3
	Socialist party (SOC)	4	5	4
	Independent left candidates (DVG)	37	41	24
Centre	New centre party (NC)	0	19	9
	Democratic movement party (MDM)	0	1	0
	Union of democrats and independent candidates (UDI)	4	14	4
Right-wing	Republicans (UMP)	8	20	7
	National front (FN)	0	1	0
	Independent right candidates (DVD)	55	99	38
	Independent candidates (DIV)	28	96	19

Source: author, 2016

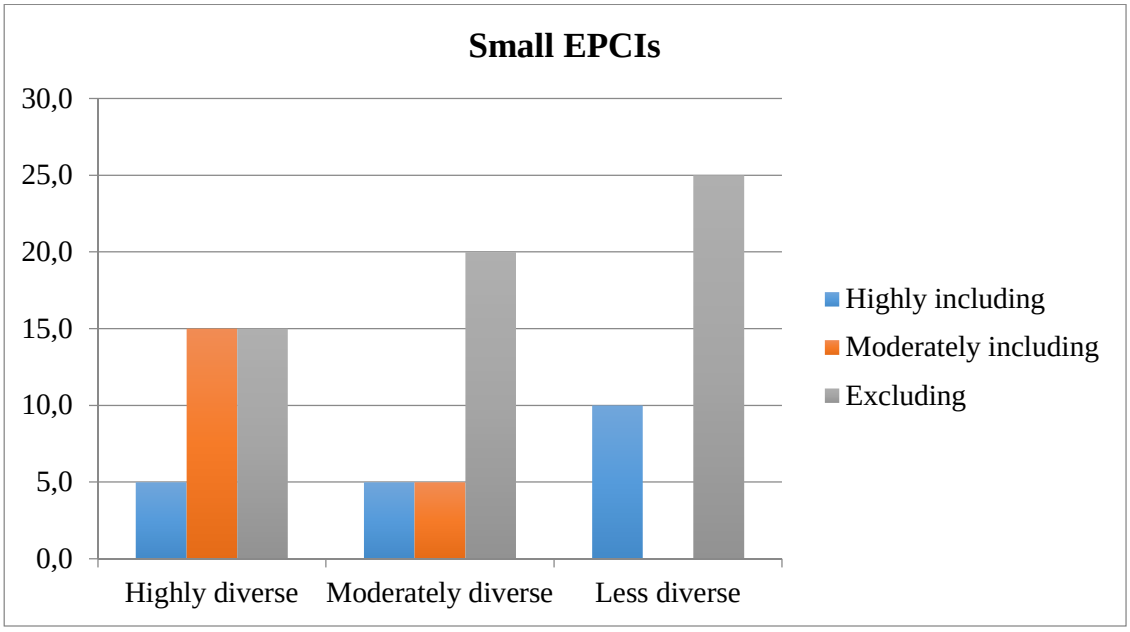
Overall, it appears that during the last local elections, the municipalities of rural and medium-sized EPCIs tended to favour right-wing political parties, especially the independent right-wing candidates (DVD). At the same time, the second political choice in those EPCIs was the left-wing independent candidates (DVG). The only difference between the rural and the

medium-sized EPCIs is that more municipalities of medium-sized EPCIs voted for parties of the political centre (e.g. New centre party) than it is the case of municipalities of rural EPCIs. When it comes to the municipalities of small EPCIs, a majority favoured the independent right-wing candidates (DVD). However, compared to the the rural and the medium-sized EPCIs, the second political choice of many small EPCIs were independent candidates with neither right nor left denomination (DIV).

- Typology of political arrangements -

A comparison of results on political inclusion and political diversity in the small and medium-sized EPCIs leads to several observations (Figure 6.14 and Figure 6.15). The small EPCIs with the least diverse structure of political parties appear also to be politically excluding in the sense that the executive functions in the EPCIs are given to few member municipalities. This suggests that in a majority of small EPCIs few parties preferred political representatives from a very limited number of municipalities. For instance, the member municipalities of the EPCI of Pithiviers elected representatives from only two parties (DVD and DIV) and only 5 out of 18 municipalities have their representatives in the executive board of the EPCI. In contrast, among the highly including small EPCIs, most of them had also the least diverse political structure. In other words, the small EPCIs which had the executive board made of a large number of member municipalities also tend to have less diverse political structure. For example, the member municipalities of the EPCI of Malesherbes elected representatives from only two parties (DVD and DIV), but 6 out of 7 municipalities were in the executive board of the EPCI (Figure 6.14).

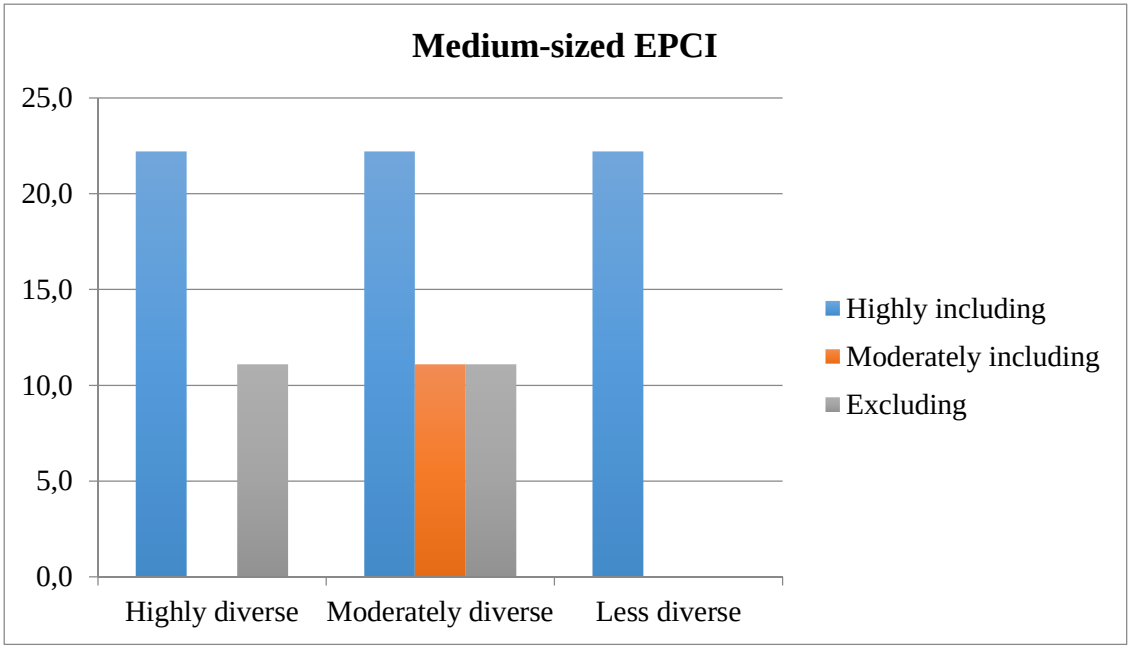
Figure 6.14: Political inclusion and diversity in the small EPCIs



Source: author, 2016

A different situation is found in the medium-sized EPCIs where, regardless the degree of political diversity, the medium-sized EPCIs included a majority of their municipalities into the executive boards (Figure 6.15). For example, the member municipalities of the EPCI of Châteaudun elected the representatives from only three parties (DVD, UMP and DIV), but all municipalities had their representatives in the executive board. The member municipalities of the EPCI of Romorantin-Lanthenay elected the representatives from six different parties (DIV, DVD, DVG, NC, SOC and UMP) and a majority (9 out of 15) municipalities had their representatives in the executive board. Furthermore, it appears that a higher political diversity in the medium-sized EPCIs is accompanied by an exclusion from the executive functions. For instance, the member municipalities of the EPCI of Issoudun elected the representatives from five different parties (COM, DIV, DVD, DVG and SOC), but only 3 out of 12 municipalities had their representatives in the executive board.

Figure 6.15: Political inclusion and diversity in medium-sized EPCIs



Source: author, 2016

Overall, the political structure and the political distribution among the member municipalities of small the EPCIs are different from those of the medium-sized EPCIs. The small EPCIs tend to have few political parties and few municipal representatives in their boards. Such political organization may be democratically limited as the majority of municipalities is not participating in the local execution of powers. However, the executive board is not the only local body with political powers. In fact, there is the council of EPCIs where each member municipality has its representatives and may participate in the decision-making process at the level of inter-municipal cooperation. In contrast, the medium-sized EPCIs, interestingly regardless the political structure, have a highly including distribution of powers where a large majority of member municipalities has its representatives in the executive board in addition to its representatives in the council of EPCI. Thus, the level of democracy in the decision-

making process in the sense of political inclusion and diversity appears to be higher in the medium-sized EPCIs than in the small EPCIs.

6.2.4 Conclusion of section 6.2

The assessment of inter-municipal governance stressed the fact that small and medium-sized towns coordinated more than 50% of inter-municipal cooperation in the region. Likewise, a large majority of EPCIs had an urban centre for its headquarters. This suggests that a "political centrality", in the sense of assigning the headquarters to one municipality, tended to follow the functional centrality.

The financial situation varied among the classes of EPCIs and the results of the analysis pointed at the financial difficulties of the small EPCIs compared to the medium-sized ones. More precisely, the small EPCIs tend to be more financially ineffective, while the medium-sized EPCIs seem to manage their debt.

When it comes to the investment, the results pointed at the trend of centralization of investment on fewer municipalities in the small and medium-sized EPCIs, which indicated a lack of balanced allocation of capital investment across those EPCIs. As a consequence, the small EPCIs became ineffective, and the medium-sized EPCIs started over-spending above their financial capacities. Moreover, the analysis suggested that the decentralization of investment tends to be accompanied by the financial ineffectiveness regardless the class of EPCIs.

Concerning the analysis of political inclusion and diversity, the results suggested that while the small EPCIs seem to be excluding by reserving the executive board functions to fewer municipalities of an EPCI, the medium-sized EPCIs appear to be highly including and offering to a large number of municipal representatives a function in the executive boards. In terms of political diversity, the analysis found no difference between the small and medium-sized EPCI when it comes to the variety of political parties. However, a more detailed comparison indicated that the medium-sized EPCIs appear to be moderately diverse while the small EPCIs seem to be either highly politically diverse or the least politically diverse.

CONCLUSION OF CHAPTER 6

This chapter was dedicated to the results of the governance assessment conducted on the units of inter-municipal cooperation (EPCIs) in the Centre-Val de Loire region. French EPCIs appear to be an interesting institutional phenomenon, not so common in Europe, where the cooperation objectives are the joint management of local public services and development projects in order to better allocate costs and to benefit from the economies of scales. In fact, in France, the inter-municipal arrangements are seen as a possible solution for the municipal fragmentation and an instrument of the rational organization of territories. Due to a large number of municipalities, France comprises over 40% of all municipalities of the European Union. Thus, inter-municipal cooperation is seen as an opportunity to face the challenges of urban development and the decay of rural areas at a larger scale that would not be possible to tackle alone.

This chapter started by contextualizing the French approach to the territorial issues in relation to the development of towns. We focused in particular on key specificities of the series of territorial reforms and decentralization process that were launched by the State in the 1980s. These reforms are still on-going and we exposed the transfer of new powers and responsibilities to new institutions of territorial government. Small and medium-sized towns were in the focus of several studies and policy experiments. The State planning agency has been an important actor in developing the territorial planning methods, the experimentations and the foresights. It conducted several studies in cooperation with the National Federation of Medium-Sized Towns and the Assembly of Inter-Municipal Cooperation that focus on the issues of small and medium-sized towns. Their collaboration encouraged the government to launch a public call for the medium-sized towns to experiment the implementation of four major sectoral policies: higher education, healthcare, transport and urban renewal. The experiment was based on the dialogue between local governments, the State and professionals. Once it was ended, the experiences were used to detect challenges and to plan future exchanges at vertical and horizontal administrative levels. At the level of the Centre-Val de Loire region, the Regional Council adopted the Plan for Sustainable Development and Planning which put an accent on the dialogue of actors and on a balanced urban structure between the two regional cities and numerous towns. A particularity of the region is that there are only two large cities and many small and medium-sized towns. Thus, in order to achieve the development goals, the regional authority acknowledged the importance of towns and their contribution to regional growth. In that respect, several exchange networks and forums between towns' and cities' representatives were organized with the aim of mutual understanding of challenges ahead.

In such political context, small and medium-sized towns coordinate more than half of inter-municipal cooperation (EPCI) in the region. Even though the financial situation varies among the EPCIs, the small ones tend to be in more financial difficulties than the medium-sized

ones. More precisely, the small EPCIs appear to be more financially ineffective, while the medium-sized EPCIs seem to manage their debt. Likewise, there is a trend of the centralization of investment on fewer municipalities in the small and medium-sized EPCIs which indicates a general lack of balanced allocation of investment across those EPCIs. The small EPCIs also appear to be politically exclusive by reserving the executive board functions to only few municipalities. They are also either highly politically diverse or the least politically diverse. In contrast, the medium-sized EPCIs seem to be politically highly inclusive and offer to a large number of municipal representatives a function in the executive boards. They are also moderately diverse which means that the variety of political parties is not different form the regional average.

CONCLUSION OF PART 2

The objective of the second part of the thesis was to empirically demonstrate the "City-network" theory on the case study of the Centre-Val de Loire region. The studied region is located in the Loire valley in between the Paris metropolitan region and the Central Massif. As it has more than 1,800 municipalities among which a large majority are small and medium-sized towns and as towns have been in a special focus of local officials, researchers and professionals, the Centre-Val de Loire region has been chosen for the case study of the research.

The empirical demonstration started by the conceptualization of a methodology for an integrated analysis of regional urban systems. The methodology was based on three methods – functional, socio-economic and governance – which had for the objectives to relate the concepts of polycentricity, economic networks and inter-municipal governance to the concept of small and medium-sized towns. In that respect, we formulated three research questions related to the correlational and group differences and three working hypotheses. The first hypothesis of the research was that towns are the carriers of functions whose lack may be compensated through vertical and horizontal networks (network externalities and synergy effects) with other settlements of different rank. Consequently, towns reach economies of scale and scope which enable them to become as attractive, dynamic and growing as cities. The second hypothesis of the research was that the size of a settlement is not the key determinant of growth rather the size, type and structure of the network a town is part of. The third hypothesis of the research was that through inter-municipal coopetition, towns have capacities to overcome the negative effects of administrative borders and to maximise synergies. As a result, towns through inter-municipal cooperation respond collectively and strongly to raising challenges.

Once we defined objectives, questions and hypotheses of the research, we selected the independent and the dependent variables whose relations were to be tested through a set of indicators and statistical tests. Six independent variables are chosen as follows: urban centres, functional areas, spatial ranking within a functional area, territorial arrangements, firms, inter-municipal cooperation units. Eleven dependent variables are selected as follows: spatial radiance, functional networks, accessibility and connectivity which are related to the concept of polycentricity; economies of scale and scope, agglomeration and co-agglomeration economies, and synergy effects which are related to the concept of economic networks; financial effectiveness, decentralized investment, political inclusion and diversity which are related to the concept of inter-municipal governance. In order to test the relation between the dependent and the independent variables, the different statistical tests were conducted (correlation coefficient, t-test, one way ANOVA) by using the software SPSS Statistics, the GraphPad InState and the QGIS.

GENERAL CONCLUSION

The objective of this research was prone to promote the approach of the "City-network" theory to the territorial growth and development. In times when the constant search for increases in production and consumption left some major consequences on communities across the world, especially the smaller ones, we felt compelled to seek for an alternative *modus operandi* which has already been evoked by some prominent geographers, sociologists and economists such as Manuel Castells, Roberto Camagni, Georg Simmel, Jan van Dijk and others. The concept of "network society" conceived in the 1980s by Manuel Castells incited an increasing number of scientists to reflect upon the consequences of technological change on the way our society produces, consumes, communicates and behaves. The network became the "buzz word" and appraised as the factor of success for the times to come. As underlined by Castells, nowadays connectivity and access to networks is the key to ensure productivity, competitiveness, innovation and creativity (Castells, 2004). Moreover, an increased collaboration between actors and organizations led to an economy in which networking becomes the crucial feature of social and business organizations (Deman, 2008). As the world becomes even more inter-connected and technologies advance rapidly, networking seems to ensure not only economic benefits for its members, but also added value, innovation and knowledge-sharing (Choi et al., 2013).

When it comes to the regional studies, we found it alarming how slowly mainstream approaches have changed since the 1980s and how difficult it seems to be for many researchers to accept new methods and tools to study a fast-changing environment of contemporary communities. The traditional approaches in the regional studies focused much more on the functions of major cities and high-rank services, and less on the regional and urban systems made of cities and towns that benefit from the functional synergies and complementarities. More precisely, for the last several decades, the most of scientific studies have been more inclined to cities, city-region and metropolitan areas as the only engines of economic growth and innovation. In contrast, towns have been considered as neither dense enough nor performing well enough to attract the scientific and policy interests. This is quite paradoxical considering the fact that towns are far more numerous than cities and that they provide functions which are essential for the entire urban system. Towns are also neither isolated nor immune to global changes and technological and social evolution. The scarce scientific literature is polarized when it comes to towns' success in facing some of the new challenges. On the one hand, towns are perceived as immature, less developed or declining territories, in need of a policy action in order to cope with the present day economic dynamics. On the other hand, towns are frequently celebrated as the last resorts of a true urban ambience and idealised as the most appropriate linkage between the urban and the rural. Arguably it is necessary to move beyond this simple duality and to investigate the more varied and complex nature of towns in their context.

Small and medium-sized towns in the heart of the research

This research explored in detail the roles and functions towns have in their regions. Indeed, the functions such as supply, housing, labour and culture may be fulfilled differently in practice since the contextual factors trigger different effects in regions and countries. Towns' functions are very much related to the dynamics of their environment and to the structure of regional urban systems. Therefore, towns located close to a city-region are more likely to benefit from the economic success of the large city. In that case, highly qualified workers would probably choose to live in towns and work in large cities. In contrast, if a town is located in a weak or dominantly rural region, it may face difficulties in attracting and retaining highly qualified workers unless it offers some economic advantages such as the presence of a university, attractive business environment or natural amenities. This clearly illustrates that the socio-economic characteristics of towns are related to the proximity of larger city and to their performance in terms of their capacity to create jobs, provide services, attract new population and engage in the inter-territorial and innovation networks.

Furthermore, a smaller size of the labour market such as the one of towns often leads to a specialization in few economic sectors (e.g. manufacturing, tourism, etc.) whose dynamics are linked to the economic and social changes at national or even international levels. More precisely, towns seem to benefit more from economies of location in which firms agglomerate within the same sector so to produce a variety of the same product (benefits of specialisation) in order to attract customers by a wide range of choices and to attract other firms producing similar goods and services, thus increasing their productivity. We argued that towns are specific and heterogeneous, as are their levels of specialization or diversity of activities within productive or residential economies. Each town can assume different roles in terms of functionality and development strategies: administration, residential services, tourism, research and development, culture, social and solidarity economy, or export-oriented production. Therefore, city types are shifting and towns are searching for the new roles and identities. In order to remain competitive, towns are making places more attractive to residents and potential foreign investors by promoting special local resources, cultural values, and know-how.

Many towns consider the access to the cultural events and facilities as one of the key development priorities. On the one hand, they have a potential to include marginalized groups and improve the communication between different groups of a society by implementing various social regeneration projects. On the other hand, the cultural and creative activities produce direct and indirect benefits for the local economy. They may generate revenues and employment such as in the case when the cultural events entail an expenditure that is connected to these activities; or in terms of the revenues coming from the cultural tourism. The social and solidarity economy seems to be another potential growth lever due to its orientation towards a community-based local development, democracy and citizen participation in response to the crucial needs of local communities. The social and solidarity economy has the capacity to mobilize both local actors and local resources, to reinvest surpluses within the same area and to keep certain practices away from disappearing due to the lack of profitability or because of a strong competition.

In spite of a stereotypical public image of being in declin and poor, in this research we highlighted that the European towns are economic and social engines, proven by the fact that their employment rates tend to be higher than in large cities. Towns appear to be particularly economically successful if located in regions with no dominant large city. They have also been counterbalancing the urban system as being cheaper locations to live in, work and run a business as compared to cities. For the regional growth and development, towns, on the one hand, reinforce economic inter-dependency of cities and, on the other hand, they maintain stability in the regional system. Towns are also assumed to be important for rural communities as they enable a beneficial economic development while preserving the environmental assets of an open countryside. As a result, we found that towns have become increasing attractive to population and tourists, and have become the regional promoters of local quality of life, services and natural heritage.

Espetially in the European context, towns have been recognized as a vital asset in the urban hierarchy of regions and countries. Yet, there is no specific or a concrete policy for towns at the European level that would provide a common development framework and some supporting mechanisms in facing the socio-economic challenges. Instead, the European Commission introduced some new concepts of polycentricity, territorial governance, cooperation and cohesion as objective and tools to reposition Europe as the world leader. The utter goal of implementation of these concepts is to promote some balanced and multiscalar urban networks in which core areas and peripheries benefit from a social and economic cooperation. However, there seems to be no real link between these concepts and a concrete application on the terrain. Neither there is an understanding that towns due to their large number in Europe might be the most appropriate platform for these concepts to turn into practice.

Furthermore, the “European” vision of growth and development based on polycentricity, territorial governance, cooperation and cohesion corresponds to the vision of development of the “City-network” theory. According to the theory, polycentricity or “networked centralities” (Gaschet and Lacour, 2002) is more than a mechanical relation between centre and its periphery. It refers, *de facto*, to the emergence of new cities and towns, but also to the creation of new roles, functions and responsibilities in the existing ones. Moreover, in the “City-network” theory, polycentricity represents a network of specialized and complementary poles which are not necessarily city-centres as argued by the traditional and mainstream theories. The city-centres may lose its centrality and see it moved to the periphery and some remote places. At the European level, polycentricity is seen as a development model that seeks to establish growth poles across Europe in order to enhance regional development more evenly. At the inter-regional level, it means cooperation and sharing of existing assets and urban functions between two or more cities. At the intra-regional level, polycentricity is even more emphasized cooperation as cities and towns improve their economic performance through networking within the region.

Cooperation, competition and proximity of actors play a structural role in the “City-network” theory. Competition is considered as a critical component of human organization and survival, and a basic mechanism of allocation of resources, while cooperation enables

exchanges of information and ideas and seeks complementarity among actors. Cooperation is also considered to provide actors with some resources and technological knowledge that foster a rapid development of innovations, an access to new markets, economies of scale and the sharing of both risks and costs. Competition and cooperation may even co-exist at different scale and scope (the so-called concept of coopetition). According to the "City-network" theory, in order to create a network based on cooperation and/or competition, spatial proximity of actors is not sufficient. On the contrary, cognitive, institutional, organizational and social proximities of actors encourage the creation of networks by bringing people together, favouring information contacts and facilitating the exchange of knowledge.

The European vision of growth and development also acknowledged territorial cooperation and competition as the major factors of economic activities, investment flows, human mobility and the behaviour of private and public actors. On the one hand, territorial cooperation aims to overcome the negative effects of borders as barriers and to maximise potential synergies. However, over time, the expectations of cooperation in Europe have expanded to encompass its contribution to the economic development and competitiveness, territorial integration, city networking, good neighbourhood relations, labour markets and the balanced integration of an entire territory. On the other hand, territorial competition is one of the few policy areas in which the European Commission has an exclusive competence not shared with the member states. It is strictly regulated and tracked by the European institutions in order to ensure a transparency, the equality and equity in development of all territories within a single market. In that respect, territorial governance is considered essential to coordinate the actions of actors and institutions at different administrative levels which would ensure that their policies and strategies respect the conditions of polycentric development, territorial cooperation and cohesion.

Nevertheless, even though there is a general recognition of importance of polycentricity, territorial governance, cohesion and cooperation for the European growth and development, there seems to be a lack of concrete policy instruments that would move beyond nicely written reports and strategies. Many areas in Europe that are in the most need of financial aid, cannot qualify or do not have a capacity and knowledge to apply and finish a rigorous process of funding. As a result, so often praised equity and equality of all European regions raise many questions as they depend purely on their own capacities to attract funding and investment. At the same time, the European Commission has an exclusive competence to regulate competition in all member states and it drew a list of regions eligible for the funding. Thus, *de facto* and *de jure*, national and regional authorities have few instruments to intervene and are under a strict supervision of the European institutions. It is not surprising that many critics have questioned the future of a common vision of European development as they apt for a structural change within the European institutions.

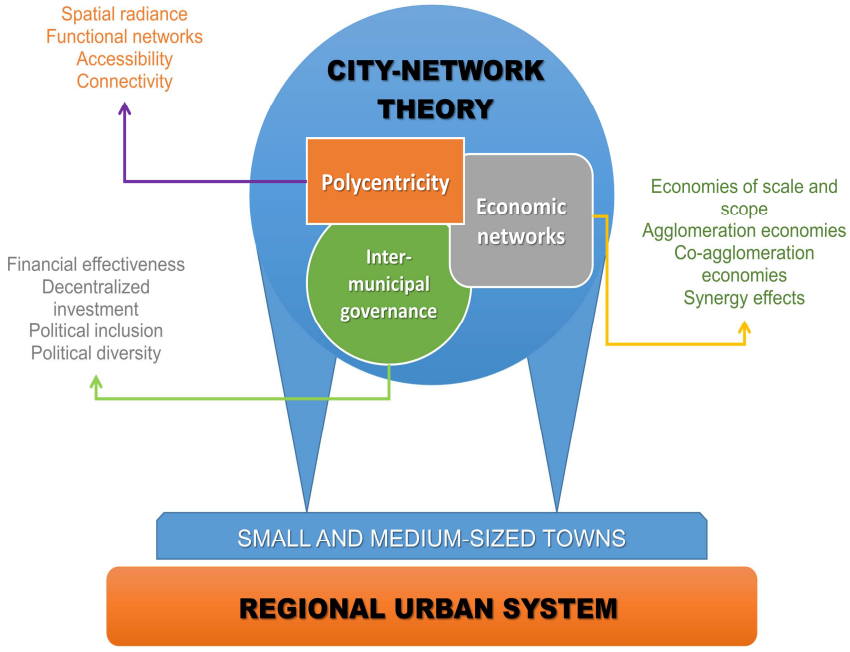
In this research, we demonstrated some interesting efforts in France, Belgium and Spain to create a polycentric territory by encouraging inter-municipal cooperation. In those countries, small and medium-sized towns were involved in the sub-regional and local development plans which became the platforms to facilitate local cooperation based on a common

development framework. Moreover, the ESPON project (Servillo, 2014) also provided with an encouraging picture of the European development in which towns played a key role despite the lack of concrete tools from the European and national authorities. In other words, small and medium-sized towns seem to generally be able to build their own development strategies based on their local assets and regional opportunities. The ESPON discovered an on-going sectorial shift from an industrial local economy to the one that is more residential and knowledge-creative. Moreover, a very significant observation was that a half of studied towns were engaged in the creative and knowledge-based activities and the majority of towns was dynamic in the sense that they have experienced an increase in both population and employment over the last decade. Finally, the project found evidence that there may be a connection between performance and position in the spatial hierarchy. In other words, a better economic performance was found in towns that were agglomerated and networked with other settlements in their near proximity than in isolated towns.

Reinforcing the "City-network" theory in the regional science

Building on the argument that the international competition and the technological progress involve some "new expectations and norms, new ways of organizing and governing work (Nelson, 2007, p. 319), this research referred to the basic postulates of the "City-network" theory which underline the co-existence of vertical, horizontal and polycentric networks of the specialized and complementary poles (cities and towns of different sizes). The research objective was to relate the concept of small and medium-sized towns to the concepts of polycentricity, economic networks and inter-municipal governance as well as to approve or disprove the three working hypotheses related to the application of the "City-network" theory on the regional urban system of the Centre-Val de Loire region, France.

Figure 7.1: Conceptualization of the research



The first hypothesis of the research was based on the affirmation that towns and cities are the backbone of regional urban systems as they are the carriers of functions whose lack they compensate through the vertical and horizontal networks with other settlements. Thus, through network externalities, towns reach economies of scale and scope, and synergy effects which enable them to become as attractive, dynamic, and growing as cities.

Table 7.1: Outline of the first hypothesis and its research elements

HYPOTHESIS 1: **Small and medium-sized (SMS) towns are the carriers of functions whose lack they compensate through the vertical and horizontal networks with other settlements. Thus, towns are as attractive and dynamic as cities.**		
THEORETICAL CONCEPT	**KEY VARIABLES**	**RESEARCH RESULTS**
POLYCENTRICITY	Spatial radiance	1. Confirmation of the existence of SMS urban centres as the structural elements of the regional urban system. 2. Confirmation of the centrality of SMS centres in the provision of functions for their wider areas.
	Functional networks	3. Confirmation that the SMS centres maintain the highest number of territorial relationships with other centres in the urban system. Thus, they are the receivers and the emitters of flow. 4. Confirmation that the SMS centres maintain the territorial arrangements (agglomerated and networked) with other centres different in size.
	Accessibility & Connectivity	5. Rejection of the equal accessibility to services in the SMS centres and the larger centres. The SMS centres do not have as accessible public services as larger centres. 6. Confirmation that the SMS centres are as connected by roads and rail as larger centres.
Only one assumption rejection related to the equality in access to public services between towns and cities. **The first hypothesis of the research is confirmed.**		

The second hypothesis of the research was that the size of a settlement is not the key determinant of growth, as much as a spatial division of urban functions across the urban system. Therefore, the size of a single city or a single town in the network is less relevant than the size, type and structure of the network itself.

Table 7.2: Outline of the second hypothesis and its research elements

HYPOTHESIS 2: **The size of a settlement is not the key determinant of growth, as much as a spatial division of urban functions across the urban system.**		
THEORETICAL CONCEPT	**KEY VARIABLES**	**RESEARCH RESULTS**
ECONOMIC NETWORKS	Economies of scale and scope	1. Confirmation that the economies of scale and scope in the residential sectors in towns are made through a dense network of SMEs and in cities though the oligopoly or a monopole of large firms. 2. Confirmation that the economies of scale and scope in the productive sectors in towns are made through a dense network of SMEs and in cities though the oligopoly or a monopole of large firms.
	Agglomeration and co-agglomeration economies	3. Confirmation that the towns play an equally important role in agglomeration and co-agglomeration economies as cities. 4. Confirmation that the towns follow a common economic trajectory of their larger area. Sectorial cluster are comprised of towns and cities. 5. Confirmation that the towns provide also high-rank services.
	Synergy effects	6. Confirmation that towns and cities belonging to the same sectorial cluster share a synergy between their economic activities. Such synergy depends on the nature (dominant sector) of a cluster. 7. Towns participate in a creation of complementarities between economic activities in a cluster.
Confirmation of all the assumptions. **The second hypothesis of the research is confirmed.**		

The third hypothesis of the research was that through inter-municipal coopetition, towns demonstrate capacities to overcome the negative effects of administrative borders as barriers, to maximise potential synergies, to promote joint solutions to common problems and a harmonious and balanced integration of their wider territory. Cooperation and competition of actors play a structural role in the networks of towns.

Table 7.3: Outline of the third hypothesis and its research elements

HYPOTHESIS 3: **Towns have capacities to overcome the negative effects of administrative borders and to promote joint solutions to common problems and a harmonious and balanced integration of their wider territory.**		
THEORETICAL CONCEPT	**KEY VARIABLES**	**RESEARCH RESULTS**
INTER-MUNICIPAL GOVERNANCE	Financial effectiveness	Partial rejection of the assumption that the towns are successful in financially managing their EPCI: Small towns are proved to be generally financially ineffective. In contrast, medium-sized towns are proved to generally manage the debt.
	Decentralized investment	Rejection of the assumption of that the towns are successful in promoting a balanced development in their EPCI: The EPCI of small and medium-sized towns are proved to generally centralize the investment on fewer member municipalities.
	Political inclusion and diversity	3. Rejection of the assumption that the towns are political inclusive when it comes to decision-making process within their EPCI: Small towns are proved to be generally politically exclusive unlike medium-sized towns which are found to be politically inclusive. 4. Confirmation that the towns are politically diverse in the sense of a presence of a variety of political parties within their EPCI.
Majority of assumptions are rejected except the one related to the political diversity of towns' EPCI. **The third hypothesis of this research is disproved.**		

Based on our innovative and integrated analysis of the regional urban system, we were able to confirm the prevalence of small and medium-sized towns in the Centre-Val de Loire region as well as their important role in the provision of functions for the rest of territory. Towns are found to be a structural element of the regional polycentricity since they maintain the highest number of territorial relationships with other settlements in the region. They are *de facto* the key emitters and the key receivers of population flows within the regional system.

The fact that some towns succeed to develop the agglomeration relationships in the sense that they attract the commuters not only from within their functional areas but also from some wider areas, demonstrates that the centrality in not only a function of the size. Moreover, the networked relationships are found to be the key feature of towns rather than cities. The

presence of networked centres indicates that towns share their local workforce pool which may consequently lead to a balanced labour market. The networked towns also appear to be less frequent in the region and more constrained by the spatial proximity. Likewise, towns in general radiate the influence over the settlements which are lower in rank. Yet, there are towns that also dominate a settlement of the same rank by offering more important functions. Moreover, compared to cities, towns do not differ in accessibility or in connectivity to services and labour market except in the case of public services which seem to be in favour of larger cities rather than towns. Therefore, we were able to demonstrate and confirm the argument of the "City-network" theory that the settlements of a lower rank in the urban hierarchy may have high-rank functions.

At the inter-firms level, we demonstrated that the local economy of towns is based on a density of micro-firms and SMEs. We found that the firms active in residential economy prefer location in towns rather than in cities. In contrast, firms active in productive economy prefer to locate in cities rather than in towns. Moreovr, towns very rarely host an oligopoly of few large firms and a monopoly of one large firm unlike cities which are more prone to have a domination of one or few large firms in an economic sector. As a consequence, towns have less capacity to reach economies of scale and scope. However, their market is more open to new entrances. Hence, towns are as attractive and dynamic as cities, but in different economic sectors (residential more than productive) and at different scale (hosting more SMEs than large companies).

At the centre-periphery level, we found that in the context of some strong migrations of population from urban centres towards peripheries over the last fifteen years, towns have had a significant loss of population and sometimes even jobs (which appear to follow the population). However, some important differences were found between small and medium-sized towns. The periphery of small towns is generally rural and lacking a minimal precondition for new economic activities to be developed. As a consequence, small towns have lost population (in favour of the rural periphery), but they have gained new jobs. In contrast, the periphery of medium-sized towns mostly has a mixed profile. It is more urbanized and offers more amenities than a periphery of small towns. As a result, medium-sized towns have lost both population and jobs which all tend to move to the periphery. Considering the economic profiles, towns are mainly productive. Yet there are some differences in the degree of specialization. In the Centre-Val de Loire region, a half of the medium-sized towns is specialized in few industrial sectors, and the other half has a large number of different industrial sectors. The small towns are mostly specialized in few productive sectors. In contrast, the hinterland of medium-sized towns is mostly mixed, while the hinterland of small towns is mostly productive and specialized in few industrial sectors. Thus, there is evidence that even among towns, there are significant economic differences between the smaller and the larger ones.

At the cluster level, we identified five sectorial clusters in the Centre-Val de Loire region each of which had some of their own socio-economic characteristics in terms of agglomeration and co-agglomeration dynamics (e.g. location in urban centres and/or periphery), firms' structure (e.g. micro-firms, SMEs, large firm), and a unique synergy

between economic activities that cannot be found in the rest of the region. Interestingly, the sectorial clusters (networks) were composed of both cities and towns which share some exclusive synergy between economic activities that is different from the rest of the region. Thus, we were able to confirm the existence of synergy effects between settlements belonging to the same network in which the size of settlements is less important than the structure of network itself (sectorial specialization, location, accessibility, firms' structure, etc.).

The assessment of inter-municipal governance stressed the fact that towns coordinate more than a half of inter-municipal cooperation in the region. Therefore, they demonstrated to have the capacities to overcome the administrative borders and to engage in an inter-municipal development. However, concerning the third hypothesis which stated that towns ensure the development of all partner-municipalities and efficient and equitable growth through the inter-municipal networks cannot be entirely approved. In fact, the research found significant differences between the inter-municipal networks of small towns and the inter-municipal networks of medium-sized towns. If observed closely, financial and political arrangements between municipalities in the networks are various as follows:

From the political perspective, we found that the inter-municipal networks of small towns tend to be less politically inclusive in the sense that the executive functions are given only to few municipalities of the network. Thus, it may be suggested that such networks would be characterized by competition between the member municipalities with executive powers and the member municipalities with no executive powers. In contrast, the inter-municipal networks of medium-sized towns are highly inclusive and offer executive powers to a majority of member municipalities which suggests that there is more cooperation in decision-making process between member municipalities than it is the case in the inter-municipal networks of small towns.

From the financial perspective, we found that the inter-municipal networks of small towns tend to have more financial difficulties in managing their debt than the inter-municipal networks of medium-sized towns. However, what is in common to the both types of inter-municipal networks is a general lack of a balanced allocation of investment across the network. In other words, the inter-municipal networks of towns have a tendency to centralize investment in few member municipalities which may *in fine* lead to a potential competition and conflict of interest groups which receive the investment and of those which do not receive any investment. Thus, the postulates of the "City-network" theory in which inter-municipal governance maximises potential synergies and complementarity as well as a joint solution, a harmonious and balanced integration, and a rapid development of innovation cannot be entirely confirmed in this research due to the fact that inter-municipal cooperation is not based on the delimitation of functional regions, but on the political one. As a result, the areas of inter-municipal cooperation of small and medium-sized towns are much smaller than their functional areas which may limit the real potential of synergy and complementarity. As we have seen, there are economic synergies and complementarities between municipalities belonging to the same functional area, which are less to be found between municipalities belonging to the same inter-municipal (political) cooperation and governance.

Contribution to the regional science and some ideas for a further research

In order to promote a new approach to the analysis of regional urban systems which takes into account the technological progress and the contemporary evolutions in our ways of organizing, living and working, our research opted for the "City-network" theory for its theoretical framework. The advantages of this theory as compared to the traditional ones are in understanding that there are new socio-spatial contexts and that the contemporary knowledge travels along "pipelines" between cities, towns, cultures which are neither spatial nor strictly hierarchical. The network is seen as a structure where the nodes are cities and towns connected by the link of different nature, through which socio-economic flows are exchanged. The principal characteristics of networks of cities are the possibility of simultaneous hierarchical and non-hierarchical structure, cooperation between the cities, and the generation of advantages related to the organization of the urban structure (Bloix, 2002). The multi-scalarity of networks, also promoted by the "City-network" theory, is based on the idea that the different types of network at the different scales interlink, compete and cooperate whether within or between cities and towns. In this research, we were able to confirm the relevance of the "City-network" theory for an integrated analysis of contemporary territorial dynamics. The three basic postulates of the "City-network" theory (polycentricity, economic networks and inter-municipal governance) were proven and analysed on the case of the regional urban system of Centre-Val de Loire with a particular focus on small and medium-sized towns. Thus, the major contributions of the research to the regional science are as follows:

- **The state-of-the-art experimentation of the application of the "City-network" theory on an entire regional urban system.**
- **An interdisciplinary approach to the understanding of some contemporary regional and urban dynamics.**
- **An innovative and integrated quantitative analysis of all urban settlements (more than 1,800 municipalities) belonging to the same regional system.**
- **A holistic approach to the analysis of social, economic and political specificities of small and medium-sized towns, especially when it comes to the differentiation from large and intermediate cities.**

Surprisingly, the regional science very scarcely refers to the "City-network" theory as compared to the other mainstream theories such as the central place theory and the new economic geography. Hence there is a general lack of theoretical and empirical studies that would provide a better understanding of theoretical concepts and contextual differences in an empirical application of the theory. For the further advance of the "City-network" theory, it seems necessary, on the one hand, to develop a more concrete theoretical framework with some clear conceptualizations and paradigms, which would distinguish the "City-network" theory from other mainstream theories within the regional science. For instance, for the purpose of our research, we found it particularly difficult to conceptualize networks according to typologies, scales and connection structures; the concept of multi-scalarity is

challenging to empirically analyse; the variety of actors (e.g. public, private, collective, individual, local, regional, global, etc.) creating networks are also demanding to address in a systematic analysis, etc. On the other hand, a series of empirical studies applied at different spatial scales (e.g. intra-city, inter-city, intra-regional, inter-regional, etc.) and at different scope of actors (e.g. firms, population, creative class, local economies, intra-sectorial and inter-sectorial economic activities, etc.) would certainly improve the understanding of new dynamics in a globalized world. In this research, we refer to the regional urban system that consists of two large cities and many small and medium-sized towns. Thus, it would be interesting to apply the same methodology on different types of regional urban systems: for instance, those with a metropolis and those with no large city at all. These kinds of research would not only contribute to the "City-network" theory, but also to a greater knowledge of small and medium-sized towns and their functions in a different regional environment.

Practical implications of the research

Besides the contribution to the regional studies, this research took a particular interest in the contribution of small and medium-sized towns to the regional growth and development. At the European level, we presented the way towns have been acknowledged for their role in promoting a polycentric and balanced territorial development even though there is no European policy that would single them out. The lack of policies at the European and national levels is not necessarily a disadvantage since the development of towns depends upon the institutional mobilisation of local resources and partners to achieve the agreed long-term objectives through a coherent set of actions.

- **This research clearly opted for an integrated and placed-based approach to regional and urban planning.**

Such an integrated territorial approach cannot simply be focused on towns, but on the contrary, it needs to be structured around the relationships between settlements within larger areas and on the relationship between town and its rural hinterland. Moreover, the integrated territorial approach needs also to be place-based and flexible enough in order to respect the regional and local context and to actively involve a wide range of actors for a long-term growth and development.

We presented a variety of institutional contexts ranging from unitary to federal states, with the different degrees of regionalization and a varying degree of political and fiscal decentralization. Some countries have a large number of small municipalities (e.g. France) leading to a territorially fragmented structure while others have a much smaller number of large municipalities (e.g. Sweden and the UK) which has important implications for towns. In the former case, the municipality is likely to cover the core of a town, while in the latter case the municipality may include a certain number of towns.

- **This research fully endorsed the functional approach to be used in regional and urban planning.**

In order to address the challenge of planning for a variety of contexts, we devoted a great deal of attention to the functional approach which goes beyond the administrative and morphological delimitations of space by taking into consideration the roles and the functions of all settlements regardless their size. In that respect, we opt for the functional approach in considering a regional socio-spatial system. Compared to other approaches based on the morphological characteristics and the administrative status, the functional approach has a great advantage since it takes into account the entire urban region (all settlements) in a way it has a meaning for a daily life of its inhabitants. Thus, we believe that the functional areas may become the platform for local development policy since they involve actors that already have relationships which are historically rooted and with a high level of social cohesion, trust and local know-how. Actors belonging to the same functional area already exploit the key aspects of the local territorial capital in a positive manner and are able to adapt to the changing external circumstances that overcome any disadvantage associated with the size. Our research provided with the evidence that the functional areas of towns are as dynamic as the functional areas of cities due to benefits of network externalities, and economic synergy and complementarity.

Many scholars such as Pecqueur (1989), Stöhr (1990), Healey (1997), Magnaghi (2003), Hamdouch (2005), Knox and Mayer (2009), Demazière et al. (2012) already stressed the importance of the strategic planning and an integrated approach as important tools that may enable local actors to identify advantages of their towns and to address the real needs of their communities. The importance of the local mobilisation of a broad array of actors is also a lesson to be learnt from many local policy initiatives which were launched across Europe, to try to overcome the disadvantage of towns in terms of their functional accessibility, life quality and job creation. However, what seems to be crucial is the definition of the appropriate scale that would generate the critical mass effects. Our research suggests that the functional areas might represent the scale that would enable a territory to benefit from already existing local relationships between actors, especially if it is accompanied by inter-municipal governance.

Overall, there is a variety of possible paths of development available to towns, but they are not possible to be replicated in other places since they are deeply rooted in the local network of actors. The point is that decision-makers need to act in a conscious manner to plan the growth and development by seriously taking into account the wider area. They also need to be able to develop new innovative forms of formal and informal organizations that cut across traditional administrative boundaries to create the necessary means for a long-term action.

Références

Acemoglu, D. et S. Johnson (2006), De Facto Political Power and Institutional Persistence, *American Economic Review*, vol. 96, n. 2, pp. 325–330.

Acemoglu, D., Johnson, S. et J.A. Robinson (2005), The rise of Europe: Atlantic trade, institutional change and economic growth, *American Economic Review*, vol. 95, n. 3, pp. 546-579.

Acemoglu, D. et J.A. Robinson (2000), Political losers as a barrier to economic development, *American Economic Review*, vol. 90, n. 2, pp. 126-130.

Acs, Z. et A. Varga (2002), Geography, endogenous growth, and innovation, *International Regional Science Review*, vol. 25, n. 1, pp. 132-148.

Agranoff R. et M. McGuire (2003), *Collaborative Public Management: New Strategies for Local Governments*, Georgetown University Press, Washington, DC.

Alberti, F. (2001), The governance of industrial districts: a theoretical footing proposal, *Liuc Papers*, n. 82, pp. 1-31.

Alexander, R.D. (1979), *Darwinism and human affaire*, Seattle, University of Washington Press.

Alexander, R.D. (1990), How did humans evolve? Reflections on the uniquely unique species, *University of Michigan Museum of Zoology Special Publication*, n. 1, pp. 1-38.

Alonso, W. (1971), The economics of urban size, *Papers and Proceedings of the Regional Science Association*, pp. 67-83.

Alonso, W. (1973), Urban zero population growth, *Daedalus*, n. 102, pp. 191-206.

Amin, A. et N. Thrift (1994), *Globalization, Institutions and Regional Development in Europe*, Oxford, University Press.

Amin, A., et N. Thrift (1995), Institutional issues for the European regions: From markets and plans to socioeconomics and powers of association, *Economy and Society*, n. 24, pp. 41–66.

Andersen, H.T., Møller-Jensen, L. et S. Engelstoft (2011), The End of Urbanization? Towards a New Urban Concept or Rethinking Urbanization, *European Planning Studies*, vol.19, n. 4, pp. 595-611.

Andrew, S.A. (2009), Recent Developments in the Study of Interjurisdictional Agreements: An Overview and Assessment. *State and Local Government Review*, vol. 41, n. 2, pp. 133-142.

Ansoff, H.I. (1965), *Corporate Strategy: an analytic Approach to Business Policy for Growth and Expansion*, McGraw-Hill.

Antonelli, C. (1995), “Economie des réseaux: variété et complémentarité”, dans *Economie industrielle et économie spatiale* de Rallet, A. et A. Torre (eds.), pp. 253-272, Economica, Paris.

Arrow, K. J. (1962), The economic implications of learning by doing, *Review of Economic Studies*, vol. 29, n. 3, pp. 155-73.

Assens, C. (2003), Le réseau d’entreprises: vers une synthèse des connaissances, *Management International*, vol.7, n. 4, pp. 49-59.

Atkinson, R. (2014), Policy measures and approaches across countries, dans *TOWN, small and medium sized towns in their functional territorial context* de Servillo, L. (ed.), pp. 187-210, Scientific Report, ESPON, Luxembourg.

Atkinson R. et I. Smith (2013), *Case Study Report: Wales*, ESPON 2013 Project – TOWN, University of the West of England, Bristol.

Attarca, M. (1999), *Une introduction au concept de stratégie politique d’entreprise*, Postgraduate thesis, HEC Paris.

Aydalot, P. (1986), *Milieux innovateurs en Europe [Innovative ‘milieux’ in Europe]*, Paris, GREMI.

Bachelet, F. (2016), Démocratie locale et coopération intercommunale (l’intercommunalité saisie par la competition électorale), *Annuaire des collectivités locales*, pp. 9-24.

Bailey, N. (1995), *Partnership Agencies in British Urban Policy*. London, UCL Press.

Bairoch, P. (1985), *De Jéricho a Mexico – Villes et économie dans l’histoire*, Paris: Gallimard.

Bakis, H. (1993), *Les réseaux et leurs enjeux sociaux*, PUF.

Balland, P.-A. (2012), Proximity and the evolution of collaboration networks: evidence from R&D projects within the gnss industry, *Regional Studies*, vol. 46, n. 6, pp. 741–756.

Balloch, S., et M. Taylor (eds.) (2001), *Partnership Working. Policy and Practice*, Bristol, Policy Press.

Barca, F. (2009), An agenda for a reformed cohesion policy, a place-based approach to meeting European Union challenges and expectations, Independent report prepared at the request of Danuta Hübner, Commissioner for Regional Policy, *Innovation*, n. 4, pp. 1-244.

Barca, F., McCann, P. et A. Rodríguez-Pose (2012), The case for regional development intervention: place-based versus place-neutral approaches, *Journal of Regional Science*, vol. 52, n. 1, pp. 134-152.

Barnes, T., Peck, J., Sheppard, E. et A. Tickell (2007), “Methods matter: transformations in economic geography”, dans *Politics and Practice in Economic Geography* de Tickell, A., Sheppard, E., Peck, J. and T. Barnes (eds.), pp. 1-24, Sage, London.

Baruch, Y. et C.-P. Lin (2012), All for one, one for all: coopetition and virtual team performance, *Technological Forecasting and Social Change*, vol. 79, n. 6, pp. 1155-1168.

Bataini, S.-H. (2002): A new approach to the attractiveness: The case of medium-sized industrial cities, J*ahrbuch für Regionalwissenschaft*, n. 22, pp. 41-59.

Bathelt, H., Malmberg, A. et P. Maskell (2004), Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation, *Progress in Human Geography*, n. 28, pp. 31–56.

Batten, D. (1995), Network Cities: Creative Urban Agglomerations for the 21th Century, *Urban Studies*, vol. 32, n. 2, p. 313-237.

Bayliss, D. (2004), Ireland's Creative Development: Local Authority Strategies for Culture-led Development, *Regional Studies*, vol. 38, n. 7, p. 817-831.

Bayliss, D. (2007), The Rise of the Creative City: Culture and Creativity in Copenhagen, *European Planning Studies*, vol. 15, n. 7, pp. 889-902.

Beaverstock, J.V., Smith, R.G. et P.J. Taylor (1999), A roster of world cities, *Cities*, vol.16, n. 6, pp. 445-458.

Becattini, G. (1987), *Mercato e forze locali: il distretto industriale*. Bologna: Il Mulino.

Becattini, G. et E. Rullani (1996), "Local systems and global connections: The role of knowledge", dans *Local and regional response to global pressure: The case of Italy and its industrial districts* de Cossentino, F. Pyke, F. et W. Sengenberger (eds.), pp. 159–174, Geneva, International Institute of Labour Studies.

Béhar, D. (2004), *Les villes moyennes, enjeux d'action publique*, report for DATAR, Paris: Acadie.

Béhar, D. (2009), L'action publique locale à l'épreuve de l'économie résidentielle, *Pour*, n. 199, pp 149-153.

Bell, D. et M. Jayne (2009), Small Cities? Towards a Research Agenda, *International Journal of Urban and Regional Studies*, vol. 22, n. 3, pp. 683-99.

Bellet, C. et J.-M. Llop (2003), "Intermediate cities. Profiles and agenda", dans *Villes moyennes et mondialisation. Renouvellement de l'analyse et des stratégies* de Charbonneau, F., Lewis, P. et C. Manzagol (eds.), pp. 200-215, édition Trames, Université de Montréal, Montréal, Canada.

Bellet, C. et J.-M. Llop (2004), Miradas a otros espacios urbanos, en Scripta Nova, *Revista electrónica de geografía i ciencias sociales*, vol. VIII, n. 165, p.32.

Bengtsson, M., J. Eriksson et J. Wincent (2010), Co-opetition dynamics – an outline for further inquiry, *Competitiveness Review: An International Business Journal Incorporating Journal of Global Competitiveness*, vol. 20, n. 2, pp. 194-214.

Bengtsson, M. et S. Kock (1999), Cooperation and competition in relationships between competitors in business networks, *Journal of Business and Industrial Market*, vol. 14, n. 3, pp. 178-194.

Bengtsson, M. et S. Kock (2000), Coopetition in business networks – to cooperate and compete simultaneously, *Industrial Marketing Management*, vol. 29, n. 5, pp. 411-426.

Benko, G. et A. Lipietz (2000), *La richesse des régions*. Paris.

Bidart, C. (2008), Etudier les réseaux sociaux: apports et perspectives pour les sciences sociales, *Informations sociales*, n. 147, pp. 34-45.

Birch, K. et G. Whittam (2008), The Third Sector and the Regional Development of Social Capital, *Regional Studies*, vol. 42, n. 3, pp. 437-450.

Black D. et V. Henderson (1999), A theory of urban growth, *Journal of Political Economy*, vol. 107, n. 2, pp. 252-284.

Blatter, J. (2004), From 'spaces of place' to 'spaces of flows'? *International Journal of Urban and Regional Research*, vol. 28, n. 3, pp. 530–548.

Boari, C. et A. Lipparini (1999), Networks within industrial districts: Organizing knowledge creation and transfer by means of moderate hierarchies, *Journal of Management and Governance*, n. 3, pp. 339-360.

Boix, R. (2002), "Policentrismo y redes de ciudades en la región metropolitana de Barcelona", dans *Redes, territorios y gobierno: Nuevas respuestas globales a los retos de la globalización, Diputació de Barcelona* de J. Subirats (ed.), pp. 223-246, Barcelona.

Boix, R. (2003), Networks of cities and growth: theory, network identification and measurement of the network externality, *European Business Model*, n. 7, pp. 1-40.

Bolay, J.-C. et A. Rabinovich (2004), Intermediate cities in Latin America risk and opportunities of coherent urban development, *Cities*, vol. 21, n. 5, pp. 407–421.

Bornstein, G., Erev, I. et O. Rosen (1990), Intergroup competition as a structural solution to social dilemmas, *Social Behaviour*, n. 5, pp. 247-260.

Borras-Alomar, S., Christiansen, T. et A. Rodriguez-Pose (1994), Towards a Europe of the Regions? Visions and Reality from a Critical Perspective, *Regional Politics and Policy*, vol. 4, n. 2, pp. 1-27.

Boschma, R. (2005), Proximity and innovation: a critical assessment, *Regional Studies*, vol. 39, n. 1, pp. 61-74.

Bouba-Olga, O., Ferru, M. et B. Guimond (2012), Organisation des activités et dynamiques territoriales: éléments d'analyse et application aux bassins de Cognac et de Châtellerault, *Revue d'Economie Régionale et Urbaine*, n. 2, pp. 173-192.

Boudeville, J. R. (1966), *Problems of regional economic planning*. Edinburgh, Edinburgh University Press.

Bourdeau-Lepage, L., Huriot, J. et J. Perreur (2009), A la recherché de la centralité perdue, *Révue d'Economie Régionale et Urbaine*, n. 3, pp. 549-572.

Bowles, S. (2009), Did warfare among ancestral hunter-gatherers affect the evolution of human social behaviours? *Science*, n. 324, pp. 1293-1298.

Boyd, R. et P.J. Richerson (2009), Culture and the evolution of human cooperation, *Philosophical Transactions of the Royal Society B-Biological Sciences*, n. 364, pp. 3281-3288.

Boyer, J.-C. (2003), *Les villes européennes*, Hachette.

Brandenburger, A.M. et B.J. Nalebuff (1996), *Co-opetition*, New York, Doubleday.

Brechet J.-P. et A. Desreumaux (2008), *Que faire de l'ANT en management stratégique?* Paper for the XVII International Conference of Strategic Management, AIMS, Nice, CERAM.

Brenner, N. et C. Schmid (2012), *Towards a theory of extended urbanization, w*orking paper, Urban Theory Lab, Harvard GSD, Cambridge, MA and ETH Zurich.

Bretschger, L. (1999), Knowledge diffusion and the development of regions, *Annals of Regional Science*, vol. 33, n. 3, p. 251-268.

Bruneau, P. (2000), *Le Québec en changement. Entre l'exclusion et l'espérance*, Sainte-Foy, PUQ (Coll. Géographie contemporaine).

Brunet, R. (ed.) (1989), *Villes "européennes"*, Datar-Reclus, La Documentation Française, Paris.

Brunet, R. (1997), *Territoires de France et d'Europe. Raisons de géographe*. Paris, Belin.

Brusco, S. (1986), "Small firms and industrial districts: the experience of Italy", dans *New firms and regional development in Europe* de Keeble D. et E. Weber (eds.), pp. 184-202, Croom Helm.

Cabodi, C., De Luca, A. et A. Toldo (2013), *Case Study Report: Italy*, ESPON 2013 Project – TOWN, Officina Territorio SNC.

Callon, M. (1986), "Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St. Brieuc Bay", dans *Power, Action, and Belief: A New Sociology of Knowledge?* de J. Law (ed), pp. 196-223, London, Routledge & Kegan.

Camagni, R. (1992), *Economia urbana: principi e modelli teorici*. La Nuova Italia Scientifica, Roma.

Camagni, R. et C. Salone (1993), Network Urban Structures in Northern Italy: Elements for a Theoretical Framework, *Urban Studies*, Vol. 30, n. 6, pp. 1053-1064.

Camagni, R., Diappi, L. et S. Stabilini (1994), City networks in the Lombardy region: an analysis in terms of communication flows, *Flux*, n. 15, p. 37-50.

Camagni, R., et R. Capello (2013), Regional innovation patterns and the EU regional policy reform: Toward smart innovation policies, *Growth and Change*, vol. 44, n. 2, pp. 355–389.

Camagni, R., Capello, R. et A. Caragliu (2013), One or infinite optimal city sizes? In search of an equilibrium size for cities, *The Annals of Regional Science*, vol. 51, n. 2, pp. 309-341.

Camhis, M. et S. Fox (1992), The European Community as a catalyst for European urban networks, *Ekistics*, n. 352.

Capello, R. (2008), Regional economics in its 1950s: recent theoretical directions and future challenges, *Annals of Regional Science*, n. 42, pp. 747-767.

Capello, R. (2011), Location, Regional Growth and Local Development Theories, *Aestimum*, vol. 58, n. 6., pp. 1-25.

Capello, R. (2013), Recent Theoretical Paradigms in Urban Growth, *European Planning Studies*, vol. 21, n. 3, pp. 316-333.

Capello, R., Caragliu, A. et U. Fratesi (2015), Global trends and the economic crisis: Future alternative European growth strategies, *Technological Forecasting and Social Change*, vol. 98, pp. 120-136.

Carrier, M. et C. Demazière (2012), La socio-économie des villes petites et moyennes: questions théoriques et implications pour l'aménagement du territoire, *Revue d'Economie Régionale et Urbaine*, n. 2, pp. 135-149.

Carrier, M., Thériault, M. et E. Véronneau (2012), Structure socio-spatiale des réseaux d'innovation en secteur manufacturier traditionnel d'une ville moyenne, *Revue d'Economie Régionale et Urbaine*, n. 2, pp. 215-244.

Carrière, J.-P. (2008), Les villes intermédiaires et l'Europe polycentrique? *Réalités industrielles*, n. 2, pp. 18-26.

Carrière, J.-P., Hamdouch, A. et C. Iatu (eds.) (2016), *Développement durable des territoires*, Paris, Ed. Economica, collection Anthropos.

Carrincazeaux, C. et M. Coris (2011), "Proximity and innovation", dans *Handbook of Regional Innovation and Growth* de Cooke, P., Asheim, B., Boschma, R., Martin, R. et D. Schwartz, pp. 269–281, Edward Elgar, Cheltenham, Glos.

Castells, M. (1972), *The Urban Question*. Cambridge, MA, MIT Press.

Castells, M. (1977), *The urban question: a Marxist approach*, MIT Press, Cambridge, MA.

Castells, M. (1983), *The City and the Grassroots*, Berkeley, California, University of California Press.

Castells, M. (1996), *The Rise of the Network Society*, Oxford, Blackwell.

Castells, M. (2004), *The Network Society: A cross-cultural perspective*, Edward Elgar, Cheltenham, UK.

Casti, J. L. (1995), “The Theory of Networks”, dans *Networks in Action* de Batten, D.F., Casti, J.L. et R.Thord (eds.), pp. 3-24, Springer Verlag, Berlin.

CEC (1988), *The Future of Rural Society*, Communiqué de la Commission transféré au Conseil et au Parlement européen le 29 juillet 1988, COM (88) 501 (Commission of the European Communities: Bruxelles).

CEC (2007), *Growing Regions, growing Europe. Fourth Report on Economic and Social Cohesion* (Directorate General Regional Policy: Bruxelles).

CEC (Commission of the European Communities) (2008), *Green Paper on Territorial Cohesion: Turning Territorial Diversity into Strength*, Communiqué de la Commission, COM(2008)616,6 octobre, Bruxelles.

CEC (Commission of the European Communities) (2009), *Territorial cohesion: Unleashing the territorial potential*, Background document to the Conference on Cohesion Policy and Territorial Development: Make Use of the Territorial Potential!, du 10 au 11 décembre, Kiruna, Suède.

CEC (2011), *Cities of Tomorrow. Challenges, visions, ways forward* (Commission of the European Communities: Bruxelles).

CEMAT (Conférence européenne des ministres responsables de l’aménagement du territoire) (2006), *Resolution n. 82 on Territorial Governance: Empowerment Through Enhanced Coordination* [14 CEMAT (2006) 13 Final], Regional Planning and Technical Cooperation and Assistance Division, Conseil de l’Europe. Strasbourg, France.

CESE (2005), *L’Économie sociale dans l’Union européenne*, Centre international de recherche et d’information sur l’économie publique, sociale et coopérative (CIRIEC), rapport de Rafael Chaves et José Luis Monzon, CESE/COMM/05/2005.

Chabault, D. (2009), Gouvernance et trajectoire des réseaux territoriaux d’organisations: une application aux poles de competitivité, Thèse, Université de Tours, France.

Charbonneau, F., Lewis, P. et C. Manzagol (eds.) (2003), *Villes moyennes et mondialisation, Renouvellement de l'analyse et des stratégies*, Trames, Université de Montréal.

Chatterjee, S. (1986), Types of synergy and economic value: the impact of acquisitions on merging and rival firms, *Strategic Management Journal*, vol. 7, n. 2, pp. 119-139.

Chen, M.-J. (2008), Reconceptualising the competition- cooperation relationship: a transparadox perspective, *Journal of Management Inquiry*, vol. 17, n. 4, pp. 288-304.

Choi, J., Sang-Hyun, A. et C. Min-Seok (2013), The effects of network characteristics on performance of innovation clusters, *Expert Systems with Applications*, vol. 40, n. 11, pp. 4511-4518.

Child, J., Faulkner, D., et S. Tallman (2005), *Cooperative Strategy. Managing Alliances, Networks, and Joint Ventures*, Oxford University Press.

Christaller, W. (1933), *Die Zentralen Orte in Süddeutschland, Wissenschaftlische Buchgesellschaft, Darmstadt*, Edition en anglais (1966), The Central Places in Southern Germany, Prentice-Hall, Englewood Cliffs, NJ.

Christopherson, S. (2004), *Creative economy strategies for small and medium size cities: options for New York State*, Department of City and Regional Planning, Cornell University.

Clancey, G. (2004), Local Memory and Worldly Narrative: the Remote City in America and Japan, *Urban Studies*, vol. 41, n. 12, pp. 2335-2355.

Clark, J.A. (1988), Economies of scale and scope at depository financial institutions: a review of the literature, *Economic Review of the Federal Reserve Bank of Kansas City*, n. 9/10, pp. 16-33.

Cohendet, P., Grandadam, D. et L. Simon (2009), Economics and the ecology of creativity: evidence from the popular music industry, *International Review of Applied Economics*, vol. 23, n. 6, pp. 709-722.

Colomb, C. et G. Santinha (2014), European Union Competition Policy and the European Territorial Cohesion Agenda: an Impossible Reconciliation? State Aid Rules and Public Service Liberalization through the European Spatial Planning Lens, *European Planning Studies*, vol. 22, n. 3, pp. 459-480.

Comptes des collectivités locales (2007, 2014), *Les comptes des communes et des groupements à fiscalité propre : données individuelles (millésimes 2000 à 2014)*, online [URL]: http://www.collectivites-locales.gouv.fr/comptes-des-communes-et-des-groupements-a-fiscalite-propre-donnees-individuelles-millesimes-2000-a (accessible le 4 juin 2017).

Conseil régional du Centre (2013), *Ambitions 2020, Schéma Régional d'Aménagement et de Développement Durable du Territoire de la région Centre*, Orléans.

Constantin, D. (2006), Recent advances in territorial competition and competitiveness analysis, *Romanian Journal of European Affairs*, vol. 6, n. 3, pp. 71-81.

Cooke, P. (ed.) (1989), *Localities: The Changing Face of Urban Britain*, London, Unwin Hyman.

Cooke, P. (1996), "Reinventing the Region: Firms, Clusters and Networks in Economic Development", dans *The Global Economy in Transition* de Daniels P. et W. Lever (eds.), pp. 310-327, Harlow, Longman.

Cooke, P. (2001), Regional innovation systems, clusters, and the knowledge economy, *Industrial and Corporate Change*, vol. 10, n. 4, pp. 945–974.

Cooke, P. et K. Morgan (1998), *The Associative Region*, Oxford, Oxford University Press.

Coombes, M.G., Dixon, J.S., Goddard, J.B., Openshaw, S. et P.J. Taylor (1982), "Functional regions for the population census of Great Britain", dans *Geography and the Urban Environment. Progress in Research and Applications* de D. T. Herbert et R.J. Johnston (eds.), pp. 63-112, Chichester, John Willey & Sons Ltd.

Crescenzi, R. et A. Rodriguez-Pose (2011), *Innovation and regional growth in the European Union*, Springer, Berlin.

Cressman, D. (2009), *A brief overview of actor-network theory: ponctualization, heterogeneous engineering and translation*, Paper for Simon Frasier University, ACT Lab/Centre for Policy Research on Science and Technology, pp. 1-17.

Crouch, C. et P. Le Galès (2012), Cities as national champions ? *Journal of European Public Policy*, vol. 19, n. 3, pp. 405-419.

Dahl, R. A. (1961), *Who Governs? Democracy and Power in an American City*, New Haven, Connecticut, Yale University Press.

Darwent, D. F. (1969), Growth poles and growth centers in regional planning: A review, *Environment and Planning*, vol. 1, n. 1, pp. 5-31.

Darwin, C. (1871), *The descent of man and selection in relation to sex*, London, John Murray.

DATAR (2003), 40 ans d'aménagement du territoire, en ligne [URL]: http://www.datar.gouv.fr/sites/default/files/datar/datar176supp.pdf (accessible le 23 février 2016).

DATAR (2012), Des systèmes spatiaux en prospective, *Territoires 2040 n. 4*, La Documentation française.

Davezies, L. (2006), A métropole, joker du développement territorial … sur le papier, *Revue d'économie financière*, n. 86, pp. 13-28.

Davezies, L., (2008), *La République et ses territoires. La circulation invisible des richesses*, édidition du Seuil.

Davis, K. (1955), The origins and growth of urbanization in the world, *American Journal of Sociology*, vol. 60, n. 5, pp. 429–437.

Davoudi, S. (1995), "Dilemmas of Urban Governance", dans *Managing Cities – The new urban context* de P. Healey, S. Cameron, S. Davoudi, S. Graham et A. Madanipour (eds.), pp. 225-230, John Wiley, Chichester.

Davoudi, S. (2004), "Towards a Conceptual Framework for Evaluation of Governance Relations in Polycentric Urban Regions of Europe", dans *Evaluating Governance* de Miller, D. et Patassini, D. (eds.), pp. 275-277, Aldershot, Ashgate.

Davoudi, S., E. Evans, F. Governa, et M. Santangelo (2008), Territorial Governance in the Making. Approaches, Methodologies, Practices, *Bulletin de la A.G.E.N*, n. 46.

Dawkins, C. (2003), Regional development theory: conceptual foundations, classic works and recent development, *Journal of Planning Literature*, vol. 18, n. 2, pp. 131-172.

De Esteban Alonso, A. et A. Lopez Lopez (1989), “El papel de las cuidades medias en Espana” dans *La notion de ville moyenne en France, en Espagne et au Royaume-Uni* de Santamaria, F. (2000), pp. 227-239, Annales de Géographie, vol. 109, n. 613.

Dei Ottati, G. (1994), Trust, interlinking transactions and credit in the industrial district, Cambridge *Journal of Economics*, vol. 18, n. 6, pp. 529-546.

Deman, A.P. (2008), *Knowledge management and innovation in networks*, Edward Elgar Publishing Limited.

Dematteis, G. (1990), "Modelli urbani a rete. Considerazioni preliminari", dans *Gerarchie e reti di città: tendenze e politiche* de F. Curti et L. Diappi (eds.), pp. 27-48, Franco Angeli, Milano.

Dematteis, G. (1991), "Sistemi locali nucleari e sistemi a rete. Un contributo geográfico all'interpretazione delle dinamiche urbane", dans *I Sistemi Urbani* de C.S. Bertuglia et A. La Bella (eds.), pp. 483-513, Franco Angeli, Milano.

Demazière, C. (2011), *Portrait économique des villes petites et moyennes en région Centre - rapport de recherche pour la DREAL Centre*, Université François-Rabelais, UMR CITERES, Tours.

Demazière, C. (dir.) (2012), *Observation des dynamiques économiques et stratégies des villes petites et moyennes de la région Centre*, rapprot de recherche pour le Conseil régional Centre, Université François-Rabelais, UMR CITERES, Tours.

Demazière, C. (2014), Institutional aspects in different EU contexts, dans *TOWN, small and medium sized towns in their functional territorial context* de Servillo, L. (ed.), pp. 79-110, Scientific Report, ESPON, Luxembourg.

Demazière, C., Banovac, K. et A. Hamdouch (2014), “The Changing Profiles of Small and Medium-Sized Towns in the European Context: Between Residential Economy, Competitiveness and Innovation”, dans Kwiatek-Soltys, A., Mainet, H., Wiedermann, K. et J-C. Edouard (eds.) *Small and Medium Towns' Attractiveness at the Beginning of the 21st Century*, pp. 29-40, Presses Universitaires Blaise Pascal, CERAMAC 33.

Demazière, C. et L. Daviot (2014), *Quelles politiques et stratégies de développement économique local pour les petites ou moyennes villes? Le cas de Châteaudun, Chinon, Issoudun, Romorantin-Lanthenay et Vendôme*, volume 2, recherche dans le cadre de l’APR IR Région Centre, Université François Rabelais de Tours et CNRS, France.

Demazière, C. et A. Hamdouch (2012), *Méthodes d’analyse des dynamiques de développement des villes petites et moyennes*, Ecole Polytechnique, Tours.

Demazière, C., Hamdouch, A. et K. Banovac (2017), “Innovative actions for local development in small and medium-sized towns: the case of the Region Centre-Val de Loire (France)” dans A. Hamdouch, T. Nyseth, C. Demazière, A. Førde, J. Serrano et N. Aarsæther (eds.) *Creative Approaches to Planning and Local Development: Insights from Small & Medium Sized Towns in Europe*, pp. 97-113, Routledge.

Demazière, C., Hamdouch, A., Banovac, K. et L. Daviot (2013), *Case Study Report: Centre Region*, ESPON 2013 Project – TOWN, Université François-Rabelais de Tours.

Demazière C., Serrano, J. et D. Vye (eds.) (2012), Villes petites et moyennes, *Norois*, n. 223, Rennes, Presses Universitaires de Rennes.

Demazière C et Wilson, P.A. (eds.) (1996), *Local Economic Development in Europe and the Americas*, London, Mansell.

Depret, M.-H. et A. Hamdouch (2000), Innovation Networks and Competitive Coalitions in the Pharmaceutical Industry: Emergence and Structures of a New Industrial Organization, *European Journal of Economic and Social Systems*, vol. 14, n. 3, pp. 229-270.

Depret, M.-H. et A. Hamdouch (2006), *Echelles spatiales, formes de proximité et logiques institutionnelles: Esquisse d'une approche co-évolutionnaire des dynamiques de changement technologique dans la pharmacie et les biotechnologies*, article pour la conférence « Cinquièmes Journées de la Proximité: La proximité, entre interactions et institutions », Bordeaux, du 28 au30 juin.

Depret, M.H. et A. Hamdouch (2013), "Clusters, Networks and Entrepreneurship", dans *Encyclopaedia of Creativity, Invention, Innovation, and Entrepreneurship* de E.G. Carayannis (ed.), pp. 211-224, Springer, New York.

De Propis, L. (2001), Systemic Flexibility, Production Fragmentation and cluster Governance, *European Planning Studies*, vol. 9, n. 6, pp. 739-753.

De Propis L. et P. Wei (2007), Governance and Competitiveness in the Birmingham Jewellery District, *Urban Studies*, vol. 44, n. 12, pp. 2465-2486.

De Roo, P. (2007), *Les villes moyennes françaises: enjeux et perspectives*, DIACT, Paris, coll. Travaux.

Derruder, B., Timberlake, M. et F. Witlox (eds.) (2010), The changing configuration of the world city network, *Urban Studies*, vol. 47, n. 9 (numéro spécial).

Derudder, B. et F. Witlox (2010), World cities and global commodity chains: introduction, *Global Networks*, n. 10, pp. 12–34.

Dicken, P. et P. Lloyd (1990), *Location in Space*, Harper Collins, London.

DiMaggio, P. (1988), "Interest and agency in institutional theory", dans *Institutional patterns and organizations* de L. Zucker (ed.), pp. 3-22, Cambridge, MA, Ballinger.

Di Maria E. et S. Micelli (2007), Districts leaders as open networks: Emerging business strategies in Italian industrial districts, *Working Paper*, n. 38, February.

Direction de l'Information Légale et Administrative (2016), *Quelles sont les compétences des collectivités territoriales ?* en ligne [URL]: http://www.vie-publique.fr/decouverte-institutions/institutions/collectivites-territoriales/competences-collectivites-territoriales/quelles-sont-competences-exercees-par-regions.html (accessible le 4 juin 2017).

Djankov, S., La Porta, R., Lopez-de-Silanes, F. et A. Shleifer (2002), The regulation of entry. *Quarterly Journal of Economics*, n. 117, pp. 1-37.

Djuatio, E. (2004), Le réseau, outil de veille et de développement de l'entreprise? Cas des très petites entreprises guadeloupéennes, *Innovations*, vol. 1, n. 19, pp. 195-218.

Domhoff, G. W. (1978), *Who Really Rules? New Haven and Community Power Re-Examined*, New Brunswick, New Jersey, Transaction Books.

Donaldson, T. et L.E. Preston (1995), The stakeholder theory of the corporation: concepts, evidence and implications, *Academy of Management Review*, vol. 20, n. 1, pp. 65-91.

Donnés du Monde (2015), *Centre-Val-de-Loire*, en ligne [URL]: http://www.lemonde.fr/centre-val-de-loire/ (accessible le 4 juin 2017).

Dorn, S., Schweiger, B. et S. Albers (2016), Levels, phases and themes of coopetition: a systematic literature review and research agenda, European Management Journal, en ligne [URL]: http://dx.doi.org/10.1016/j.emj.2016.02.009 (accessible le 4 juin 2017).

Dower, M. (1998): Grundsätzliches zur Tagung: Kleinstädte – Motoren im ländlichen Raum, *Tagungsband*, pp. 3-10, Murau.

Doz Y. L., Olk P. M. et P.S. Ring (2000), Formation processes of R&D consortia: Which path to take? Where does it lead? *Strategic Management Journal*, n. 21, pp. 239-266.

Drobne, S. et A. Russo (2013), ATTREG – *The Attractiveness of European regions and cities for residents and visitors*, Scientific Report, Applied Research, ESPON & University Rovira i Virgili, Luxembourg.

Dubois-Taine, G. (2000), *Ville émergente, états des rechercher*, Note PUCA, METL, juillet, 9 pages.

Dumez, H. et A. Jeunemaître (2005), Concurrence et coopération entre firmes : les séquences stratégiques multidimensionnelles comme programme de recherche, *Finance Contrôle Stratégie*, vol. 8, n. 1, pp. 27-48.

Dumolard, P., Dubus, N. et L. Charleux (2003), *Les statistiques en géographie*, Berlin atouts, Paris.

Duranton, G. et D. Puga (2001), *From sectoral to functional urban specialisation*, working papers dpuga-01-01, University of Toronto, Department of Economics.

Dutraive, V. (2009), Economic development and institutions, *Revue de la regulation*, n. 6.

ECOVAST (2013), *The Importance of Small Towns*. A Position Paper by the European Council for the Village and Small Town (ECOVAST).

Edquist, C. (ed.) (1997), *Systems of Innovation. Technologies, Institutions and Organizations*, London, Pinter.

EEC (1957), *The Treaty of Rome*, signé le 25 mars 1957 à Rome, Italie, en ligne [URL]: http://www.gleichstellung.uni-freiburg.de/dokumente/treaty-of-rome (accessible le 4 juin 2017).

Ehlinger S., Perret V. et D. Chabaud (2007), Quelle gouvernance pour les réseaux territorialisés d'organisations?, *Revue française de gestion*, vol. 33, n. 170, p. 155-171.

Ellison, G., Glaeser, E. et W. Kerr (2010), What causes industry agglomeration? Evidence from coagglomeration patterns, *American Economic Review*, n. 1000, pp. 1195-1213.

Elsasser, H. (1998), Ist eine Kleinstadt mehr als eine kleine Stadt? *Tagungsband*, pp. 10-18, Murau.

Emanuel, C. et G. Dematteis (1990), "Reti urbane minori e deconcentrazione metropolitane nella Padania centro-occidentale", dans *Studi sui sistemi urbani* de D. Martellato et F. Sforzi (eds.),pp. 233-261, Milano, Franco Angeli.

Erickcek, G. (2004), *Small Cities Blues: Looking for Growth Factors in Small and Medium-Sized Cities*, Upjohn Institute Staff Working Paper n. 04-100.

Eriksson, P.E. (2008), Achieving suitable cooperation in buyer-supplier relationships: the case of AstraZeneca, *Journal of Business-to-Business Marketing*, vol. 15, n. 4, pp. 425-454.

ESDP (1999), *European Spatial Development Perspective. Towards Balanced and Sustainable Development of the Territory of the EU* (Committee on Spatial Development: Brussels).

ESPON (2009), *ESPON Typology Compilation*, Scientifc Platform and Tools 2013/03/022, en ligne [URL]: http://www.espon.eu/export/sites/default/Documents/Projects/ScientificPlatform/TypologyCompilation/fir-090615.pdf (accessible le 4 juin 2017).

ESPON FOCI (2013), *TranSMEC – Transnational support method for European cooperation*, Targeted analysis 2013/2/7, Final Report, ESPON, Luxembourg.

ESPON INTERCO (2010), *Indicators of territorial cohesion*, Final report, ESPON, Luxembourg.

ESPON & MCRIT (2014), *ET2050 – Territorial Scenarios and Visions for Europe*, Final Report, 30/04/2014, Luxembourg, ESPON.

ESPON SGPTD (2012), *Second Tier Cities in Territorial Development in Europe: Performance, Policies and Prospects*, Final Report, ESPON & EIUA, UT, MRI, UMLV, UCL, Draft Final Report, Version 28 February 2012, Luxembourg, ESPON.

ESPON TANGO (2013), *Territorial approaches for new governance*, Final report, Luxembourg, ESPON

ESPON TERCO (2013), *European territorial cooperation as a factor of growth, jobs and quality of life*, Final report, Luxembourg, ESPON.

ESPON ULYSSES (2013), *Using applied research results from ESPON as a yardstick for cross-border spatial development*, Final report, Luxembourg, ESPON.

ESPON & Universidade de Santiago de Compostela (2012), SIESTA – Spatial Indicators for a "Europe 2020 Strategy" Territorial Analysis, Applied Reseach 2013/1/18, Executive Summary, version 24/12/2012, Luxembourg, ESPON.

Europe (2016), *Principles of the LEADER initiative*, en ligne [URL]: https://enrd.ec.europa.eu/en/leader/leader-tool-kit/leaderclld-explained/seven-features-leader (accessible le 4 juin 2017).

European Commission (1999), *ESDP - European Spatial Development Perspective: Towards balanced and sustainable development of the territory of the European Union*, agreed at the Informal Council of Ministers responsible for Spatial Planning in Potsdam, mai 1999.

European Commission (2008), Turning territorial diversity into an asset—The Green Paper on territorial cohesion, *Inforegio Panorama*, December 28, pp. 4–7.

European Commission (2009), *Green Paper on Territorial Cohesion—Turning Territorial Diversity into Strength*, Inforegio, Bruxelles: Directorate General for Regional Policy, European Commission.

European Commission (2010a), *Europe 2020. A strategy for smart, suitable and inclusive growth*, Communication from the Commission, COM (2010)2020.

European Commission (2010b), *Fifth report on economic, social and territorial cohesion: Investing in Europe's future*, Brussels.

European Commission (2011), *Territorial Agenda of the European Union 2020: Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions*, Brussels.

European Commission (2012a), *European Territorial Co-operation. Co-operation across borders*, en ligne [URL]: http://ec.europa.eu/regional_policy/cooperate/cooperation/crossborder/index_en.cfm (accessible le 4 juin 2017).

European Commission, (2012b), *Glossary - Economic, social and territorial cohesion*. En ligne [URL]: http://europa.eu/legislation_summaries/glossary/economic_social_cohesion_en.htm (accessible le 4 juin 2017).

European Economic and Social Committee (EESC) (2012), *The social economy in the European Union*, Rapport, Bruxelles, la Belgique.

Fabriès-Verfaillie, M., Jouve, A. et P. Stragiotti (1994), *La France des villes. Le temps des métropoles?* Études supérieures de géographie – CAPES – Agrégation – I.E.P. Classe préparatoires aux Grandes Ecoles, Bréal.

Faludi, A. (2010), *Cohesion, Coherence, Cooperation: European Spatial Planning Coming of Age?* London, Routledge.

Farthing, S. et J.-P. Carriere (2007), “Recompositions spatiales contemporaines et politiques d'amenagement” dans *Amenagement et Urbanisme en France et an Grande Bretagne etude Comparative* de Booth, P., Breuillard, M., Fraser, C. et D. Paris (eds.), pp. 41-67, L'Harmattan.

Faulkner, D.O. (1995), *International Strategic Alliances: Co-operating to Compete*, Maidenhead, McGraw-Hill.

Fedele, M. et G. Moini (2007), “Italy: The Changing Boundaries of Inter-municipal Cooperation” dans *Intermunicipal Cooperation in Europe* de R. Hulst et A. van Montfort (eds.), pp. 117-138, Dordrecht: Springer.

Feldman, M.P. and D.B. Audretsch (1999), Innovation in cities: science-based diversity, specialization and localized competition, *European Economic Review*, n. 43, pp. 409-429.

Feoick, R. (2007), Rational Choice and Regional Governance, *Journal of Urban Affairs*, vol. 29, n. 1, pp. 47-63.

Floch, J.-M. et B. Morel (2007), *Panorama des villes moyennes*, document de travail.

Florida, R. (2002), *The rise of the creative class: and how it's transforming work, leisure, community and everyday life*, New York, Basic Books.

Florida, R. (2003), “Entrepreneurship, creativity and regional economic growth” dans *The Emergence of Entrepreneurship Policy: Governance, Start-ups and Growth in the US Knowledge Economy* de D.M. Hart (ed.), pp. 39-58, Cambrige, USA, Cambridge University Press.

Freeman, R. (1984), *Strategic management: a stakeholder approach*, Marshall, M.A. Pitman, Boston.

Fréry, F. (2007), *Le contrôle des réseaux d'entreprises: pour une extension du concept d'entreprise intégrée*, paper presented at the XVI Conference AIMS, Montréal, Canada, du 6 au 9 juin.

Friedmann, J. (2004), Strategic spatial planning and the longer range, *Planning Theory & Practice*, vol. 5, n. 1, pp. 49–62.

Friedmann, J. et W. Alonso (eds.) (1964), *Regional Development and Planning: A Reader*, MIT Press, Cambridge, Mass.

Friedman, J. et C. Weaver (1979), *Territory and Function: The Evolution of Regional Planning*, University of California Press, Los Angeles, CA.

Fritsch, M. et R. Lukas (2001), Who cooperates on R&D? *Research Policy*, n. 30, pp. 297–312.

Frug, G.E. (1999), *City Making: Building Communities Without Building Walls*, Princeton, Princeton Univesity Press.

Fujita, M. et P. Krugman (2003), The new economic geography: past, present and the future, *Papers in Regional Science*, vol. 83, n. 1, pp. 139-164;

Fujita, M. et T. Mori (1998), On the dynamics of frontier economies: Endogenous growth or the self-organization of a dissipative system? *Annals of Regional Science*, vol. 32, n. 1, pp. 39-62.

Fürst, D. (2006), The Role of Experimental Regionalism in Rescaling the German State, *European Planning Studies*, vol. 14, n. 7, pp. 923-938.

Gaschet, F. et C. Lacour (2002), Metropolisation, centre et centralité, *Revue d'Economie Régionale et Urbaine*, n. 1, pp. 49-72.

Ghobadi, S. et J. D'Ambra (2012), Competitive relationships in cross-functional software development teams: how to model and measure? *Journal of Systems and Software*, vol. 85, n. 5, pp. 1096-1104.

Gilsing V. (2000), *Cluster Governance: How Clusters can adapt and renew over time?* paper presented on the DRUID conference, Copenhagen, January.

Glaeser, E.L. (2010), *Agglomeration Economics*, Chicago, University of Chicago Press.

Glaeser, E.L., Kallal, H.D., Scheinkman, J.A. et A. Shleifer (1992), Growth in cities, *Journal of Political Economy*, vol. 100, n. 6, pp. 1126-1152.

Glaeser, E.L., Kilko, J. et A. Saiz (2001), Consumer city, *Journal of Economic Geography*, vol. 1, n. 1, pp. 27-50.

Glaeser, E.L. et J.E. Kohlhase (2004), Cities, Regions and the Decline of Transport Costs, *Papers in Regional Science*, n. 83, pp. 197–228.

Gnyawali, D.R., He, J. et R. Madhavan (2006), Impact of coopetition on firm competitive behaviour: an empirical examination, *Journal of Management*, vol. 32, n. 4, pp. 507-530.

Godet, M. (2009), *L'économie présentielle, un pari gagnant*, La lettre du cadre territorial, n. 383.

Gomes-Casseres, B., Hagedoorn, J. et A. Jaffe (2006), Do alliances promote knowledge flows? *Journal of Financial Economics*, vol. 80, n. 1, pp. 5–33.

Gordon, I. R. et P. McCann (2000), Industrial clusters: complexes, agglomeration and/or social networks? *Urban Studies*, vol. 37, n. 3, pp. 513–532.

Graham, S. (2001), FlowCity, Networked Mobilities and the Contemporary Metropolis, *DISP*, n°144, pp. 4-11

Granovetter, M. (1974), *Getting a job: a study of contacts and carreers*, Harvard University Press, 179 p.

Granovetter, M. (1985), Economic action and social structure: The problem of embeddedness, *American Journal of Sociology*, n. 91, pp. 481–510.

Granovetter M. (2006), L'influence de la structure sociale sur les activités économiques, *Sociologies Pratiques*, vol. 2, n. 13, pp. 9-36.

Granovetter, M. et R. Swedberg (2011), *The Sociology of Economic Life*, 3rd edition, Westview Press, Boulder, CO.

Grossetti, M. (2004), Concentration d'entreprises et innovation: esquisse d'une typologie des systèmes productifs locaux, *Géographie Économie Société*, vol. 2, n. 6, pp. 163-177.

Groupe Moniteur (ed.) (2012), *Économie sociale et solidaire: Quel rôle pour les collectivités*, supplement spécial du Courrier des Maires et des élus locaux, septembre 2012, Paris.

Guillaume, R. (2008), Des systèmes productifs locaux aux pôles de compétitivité, approches conceptuelles et figures territoriales du développement, *Géographie Economie Société*, vol. 2, n. 10, pp. 295-309.

Gualini, E. (2008), Territorial cohesion as a category of agency: the missing dimension in the EU spatial policy debate, *European Journal of Spatial Development*, Refereed Articles, n. 28, pp. 1-22.

Günter, F., Giese, A. et B. Mohn (2012), Measuring synergy effects of a Public Social Private Partnership (PSPP) project, *Int. J. Production Economics*, n. 140, pp. 815-824.

Guttierez, A. et A.P. Russo (2013), *Case Study Report: Spain*, ESPON 2013 Project – TOWN, Department of Geography, Rovira i Virgili University.

Hakanson, H. et J. Johanson (1993), "The networks as a governance structure: interfirm cooperation beyond markets and hierarchies", dans *The embedded firm. On the socioeconomics of industrial networks* de G. Grabber (ed.), pp. 35-51, London Routledge.

Hall, R.E. et C.I. Jones (1999), Why do some countries produce so much more output per worker than others? *Quarterly Journal of Economics*, n. 114, pp. 83-116.

Hall, P., et K. Pain (2006), *The polycentric metropolis. Learning from mega-city regions in Europe*, London, Earthscan.

Hamdouch, A. (1998), Concurrence et coopération inter-firmes, *Economie Appliquée*, vol. LI, n. 1, pp. 7-15.

Hamdouch, A. (2002), Complémentarités inter-firmes, préemption de partenaires et rendements croissants de coalition : une formalisation des logiques de rapprochement entre firmes face aux nouvelles technologies et à la globalisation, *Revue Région et Développement*, n. 16, pp. 161-189.

Hamdouch, A. (2005), Emergence et légitimité des institutions, coordination économique et nature de la rationalité des agents, *Innovation: The European Journal of Social Science Research*, vol. 18, n. 2, pp. 227-259.

Hamdouch A. (2007), *Innovation Clusters and Networks: A Critical Review of the Recent Literature*, article présenté à la conférence 19th EAEPE, Universidade do Porto, du 1 au 3 novembre.

Hamdouch, A. (2008), *Conceptualizing innovation clusters and networks*, l'article pour le forum "The Spirit of Innovation III" de la conférence internationale "Innovation Networks", Tacoma-Seattle, Washington USA, du 14 au 16 mai.

Hamdouch, A., Alenei, O., Laffort, B. et F. Moulaert (2009), Les organisations de l'économie sociale dans la métropole lilloise: vers de nouvelles articulations spatiales? *Revue Canadiennes des Sciences Régionales*, vol. 32, n. 1, pp. 85-100.

Hamdouch, A. et K. Banovac (2013), *Sustainable long-term perspective of local development: which drivers for small and medium-sized towns?*, l'article pour le 10ème conférence "Ecological Economics and Institutional Dynamics", juin, Lille, France.

Hamdouch, A. et K. Banovac (2014), "Socio-economic profiles and performance dynamics of European SMSTs: Methodological approach and lessons from 31 case studies", dans *TOWN, small and medium sized towns in their functional territorial context* de Servillo, L. (ed.), pp. 162-184, Scientific Report, ESPON, Luxembourg.

Hamdouch, A. et K. Banovac (2017), "Ordinary Politics of Planning for Socio-Economic Development: Insights from European Small and Medium-Sized Towns" dans A. Hamdouch, T. Nyseth, C. Demazière, A. Førde, J. Serrano et N. Aarsæther (eds.) *Creative Approaches to Planning and Local Development: Insights from Small & Medium Sized Towns in Europe*, pp. 36-60, Routledge.

Hamdouch, A., Depret, M.-H. et C. Tanguy (2012), *Mondialisation et résilience des territoires, Trajectoires, dynamiques d'acteurs et expériences locales*, Québec, Presses de l'Université du Québec.

Hamdouch A. et F. He (2009), R&D offshoring and clustering dynamics in pharmaceuticals and biotechnology: key features and insights from the Chinese case, *Journal of Innovation Economics and Management*, n. 4, pp. 95-117.

Hamdouch, A. et F. Moulaert (2006), Knowledge infrastructure, innovation dynamics, and knowledge creation/diffusion/accumulation processes: a comparative institutional perspective, *Innovation: The European Journal of Social Science Research*, n. 19, pp. 25–50.

Hamdouch, A., Nyseth, T., Demazière, C., Forde, A., Serrano, J. et N. Aarsaether (eds.) (2017), *Creative Approaches to Planning and Local Development. Insights from Small and Medium-Sized Towns in Europe*, Routledge.

Hamdouch, A. et D. Perrochon (2000), Formes d'engagement en R&D, processus d'innovation et modalités d'interaction entre firmes dans l'industrie pharmaceutique, *Revue d'économie industrielle*, n. 93, pp. 29-50.

Hamilton, W.D. (1975), “Innate social aptitudes of man: an approach from evolutionary genetics”, in R. Fox (ed.), *ASA studies 4: Biosocial anthropology*, pp. 113-153, London, Malaby Press.

Harrington, J.W. et D. Ferguson (2001), “Social processes and regional economic development” in *Theories of endogenous regional growth: Lessons for regional policies*, by B. Johansson and C. Karlsson (eds.), Berlin, Springer-Verlag.

Harvey, D. (1973), *Social Justice and the City*, London, Arnold.

Hawkins, C.V. (2009), Prospects for and Barriers to Local Government Joint Ventures, *State and Local Government Review*, vol. 41, n. 2, pp. 108-119.

Healey, P. (1997), *Collaborative Planning, Shaping Places in Fragmented Societies* Vancouver, University of British Columbia Press.

Healey, A. Madanipour et C. de Magalhaes (eds.) (2002), *Urban Governance, Institutional Capacity and Social Milieux*, Ashgate, Aldershot, pp. 45-62.

Healy, A. et K. Morgan (2012), Spaces of innovation: learning, proximity and the ecological turn, *Regional Studies*, vol. 46, n. 8, pp. 1041-1053.

Henderson, V. (1997), Medium size cities, *Regional Science and Urban Economics*, n. 27, pp. 583- 612.

Henrich, J. (2004), Cultural group selection, coevolutionary processes and large-scale cooperation, *Journal of Economic Behavior and Organization*, n. 53, pp. 3-35.

Hermansen, T. (1972), “Development poles and development centres in national and regional development” in *Growth poles and growth centres in regional planning* by A. Kuklinski (ed.), Paris, Mouton.

Higgins, B. (1983), From growth poles to systems of interaction in space, *Growth and Change*, vol. 14, n. 4, pp. 1-13.

Hildreth, P. A. (2006), *Roles and Economic Potential of English Medium-Sized Cities: A Discussion Paper*, en ligne [URL]: http://www.salford.ac.uk/__data/assets/pdf_file/0019/114733/061010_Medium_sized_cities_complete_final.pdf (accessible le 4 juin 2017).

Hodgson, G. M. (1998), The approach of institutional economics, *Journal of Economic Literature*, vol. XXXVI, pp. 166-192.

Hofmeister, B. (1999), *Stadtgeographie*, Braunschweig.

Hohenberg, P.M. et L.H. Lees (1992), *La formation de l’Europe urbaine 1000 – 1950*, Paris, PUF, Translated from The Making of Urban Europe, 1000 – 1950 (1985), Cambridge, Harvard University Press.

Holland, B. (2015), Typologies of national urban policy: a theoretical analysis, *Cities*, vol. 48, pp. 125-129.

Hooghe, L. et G. Marks (2003), Unraveling the central state, but how? Types of multi-level governance, *American Political Science Review*, vol. 97, n. 2, pp. 233–243.

Hoover, E.M. (1937), *Location theory and the shoe and leather industry*, Cambridge, MA, Harvard University Press.

Hulst, R. et A. van Montfort (2007), "Intermunicipal Cooperation: A Widespread Phenomenon" dans *Intermunicipal Cooperation in Europe* de R. Hulst et A. van Montfort (eds.), pp. 1-21, Dordrecht, Springer.

Human S.E. et K.G. Provan (2000), Legitimacy building in the evolution of small-firm multilateral networks: A comparative study of success and demise, *Administrative Science Quarterly*, n. 45, pp. 327-365.

Huriot, J.-M. et L. Bourdeau-Lepage (2009), *Economie des villes contemporaines*, Economica, Paris.

Huriot, J.-M. et J. Perreur (1992), Cantillon and the intuitive understanding of space, *Sistemi Urbani*, n. 1-2-3, pp. 61-77.

Hutter, K., Hautz, J., Füller, J. Mueller, J. et K. Matzler (2011), Communitition : the tension between competition and collaboration in community-based design contests, *Creativity and Innovation Management*, vol. 20, n. 1, pp. 3-21.

IGN Maps (2009), *Catalogue des données*, online [URL]: http://professionnels.ign.fr/catalogue.

ILO (International Training Centre of the International Labour Organization) (2011), *The Reader 2011: Social and Solidarity Economy: Our Common Road Towards Decent Work*, Second edition of the Social and Solidarity Economy Academy, du 24 au 28 octobre 2011, Montreal, Canada.

Innes, J., Gruber, J. Thompson, R. et M. Neuman (1994), *Co-ordinating growth and environmental management through consensus-building*, Report to the California Policy Seminar, University of California, Berkeley.

INSEE (2011), *Panorama des villes moyennes*, de Floch J.-M. et Morel, B. (eds.), Direction de la diffusion et de l'action régionale, Document de travail.

INSEE (2012), *Données détaillées localisées*, en ligne [URL]: http://www.insee.fr/fr/bases-de-donnees/default.asp?page=statistiques-locales/donnees-detaillees_tableau.htm (accessible le 4 juin 2017).

INSEE (2015), *Géographie administrative et d'étude, L'intercommunalité*, en ligne [URL]: http://www.insee.fr/fr/methodes/default.asp?page=zonages/intercommunalite.htm (accessible le 23 février 2016).

Ismeri Applica (2010), *Distribution of competences in relation to regional development policies in the Member States*, l'étude pour le DG REGIO.

Ivanova, I., Strand, Ø. et L. Leydesdorff (2016), What is the effect of synergy in international collaboration on regional economies? *Cornell University Library*, n. 3, pp. 1-26.

Jacob, R., Julien, P.A. et L. Raymond (1996), L'organisation apprenante ou apprendre à apprendre en réseau, *WP GREPME*, n.15, Université du Québec.

Jacobs, J. (1961), *The Death and Life of Great American Cities*, New York, Vintage Books.

Jacobs, J. (1969), *The economy of cities*, New York, Vintage Books.

Jacobs, W., Koster, H. et P. Hall (2011), The location and global network structure of maritime advanced producer services, *Urban Studies*, n. 48, pp. 2749-2769.

Jacques, M. (2006), *What the hell is the international community?*, en ligne [URL]: http://www.theguardian.com/commentisfree/2006/aug/24/whatthehellistheinternati (accessible le 25 mai 2017).

Jessop, B. (1997), "Governance of complexity and the complexity of governance: preliminary remarks on some problems and limits of economic guidance", dans *Beyond market and hierarchy: interactive governance and social complexity* de A. Amin et J. Hausner (eds.), pp. 95-108, Edward Elgar, Cheltenham.

Jessop, B. (2000), "Governance Failure", dans *The New Politics of British Local Governance* de G. Stoker (ed.), pp 11-32, Macmillan, London.

Jessop, B. (2002), Liberalism, Neoliberalism, and Urban Governance: A state-theoretical perspective, *Antipode*, vol. 34, no. 3, pp. 452-72.

Johansson, B. et J.M. Quigley (2004), *Agglomeration and networks in spatial economies*, Papers in Regional Science, University of California, Berkeley.

Johansson, M., Haas, J., Troglio, E., Altés, R.G. et C. Lundh (2013), *Case Study Report: Sweden*, ESPON 2013 Project – TOWN.

Jones, C., Hesterly, W. et S. Borgatti (1997), A General Theory of Network Governance: Exchange Conditions and Social Mechanisms, *The Academy of Management Review*, vol. 22, n. 4, pp. 911-945.

Josserand, E. (2007), Le pilotage des réseaux, *Revue Française de Gestion*, n. 170, pp. 95-102.

Juan, B. et Z. Yun (2016), Governability of synergy innovation: a case study between Beijing, Tianjin and Hebei, *Public Personnel Management*, vol. 45, n. 1, pp. 26-36.

Julien, P. et J. Pougnard (2004), *Les basins de vie, au cœur de la vie des bourgs et petites villes*, INSEE PREMIERE, n. 953, en ligne [URL]: http://www.insee.fr/fr/ffc/docs_ffc/ip953.pdf (accessible le 14 janvier 2016).

Julien, P. et D. Pumain (1996), Fonctions stratégiques et image des villes, *Economie et statistiques*, n. 294-295, pp. 127-135.

Kafkalas, G. et N. Komninos (1998), "The innovative region strategy: lessons from the Central Macedonia regional technology plan", dans *Regional Innovation Strategies: The Challenge for Less-Favoured Regions* de K. Morgan et K. Neuwelaers (eds.), pp. 96-118, London, The Stationery Office.

Kale, P.H., Singh, H. et H. Perlmutter (2000), Learning and Protection of Proprietary Assets in Strategic Alliances: Building Relational Capital, *Strategic Management Journal*, n. 21, pp. 217- 237.

Katznelson, L. (1993), *Marxism and the City*, Oxford, Clarendon Press.

Klaesson, J., Johansson, B. et C. Karlsson (2011), Metropolitan Regions: Preconditions and Strategies for Growth and Development in the Global Economy, *Working Paper Series in Economics and Institutions of Innovation*, n. 253, Royal Institute of Technology, CESIS – Centre of Excellence for Science and Innovation Studies.

Knox, P. et H. Mayer (2009), *Small Town Sustainability: Economic, Social and Environmental Innovation*, Basel-Boston-Berlin, Birkhauser.

Ke, S. et E. Feser (2010), Count on the growth pole strategy for regional economic growth? Spread-backwash effects in Greater Central China, *Regional Studies*, vol. 44, n. 9, pp. 1131-1147.

KEA European Affars, Media Group and MKW Wirtschaftsforschung GmbH (2006), *The economy of culture in Europe*, Bruxelles.

Kincaid Jolly, S. (2006), *A Europe of regions? Regional integration, sub-national mobilization and the optimal size of states*, thèse, Department of Political Science, Graduate School of Duke University.

Klaesson, J., Johansson, B. et C. Karlsson (2011), *Metopolitan Regions. Preconditions and Strategies for Growth and Development in the Global Economy*, CESIS.

Knack, S. et P. Keefer (1997), Does social capital have an economic impact? A cross-country investigation, *Quarterly Journal of Economics*, n. 112, pp. 1252–1288.

Knox, P. et H. Mayer (2009), *Small Town Sustainability: Economic, Social and Environmental Innovation*, Basel-Boston-Berlin, Birkhauser.

Kroner, G. (1984), Das Forschungsfeld "Funktion und Struktur von Mittelstädten" und seine Ergebnisse im Lichte der neueren raumordnungspolitischen Diskussion, *Informationen zur Raumordnung*, Funktions- und Strukturwandel von Mittelstädten, n. 5, pp. 363-377.

Krugman, P. (1991), *Geography and trade*, Cambridge, MA, MIT Press.

Kumar, M.V.S. (2010), Are joint ventures positive sum games? The relative effects of cooperative and non-cooperative behaviour, *Strategic Management Journal*, n. 32, pp. 32-54.

Kwiatek-Soltys, A., Mainet, H., Wiedermann, K. et J.-C. Edouard (eds.) (2014), *Small and Medium Towns' Attractiveness at the Beginning of the 21st Century*, CERAMAC 33, PUBP.

Laborie, J.-P. (1979), *Les petites villes*, Éditions du CNRS, Paris.

Lacour, C. et S. Puissant (eds.) (1999), *La métropolisation: croissance, disparité, fractures*, Collection Villes, Paris, Economica.

Lacour, C., Puissant, S. et F. Gaschet (1998), *Forme urbaine et dynamique métropolitaine des emplois*, paper of the conference ASRDLF, Puebla, September.

Lajugie, J. (1974), *Les villes moyennes*, Cujas, Paris.

Lambregts, B., Janssen-Jansen, L. et N. Haran (2008), Effective Governance for Competitive Regions in Europe: The Difficult Case of Ranstad, *GeoJournal*, vol. 72, n. 1-2, pp. 1572-9893.

Latour, B. (1987), *Science in Action: How to Follow Scientists and Engineers through Society*, Cambridge, MA, Harvard University Press.

Law, J. (1986), "On the Methods of Long-Distance Control: Vessels, Navigation, and the Portuguese Route to India" in *Power, Action and Belief: A New Sociology of Knowledge? By* J. Law (ed.), London: Routledge & Kegan Paul.

Lado, A.A., Boyd, N.G. et S.C. Hanlon (1997), Competition, cooperation and the search for economic rents: a syncretic model, *The Academy of Management Review*, vol. 22, n. 1, pp. 110-141.

Law, J. (1992), Notes on the Theory of the Actor-Network: Ordering, Strategy, and Heterogeneity, *Systems Practice*, vol. 5, n. 4, pp. 379-393.

Law, J. et M. Callon (1988), Engineering and Sociology in a Military Aircraft Project: A Network Analysis of Technological Change, *Social Problems*, vol. 35, n. 3 pp. 284-297.

Lawrence, T.B. et R. Suddaby (2006), "Institutions and Institutional Work", dans *Handbook of Organizations Studies* de S. Clegg, C. Hardy, W.R. Nord et T. Lawrence (éds.), pp. 215-254, Londres, Sage.

Lee, B. et P. Gordon (2007), *Urban spatial structure and economic growth in US metropolitan areas*, 46th Annual Meeting of the Western Regional Science Association, Newport Beach, California, le 17 février.

Lefevre, C. (2004), *Les Cooperations metropolitaines en Europe. Pour un rayonnement Europeen des Metropoles Francaises*, Paris, DATAR.

Le Galès, P. (1998), "Régulation, gouvernance et territoire", dans *Les Métamorphoses de la régulation politique* de Commaille J. et B. Jobert (eds.), pp. 203-240, Paris, LGDJ, coll. Droit et société.

Le Gléau, J.P., Pumain, D. et T. Saint-Julien (1997), Towns of Europe: to each country its definition, *INSEE Studies*, n. 6, novembre.

Lemieux, V. (1999), *Les réseaux d'acteurs sociaux*, PUF, 146 p.

Lendel, V., Soviar, J. et J. Vodak (2015), Creation of corporate cooperation strategy, *Procedia Economics and Finance*, vol. 23, n. 10, pp. 434-438.

Léo, P.-Y. et J. Philippe (1998), "La transformation des métropoles françaises", dans *Services et métropoles, formes urbaines et changement économique* de Philippe J., Léo P.-Y. et L.-M. Boulianne (eds.), L'Harmattan, Paris.

Léo, P.-Y. et J. Philippe (2011), *Villes moyennes et services aux entreprises: enjeux et stratégies*, L'Harmattan, Paris.

Léo, P.-Y., Philippe, J. et M. Monnoyer (2012), Quelle place pour les villes moyennes dans une économie tertiaire? *Revue d'Économie Régionale & Urbaine*, vol. 2, n. 4, pp. 150-171.

Le Roy, F. et F. Sanou (2014), Stratégie de compétition et performance de marché: une étude empirique, *Management international*, vol. 18, n. 2, pp. 124-139.

Le Velly, R. (2007), Le problème du désencastrement, *Revue du Mauss*, vol. 1, n. 29, pp. 241-256

Lidström, A. (2007), Territorial Governance in Transition, *Regional and Federal Studies*, vol. 17, n. 4, pp. 499-508.

Lievois, E. (2013), *Case Study Report Flanders*, ESPON 2013 Project – TOWN, Department of Architecture, Urbanism and Planning, University of Leuven.

Livingstone, D. (1992), *The Geographical Tradition*, Blackwell, Oxford.

Llobrera, J.T., Meyer, D.R. et G. Nammacher (2000), Trajectories of Industrial Districts: Impact of strategic Intervention in Medical Districts, *Economic Geography*, vol. 76, n. 1, pp. 68-98.

Logan, J. R., et H. Molotch (1987), *Urban Fortunes: The Political Economy of Place*, Berkeley, California, University of California Press.

Lorenzoni, G. et G. Baden Fuller (1995), Creating a strategic center to manage a web of partners, *California Management Review*, n. 37, pp. 146-163.

Lösch, A. (1954), The Economics of Location, Yale University Press, New Haven, orig. edn. (1940), Die Räumlische Ordnung der Wirtschaft, Gustav Fischer, Jena.

Lou, Y. (2007), A coopetition perspective of global competition, *Journal of World Business*, vol. 42, n. 2, pp. 129-144.

Loubaresse, E. (2008), *Caractéristiques et rôles de brokers de réseaux interorganisationnels. Le cas des réseaux locaux d'organisations*, Postgraduate thesis, Paris.

Low, N., Gleeson, B., Ingemar E. et R. Lidskog (eds.) (2000), *Consuming Cities: The Urban Environment in the Global Economy after the Rio Declaration*, New York, Routledge.

Lucas, H. (1999), *Information Technology and the Productivity Paradox*, New York, Oxford University Press.

Magnaghi, A. (2003), *Le projet local*, Editions Mardaga, Liège.

Maguire S., Hardy C. et T.B. Lawrence (2004), Institutional Entrepreneurship in Emerging Fields: HIV/AIDS Treatment Advocacy in Canada, *Academy of Management Journal*, vol. 47, n. 5, pp. 657-679.

Maillat, D. (1998), Interactions between urban systems and localized productive systems, *European Planning Studies*, vol. 6, n. 2, pp. 117-129.

Mainet, H. et J-C. Edouard (2014), "Indicators of Small Towns' Attractiveness: Issues of Definition and Criteria, Based on French Cases", dans *Small and Medium Towns' Attractiveness at the Beginning of the 21st Century*, de Kwiatek-Soltys, A., Mainet, H., Wiedermann, K. et J-C. Edouard (eds.), pp. 13-27, Presses Universitaires Blaise Pascal, CERAMAC 33.

Magnaghi, A. (2003), *Le projet local*, Editions Mardaga : Liège.

Malecki, E. (2012), Regional social capital: why it matters, *Regional Studies*, n. 46, pp. 1023–1040.

Malizia, E.E. et E.J. Feser (1999), Understanding Local Development, *Center for Urban Policy Research*, p. 54–18.

Mariotti, F. (2005), *Qui gouverne l'entreprise en réseau?* Presses de Science Po, 261 p.

Markusen, A. (1996), Stickly places in slippery spaces: a typology of industrial districts, *Economic Geography Journal*, vol. 72, n. 3, pp. 293–313.

Marshall, A. (1920), *Principles of Economics*, 8ème édition, Macmillan, London.

Marty, F. (2006), *Collectivités territoriales et entreprises: nouvelles compétences ou nouvelles politiques?* L'article pour la conference GRALE "La décentralisation en movement", Paris Assemblée Nationale, du 12 au 13 janvier.

Maskell, P., Eskelinen, H., Hannibalsson, I., Malmberg, A. et E. Vatne (1998), *Competitiveness, Localised Learning and Regional Development*, London, Routledge.

Massey, D. (1985), *Spatial Divisions of Labour*, London, Routledge.

Maturana F. et P. Terra (2010), *La notion de ville moyenne au Chili, entre la fonctionnalité et la taille de population*, Communiqué du colloque "Villes petites et moyennes, un regard renouvelé", Tours.

Mauro, P. (1995), Corruption and Growth, *Quarterly Journal of Economics*, n. 110, pp. 681–712.

McCann, P. (2007), Sketching out a model of innovation, face–to–face interaction and economic geography, *Spatial Economic Analysis*, n. 2, pp. 117–134.

McCann, P. (2008), Globalization and Economic Geography: The World Is Curved, Not Flat, *Cambridge Journal of Regions, Economy and Society*, vol. 1, n. 3, pp. 351–370.

McCann, P. et D. Shefer (2004), Location, agglomeration and infrastructure, *Papers in Regional Science*, n. 83, pp. 177–196.

McCarthy, J. (2006), The Application of Policy for Cultural Clustering: Current Practice in Scotland, *European Planning Studies*, vol. 14, n. 3, pp. 397-408.

McGowan, R. (2000), "Competition policy: the limits of the European regulatory state", in W. Wallace and H. Wallace (eds.), *Policy-making in the European Union*, pp. 115-147, Oxford University Press, Oxford.

McKillop, T., Coyle, D., Glaeser, E., Kestenbaum, J. et J. O'Neill (2015), The Case for Agglomeration Economies, Manchester Independent Economic Review, en ligne [URL]: http://www.parisschoolofeconomics.eu/IMG/pdf/Overman3-PSE-MEEDM.pdf (accessible le 7 juin 2017).

Meijers, E. (2007), From central place to network model: theory and evidence of a paradigm change, *Tijdschrift voor Economische en Sociale Geografie*, n. 98, pp. 245–259.

Meijers, E.J. et M.J. Burger (2010), Spatial Structure and Productivity in U.S. Metropolitan Areas, *Environment and Planning A*, vol. 42, n. 6, pp. 1383-1402.

Menage, P. (2011), *Mise en réseau d'acteur et competitivité territoriale*, postgraduate thesis, University of Tours, France.

Ménard, C. (1995), Markets as institutions versus organizations? Disentangling some fundamental concepts, *Journal of Economic Behavior and Organization*, vol. 28, pp. 161-182.

Mendez, A. et D. Mercier (2006), Compétences-clés de territoires, *Revue française de gestion*, vol. 5, n. 164, pp. 253-275.

Mesaritis, G., Loizou, G. et N. Mesaritis (2013), *Case Study Report: Cyprus*, ESPON 2013 Project – TOWN, POLYTIA armos, Planning and Development Organisation.

Michaux, V. (2010a), *Gouvernances et démarches territoriales concertées, conditions de performance et valeurs ajoutées*, Habilitation à Diriger les Recherches de l'Université de Pierre Mendès France, Grenoble II, Avril.

Michaux, V. (2010b), Innovations à l'interface entre institutions publiques, para-publiques et privées dans le cadre des politiques préventives concertées: le cas de la prévention des licenciements pour raison de santé, *Management & Avenir*, n. 35, Cahier spécial "Politique Publique et innovation".

Michaux, V., Defelix, C. et N. Raulet-Croset (2011), Boosting territorial multi-stakeholder cooperation, coordination and collaboration: strategic and managerial issues, *Management & Avenir*, n. 50, pp. 122-137.

Mirwaldt, K., Mcmaster, I. et J. Bachlter (2009), *Reconsidering Cohesion Policy: The Contested Debate on Territorial Cohesion, European Policy Research Paper*, European Policies Research Centre, Glasgow.

Mistri, M. (1998), Industrial districts and local governance in the Italian experience, *Human Systems Management*.

Molle, W. (2007), *European Cohesion Policy*, Routhledge, London.

Montgomery, J. (2003), Cultural Quarters as Mechanisms for Urban Regeneration. Part 1: Conceptualising Cultural Quarters, *Planning, Practice & Research*, vol. 18, n. 4, pp. 293-306.

Monzon, J.L. et R. Chaves (2008), The European Social Economy: Concept and Dimensions of the Third Sector, *Annals of Public and Cooperative Economics*, vol. 79, n. ¾, pp. 549-577.

Moore, C. (2007), *A Europe of the Regions vs. the Regions in Europe: reflections on regional engagement in Brussels*, en ligne [URL]: http://aei.pitt.edu/7980/ (accessible le 7 juin 2017).

Moore, C., et J. Pierre (1988), Partnership or privatisation? The political economy of local economic restructuring, *Policy and Politics*, vol. 14, n. 3, pp. 361-178.

Mori, T. et K. Nishikimi (2002), Economies of transport density and industrial agglomeration, *Regional Science and Urban Economics*, n. 23, pp. 167-200.

Morgan, K. (1997), The learning region: Institutions, innovation and regional renewal, *Regional Studies*, n. 31, pp. 491–503.

Moulaert, F. et O. Ailenei (2005), Social Economy, Third Sector and Solidarity Relations: A Conceptual Synthesis from History to Present, *Urban Studies*, vol. 42, n. 11, pp. 2037-2053.

Moulaert, F. et B. Jessop (2007), *Agency, Structure, Institutions, Discourse (ASID)*, Thematic Synthesis Paper for the project DEMOLOGOS, Newcastle, GURU.

Moulaert, F., MacCallum, D., Mehmood, A. et A. Hamdouch (2013), *The International Handbook on Social Innovation. Collective Action, Social Learning and Transdisciplinary Research*, Edward Elgar Publishing Ltd.

Moulaert, F. et J. Nussbaumer (2005), Defining the Social Economy and its Governance at the Neighbourhood Level: A Methodological Reflection, *Urban Studies*, vol. 42, n. 11, pp. 2071-2088.

Moulaert, F. et F. Sekia (2003), Territorial innovation models: a critical survey, *Regional Studies*, vol. 37, n. 3, pp. 289-302.

Moulaert, F., Delladetsima, P., Leontidou, L., Delvanquière, J.C. et C. Demazière (1994), *Local Economic Development: A Pro-active Strategy against Poverty in the European Community*, Final Report for the European Commission, DG V. Lille.

Nadou, F. (2013), *Intermediation territorial et spatialisation des activités économiques, cohérences et contraditions de l'action publique local. Investigation par la planfication stratégique*, postgraduate thesis, University of Tours, France.

Neamtan, N. (2002), *The Social and Solidarity Economy: Towards an Alternative Globalisation*, background paper for the symposium "Citizenship and Globalization:

Exploring Participation and Democracy in a Global Context", du 14 au 16 juin, Vancouver, Canada.

Nelles, J. (2010), *All for one? The dynamics of intermunicipal cooperation in regional marketing partnerships*, working paper CEPS/INSTEAD, n. 2010-18, July.

Nelson, A.C. (1993), "Theories of Regional Development in Bingham" dans *Theories of Local Economic Development* de R.D. and Mier, R. (eds.), pp. 27-57, Newbury Park, CA, Sage.

Nooteboom, B. (2004), *Innovation, Learning and Cluster Dynamics*, discussion paper n. 44, Tilburg University.

Nordregio (2005), *Potentials for polycentric development in Europe*, Espon, Luxembourg.

Norris, D. (2001), Prospects for Regional Governance Under the New Regionalism: Economic Imperatives vesus Political Impediments, *Journal of Urban Affairs*, vol. 23, n. 5, pp. 557-573.

North, D.C. (1991), Institutions, *Journal of Economic Perspectives*, vol. 5, n. 1, pp. 97-112.

Observatoire des Territoires (2016), *L'espace de cartographie interactive*, en ligne [URL]: http://www.observatoire-des-territoires.gouv.fr/observatoire-des-territoires/en/node (accessible le 7 juin 2017).

OECD (2001), *Best practices in local development*, OECD, Paris.

OECD (2009), *Regions Matter: Economic Recovery, Innovation and Sustainable Growth*, Paris, OECD.

OECD (2013), *Rural-Urban Partnership: An Integrated Approach to Economic Development*, OECD Publishing.

ÖIR (Österreichisches Institut für Raumplanung) (2006), *ESPON 1.4.1 - The role of small and medium-sized towns - Final report*, ESPON, Luxembourg.

Otgaar, A., Van den Berg, L., Van der Meer, J. et C. Speller (2008), *Empowering Metropolitan Regions Through New Forms of Cooperation*, Rotterdam, EURICUR.

Pahl, R. E. (1975), *Whose City?* Second ed., Harmondsworth, United Kingdom, Penquin.

Panzar, J.C. et R.D. Willig (1977), Economies of scale in multi-output production, *The quarterly journal of economics*, n. 91, pp. 481-493.

Park, B.-J., Srivastava, M.K. et D.R. Gnyawali (2014), Walking the tight rope of coopetition: impact of competition and cooperation intensities and balance on firm innovation performance, *Industrial Marketing Management*, vol. 43, n. 2, pp. 210-221.

Parr, J. (2014), The Regional Economy, Spatial Structure and Regional Urban Systems, *Regional Studies*, n. 48, pp. 1926–1938.

Partridge, M., Bollman, R.D., Olfert, M.R. et A. Alasia (2007), Riding the wave of urban growth in the countryside: spread, backwash, or stagnation? *Land Economics*, vol. 83, n. 2, pp. 128-152.

Partridge, M., Rickman, D.S., Ali, K. et R.M. Olfert (2008), Lost in space: Population growth in the American hinterlands and small cities, *Journal of Economic Geography*, vol. 8, n. 6, pp. 727-757.

Partridge, M., Rickman, D., Ali, K. et M. Olfert (2009), Agglomeration spillovers and wage and housing cost gradients across the urban hierarchy, *Journal of International Economy*, vol. 78, n. 1, pp. 126–140.

Pasquet, M. (1999), *Les mutations récentes des petites villes de la Région Centre*, PhD dissertation in geography, Orléans, University of Orléans.

Pecqueur, B. (1989), *Le développement local*, Paris, Syros.

Pecqueur, B. et J.-B. Zimmermann (eds.) (2004), *Economie de proximités*, Lavoisier, 264 p.

Peng, T.-J.A. et M. Bourne (2009), The coexistence of competition and cooperation between networks: implications from two Taiwanese healthcare networks, *British Journal of Management*, vol. 20, n. 3, pp. 337-400.

Perlik, M. (1999), Alpen, Städte und Europa, *Die Zukunft der Alpenstädte in Europa*, pp. 147-167, Villach.

Perroux, F. (1950), Economic space: theory and applications, *Quarterly Journal of Economics*, n. 1, pp. 89–104.

Peterson, P. (1981), *City Limits*, Chicago, University of Chicago Press.

Pflieger, G. et C. Rozenblat (2010), Urban networks and network theory: the city as the connector of multiple networks, *Urban Studies*, vol. 47, n. 13, pp. 2723-2735.

Phelps, N. A. (2013), *Multinationals and European Integration: Trade, Investment and Regional Development*, Routledge.

Pierre, J. (ed.) (1998), *Partnerships in Urban Governance-European and American Experience*, London, MacMillan.

Pike, A., Rodriguez-Pose, A. et J. Tomaney (2006), *Local and Regional Development*, Routledge, New York.

Pinnig, J. (1984), Der Wandel von Mittelstädten und mittelstädtischen Regionen, *Informationen zur Raumordnung*, Funktions- und Strukturwandel von Mittelstädten, n. 5, pp. 377-391.

Polèse, M. (2005), Cities and National Economic Growth: A Reappraisal, *Urban Studies*, vol. 42, n. 8, pp. 1429-1451.

Polèse, M. et R. Shearmur (2005), *Economie urbaine et régionale*, Paris, Economica.

Polèse, M. et R. Shearmur (2006), Why some regions will decline: A Canadian case study with thoughts on local development strategies, *Papers in Regional Science*, vol. 85, n. 1, pp. 23–46.

Pollitt, M. et S. Steer (2012), Economies of scale and scope in network industries: lessons for the UK water and sewerage sectors, *Utilities Policy*, n. 21, pp. 17-31.

Poot, J. (2000), "Reflections on Local and Economy-Wide Effects of Territorial Competition" dans *Regional competition* de P. Battey, P. Friedrich (eds.), pp. 205-223, Springer Verlag.

Porter, M.E. (1990), *The competitive advantage of nations*, New York, Free Press.

Porter, M.E. (1995), The competitive advantage of the inner city, *Harvard Bussiness Review*, May-June, pp. 55-71.

Porter, M. (1996), Competitive Advantage, Agglomeration Economies, and Regional Policy, *International Regional Science Review*, vol. 19, n. 1&2, pp. 85-94.

Porter, M.E. (1998), *On competition*, Harvard Business School Press, Boston.

Porter, M.E. (2003), The economic performance of regions, *Regional Studies*, n. 37, pp. 549–578.

Post, S. (2004), "Metropolitan Governance and Institutional Collective Action" dans *Metropolitan Governance: Conflict, Competition and Cooperation*, de R. Feiock (ed.), Washington DC, Georgetown University Press.

Powell, W.W. (1990), Neither markets nor hierarchy: network forms of organization, *Research in Organizational Behavior*, n. 12, pp. 295-336.

Pratt, J., Gordon, P. et D. Pampling (1998), *Working Whole Systems: Putting theory into practice in organisations*, London, Kingsfund.

Pred, A. (1977), City-*systems in advanced economies*, Hutchinson. London.

Provan, K.G. et P. Kenis (2008), Modes of Network Governance: Structure, Management and Effectiveness, *Journal of Public Administration Research & Theory*, vol. 18, n. 2, p. 229-252.

Provan, K. G. et H.B. Milward (1995), A preliminary theory of network effectiveness: A comparative study of four community mental health systems, *Administrative Science Quarterly*, n. 40, pp. 1-33.

Provan, K. G., Fish A. et J. Sydow (2007), Interorganizational Networks at the Network Level: A Review of the Empirical Literature on Whole Networks, *Journal of Management*, vol. 33, n. 3, pp. 479-516.

Pulido, N. (2006), *El espacio urbano latinoamericano y la globalización. Emergencia de ciudades "intermedias" y nuevos cambios en Venezuela*, *América Latina: cidade, campo e turismo*, CLACSO, Consejo Latinoamericano de Ciencias Sociales, San Pablo.

Putnam, R. (2000), *Bowling alone: The collapse and revival of American community*, New York, Simon and Schuster.

Puurtinen, M., Heap, S. et T. Mapper (2015), The joint emergence of group competition and within-group cooperation, *Evolution and Human Behaviour*, vol. 36, n. 3, pp. 211-217.

Quigley, J. (1998), Urban diversity and economic growth, *Journal of Economic Perspectives*, n. 12, pp. 127-138.

Quinn, B. (2006), Problematising Festival Tourism: Arts Festivals and Sustainable Development in Ireland, *Journal of Sustainable Tourism*, vol. 14, n. 3, pp. 288-306.

Raposo, M., Ferreira, J. et C. Fernandes (2014), Local and cross-border SME cooperation: effects on innovation and performance, *Revista Europea de Dirección y Economía de la Empresa*, vol. 23, n. 4, pp. 157-165.

Ratti, R. (1992), *Innovation Technologique et Developpement Regional*, Meta-Editions S.A., Lausanne.

Raza-Ullah, T., Bengtsson, M. et S. Kock (2014), The coopetition paradox and tension in coopetition at multiple levels, *Industrial Marketing Management*, vol. 43, n. 2, pp. 189-198.

Région Centre-Val de Loire (2015), *Rapport d'activité et de développement durable*, en ligne [URL]: http://www.regioncentre-valdeloire.fr/files/live/sites/regioncentre/files/contributed/docs/finances-budget/rapport-annuel-activites-region-centre-valdeloire-2015.pdf (accessible le 7 juin 2017).

Rhodes, R.A.W. (1996), The new governance: governing without government, *Political Studies*, n. 44, pp. 652-667.

Richards, D. et M.J. Smith (2002), *Governance and public policy in the UK*, Oxford University Press.

Richardson, G.B. (1972), The organisation of industry, *Journal of Economy*, vol. 82, n. 327, pp. 883–896.

Ringli, H. (1997), The Swiss urban development strategy: A polycentric urban network, *Ekistics*, n. 282, pp. 4-11.

Ritala, P., Välimäki, K. Blomqvist, K. et K. Henttonen (2009), "Intrafirm coopetition, knowledge creation and innovativeness", dans *Coopetition strategy: Theory, experiments and cases*, de G.B. Dagnino et E. Rocco (eds.), pp. 64-73, Oxon, New York, Routledge.

Roberts, P. (1993), Managing the Strategic Planning and Development of Regions: Lessons from a European Perspective, *Regional Studies*, n. 27, pp. 759–768.

Roberts, P. et H. Sykes (eds.) (2000), *Urban Regeneration, a Handbook*, SAGE Publications.

Robson, B., Barr, R., Lymperopoulou, K., Rees, J. et M. Coombes (2006), *A framework for City-Regions*, Working Paper 1 Mapping City-Regions, London, Office of the Deputy Prime Minster.

Rodriguez-Pose, A. (2013), Do institutions matter for regional development? *Regional Studies*, vol. 47, n. 7, pp. 1034-1047.

Rodriguez-Pose, A. et G. Arbix (2001), Strategies of Waste: Bidding Wars in the Brazilian Automobile Sector, *International Journal of Urban and Regional Research*, vol. 25, n. 1, pp. 134–154.

Rodríguez-Pose, A. et R. Crescenzi (2008), R&D, spillovers, innovation systems and the genesis of regional growth in Europe, *Regional Studies*, vol. 42, n. 1, pp. 51–67.

Rodrik, D., Arvind S. et F. Trebbi (2004), Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development, *Journal of Economic Growth*, vol. 9, n. 2, pp. 131– 165.

Rodriguez, J. et M. Villa (1998), "Distribución especial de la población, urbanización y ciuddes intermedias: Hechos en su contexto", dans *Ciudades Intermedias de América Latina y el Caribe: Propuestas para la Gestión Urbana* de R.J.D. Simioni (ed.), Santiago, CEPAL/Ministero degli Affari Esteri Cooperazione Italiana.

Romer, P.M. (1986), Increasing returns and long-run growth, *Journal of Political Economy*, n. 94, pp. 1002-1037.

Rosenfeld, M. T. W. et C. Hornych (2010), Could Cities in De-Industrialized Regions Become Hot Spots for Attracting Cultural Businesses? The Case of Media Industry in Halle an der Saale (Germany), *European Planning Studies*, vol. 18, n. 3, pp. 371-384.

Rozenblat, C. et P. Cecille (2003), *Les villes européennes. Analyse comparative*, Paris, DATAR, La documentation française.

Rossi, A. et M. Warglien (2009), "An experimental investigation of fairness and reciprocity as determinants of intraorganisational cooperation", dans *Coopetition strategy: Theory, experiments and cases* de G.B. Dagnino and E. Rocco (eds.), pp. 64-73, Oxon, New York, Routledge.

Routelous, C., Vedel, I. et L. Lapointe (2011), Pourquoi des strategies cooperatives avec les cliniques pour les hôpitaux publics ? *Management & Avenir*, vol. 7, n. 47, pp. 147-164.

Russo, A.P., Serrano, D., Perez, Y. et F. Brandajs (2014), "Geomatic identification of urban settlement morphologies in the ESPON space", dans *TOWN, small and medium sized towns in their functional territorial context* de Servillo, L. (ed.), Scientific Report, ESPON, Luxembourg.

Rutten, R. (2003), Knowledge and Innovation in Regional Industry – The entrepreneurial coalition, *Studies in Global Competition Series*, London, Routledge.

Saint-Julien, T. (2003), "Les villes moyennes en Europe, contextes et défis", dans *Villes moyennes et mondialisation, renouvellement des analyses et des stratégies* de Manzagol, C., Charbonneau, F. et P. Lewis (eds.), pp. 20-28, Montréal, Editions Trames.

Saint-Julien, T. (2011), La fin d'un modèle hiérarchique, *Urbanisme*, vol. mai-juin, n. 378, pp. 44-46.

Salet, W. et E. Gualini (2007), *Framing Strategic Urban Projects*, New York, Routledge.

Sanchez-Crispin, Á. et E. Propin (2001), Cambios en la orientación funcional de las ciudades medias del trópico mexicano. *Cuadernos Geográficos de la Universidad de Granada 31*, Universidad de Granada. España, pp. 69-85.

Santamaria, F. (2010), *Les villes moyennes: enjeux d'aménagement du territoire*, Communication au colloque "Villes petites et moyennes, un regard renouvelé", Tours.

Sapir, A., Aghion, P., Bertola, G., Hellwig, M., Pisani-Ferry, J., Rosati, D., Viñals, J. et H. Fallace, (2003), *An Agenda for a Growing Europe. Making the EU Economic System Deliver*, report of an Independent High Level Study Group Established on the Initiative of the President of the European Commission, http://www.swisscore.org/Policy%20docs/general_research/sapir_report_en.pdf (accessible le 7 juin 2017).

Sassen, S. (1991), *The Global City*, Princeton, Princeton University Press.

Sassen, S. (2001), *Cities in a World Economy*, 2nd edition, Thousand Oaks: Pine Forge.

Sassen, S. (2005), The global city: introducing a concept, *Brown Journal of Wold Affairs*, vol. XI, n. 2, pp. 27-43.

Sassen, S. (2009*), La globalisation. Une sociologie*, Editions Gallimard.

Saunders, P. (1986), *Social Theory and the Urban Question*, London, Hutchinson.

Savage, H.V. (1998) in Pierre, J. (ed.), *Partnerships in Urban Governance-European and American Experience*, London, MacMillan.

Saxenian, A. L. (1990), Regional networks and the resurgence of Silicon Valley, *California Management Review*, vol. 33, n. 1, pp. 89–112.

Saxenian, A. (1994), *Regional Advantage. Culture and Competition in Silicon Valley and Route 128*, Cambridge, MA, Harvard University Press.

Schapiro, C. (1989), The theory of business strategy, *RAND Journal of Economics*, vol. 20, n. 1, pp. 125-137.

Schepherd, W.G. (2010), Mainstream industrial organization and new schools, *Revue économique*, n. 3, pp. 453-480.

Scherer, F.M., Backenstein, A., Kaufer, E., Murphy, R.D. et F. Bougeon-Maassen (1975), *The economics of multi-plan operation: an international comparisons study*, Harvard University Press.

Schmidt, T. (2005), *Knowledge flows and R&D co-operation: Firm-level evidence from Germany*. ZEW Discussion Paper, pp. 05–22

Schneider, M. et P. Teske (1992), Toward a Theory of the Political Entrepreneur, *American Political Science Review*, vol. 86, n. 3, pp. 737-747.

Schosser, M. et A. Wittmer (2015), Cost and revenue synergies in airline mergers: examining geographical differences, *Journal of air transport management*, n. 47, pp. 142-153.

Schumacher, E.F. (1978), *Small is beautiful*, Contretemps/Le Seuil.

Schumpeter, J. (1947), *Capitalism, socialism, and democracy*, New York, Harper

Scott, A.J. (1997), The Cultural Economy of Cities, *International Journal of Urban and Regional Research.* vol. 21, n. 2, pp 323-339.

Scott, A.J. (ed) (2001), *The Rise of Global City-Regions*, London and New York, Routledge.

Seasons, M. (2005), "Indicators and Core Area Planning: application in Canada's mid-size cities", dans *Community indicators measuring systems in planning and development* de Phillips, R. (ed.), pp. 96-114, London, UK, Ashgate Publishers.

Selada, C., da Cuhna, I. V. et E. Tomas (2011), *Creative Clusters in Low Density Urban Areas: A Case Study Approach*, paper for INTELI, Lisboa, Portugal.

Serrano, J. et A. Hamdouch (2017), "Inter-municipal cooperation as a means of creative planning" dans *Creative Approaches to Planning and Local Development: Insights from Small & Medium Sized Towns in Europe*, de Hamdouch A., Nyseth T., Demazière C., Førde A., Serrano J. et N. Aarsæther (eds.) pp. 114-133, Routledge.

Servillo L. (ed.) (2014) *TOWN, small and medium sized towns in their functional territorial context*, Scientific Report, Espon, Luxembourg.

Servillo, L., Atkinson, R. et C. Demazière (2014), "Small Towns in Europe: results, trends and options for policy development", dans *TOWN, small and medium sized towns in their functional territorial context* de Servillo, L. (ed.), Final Report, ESPON, Luxembourg.

Seth, A. (1990), Value creation in acquisitions: a re-examination of performance issues, *Strategic Management Journal*, vol. 11, n. 2, pp. 99-115.

Shanzi, K., Ming, H. et Y. Chenhua (2012), Synergy and co-agglomeration of producer services and manufacturing: a panel data analysis of Chinese cities, *Regional Studies*, vol. 48, n. 11, pp. 1829-1841.

Shearmur, R. et D. Doloreux (2015), Central places or networks? Paradigms, metaphors and spatial configurations of innovation-related service use, *Environmental and Planning A*, vol. 47, pp. 1521-1539.

Simard, M. et C. Simard (2005), Toward a Culturalist City: A Planning Agenda for Peripheral Mid-sized Cities, *Canadian Journal of Urban Research*, vol. 14, n. 1, pp. 38-56.

Smith, A. (1776), *Recherches sur la nature et les causes de la richesse des nat*ions, W. Strahan et T. Cadell (eds.), Londres.

Smith, D. (2005), The world urban hierarchy: implications for cities, top to bottom, *Brown Journal of World Affairs*, vol. XI, n. 2, pp. 45-55.

Smith, I. (2014), "Describing the characteristics of small towns and explaining the determinants of change", dans *TOWN, small and medium sized towns in their functional territorial context* de Servillo, L. (ed.), pp. 254-298, Scientific Report, ESPON, Luxembourg.

Sölvell Ö., Lindqvist G. et C. Ketels (2003), *The Cluster Initiative Greenbook*, available en ligne [URL]: http://www.cluster-research.org/dldocs/GreenbookSep03.pdf (accessible le 7 juin 2017).

Smith, K.G., Ferrier, W.J. et H. Ndofor (2001), "Competitive dynamics research: Critique and future directions" dans *The Blackwell handbook of strategic management*, de J.S. Harrison (ed.), pp. 315-361, Malden, MA, Blackwell.

Sohn, C. (2009), Des villes entre coopération et concurrence. Analyse des relations culturelles transfrontalières dans le cadre de « Luxembourg et Grande Région, Capitale européenne de la Culture 2007 », *Annales de Géographie*, n. 667, pp. 228-246.

Sorens, J. (2009), The Partisan Logic of Decentralization in Europe, *Regional and Federal Studies*, vol. 19, n. 2, pp. 225-272

Sorensen, O. J. (2005), *The Economics of Networking*, working paper for the International Business Ecenomics, December.

Sorenson, O. et P.G. Audia (2000), The social structure of entrepreneurial activity: Geographic concentration of footwear production in the United States, 1940–1989, *American Journal of Sociology*, n. 106, pp. 424–461

Spence, M. (2011), The Impact of Globalization on Income and Employment: The Downside of Integrating Markets, *Foreign Affairs*, n. 90, pp. 28–41.

Spiekermann & Wegener Urban and Regional Research (S&W), Institute of Geography and Spatial Organisation of the Polish Academy of Science (IGIPZ PAN) et TRT Transport e Territorio (2007), *ESPON Project 1.4.4 Preparatory Study on Feasibility of Flows Analysis*, Final Report, Brussels.

Stead, D. (2014), The rise of territorial governance in European policy, *European Planning Studies*, vol. 22, n. 7, pp. 1368-1383.

Steinacker, A. (2004), "Game-Theoretic Models of Metropolitan Cooperation" dans *Metropolitan Governance: Conflict, Competition and Cooperation*, de R. Feiock (ed.), pp. 45-66, Washington DC, Georgetown University Press.

Stoerring, D. et J.L. Christensen (2004), *Clusterpreneurs - Promotion of high-tech clusters in low-tech regions*, paper presented in DRUID Summer Conference, Elsinore, Denmark.

Stöhr, W. (ed) (1990), *Global Challenge, Local Response*, London: Mansell.

Stiglitz, J.E. (1989), Markets, market failures, and development, *American Economic Review*, vol. 79, n. 2, p. 197-203.

Stöhr, W. (ed.) (1990), *Global Challenge, Local Response*, London, Mansell

Stoker, G. (2000), "Urban Political Science and the challenge of urban governance", dans *Debating Governance* de J. Pierre (ed.), Oxford University Press, Oxford.

Stone, C. (1989), *Regime Politics*, Lawrence, Kansas, University of Kansas Press.

Storper, M. et R. Walker (1989), *The Capitalist Imperative*, Blackwell, Oxford.

Storper, M. (1997), *The regional world: Territorial development in a global economy*, New York, Guilford Press.

Storper, M. (1999), "Globalisation, localisation and trade", dans T*he Oxford Handbook of Economic Geography* de Clarck G.L., Feldman M.P. et M.S. Gertler (eds.), pp. 146-167, Oxford.

Storper, M. (2011), Why do regions develop and change: the challenge for geography and economics, *Journal of Economic Geography*, vol. 11, n. 2, pp. 333-346.

Storper, M. et Scott, A.J. (1988), "The Geographical Foundations and Social Regulation of Flexible Production Complexes", dans *The Power of Geography* de J. Wolch et M. Dear (eds.), pp. 51-66, London, Allen & Unwin.

Stough, R.R. (2001), "Endogenous growth theory and the role of institutions in regional economic development", dans *Theories of endogenous regional growth: Lessons for regional policies* de Johansson B. et C. Karlsson (eds.), Berlin, Springer-Verlag.

Szajnowska-Wysocka, A. (2009), Theories of regional and local development – Abridged review, *Bulletin of Geography, Socio-economic series*, vol. 12, n. 1, pp. 75-90.

Sykora, L. et O. Mulicek (2014), "Functional analysis of urban systems: identification of small and medium-sized towns and their territorial arrangements", dans *TOWN, small and medium sized towns in their functional territorial context* de Servillo, L. (ed.), pp. 113-168, Scientific Report, ESPON, Luxembourg.

Tabb, W. et L. Sawyers (1978), *Marxism and the Metropolis*, New York, Oxford University Press.

Taulelle, F. (2010), "La France des villes petites et moyennes", dans *La France: une géographie urbaine* de Cailly L. et M. Vanier (ed.), Armand Colin, pp. 138-154.

Taylor, P. S. (2001), Specification of the World City Network, *Geographical Analysis*, vol. 33, n. 2, pp. 181-194.

Taylor, P.J. (2004), *World City Network. A Global Urban Analysis*, London, Routledge.

Taylor, P.J. (2005), New Political Geographies: Global Civil Society and Global Governance Through World City Networks, *Political Geography*, vol. 24, n. 6, pp. 703–730.

Teece, D. (1982), Towards an economic theory of the multiproduct firm, *Journal of Economic Behaviour and Organization*, n. 3, pp. 39-62.

Teller, C. (2008), Shopping streets versus shopping malls – Determinants of agglomeration format attractiveness from the consumers' point of view, *International Review of Retail Distribution and Consumer Research*, n. 18, pp. 381-403.

Teller, C., Alexander, A. et A. Floh (2016), The impact of competition and cooperation on the performance of a retail agglomeration and its stores, *Industrial Marketing Management*, n. 52, pp. 6-17.

Tesson, F. (1997), Les expériences françaises de réseaux de villes: des dynamiques pour de nouveaux territoires, *Flux*, n. 27/28, pp. 25-39.

Tether, B. (2002), Who co-operates for innovation, and why: An empirical analysis, *Research Policy*, n. 31, pp. 947–967.

Thomas, M. (1972), "The regional problem, structural change, and growth pole theory" dans *Growth poles and growth centres in regional planning* de A. Kuklinski (ed.), pp. 69-102, Paris, Mouton.

Thompson, I.B. (1995), "Mid-size towns in the western highlands. The case of Oban", dans *La notion de ville moyenne en France, en Espagne et au Royaume-Uni* de Santamaria, F. (2000), *Annales de Géographie*, vol. 109, n. 613, pp. 227-239.

Torre, A. (2008), On the role played by temporary geographical proximity in knowledge transmission, *Regional Studies*, vol. 42, n. 6, pp. 869-889.

Torre, A. (2009), Retour sur la notion de proximité géographique, *Géographie Économie Société*, vol. 1, n. 11, pp 63-75.

Torre, A. (2014), Relations de proximité et comportement d'innovation des entreprises des clusters, *Revue française de gestion*, n. 242, pp. 49-81.

Torre, A. et A. Rallet (2005), Proximity and localization, *Regional Studies*, n. 39, pp. 47–59.

Torre, A. et F. Wallet (eds.) (2014), *Regional development and proximity relations, new horizons in regional science*, Edward Elgar, London.

Triebs, T., Saal, D., Arocena, P. et S.C. Kumbhakar (2016), Estimating economies of scale and scope with flexible technology, *Journal of Productivity Analysis*, vol. 45, n. 2, pp. 173-186.

Trullén, J. et R. Boix (2001), Economia della conoscenza e reti di città: Città creative nell'era della conoscenza, *Sviluppo Locale*, vol. 8, n. 18, pp. 41- 60.

UN-DESA-PD (United Nations Department of Economic and Social Affairs, Population Division) (2002), *World urbanization prospects, the 2001 revision*, United Nations, NewYork, NY.

URBACT (2011), *From creative industries to the creative place: Refreshing the local development agenda in small and medium-sized towns*, rapport de Miguel Rivas, European Programme for Sustainable Urban Development.

Urbanisme (2011), *Les villes moyennes contre-attaquent*, n°378, Paris.

Van der Laan, L. et R. Schalke (2001), Reality versus policy: the delineation and testing of local labour market and spatial policy areas, *European Planning Studies*, vol. 9, n. 2, pp. 201-221.

Van Ravesteyn, N. et D. Evers (2004), *Unseen Europe: A Survey of EU politics and its Impact on Spatial Development in the Netherlands*, NAI Publisher, Rotterdam.

Vachon B. et F. Coallier (1993), *Le développement local: théorie et pratique. Réintroduire l'humain dans la logique de développement*, Quebec, Gaëtan Morin éditeur ltéee.

Van Djik, J. (1991), *The Network Society: Social Aspects of New Media*, The Netherlands.

Van Well, L. (2012), Conceptualizing the logics of territorial cohesion, *European Planning Studies*, vol. 20, n. 9, pp. 1549-1567.

Vartiainen, P. (1997), "Urban networking: an emerging idea in spatial development planning", l'article pour le 37ème European Régional Science Association Congress, du 26 au 29 aout, Rome.

Vartiainen, P. (1998), "Urban Networking as Learning Process" dans *Baltic Cities - Global Aspects on Urban Settlements in the Baltic Sea Region* de The Swedish Council for Building Research, Stockholm.

Veneri, P. et V. Ruiz (2013), *Urban -to-rural population growth linkages: Evidence from OECD TL3 regions*, OECD Regioal Development Working Papers, n. 3, OECD Publishing.

Veron, J. (2006), *L'urbanisation du monde*, La Découverte, Paris.

Vey, J. S. et B. Forman (2002), *Demographic Change in Medium-Sized Cities: Evidence from the 2000 Census*, Brookings Institution in Collaboration with the National League of Cities.

Villes au Carré (2011), *Actes du colloque "Villes petites et moyennes, un regard renouvelé"*, Tours, en ligne [URL] : http://www.villesaucarre.org/upload/131/piecejointebrZCud.pdf (accessible le 14 decembre 2015).

Vinuesa Angulo, J. (1989), "La poblacio de la ciudades medias espanolas", dans *La notion de ville moyenne en France, en Espagne et au Royaume-Uni* de Santamaria, F. (2000), *Annales de Géographie*, vol. 109, n. 613, pp. 227-239.

Von Thünen, J.H. (1851), *Recherches sur l'influence que le prix des grains, la richesse du sol et les impôts exercent sur les systèmes de culture* (traduit de l'allemand par J. Laverrière), Paris, Guillaumet et Cie, Librairies.

Waterhout, B. (2007), "Territorial cohesion: The underlying discourses" dans *Territorial Cohesion and the European Model of Society* de A. Faludi (ed.), pp. 37–59, Cambridge, MA, Lincoln Institute of Land Policy.

Weber, A. (1909), *Uber den Standort des Industrien, Tubingen*, traduit en anglais (1957), Theory of the location of industries, Chicago, University of Chicago Press.

Webber, M.J. (1972), *Impact of uncertainly on location*, MIT Press, Cambridge Mass.

West, G. (2012), The laws of the city, *The Economist*, 23 June 2012, en ligne [URL]: http://www.economist.com/node/21557313 (accessible le 7 juin 2017).

Westlund, H. (1999), An interaction-cost perspective on networks and territory, *The Annals of Regional Science*, n. 33, pp. 93-121.

Winkel, R. (2001), Vom Zentrale-Orte-Konzept zur Ausweisung zentralörtlicher Funktionsräume und Kooperationen, *Kurzberichte aus Praxis und Forschung*. n. 2- 3/2001, pp. 237-240.

Winkler, I. (2006), Network governance between individual and collective goals: Qualitative evidence from six networks, *Journal of Leadership and Organizational Studies*, vol. 12, n. 3, pp. 119- 134.

Winner, L. (1993), Upon Opening the Black Box and Finding It Empty: Social Constructivism and the Philosophy of Technology Science, Technology, & Human Values, en ligne [URL]: http://www.nyu.edu/projects/nissenbaum/papers/openingblackbox.pdf (accessible le 7 juin 2017).

Wirth, L. (1969), "Urbanism as a way of life", dans *Classic essays on the culture of cities* de Sennett, R. (ed.), Prentice Hall, Englewood Cliffs, NJ.

Wishlade, F. (2003), *Regional State Aid and Competition Policy in the EU*, Alphen, Londres, Kluwer Law International.

Wishlade, F. (2008), Competition and cohesion – coherence or conflict? European Union regional state aid refor post-2006, *Regional Studies*, vol. 42, n. 5, pp. 753-765.

World Bank (2008), *Reshaping Economic Geography*, World Development Report 2009.

Zukin, S. (1980), A decade of the new urban sociology, *Theory and Society*, n. 9, pp. 575-60.

Zukin, S. et P. DiMaggio (1990), "Introduction" dans *Structures of capital. The social organization of the economy* de Zukin S. et P. DiMaggio (eds.), Cambridge: Cambridge University Press.

Zuliani, J.-M. (2004), L'organisation des services aux entreprises dans les villes moyennes du Grand Sud-ouest français, entre logiques gravitaires et maillages interurbains, *Géocarrefour*, vol. 79/2.

Appendix A: List of urban centres

CODGEO	URBAN CENTRE	POPULATION (2010)	CLASS
37003	Amboise	12846	MOYENNE
36006	Argenton-sur-Creuse	5120	PETITE
18015	Aubigny-sur-Nere	5769	PETITE
28015	Auneau	4133	PETITE
18018	Avord	2675	PETITE
41018	Blois	46492	INTERMEDIAIRE
28051	Bonneval	4637	PETITE
18033	Bourges	66381	INTERMEDIAIRE
28061	Brou	3471	PETITE
36031	Buzancais	4494	PETITE
36034	Chabris	2790	PETITE
28085	Chartres	38931	INTERMEDIAIRE
28088	Chateaudun	13640	MOYENNE
37063	Chateau-Renault	5181	PETITE
36044	Chateauroux	46140	INTERMEDIAIRE
37072	Chinon	7894	PETITE
41059	Contres	3420	PETITE
58086	Cosne-Cours-sur-Loire	10653	MOYENNE
37115	Descartes	3815	PETITE
91200	Dourdan	9984	PETITE
28134	Dreux	31031	INTERMEDIAIRE
18087	Dun-sur-Auron	4440	PETITE
91223	Etampes	23158	MOYENNE
45155	Gien	14684	MOYENNE
36088	Issoudun	13090	MOYENNE
58059	La-Charite-sur-Loire	5129	PETITE
36046	La-Chatre	4482	PETITE
28214	La-Loupe	3483	PETITE
41106	Lamotte-Beuvron	4736	PETITE
36018	Le-Blanc	6968	PETITE
37132	Loches	6507	PETITE
45187	Lorris	2966	PETITE
45191	Malesherbes	6190	PETITE
45203	Meung-sur-Loire	6086	PETITE
45208	Montargis	14649	MOYENNE
03185	Montlucon	38402	INTERMEDIAIRE
41149	Montoire-sur-le-Loir	4058	PETITE
41151	Montrichard	3427	PETITE
58194	Nevers	36762	INTERMEDIAIRE
28280	Nogent-le-Rotrou	10884	MOYENNE
45234	Orleans	114167	GRANDE
75112	Paris	2243833	TRES GRANDE
45252	Pithiviers	8804	PETITE
78517	Rambouillet	26159	MOYENNE
41194	Romorantin-Lanthenay	17027	MOYENNE
41198	Saint-Aignan	3166	PETITE
18197	Saint-Amand-Montrond	10761	MOYENNE
37226	Sainte-Maure-de-Touraine	4096	PETITE
41242	Selles-sur-Cher	4616	PETITE
45315	Sully-sur-Loire	5443	PETITE
37261	Tours	134817	GRANDE

41269	Vendome	16920	MOYENNE
27679	Verneuil-sur-Avre	6205	PETITE
18279	Vierzon	26946	MOYENNE

The typology is based on the INSEE Population Census for the year 2010

Appendix B: List of terriorial arrangements

CODGEO	URBAN CENTRE	CLASS	TERRITORIAL ARRANGEMENT*	CODGEO	URBAN CENTRE	CLASS	DISTANCE (km)
37003	Amboise	MOYENNE	NETW	37063	Chateau-Renault	PETITE	25
37003	Amboise	MOYENNE	AGGLO	37261	Tours	GRANDE	25
37003	Amboise	MOYENNE	AGGLO	41018	Blois	INTERMEDIAIRE	35
37003	Amboise	MOYENNE	AGGLO	75112	Paris	TRES GRANDE	226
36006	Argenton-sur-Creuse	PETITE	AGGLO	36044	Chateauroux	INTERMEDIAIRE	30
18015	Aubigny-sur-Nere	PETITE	AGGLO	45155	Gien	MOYENNE	34
18015	Aubigny-sur-Nere	PETITE	AGGLO	45315	Sully-sur-Loire	PETITE	34
18015	Aubigny-sur-Nere	PETITE	AGGLO	18279	Vierzon	MOYENNE	43
18015	Aubigny-sur-Nere	PETITE	AGGLO	18033	Bourges	INTERMEDIAIRE	50
28015	Auneau	PETITE	AGGLO	91200	Dourdan	PETITE	22
28015	Auneau	PETITE	AGGLO	28085	Chartres	INTERMEDIAIRE	24
28015	Auneau	PETITE	NETW	78517	Rambouillet	MOYENNE	25
28015	Auneau	PETITE	AGGLO	75112	Paris	TRES GRANDE	74
18018	Avord	PETITE	AGGLO	18033	Bourges	INTERMEDIAIRE	21
41018	Blois	INTERMEDIAIRE	NETW	41269	Vendome	MOYENNE	36
41018	Blois	INTERMEDIAIRE	AGGLO	45234	Orleans	GRANDE	63
28051	Bonneval	PETITE	NETW	28088	Chateaudun	MOYENNE	15
28051	Bonneval	PETITE	AGGLO	28085	Chartres	INTERMEDIAIRE	40
28051	Bonneval	PETITE	AGGLO	75112	Paris	TRES GRANDE	120
18033	Bourges	INTERMEDIAIRE	NETW	18018	Avord	PETITE	21
18033	Bourges	INTERMEDIAIRE	NETW	18279	Vierzon	MOYENNE	39
28061	Brou	PETITE	AGGLO	28088	Chateaudun	MOYENNE	21
28061	Brou	PETITE	AGGLO	28280	Nogent-le-Rotrou	MOYENNE	32
28061	Brou	PETITE	AGGLO	28085	Chartres	INTERMEDIAIRE	64
28061	Brou	PETITE	AGGLO	75112	Paris	TRES GRANDE	145
36031	Buzancais	PETITE	NETW	36044	Chateauroux	INTERMEDIAIRE	24

36034	Chabris	PETITE	NETW	41242	Selles-sur-Cher	PETITE	9
36034	Chabris	PETITE	NETW	41194	Romorantin-Lanthenay	MOYENNE	15
36034	Chabris	PETITE	AGGLO	41151	Montrichard	PETITE	46
36034	Chabris	PETITE	AGGLO	18279	Vierzon	MOYENNE	47
36034	Chabris	PETITE	AGGLO	36088	Issoudun	MOYENNE	48
36034	Chabris	PETITE	AGGLO	36044	Chateauroux	INTERMEDIAIRE	59
28085	Chartres	INTERMEDIAIRE	NETW	28015	Auneau	PETITE	25
28085	Chartres	INTERMEDIAIRE	NETW	28134	Dreux	INTERMEDIAIRE	38
28085	Chartres	INTERMEDIAIRE	NETW	78517	Rambouillet	MOYENNE	45
28085	Chartres	INTERMEDIAIRE	AGGLO	75112	Paris	TRES GRANDE	92
28088	Chateaudun	MOYENNE	NETW	28051	Bonneval	PETITE	16
28088	Chateaudun	MOYENNE	NETW	28061	Brou	PETITE	21
28088	Chateaudun	MOYENNE	AGGLO	28085	Chartres	INTERMEDIAIRE	54
28088	Chateaudun	MOYENNE	AGGLO	45234	Orleans	GRANDE	54
28088	Chateaudun	MOYENNE	AGGLO	75112	Paris	TRES GRANDE	135
37063	Chateau-Renault	PETITE	AGGLO	37003	Amboise	MOYENNE	25
37063	Chateau-Renault	PETITE	AGGLO	41269	Vendome	MOYENNE	26
37063	Chateau-Renault	PETITE	AGGLO	37261	Tours	GRANDE	40
37063	Chateau-Renault	PETITE	AGGLO	41018	Blois	INTERMEDIAIRE	44
36044	Chateauroux	INTERMEDIAIRE	NETW	36088	Issoudun	MOYENNE	38
37072	Chinon	PETITE	AGGLO	37261	Tours	GRANDE	47
41059	Contres	PETITE	AGGLO	41198	Saint-Aignan	PETITE	18
41059	Contres	PETITE	AGGLO	41018	Blois	INTERMEDIAIRE	21
41059	Contres	PETITE	AGGLO	41194	Romorantin-Lanthenay	MOYENNE	27
37115	Descartes	PETITE	AGGLO	37226	Sainte-Maure-de-Touraine	PETITE	22
37115	Descartes	PETITE	AGGLO	37132	Loches	PETITE	31
37115	Descartes	PETITE	AGGLO	37261	Tours	GRANDE	60
28134	Dreux	INTERMEDIAIRE	AGGLO	28085	Chartres	INTERMEDIAIRE	40

28134	Dreux	INTERMEDIAIRE	AGGLO	75112	Paris	TRES GRANDE	82
18087	Dun-sur-Auron	PETITE	NETW	18018	Avord	PETITE	19
18087	Dun-sur-Auron	PETITE	AGGLO	18197	Saint-Amand-Montrond	MOYENNE	20
18087	Dun-sur-Auron	PETITE	AGGLO	18033	Bourges	INTERMEDIAIRE	26
45155	Gien	MOYENNE	NETW	45315	Sully-sur-Loire	PETITE	24
45155	Gien	MOYENNE	AGGLO	45234	Orleans	GRANDE	66
45155	Gien	MOYENNE	AGGLO	75112	Paris	TRES GRANDE	153
36088	Issoudun	MOYENNE	AGGLO	36044	Chateauroux	INTERMEDIAIRE	29
36088	Issoudun	MOYENNE	AGGLO	18279	Vierzon	MOYENNE	35
36088	Issoudun	MOYENNE	AGGLO	18033	Bourges	INTERMEDIAIRE	37
36046	La-Chatre	PETITE	AGGLO	36044	Chateauroux	INTERMEDIAIRE	39
28214	La-Loupe	PETITE	AGGLO	28280	Nogent-le-Rotrou	MOYENNE	22
28214	La-Loupe	PETITE	AGGLO	28085	Chartres	INTERMEDIAIRE	44
28214	La-Loupe	PETITE	AGGLO	75112	Paris	TRES GRANDE	134
41106	Lamotte-Beuvron	PETITE	AGGLO	45234	Orleans	GRANDE	38
41106	Lamotte-Beuvron	PETITE	AGGLO	41018	Blois	INTERMEDIAIRE	58
36018	Le-Blanc	PETITE	AGGLO	36006	Argenton-sur-Creuse	PETITE	40
36018	Le-Blanc	PETITE	AGGLO	36044	Chateauroux	INTERMEDIAIRE	57
37132	Loches	PETITE	AGGLO	37261	Tours	GRANDE	43
45187	Lorris	PETITE	AGGLO	45315	Sully-sur-Loire	PETITE	18
45187	Lorris	PETITE	AGGLO	45155	Gien	MOYENNE	26
45187	Lorris	PETITE	AGGLO	45208	Montargis	MOYENNE	26
45187	Lorris	PETITE	AGGLO	45234	Orleans	GRANDE	48
45187	Lorris	PETITE	AGGLO	75112	Paris	TRES GRANDE	136
45191	Malesherbes	PETITE	NETW	45252	Pithiviers	PETITE	19
45191	Malesherbes	PETITE	AGGLO	75112	Paris	TRES GRANDE	80
45203	Meung-sur-Loire	PETITE	AGGLO	45234	Orleans	GRANDE	21
45208	Montargis	MOYENNE	AGGLO	45155	Gien	MOYENNE	38
45208	Montargis	MOYENNE	AGGLO	75112	Paris	TRES GRANDE	125

41149	Montoire-sur-le-Loir	PETITE	NETW	41269	Vendome	MOYENNE	18
41149	Montoire-sur-le-Loir	PETITE	AGGLO	41018	Blois	INTERMEDIAIRE	47
41149	Montoire-sur-le-Loir	PETITE	AGGLO	37261	Tours	GRANDE	51
41151	Montrichard	PETITE	AGGLO	37003	Amboise	MOYENNE	18
41151	Montrichard	PETITE	AGGLO	41198	Saint-Aignan	PETITE	20
41151	Montrichard	PETITE	AGGLO	41059	Contres	PETITE	22
41151	Montrichard	PETITE	AGGLO	41018	Blois	INTERMEDIAIRE	35
41151	Montrichard	PETITE	AGGLO	37261	Tours	GRANDE	45
28280	Nogent-le-Rotrou	MOYENNE	AGGLO	28085	Chartres	INTERMEDIAIRE	75
45234	Orleans	GRANDE	AGGLO	75112	Paris	TRES GRANDE	132
45252	Pithiviers	PETITE	NETW	45191	Malesherbes	PETITE	19
45252	Pithiviers	PETITE	AGGLO	45234	Orleans	GRANDE	57
45252	Pithiviers	PETITE	AGGLO	75112	Paris	TRES GRANDE	86
41194	Romorantin-Lanthenay	MOYENNE	NETW	41242	Selles-sur-Cher	PETITE	18
41194	Romorantin-Lanthenay	MOYENNE	AGGLO	18279	Vierzon	MOYENNE	37
41194	Romorantin-Lanthenay	MOYENNE	AGGLO	41018	Blois	INTERMEDIAIRE	41
41194	Romorantin-Lanthenay	MOYENNE	AGGLO	18033	Bourges	INTERMEDIAIRE	72
41198	Saint-Aignan	PETITE	AGGLO	41242	Selles-sur-Cher	PETITE	16
41198	Saint-Aignan	PETITE	NETW	41059	Contres	PETITE	18
41198	Saint-Aignan	PETITE	AGGLO	41151	Montrichard	PETITE	20
41198	Saint-Aignan	PETITE	AGGLO	36034	Chabris	PETITE	25
41198	Saint-Aignan	PETITE	AGGLO	41194	Romorantin-Lanthenay	MOYENNE	34
41198	Saint-Aignan	PETITE	AGGLO	41018	Blois	INTERMEDIAIRE	39
41198	Saint-Aignan	PETITE	AGGLO	37261	Tours	GRANDE	71
41198	Saint-Aignan	PETITE	AGGLO	75112	Paris	TRES GRANDE	223
18197	Saint-Amand-Montrond	MOYENNE	AGGLO	18033	Bourges	INTERMEDIAIRE	43
37226	Sainte-Maure-de-Touraine	PETITE	NETW	37115	Descartes	PETITE	21
37226	Sainte-Maure-de-Touraine	PETITE	AGGLO	37072	Chinon	PETITE	32
37226	Sainte-Maure-de-Touraine	PETITE	AGGLO	37261	Tours	GRANDE	41

41242	Selles-sur-Cher	PETITE	NETW	36034	Chabris	PETITE	9
41242	Selles-sur-Cher	PETITE	NETW	41198	Saint-Aignan	PETITE	17
41242	Selles-sur-Cher	PETITE	NETW	41194	Romorantin-Lanthenay	MOYENNE	19
41242	Selles-sur-Cher	PETITE	NETW	41059	Contres	PETITE	20
41242	Selles-sur-Cher	PETITE	AGGLO	41151	Montrichard	PETITE	33
41242	Selles-sur-Cher	PETITE	AGGLO	41018	Blois	INTERMEDIAIRE	43
45315	Sully-sur-Loire	PETITE	AGGLO	45155	Gien	MOYENNE	24
45315	Sully-sur-Loire	PETITE	AGGLO	45234	Orleans	GRANDE	48
37261	Tours	GRANDE	AGGLO	75112	Paris	TRES GRANDE	240
41269	Vendome	MOYENNE	NETW	41149	Montoire-sur-le-Loir	PETITE	18
41269	Vendome	MOYENNE	AGGLO	41018	Blois	INTERMEDIAIRE	35
41269	Vendome	MOYENNE	AGGLO	75112	Paris	TRES GRANDE	176
27679	Verneuil-sur-Avre	PETITE	AGGLO	28134	Dreux	INTERMEDIAIRE	37
18279	Vierzon	MOYENNE	NETW	18033	Bourges	INTERMEDIAIRE	38

* AGGLO (agglomerated); NETW (networked)

Territorial arrangements are the relationship between two municipalities defined by the characteristics of their labour markets and the flow of job commuters.

Appendix C: Productive and residential tissue of functional areas

FUNCTIONAL AREA	CLASS	N. Productive microfirms	N. Productive SMEs	N. Productive large firms	N. Residential microfirms	N. Resdential SMEs	N. Residential large firms
Aubigny-sur-Nere	PETITE	182	35	3	238	27	0
Avord	PETITE	85	11	0	2118	621	12
Bourges	INTERMEDIAIRE	1398	372	14	71	13	0
Dun-sur-Auron	PETITE	83	6	0	454	116	1
Saint-Amand-Montrond	MOYENNE	253	54	0	2211	592	19
Vierzon	MOYENNE	420	94	4	700	162	3
Auneau	PETITE	87	22	3	5846	1669	49
Bonneval	PETITE	89	25	1	1606	443	8
Brou	PETITE	74	16	0	605	123	2
Chartres	INTERMEDIAIRE	1506	440	12	5050	1557	58
Chateaudun	MOYENNE	379	76	3	198	34	1
Dreux	INTERMEDIAIRE	742	192	6	1053	281	5
La-Loupe	PETITE	65	16	0	320	66	0
Nogent-le-Rotrou	MOYENNE	245	62	2	1904	558	16
Argenton-sur-Creuse	PETITE	259	51	1	1396	337	7
Le-Blanc	PETITE	262	37	0	599	139	2
Buzancais	PETITE	75	19	1	510	111	4
Chabris	PETITE	168	27	0	69	18	1
Chateauroux	INTERMEDIAIRE	1048	256	10	403	85	3
La-Chatre	PETITE	252	38	1	402	81	1
Issoudun	MOYENNE	291	59	4	283	59	1
Amboise	MOYENNE	282	80	3	172	29	0
Chateau-Renault	PETITE	97	28	1	127	29	0
Chinon	PETITE	498	84	3	193	36	0
Descartes	PETITE	157	26	0	101	24	0

Loches	PETITE	470	80	0	104	23	1
Sainte-Maure-de-Touraine	PETITE	128	22	1	110	24	0
Tours	GRANDE	3845	1013	34	335	55	1
Blois	INTERMEDIAIRE	1261	348	11	396	96	1
Contres	PETITE	112	30	0	534	104	2
Lamotte-Beuvron	PETITE	133	26	1	547	127	3
Montoire-sur-le-Loir	PETITE	83	19	0	330	79	1
Montrichard	PETITE	204	32	1	84	20	0
Romorantin-Lanthenay	MOYENNE	445	91	3	143	28	0
Saint-Aignan	PETITE	145	18	0	546	113	3
Selles-sur-Cher	PETITE	121	23	0	169	28	0
Vendome	MOYENNE	565	119	5	142	28	0
Gien	MOYENNE	390	96	5	90	21	0
Lorris	PETITE	65	14	0	104	19	0
Malesherbes	PETITE	119	35	2	91	17	0
Meung-sur-Loire	PETITE	135	27	2	190	37	1
Montargis	MOYENNE	1061	254	10	129	19	0
Orleans	GRANDE	3384	988	52	65	11	0
Pithiviers	PETITE	320	94	2	157	35	1
Sully-sur-Loire	PETITE	170	31	3	152	35	0

Source: typology is based on the INSEE Census for the year 2012.

According to the definition of the European Commission, microfirms have less than 10 employees, SMEs have less than 200 employees and large firms have more than 200 employees.

Appendix D: Detailed typology of EPCI according to the indicator of financial effectiveness

EPCI	HQ EPCI	POP HQ (2010)	CLASS OF HQ	SFC 2014 (EUR/inh)	SFC 2007 (EUR/inh)	DEBT 31/12/2014 (EUR/inh)	DEBT 31/12/2007 (EUR/inh)	TYPOLOGY
CA Bourges Plus	Bourges	66666	intermediate	152	81	278	180	OVER-INVESTING
CA Castelroussine	Chateauroux	44960	intermediate	170	103	543	700	EFFECTIVE
CA Chartres Métropole	Chartres	38889	intermediate	133	149	1170	1013	INEFFECTIVE
CA de Blois Agglopolys	Blois	45903	intermediate	139	104	235	261	EFFECTIVE
CA du Pays de Dreux	Dreux	31195	intermediate	78	0	636	0	INEFFECTIVE
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	14490	medium-sized	136	144	840	604	INEFFECTIVE
CA Orléans Val de Loire (Agglo)	Orleans	114286	large	231	121	1912	1286	OVER-INVESTING
CA Tours (Plus)	Tours	134978	large	185	128	1425	399	OVER-INVESTING
CC Brenne - Val de Creuse	Ruffec	619	very small	31	-1	322	316	OVER-INVESTING
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	390	very small	155	104	333	680	EFFECTIVE
CC Chinon, Vienne et Loire	Avoine	1811	very small	236	0	713	0	INEFFECTIVE
CC Coeur de France	Saint-Amand-Montrond	10518	medium-sized	73	60	500	538	EFFECTIVE
CC Coeur de Sologne	Lamotte-Beuvron	4782	small	55	22	55	36	OVER-INVESTING
CC de Beauce et du Gâtinais	Pithiviers	8966	small	90	79	716	75	OVER-INVESTING
CC de la Beauce Alnéloise	Auneau	4202	small	91	-5	407	423	EFFECTIVE
CC de la Châtre et Sainte Sévère	La-Chatre	4352	small	57	45	539	621	EFFECTIVE
CC de la Touraine du Sud	Preuilly-sur-Claise	1048	very small	65	46	80	2	OVER-INVESTING
CC de Sainte Maure de Touraine	Nouatre	869	very small	62	36	50	16	OVER-INVESTING
CC des Portes du Perche	La-Loupe	3515	small	36	44	204	84	INEFFECTIVE

CC du Bonnevalais	Bonneval	4757	small	9	38	987	581	INEFFECTIVE
CC du Canton de Lorris	Lorris	3034	small	79	62	34	57	EFFECTIVE
CC du Castelrenaudais	Chateau-Renault	5060	small	76	75	111	101	OVER-INVESTING
CC du Cher À la Loire	Montrichard	3383	small	91	48	226	299	EFFECTIVE
CC du Dunois	Chateaudun	13039	medium-sized	31	8	300	2	OVER-INVESTING
CC du Malesherbois	Malesherbes	6198	small	39	56	567	4	INEFFECTIVE
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	5021	small	37	40	5865	5992	DEBT-CONTROLLING
CC du Pays de Vendôme	Vendome	17024	medium-sized	66	60	269	179	OVER-INVESTING
CC du Pays d'Issoudun	Issoudun	12661	medium-sized	167	100	675	611	OVER-INVESTING
CC du Perche	Margon	1267	very small	16	10	120	3	OVER-INVESTING
CC du Perche Gouët	Unverre	1254	very small	21	9	132	15	OVER-INVESTING
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	16746	medium-sized	90	42	39	79	EFFECTIVE
CC du Sullias	Sully-sur-Loire	5444	small	22	14	1	1	EFFECTIVE
CC du Val d'Amboise	Amboise	13157	medium-sized	129	0	546	0	INEFFECTIVE
CC du Val des Mauves	Meung-sur-Loire	6115	small	12	15	97	0	INEFFECTIVE
CC Giennoises	Gien	14519	medium-sized	130	127	271	452	EFFECTIVE
CC la Septaine	Avord	2769	small	49	40	160	72	OVER-INVESTING
CC le Coeur du Pithiverais	Pithiviers	8966	small	49	21	-12	0	EFFECTIVE
CC le Dunois	Dun-sur-Auron	4293	small	39	20	126	43	OVER-INVESTING
CC Loches Développement	Loches	6400	small	147	66	1185	879	OVER-INVESTING
CC Sauldre et Sologne	Argent-sur-Sauldre	2156	small	2	4	59	0	INEFFECTIVE
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	126	very small	61	51	11278	6993	OVER-INVESTING

CC Val-De-Cher-Controis	Contres	3463	small	98	0	354	0	INEFFECTIVE
CC Vallées Loir et Braye	Montoire-sur-le-Loir	3963	small	18	0	145	0	INEFFECTIVE
CC Vierzon-Sologne-Berry	Vierzon	27081	medium-sized	43	57	272	293	DEBT-CONTROLLING

SFC (self-financing coefficient); HQ (headquarters);

The self-financing coefficient is defined as the possibility of a municipality to finance its large operations once it pays all expenditure and debts. It is an equivalent to a purchasing power and it takes into consideration operating expenses, debt and revenues.

The data on SFC and debt are published by the French government on the website: http://www.collectivites-locales.gouv.fr.

Appendix E: Detailed typology of EPCI according to the indicator of decentralized investment

LIBEPCI	HQ	CLASS	TYPOLOGY
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	medium-sized	DECENTRALIZING
CC Brenne - Val de Creuse	Ruffec	very small	DECENTRALIZING
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	very small	DECENTRALIZING
CC Chinon, Vienne et Loire	Avoine	very small	CENTRALIZING
CC Coeur de France	Saint-Amand-Montrond	medium-sized	DECENTRALIZING
CC Coeur de Sologne	Lamotte-Beuvron	small	DECENTRALIZING
CC de Beauce et du Gâtinais	Pithiviers	small	CENTRALIZING
CC de la Beauce Alnéloise	Auneau	small	DECENTRALIZING
CC de la Châtre et Sainte Sévère	La-Chatre	small	CENTRALIZING
CC de la Touraine du Sud	Preuilly-sur-Claise	very small	DECENTRALIZING
CC de Sainte Maure de Touraine	Nouatre	very small	CENTRALIZING
CC des Portes du Perche	La-Loupe	small	CENTRALIZING
CC du Bonnevalais	Bonneval	small	CENTRALIZING
CC du Canton de Lorris	Lorris	small	CENTRALIZING
CC du Castelrenaudais	Chateau-Renault	small	CENTRALIZING
CC du Cher À la Loire	Montrichard	small	CENTRALIZING
CC du Dunois	Chateaudun	medium-sized	CENTRALIZING
CC du Malesherbois	Malesherbes	small	DECENTRALIZING
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	small	CENTRALIZING
CC du Pays de Vendôme	Vendome	medium-sized	CENTRALIZING
CC du Pays d'Issoudun	Issoudun	medium-sized	CENTRALIZING
CC du Perche	Margon	very small	CENTRALIZING
CC du Perche Gouët	Unverre	very small	DECENTRALIZING
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	medium-sized	CENTRALIZING
CC du Sullias	Sully-sur-Loire	small	CENTRALIZING
CC du Val d'Amboise	Amboise	medium-sized	DECENTRALIZING

CC du Val des Mauves	Meung-sur-Loire	small	DECENTRALIZING
CC Giennoises	Gien	medium-sized	CENTRALIZING
CC la Septaine	Avord	small	CENTRALIZING
CC le Coeur du Pithiverais	Pithiviers	small	CENTRALIZING
CC le Dunois	Dun-sur-Auron	small	CENTRALIZING
CC Loches Développement	Loches	small	CENTRALIZING
CC Sauldre et Sologne	Argent-sur-Sauldre	small	DECENTRALIZING
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	very small	DECENTRALIZING
CC Val-De-Cher-Controis	Contres	small	CENTRALIZING
CC Vallées Loir et Braye	Montoire-sur-le-Loir	small	CENTRALIZING
CC Vierzon-Sologne-Berry	Vierzon	medium-sized	DECENTRALIZING

The data on the investment are published by the French government on the website: http://www.collectivites-locales.gouv.fr.

Appendix F: Detailed typology of EPCI according to the indicator of political inclusion and diversity

EPCI	HQ	MEMBER MUNICIPALITY	Local Elections 2015	N. office representatives	Political party*
CC du Val d'Amboise	Amboise	Amboise	DVG	5	SOC, DVG
CC du Val d'Amboise	Amboise	Cangey	DIV	0	
CC du Val d'Amboise	Amboise	Charge	DIV	0	
CC du Val d'Amboise	Amboise	Limeray	DVG	1	DVG
CC du Val d'Amboise	Amboise	Lussault-sur-Loire	DVG	0	
CC du Val d'Amboise	Amboise	Montreuil-en-Touraine	DIV	1	DIV
CC du Val d'Amboise	Amboise	Mosnes	DVD	1	DVG
CC du Val d'Amboise	Amboise	Nazelles-Negron	DVG	1	DVG
CC du Val d'Amboise	Amboise	Neuille-le-Lierre	DVD	0	
CC du Val d'Amboise	Amboise	Noizay	DVD	1	DVD
CC du Val d'Amboise	Amboise	Poce-sur-Cisse	DVG	0	
CC du Val d'Amboise	Amboise	Saint-Ouen-les-Vignes	DVD	1	DVD
CC du Val d'Amboise	Amboise	Saint-Regle	UDI	0	
CC du Val d'Amboise	Amboise	Souvigny-de-Touraine	DVG	0	
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Argenton-sur-Creuse	SOC	1	SOC
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Bouesse	DVD	1	DVD
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Celon	DVD	0	
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Chasseneuil	UMP	1	UMP
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Chavin	DVG	0	
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Le-Menoux	UDI	0	
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Mosnay	DVG	1	DVG
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Le-Pechereau	DVG	1	DVG
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Le-Pont-Chretien-Chabenet	DVG	1	independent
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Saint-Gaultier	DVG	0	

CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Saint-Marcel	MDM	0	
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Tendu	DVG	0	
CC du Pays d'Argenton Sur Creuse	Argenton-sur-Creuse	Velles	DVG	1	DVG
CC Sauldre et Sologne	Argent-sur-Sauldre	Argent-sur-Sauldre	UMP	1	UMP
CC Sauldre et Sologne	Argent-sur-Sauldre	Aubigny-sur-Nere	UMP	1	DVD
CC Sauldre et Sologne	Argent-sur-Sauldre	Blancafort	DVG	0	
CC Sauldre et Sologne	Argent-sur-Sauldre	Brinon-sur-Sauldre	DIV	0	
CC Sauldre et Sologne	Argent-sur-Sauldre	La-Chapelle-d'Angillon	DVG	0	
CC Sauldre et Sologne	Argent-sur-Sauldre	Clemont	DIV	0	
CC Sauldre et Sologne	Argent-sur-Sauldre	Ennordres	DVD	0	
CC Sauldre et Sologne	Argent-sur-Sauldre	Ivoy-le-Pre	DVD	0	
CC Sauldre et Sologne	Argent-sur-Sauldre	Menetreol-sur-Sauldre	DVD	0	
CC Sauldre et Sologne	Argent-sur-Sauldre	Mery-es-Bois	DVD	0	
CC Sauldre et Sologne	Argent-sur-Sauldre	Oizon	DVD	0	
CC Sauldre et Sologne	Argent-sur-Sauldre	Presly	independent	1	independent
CC Sauldre et Sologne	Argent-sur-Sauldre	Sainte-Montaine	DVD	0	
CC de la Beauce Alnéloise	Auneau	Ardelu	DIV	0	
CC de la Beauce Alnéloise	Auneau	Aunay-sous-Auneau	DIV	2	DIV
CC de la Beauce Alnéloise	Auneau	Auneau	DVD	0	
CC de la Beauce Alnéloise	Auneau	Beville-le-Comte	UDI	1	UDI
CC de la Beauce Alnéloise	Auneau	La-Chapelle-d'Aunainville	DIV	0	
CC de la Beauce Alnéloise	Auneau	Chatenay	DIV	0	
CC de la Beauce Alnéloise	Auneau	Denonville	DIV	0	
CC de la Beauce Alnéloise	Auneau	Garancieres-en-Beauce	DIV	0	
CC de la Beauce Alnéloise	Auneau	Le-Gue-de-Longroi	DIV	0	
CC de la Beauce Alnéloise	Auneau	Lethuin	DIV	0	
CC de la Beauce Alnéloise	Auneau	Levainville	DIV	1	DIV
CC de la Beauce Alnéloise	Auneau	Maisons	DIV	0	
CC de la Beauce Alnéloise	Auneau	Moinville-la-Jeulin	DIV	0	

CC de la Beauce Alnéloise	Auneau	Mondonville-Saint-Jean	DIV	0	
CC de la Beauce Alnéloise	Auneau	Morainville	DIV	0	
CC de la Beauce Alnéloise	Auneau	Oinville-sous-Auneau	DIV	0	
CC de la Beauce Alnéloise	Auneau	Orlu	DIV	0	
CC de la Beauce Alnéloise	Auneau	Oysonville	DIV	0	
CC de la Beauce Alnéloise	Auneau	Roinville	DIV	0	
CC de la Beauce Alnéloise	Auneau	Saint-Leger-des-Aubees	DIV	0	
CC de la Beauce Alnéloise	Auneau	Sainville	DIV	0	
CC de la Beauce Alnéloise	Auneau	Santeuil	DIV	0	
CC de la Beauce Alnéloise	Auneau	Umpeau	DIV	0	
CC de la Beauce Alnéloise	Auneau	Vierville	DIV	0	
CC Chinon, Vienne et Loire	Avoine	Avoine	DVG	1	DVG
CC Chinon, Vienne et Loire	Avoine	Beaumont-en-Veron	DVD	2	DVD
CC Chinon, Vienne et Loire	Avoine	Candes-Saint-Martin	DVG	1	DVG
CC Chinon, Vienne et Loire	Avoine	Chinon	UMP	3	UMP, UMP, DVD
CC Chinon, Vienne et Loire	Avoine	Cinais	DVD	1	DVD
CC Chinon, Vienne et Loire	Avoine	Couziers	DVD	1	DVD
CC Chinon, Vienne et Loire	Avoine	Huismes	DVG	1	DVG
CC Chinon, Vienne et Loire	Avoine	Lerne	DIV	1	DIV
CC Chinon, Vienne et Loire	Avoine	Marcay	DIV	1	DIV
CC Chinon, Vienne et Loire	Avoine	Riviere	DIV	1	DIV
CC Chinon, Vienne et Loire	Avoine	La-Roche-Clermault	DVD	1	DVD
CC Chinon, Vienne et Loire	Avoine	Saint-Benoit-la-Foret	DVD	1	DVD
CC Chinon, Vienne et Loire	Avoine	Saint-Germain-sur-Vienne	DVG	1	DVG
CC Chinon, Vienne et Loire	Avoine	Savigny-en-Veron	DIV	2	DIV
CC Chinon, Vienne et Loire	Avoine	Seuilly	DVG	0	
CC Chinon, Vienne et Loire	Avoine	Thizay	DVD	1	DVD
CC la Septaine	Avord	Avord	UMP	2	UMP
CC la Septaine	Avord	Baugy	DIV	1	DIV

CC la Septaine	Avord	Chaumoux-Marcilly	independent	0	
CC la Septaine	Avord	Crosses	DVD	1	DIV
CC la Septaine	Avord	Etrechy	DVD	0	
CC la Septaine	Avord	Farges-en-Septaine	SOC	1	DVG
CC la Septaine	Avord	Gron	DIV	0	
CC la Septaine	Avord	Jussy-Champagne	independent	0	
CC la Septaine	Avord	Laverdines	DVD	0	
CC la Septaine	Avord	Nohant-en-Gout	DVD	2	DVD
CC la Septaine	Avord	Osmoy	DVD	1	DVD
CC la Septaine	Avord	Saligny-le-Vif	DVG	0	
CC la Septaine	Avord	Savigny-en-Septaine	DVD	1	DVG
CC la Septaine	Avord	Soye-en-Septaine	DVG	0	
CC la Septaine	Avord	Villabon	DVG	0	
CC la Septaine	Avord	Villequiers	SOC	0	
CC la Septaine	Avord	Vornay	DVD	0	
CC du Bonnevalais	Bonneval	Alluyes	DIV	1	DIV
CC du Bonnevalais	Bonneval	Bonneval	UMP	2	UMP, DVD
CC du Bonnevalais	Bonneval	Bouville	DIV	0	
CC du Bonnevalais	Bonneval	Bullainville	DIV	0	
CC du Bonnevalais	Bonneval	Dancy	DIV	1	DIV
CC du Bonnevalais	Bonneval	Dangeau	DIV	0	
CC du Bonnevalais	Bonneval	Flacey	DIV	1	DIV
CC du Bonnevalais	Bonneval	Le-Gault-Saint-Denis	DIV	0	
CC du Bonnevalais	Bonneval	Meslay-le-Vidame	DIV	0	
CC du Bonnevalais	Bonneval	Montboissier	DIV	0	
CC du Bonnevalais	Bonneval	Montharville	DIV	0	
CC du Bonnevalais	Bonneval	Moriers	DIV	0	
CC du Bonnevalais	Bonneval	Neuvy-en-Dunois	DIV	0	
CC du Bonnevalais	Bonneval	Pre-Saint-evroult	DVD	0	

CC du Bonnevalais	Bonneval	Pre-Saint-Martin	DVD	0	
CC du Bonnevalais	Bonneval	Saint-Maur-sur-le-Loir	DVD	0	
CC du Bonnevalais	Bonneval	Sancheville	DIV	0	
CC du Bonnevalais	Bonneval	Saumeray	DIV	0	
CC du Bonnevalais	Bonneval	Trizay-les-Bonneval	NC	0	
CC du Bonnevalais	Bonneval	Villiers-Saint-Orien	DIV	1	DIV
CC du Bonnevalais	Bonneval	Vitray-en-Beauce	DIV	0	
CC du Dunois	Chateaudun	La-Chapelle-du-Noyer	DVD	1	DVD
CC du Dunois	Chateaudun	Chateaudun	UMP	1	DVD
CC du Dunois	Chateaudun	Jallans	DIV	1	DIV
CC du Dunois	Chateaudun	Lanneray	DIV	1	DIV
CC du Dunois	Chateaudun	Saint-Denis-les-Ponts	DVD	1	DVD
CC du Castelrenaudais	Chateau-Renault	Autreche	DVD	1	DVD
CC du Castelrenaudais	Chateau-Renault	Auzouer-en-Touraine	DVD	0	
CC du Castelrenaudais	Chateau-Renault	Le-Boulay	DVD	1	DVD
CC du Castelrenaudais	Chateau-Renault	Chateau-Renault	DVG	1	DVG
CC du Castelrenaudais	Chateau-Renault	Crotelles	DVD	0	
CC du Castelrenaudais	Chateau-Renault	Dame-Marie-les-Bois	DIV	0	
CC du Castelrenaudais	Chateau-Renault	La-Ferriere	DIV	0	
CC du Castelrenaudais	Chateau-Renault	Les-Hermites	DVD	1	DVD
CC du Castelrenaudais	Chateau-Renault	Monthodon	DVD	0	
CC du Castelrenaudais	Chateau-Renault	Morand	DVD	0	
CC du Castelrenaudais	Chateau-Renault	Neuville-sur-Brenne	DVD	0	
CC du Castelrenaudais	Chateau-Renault	Nouzilly	DIV	0	
CC du Castelrenaudais	Chateau-Renault	Saint-Laurent-en-Gatines	DVD	1	DVD
CC du Castelrenaudais	Chateau-Renault	Saint-Nicolas-des-Motets	DVG	0	
CC du Castelrenaudais	Chateau-Renault	Saunay	DVG	1	DVG
CC du Castelrenaudais	Chateau-Renault	Villedomer	DVD	0	
CC Val-De-Cher-Controis	Contres	Ange	DVG	0	

CC Val-De-Cher-Controis	Contres	Chateauvieux	NC	0	
CC Val-De-Cher-Controis	Contres	Chatillon-sur-Cher	DVD	0	
CC Val-De-Cher-Controis	Contres	Chemery	NC	0	
CC Val-De-Cher-Controis	Contres	Choussy	NC	0	
CC Val-De-Cher-Controis	Contres	Contres	DIV	2	DIV
CC Val-De-Cher-Controis	Contres	Couddes	NC	1	NC
CC Val-De-Cher-Controis	Contres	Couffy	NC	0	
CC Val-De-Cher-Controis	Contres	Feings	UDI	0	
CC Val-De-Cher-Controis	Contres	Fougeres-sur-Bievre	NC	0	
CC Val-De-Cher-Controis	Contres	Fresnes	DIV	0	
CC Val-De-Cher-Controis	Contres	Gy-en-Sologne	NC	1	NC
CC Val-De-Cher-Controis	Contres	Lassay-sur-Croisne	NC	0	
CC Val-De-Cher-Controis	Contres	Mareuil-sur-Cher	DVG	0	
CC Val-De-Cher-Controis	Contres	Mehers	independent	1	independent
CC Val-De-Cher-Controis	Contres	Meusnes	DIV	0	
CC Val-De-Cher-Controis	Contres	Noyers-sur-Cher	UDI	1	UDI
CC Val-De-Cher-Controis	Contres	Oisly	NC	0	
CC Val-De-Cher-Controis	Contres	Ouchamps	NC	0	
CC Val-De-Cher-Controis	Contres	Pouille	NC	0	
CC Val-De-Cher-Controis	Contres	Rougeou	NC	0	
CC Val-De-Cher-Controis	Contres	Saint-Aignan	DVD	1	DIV
CC Val-De-Cher-Controis	Contres	Saint-Romain-sur-Cher	DVG	0	
CC Val-De-Cher-Controis	Contres	Sassay	SOC	0	
CC Val-De-Cher-Controis	Contres	Seigy	DVG	0	
CC Val-De-Cher-Controis	Contres	Selles-sur-Cher	DVD	1	DVD
CC Val-De-Cher-Controis	Contres	Soings-en-Sologne	DVD	0	
CC Val-De-Cher-Controis	Contres	Thenay	DVG	0	
CC Val-De-Cher-Controis	Contres	Thesee	UDI	0	
CC le Dunois	Dun-sur-Auron	Bannegon	DVD	0	

CC le Dunois	Dun-sur-Auron	Bussy	DVD	1	DVD
CC le Dunois	Dun-sur-Auron	Chalivoy-Milon	DVG	0	
CC le Dunois	Dun-sur-Auron	Cogny	DVD	1	DVD
CC le Dunois	Dun-sur-Auron	Contres	DIV	0	
CC le Dunois	Dun-sur-Auron	Dun-sur-Auron	UMP	1	DVD
CC le Dunois	Dun-sur-Auron	Lantan	DVD	1	DVD
CC le Dunois	Dun-sur-Auron	Lugny-Bourbonnais	DVD	0	
CC le Dunois	Dun-sur-Auron	Osmery	DVD	0	
CC le Dunois	Dun-sur-Auron	Parnay	DVD	0	
CC le Dunois	Dun-sur-Auron	Le-Pondy	DVG	0	
CC le Dunois	Dun-sur-Auron	Raymond	DVD	0	
CC le Dunois	Dun-sur-Auron	Saint-Denis-de-Palin	DVD	0	
CC le Dunois	Dun-sur-Auron	Saint-Germain-des-Bois	DVD	1	DVD
CC le Dunois	Dun-sur-Auron	Sennecay	DVG	0	
CC le Dunois	Dun-sur-Auron	Thaumiers	DIV	0	
CC le Dunois	Dun-sur-Auron	Verneuil	DVD	0	
CC Giennoises	Gien	Boismorand	DIV	1	DIV
CC Giennoises	Gien	Les-Choux	DIV	0	
CC Giennoises	Gien	Coullons	DVD	1	DVD
CC Giennoises	Gien	Gien	UMP	5	UMP, DVD, DVD, DVD, DVD
CC Giennoises	Gien	Langesse	DIV	0	
CC Giennoises	Gien	Le-Moulinet-sur-Solin	DIV	1	DIV
CC Giennoises	Gien	Nevoy	DVG	1	DVG
CC Giennoises	Gien	Poilly-lez-Gien	DVG	1	DVG
CC Giennoises	Gien	Saint-Brisson-sur-Loire	DIV	1	DIV
CC Giennoises	Gien	Saint-Gondon	DVD	1	DVD
CC Giennoises	Gien	Saint-Martin-sur-Ocre	DVD	1	DVD
CC du Pays d'Issoudun	Issoudun	Charost	DVD	0	
CC du Pays d'Issoudun	Issoudun	Chezal-Benoit	DVG	1	DVG

CC du Pays d'Issoudun	Issoudun	Saint-Ambroix	DIV	0	
CC du Pays d'Issoudun	Issoudun	Les-Bordes	DVG	0	
CC du Pays d'Issoudun	Issoudun	Diou	DVD	0	
CC du Pays d'Issoudun	Issoudun	Issoudun	SOC	3	SOC, DVG, DVG
CC du Pays d'Issoudun	Issoudun	Migny	DVD	0	
CC du Pays d'Issoudun	Issoudun	Paudy	DVD	0	
CC du Pays d'Issoudun	Issoudun	Reuilly	DVD	0	
CC du Pays d'Issoudun	Issoudun	Saint-Georges-sur-Arnon	COM	0	
CC du Pays d'Issoudun	Issoudun	Sainte-Lizaigne	DVD	1	DVD
CC du Pays d'Issoudun	Issoudun	Segry	DVG	0	
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Argy	DVD	0	
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Buzancais	UDI	2	UDI, DVD
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	La-Chapelle-Orthemale	DVD	0	
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Chezelles	DVG	0	
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Meobecq	DVD	0	
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Neuillay-les-Bois	DVD	0	
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Niherne	UMP	1	UMP
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Saint-Genou	DVD	0	
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Saint-Lactencin	SOC	1	SOC
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Souge	DVD	1	DVD
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Vendoeuvres	DVG	1	DVG
CC Val de l'Indre - Brenne	La Chapelle-Orthemale	Villedieu-sur-Indre	SOC	1	SOC
CC de la Châtre et Sainte Sévère	La Chatre	La-Berthenoux	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Briantes	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Champillet	DVG	0	
CC de la Châtre et Sainte Sévère	La Chatre	Chassignolles	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	La-Chatre	UMP	2	UMP, DVD
CC de la Châtre et Sainte Sévère	La Chatre	Feusines	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Lacs	UMP	0	

CC de la Châtre et Sainte Sévère	La Chatre	Lignerolles	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Lourouer-Saint-Laurent	DVG	1	DVG
CC de la Châtre et Sainte Sévère	La Chatre	Le-Magny	DVG	0	
CC de la Châtre et Sainte Sévère	La Chatre	Montgivray	DVD	1	DIV
CC de la Châtre et Sainte Sévère	La Chatre	Montlevicq	SOC	0	
CC de la Châtre et Sainte Sévère	La Chatre	La-Motte-Feuilly	DVD	1	DVD
CC de la Châtre et Sainte Sévère	La Chatre	Neret	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Nohant-Vic	DVG	0	
CC de la Châtre et Sainte Sévère	La Chatre	Perassay	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Pouligny-Notre-Dame	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Pouligny-Saint-Martin	DVG	0	
CC de la Châtre et Sainte Sévère	La Chatre	Saint-Aout	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Saint-Chartier	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Saint-Christophe-en-Boucherie	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Sainte-Severe-sur-Indre	DVD	1	DVD
CC de la Châtre et Sainte Sévère	La Chatre	Sarzay	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Sazeray	DVG	0	
CC de la Châtre et Sainte Sévère	La Chatre	Thevet-Saint-Julien	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Urciers	DVG	0	
CC de la Châtre et Sainte Sévère	La Chatre	Verneuil-sur-Igneraie	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Vicq-Exemplet	DVD	0	
CC de la Châtre et Sainte Sévère	La Chatre	Vigoulant	DVD	1	DVD
CC de la Châtre et Sainte Sévère	La Chatre	Vijon	DVG	0	
CC des Portes du Perche	La Loupe	Belhomert-Guehouville	DIV	0	
CC des Portes du Perche	La Loupe	Champrond-en-Gatine	DVG	1	DVG
CC des Portes du Perche	La Loupe	Les-Corvees-les-Yys	DVD	0	
CC des Portes du Perche	La Loupe	Fontaine-Simon	DVD	0	
CC des Portes du Perche	La Loupe	La-Loupe	UMP	2	UMP, DVD
CC des Portes du Perche	La Loupe	Manou	DIV	0	

CC des Portes du Perche	La Loupe	Meauce	DVG	0	
CC des Portes du Perche	La Loupe	Montireau	DVD	1	DVD
CC des Portes du Perche	La Loupe	Montlandon	DVG	0	
CC des Portes du Perche	La Loupe	Saint-eliph	DIV	1	DIV
CC des Portes du Perche	La Loupe	Saint-Maurice-Saint-Germain	UMP	0	
CC des Portes du Perche	La Loupe	Saint-Victor-de-Buthon	DVD	1	DVD
CC des Portes du Perche	La Loupe	Vaupillon	DIV	1	DIV
CC Coeur de Sologne	Lamotte-Beuvron	Chaon	NC	1	NC
CC Coeur de Sologne	Lamotte-Beuvron	Chaumont-sur-Tharonne	DVD	1	DVD
CC Coeur de Sologne	Lamotte-Beuvron	Lamotte-Beuvron	UMP	1	UMP
CC Coeur de Sologne	Lamotte-Beuvron	Nouan-le-Fuzelier	DVD	1	DVD
CC Coeur de Sologne	Lamotte-Beuvron	Souvigny-en-Sologne	NC	1	NC
CC Coeur de Sologne	Lamotte-Beuvron	Vouzon	DVG	1	DVG
CC Loches Développement	Loches	Azay-sur-Indre	DVD	0	
CC Loches Développement	Loches	Beaulieu-les-Loches	DVD	1	DVD
CC Loches Développement	Loches	Bridore	DIV	0	
CC Loches Développement	Loches	Chambourg-sur-Indre	DIV	1	DIV
CC Loches Développement	Loches	Chanceaux-pres-Loches	DVD	0	
CC Loches Développement	Loches	Chedigny	UDI	1	UDI
CC Loches Développement	Loches	Cormery	DVD	1	DVD
CC Loches Développement	Loches	Dolus-le-Sec	DVG	0	
CC Loches Développement	Loches	Ferriere-sur-Beaulieu	DVD	1	DVD
CC Loches Développement	Loches	Loches	UMP	2	UMP, DVD
CC Loches Développement	Loches	Perrusson	DVD	1	DVD
CC Loches Développement	Loches	Reignac-sur-Indre	DVD	1	DVD
CC Loches Développement	Loches	Saint-Bauld	DIV	0	
CC Loches Développement	Loches	Saint-Hippolyte	DVD	0	
CC Loches Développement	Loches	Saint-Jean-Saint-Germain	DVD	1	independent
CC Loches Développement	Loches	Saint-Quentin-sur-Indrois	DIV	0	

CC Loches Développement	Loches	Saint-Senoch	DVD	0	
CC Loches Développement	Loches	Sennevieres	DVD	1	DVD
CC Loches Développement	Loches	Tauxigny	DVD	1	DVD
CC Loches Développement	Loches	Verneuil-sur-Indre	DVG	0	
CC du Canton de Lorris	Lorris	Chailly-en-Gatinais	DIV	0	
CC du Canton de Lorris	Lorris	Chatenoy	DIV	0	
CC du Canton de Lorris	Lorris	Coudroy	independent	0	
CC du Canton de Lorris	Lorris	La-Cour-Marigny	DIV	0	
CC du Canton de Lorris	Lorris	Lorris	UMP	0	
CC du Canton de Lorris	Lorris	Montereau	DIV	0	
CC du Canton de Lorris	Lorris	Noyers	DIV	0	
CC du Canton de Lorris	Lorris	Oussoy-en-Gatinais	DIV	1	DIV
CC du Canton de Lorris	Lorris	Ouzouer-des-Champs	DIV	0	
CC du Canton de Lorris	Lorris	Presnoy	DIV	0	
CC du Canton de Lorris	Lorris	Saint-Hilaire-sur-Puiseaux	DVD	0	
CC du Canton de Lorris	Lorris	Thimory	DIV	0	
CC du Canton de Lorris	Lorris	Varennes-Changy	DIV	0	
CC du Canton de Lorris	Lorris	Vieilles-Maisons-sur-Joudry	DVD	0	
CC du Malesherbois	Malesherbes	Labrosse	DIV	1	independent
CC du Malesherbois	Malesherbes	Coudray	DIV	1	DIV
CC du Malesherbois	Malesherbes	Mainvilliers	DIV	1	DIV
CC du Malesherbois	Malesherbes	Malesherbes	DVD	1	UMP
CC du Malesherbois	Malesherbes	Manchecourt	DIV	0	
CC du Malesherbois	Malesherbes	Nangeville	DVD	1	DVD
CC du Malesherbois	Malesherbes	Orveau-Bellesauve	DIV	1	independent
CC du Perche	Margon	Argenvilliers	DIV	0	
CC du Perche	Margon	Authon-du-Perche	DVD	1	DVD
CC du Perche	Margon	Beaumont-les-Autels	DIV	1	DIV
CC du Perche	Margon	Bethonvilliers	DIV	0	

CC du Perche	Margon	Brunelles	DVG	0	
CC du Perche	Margon	Champrond-en-Perchet	DVG	1	DVG
CC du Perche	Margon	Charbonnieres	DIV	0	
CC du Perche	Margon	Coudray-au-Perche	DIV	0	
CC du Perche	Margon	Les-etilleux	DIV	0	
CC du Perche	Margon	La-Gaudaine	DIV	0	
CC du Perche	Margon	Margon	DVG	1	DVG
CC du Perche	Margon	Miermaigne	DVG	0	
CC du Perche	Margon	Nogent-le-Rotrou	RDG	2	RDG, RDG
CC du Perche	Margon	Saint-Bomer	DIV	0	
CC du Perche	Margon	Saint-Jean-Pierre-Fixte	DIV	0	
CC du Perche	Margon	Soize	DVD	0	
CC du Perche	Margon	Souance-au-Perche	DIV	0	
CC du Perche	Margon	Trizay-Coutretot-Saint-Serge	DIV	0	
CC du Perche	Margon	Vicheres	DVD	0	
CC du Val des Mauves	Meung-sur-Loire	Baccon	DIV	1	DIV
CC du Val des Mauves	Meung-sur-Loire	Le-Bardon	DVD	0	
CC du Val des Mauves	Meung-sur-Loire	Chaingy	DVD	1	DVD
CC du Val des Mauves	Meung-sur-Loire	Coulmiers	DIV	0	
CC du Val des Mauves	Meung-sur-Loire	Huisseau-sur-Mauves	DVD	0	
CC du Val des Mauves	Meung-sur-Loire	Meung-sur-Loire	UMP	1	UMP
CC du Val des Mauves	Meung-sur-Loire	Rozieres-en-Beauce	DIV	0	
CC du Val des Mauves	Meung-sur-Loire	Saint-Ay	DVD	0	
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Amilly	DVD	2	DVD
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Cepoy	DVD	1	DVD
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Chalette-sur-Loing	COM	2	COM
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Chevillon-sur-Huillard	UMP	1	UMP

CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Conflans-sur-Loing	DIV	0	
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Corquilleroy	DVD	1	DVD
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Lombreuil	DIV	0	
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Montargis	UMP	2	UMP
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Mormant-sur-Vernisson	DVD	0	
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Pannes	UMP	1	UMP
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Paucourt	DIV	1	DIV
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Saint-Maurice-sur-Fessard	DVD	1	DVD
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Solterre	DIV	1	DIV
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Villemandeur	DVD	1	DVD
CA Montargoise et Rives du Loing (A.M.E.)	Montargis	Vimory	DVD	1	DVD
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Artins	DVD	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Bonneveau	UMP	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Celle	UDI	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Couture-sur-Loir	DVD	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Epuisay	DVD	1	DVD
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Les-Essarts	DVD	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Fontaine-les-Coteaux	UDI	1	UDI
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Fortan	DVD	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Les-Hayes	UMP	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Houssay	NC	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Lavardin	DVD	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Montoire-sur-le-Loir	DVG	2	DVG
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Montrouveau	UDI	0	

CC Vallées Loir et Braye	Montoire-sur-le-Loir	Les-Roches-l'eveque	DVD	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Saint-Arnoult	UDI	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Saint-Jacques-des-Guerets	EXG	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Saint-Martin-des-Bois	UMP	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Saint-Rimay	NC	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Sasnieres	DVD	1	DVD
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Savigny-sur-Braye	DVD	1	DVD
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Souge	UDI	1	UDI
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Ternay	NC	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Trehet	UDI	1	UDI
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Troo	DIV	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Villavard	UDI	0	
CC Vallées Loir et Braye	Montoire-sur-le-Loir	Villedieu-le-Chateau	FN	0	
CC du Cher À la Loire	Montrichard	Bourre	NC	1	NC
CC du Cher À la Loire	Montrichard	Chissay-en-Touraine	DIV	0	
CC du Cher À la Loire	Montrichard	Faverolles-sur-Cher	UMP	1	UMP
CC du Cher À la Loire	Montrichard	Monthou-sur-Cher	DIV	1	DIV
CC du Cher À la Loire	Montrichard	Montrichard	UDI	1	UDI
CC du Cher À la Loire	Montrichard	Pontlevoy	DIV	1	DIV
CC du Cher À la Loire	Montrichard	Saint-Georges-sur-Cher	UMP	1	UMP
CC du Cher À la Loire	Montrichard	Saint-Julien-de-Chedon	independent	0	
CC du Cher À la Loire	Montrichard	Vallieres-les-Grandes	independent	0	
CC de Sainte Maure de Touraine	Nouatre	Antogny-le-Tillac	DVG	1	DVG
CC de Sainte Maure de Touraine	Nouatre	Maille	DVD	1	DVD
CC de Sainte Maure de Touraine	Nouatre	Marcilly-sur-Vienne	DVG	1	DVG
CC de Sainte Maure de Touraine	Nouatre	Neuil	UMP	0	
CC de Sainte Maure de Touraine	Nouatre	Nouatre	DVD	0	
CC de Sainte Maure de Touraine	Nouatre	Noyant-de-Touraine	DVG	0	
CC de Sainte Maure de Touraine	Nouatre	Ports	DVG	1	DVG

CC de Sainte Maure de Touraine	Nouatre	Pouzay	UMP	0	
CC de Sainte Maure de Touraine	Nouatre	Pussigny	DVG	0	
CC de Sainte Maure de Touraine	Nouatre	Sainte-Catherine-de-Fierbois	DIV	0	
CC de Sainte Maure de Touraine	Nouatre	Saint-epain	DIV	1	DIV
CC de Sainte Maure de Touraine	Nouatre	Sainte-Maure-de-Touraine	UMP	1	UMP
CC de Sainte Maure de Touraine	Nouatre	Villeperdue	DVG	1	DVG
CC le Coeur du Pithiverais	Pithiviers	Dadonville	DVG	2	DVG
CC le Coeur du Pithiverais	Pithiviers	Pithiviers	UMP	4	UMP, UMP, DVD, UDI
CC le Coeur du Pithiverais	Pithiviers	Pithiviers-le-Vieil	DVD	2	DVD
CC de Beauce et du Gâtinais	Pithiviers	Ascoux	DVD	1	DVD
CC de Beauce et du Gâtinais	Pithiviers	Bondaroy	DIV	0	
CC de Beauce et du Gâtinais	Pithiviers	Bouilly-en-Gatinais	DIV	0	
CC de Beauce et du Gâtinais	Pithiviers	Bouzonville-aux-Bois	DIV	1	DIV
CC de Beauce et du Gâtinais	Pithiviers	Boynes	DVD	0	
CC de Beauce et du Gâtinais	Pithiviers	Chilleurs-aux-Bois	DVD	1	DVD
CC de Beauce et du Gâtinais	Pithiviers	Courcy-aux-Loges	DIV	0	
CC de Beauce et du Gâtinais	Pithiviers	Escrennes	DIV	0	
CC de Beauce et du Gâtinais	Pithiviers	Estouy	DIV	0	
CC de Beauce et du Gâtinais	Pithiviers	Givraines	DIV	1	DIV
CC de Beauce et du Gâtinais	Pithiviers	Guigneville	DVD	1	DVD
CC de Beauce et du Gâtinais	Pithiviers	Laas	DIV	0	
CC de Beauce et du Gâtinais	Pithiviers	Mareau-aux-Bois	DIV	0	
CC de Beauce et du Gâtinais	Pithiviers	Marsainvilliers	DVD	0	
CC de Beauce et du Gâtinais	Pithiviers	Ramoulu	DVD	0	
CC de Beauce et du Gâtinais	Pithiviers	Santeau	DIV	0	
CC de Beauce et du Gâtinais	Pithiviers	Vrigny	DIV	0	
CC de Beauce et du Gâtinais	Pithiviers	Yevre-la-Ville	DIV	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Abilly	DVG	1	DVG
CC de la Touraine du Sud	Preuilly-sur-Claise	Barrou	DVD	0	

CC de la Touraine du Sud	Preuilly-sur-Claise	Betz-le-Chateau	DIV	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Bossay-sur-Claise	DVD	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Boussay	DVD	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	La-Celle-Guenand	DVD	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	La-Celle-Saint-Avant	DVD	1	DVD
CC de la Touraine du Sud	Preuilly-sur-Claise	Chambon	DVD	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Charnizay	DVD	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Chaumussay	DVD	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Ferriere-Larcon	UDI	1	UDI
CC de la Touraine du Sud	Preuilly-sur-Claise	Le-Grand-Pressigny	DIV	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	La-Guerche	DVD	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Descartes	UMP	1	UMP
CC de la Touraine du Sud	Preuilly-sur-Claise	Neuilly-le-Brignon	DVD	1	independent
CC de la Touraine du Sud	Preuilly-sur-Claise	Paulmy	DVD	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Le-Petit-Pressigny	DVG	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Preuilly-sur-Claise	UDI	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Saint-Flovier	DVD	0	
CC de la Touraine du Sud	Preuilly-sur-Claise	Tournon-Saint-Pierre	DVD	1	DVD
CC de la Touraine du Sud	Preuilly-sur-Claise	Yzeures-sur-Creuse	DIV	1	DIV
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Billy	NC	0	
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	La-Chapelle-Montmartin	NC	1	NC
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Chatres-sur-Cher	DVG	1	DVG
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Gievres	DVG	1	DVG
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Langon	NC	1	NC
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Loreux	NC	0	
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Maray	NC	0	
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Mennetou-sur-Cher	NC	1	NC
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Mur-de-Sologne	DVD	1	DVD
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Pruniers-en-Sologne	UMP	0	

CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Romorantin-Lanthenay	SOC	3	SOC
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Saint-Julien-sur-Cher	NC	0	
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Saint-Loup	DVD	0	
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Villefranche-sur-Cher	DIV	1	DIV
CC du Romorantinais et du Monestois	Romorantin-Lanthenay	Villeherviers	NC	1	NC
CC Brenne - Val de Creuse	Ruffec	Le-Blanc	SOC	1	DVG
CC Brenne - Val de Creuse	Ruffec	Chazelet	DVD	0	
CC Brenne - Val de Creuse	Ruffec	Chitray	DVD	0	
CC Brenne - Val de Creuse	Ruffec	Ciron	DVD	0	
CC Brenne - Val de Creuse	Ruffec	Concremiers	DVG	0	
CC Brenne - Val de Creuse	Ruffec	Douadic	DVD	1	DVD
CC Brenne - Val de Creuse	Ruffec	Fontgombault	DVD	0	
CC Brenne - Val de Creuse	Ruffec	Ingrandes	DVG	1	DVG
CC Brenne - Val de Creuse	Ruffec	Lurais	DVG	1	DVG
CC Brenne - Val de Creuse	Ruffec	Lureuil	DVD	0	
CC Brenne - Val de Creuse	Ruffec	Luzeret	DVD	0	
CC Brenne - Val de Creuse	Ruffec	Merigny	UMP	0	
CC Brenne - Val de Creuse	Ruffec	Neons-sur-Creuse	DVG	1	DVG
CC Brenne - Val de Creuse	Ruffec	Nuret-le-Ferron	DVG	0	
CC Brenne - Val de Creuse	Ruffec	Oulches	SOC	1	SOC
CC Brenne - Val de Creuse	Ruffec	La-Perouille	DVG	0	
CC Brenne - Val de Creuse	Ruffec	Pouligny-Saint-Pierre	UMP	0	
CC Brenne - Val de Creuse	Ruffec	Preuilly-la-Ville	DVG	0	
CC Brenne - Val de Creuse	Ruffec	Rivarennes	DVG	0	
CC Brenne - Val de Creuse	Ruffec	Rosnay	DVD	0	
CC Brenne - Val de Creuse	Ruffec	Ruffec	DVG	0	
CC Brenne - Val de Creuse	Ruffec	Sacierges-Saint-Martin	DVD	0	
CC Brenne - Val de Creuse	Ruffec	Saint-Aigny	DVG	0	
CC Brenne - Val de Creuse	Ruffec	Saint-Civran	DVD	0	

CC Brenne - Val de Creuse	Ruffec	Sauzelles	DVD	0	
CC Brenne - Val de Creuse	Ruffec	Thenay	DVD	0	
CC Brenne - Val de Creuse	Ruffec	Tournon-Saint-Martin	DVG	1	DVG
CC Brenne - Val de Creuse	Ruffec	Vigoux	DVD	0	
CC Coeur de France	Saint-Amand-Montrond	Arpheuilles	DIV	0	
CC Coeur de France	Saint-Amand-Montrond	Bessais-le-Fromental	DVG	1	DVG
CC Coeur de France	Saint-Amand-Montrond	Bouzais	DVD	0	
CC Coeur de France	Saint-Amand-Montrond	Bruere-Allichamps	DIV	0	
CC Coeur de France	Saint-Amand-Montrond	La-Celle	DVD	0	
CC Coeur de France	Saint-Amand-Montrond	Charenton-du-Cher	DVD	1	DVD
CC Coeur de France	Saint-Amand-Montrond	Colombiers	DVG	1	DVG
CC Coeur de France	Saint-Amand-Montrond	Coust	DVD	1	DVD
CC Coeur de France	Saint-Amand-Montrond	Drevant	DVG	1	DVG
CC Coeur de France	Saint-Amand-Montrond	Farges-Allichamps	DVG	0	
CC Coeur de France	Saint-Amand-Montrond	La-Groutte	DVG	0	
CC Coeur de France	Saint-Amand-Montrond	Marcais	DVG	0	
CC Coeur de France	Saint-Amand-Montrond	Meillant	DVD	0	
CC Coeur de France	Saint-Amand-Montrond	Nozieres	DVD	0	
CC Coeur de France	Saint-Amand-Montrond	Orcenais	DIV	0	
CC Coeur de France	Saint-Amand-Montrond	Orval	DVD	1	DVD
CC Coeur de France	Saint-Amand-Montrond	Saint-Amand-Montrond	UMP	3	UMP, DVD
CC Coeur de France	Saint-Amand-Montrond	Saint-Pierre-les-etieux	DVD	0	
CC Coeur de France	Saint-Amand-Montrond	Vernais	DVD	0	
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Anjouin	DVD	0	
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Bagneux	DVD	0	
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Chabris	DVD	2	DVD
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Dun-le-Poelier	DVG	1	DVG

CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Menetou-sur-Nahon	DVG	1	DVG
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Orville	DVG	0	
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Parpecay	DVD	1	DVD
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Poulaines	DVD	1	DVD
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Sainte-Cecile	DVD	0	
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Saint-Christophe-en-Bazelle	DVD	0	
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Semblecay	DVD	0	
CC Chabris - Pays de Bazelle	Saint-Christophe-en-Bazelle	Varennes-sur-Fouzon	DVG	0	
CC du Sullias	Sully-sur-Loire	Cerdon	DVD	1	DVD
CC du Sullias	Sully-sur-Loire	Guilly	DIV	0	
CC du Sullias	Sully-sur-Loire	Isdes	DIV	0	
CC du Sullias	Sully-sur-Loire	Lion-en-Sullias	DVG	0	
CC du Sullias	Sully-sur-Loire	Neuvy-en-Sullias	DVD	0	
CC du Sullias	Sully-sur-Loire	Saint-Aignan-le-Jaillard	DIV	0	
CC du Sullias	Sully-sur-Loire	Saint-Florent	DIV	1	DIV
CC du Sullias	Sully-sur-Loire	Saint-Pere-sur-Loire	DVG	0	
CC du Sullias	Sully-sur-Loire	Sully-sur-Loire	DVD	1	DVD
CC du Sullias	Sully-sur-Loire	Viglain	DIV	0	
CC du Sullias	Sully-sur-Loire	Villemurlin	DIV	1	DIV
CC du Perche Gouët	Unverre	Les-Autels-Villevillon	DIV	0	
CC du Perche Gouët	Unverre	La-Bazoche-Gouet	DVD	1	DVD
CC du Perche Gouët	Unverre	Brou	UDI	2	UDI, DVD
CC du Perche Gouët	Unverre	Bullou	DIV	1	DIV
CC du Perche Gouët	Unverre	Chapelle-Guillaume	DVD	0	
CC du Perche Gouët	Unverre	Chapelle-Royale	DVG	0	

CC du Perche Gouët	Unverre	Dampierre-sous-Brou	DIV	0	
CC du Perche Gouët	Unverre	Fraze	DVD	1	DVD
CC du Perche Gouët	Unverre	Gohory	DIV	1	DIV
CC du Perche Gouët	Unverre	Luigny	DIV	0	
CC du Perche Gouët	Unverre	Mezieres-au-Perche	DIV	0	
CC du Perche Gouët	Unverre	Montigny-le-Chartif	DVG	1	DVG
CC du Perche Gouët	Unverre	Mottereau	DIV	1	DIV
CC du Perche Gouët	Unverre	Moulhard	DIV	0	
CC du Perche Gouët	Unverre	Unverre	DVD	0	
CC du Perche Gouët	Unverre	Yevres	DVG	0	
CC du Pays de Vendôme	Vendome	Aze	DVG	1	DVG
CC du Pays de Vendôme	Vendome	Coulommiers-la-Tour	UDI	0	
CC du Pays de Vendôme	Vendome	Danze	NC	1	NC
CC du Pays de Vendôme	Vendome	Faye	DVG	1	DVG
CC du Pays de Vendôme	Vendome	Lunay	DVG	1	DVG
CC du Pays de Vendôme	Vendome	Marcilly-en-Beauce	DVG	1	DVG
CC du Pays de Vendôme	Vendome	Rahart	DVD	0	
CC du Pays de Vendôme	Vendome	Saint-Firmin-des-Pres	SOC	1	SOC
CC du Pays de Vendôme	Vendome	Saint-Ouen	SOC	2	SOC, DVG
CC du Pays de Vendôme	Vendome	Thore-la-Rochette	DVG	1	DVG
CC du Pays de Vendôme	Vendome	Vendome	UDI	3	UDI, UDI, DVD
CC du Pays de Vendôme	Vendome	La-Ville-aux-Clercs	UDI	1	UDI
CC Vierzon-Sologne-Berry	Vierzon	Dampierre-en-Gracay	PG	0	
CC Vierzon-Sologne-Berry	Vierzon	Genouilly	DVD	1	DVD
CC Vierzon-Sologne-Berry	Vierzon	Gracay	COM	1	COM
CC Vierzon-Sologne-Berry	Vierzon	Mery-sur-Cher	DVD	1	DVD
CC Vierzon-Sologne-Berry	Vierzon	Nohant-en-Gracay	DVD	0	
CC Vierzon-Sologne-Berry	Vierzon	Saint-Georges-sur-la-Pree	PG	0	
CC Vierzon-Sologne-Berry	Vierzon	Saint-Hilaire-de-Court	COM	1	COM

CC Vierzon-Sologne-Berry	Vierzon	Saint-Outrille	DVD	0	
CC Vierzon-Sologne-Berry	Vierzon	Thenioux	PG	1	PG
CC Vierzon-Sologne-Berry	Vierzon	Vierzon	COM	4	COM, DVG, SOC, independent

*French communist party (COM), independent candidates (DIV), independent right candidates (DVD), independent left candidates (DVG), far-left party (EXG), National front (FN), Democratic movement party (MDM), New centre party (NC), Left party (PG), Radical left party (RDG), Socialist party (SOC), Union of democrats and independent candidates (UDI) and Union for the popular movement (UMP).

The share of representatives of each municipality in the executive board of the selected EPCIs (presidents and vice-presidents) is provided by the local authorities of member municipalities and/or their EPCI. The proportion of each political party in the council of EPCIs after the local election 2015 was published by the Journal Le Monde on the website: http://www.lemonde.fr/centre-val-de-loire/.