ESPON

POLYCE
Metropolisation and Polycentric Development in Central Europe

Targeted Analysis 2013/2/12

Scientific Interim Report | Updated Version 22 December 2011

EUROPEAN UNION
Part-financed by the European Regional Development Fund
INVESTING IN YOUR FUTURE

This report presents the interim results of a Targeted Analysis conducted within the framework of the ESPON 2013 Programme, partly financed by the European Regional Development Fund.

The partnership behind the ESPON Programme consists of the EU Commission and the Member States of the EU27, plus Iceland, Liechtenstein, Norway and Switzerland. Each partner is represented in the ESPON Monitoring Committee.

This report does not necessarily reflect the opinion of the members of the Monitoring Committee.

Information on the ESPON Programme and projects can be found on www.espon.eu

The web site provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

This basic report exists only in an electronic version.

List of authors

Lead Partner:
Vienna University of Technology (VUT),
Centre of Regional Science
Rudolf Giffinger, Johannes Suitner, Justin Kadi, Hans Kramar, Christina Simon

University of Ljubljana (LJU),
Faculty of Civil Engineering and Geodesy
Natasa Pichler-Milanovic, Alma Zavodnik-Lamousek, Samo Drobne, Miha Konjar

Slovak University of Technology (STUBA), Bratislava
Maros Finka, Matej Jasso, Zuzana Ladzianska

University of Szeged (SZ)
Zoltan Kovacs, Tünde Szabo, Lajos Boros, Szabolcs Fabula, Agi Papp

Czech Technical University in Prague (CVUT),
Faculty of Architecture
Karel Maier, Marketa Hugova

Charles University in Prague (CUNI),
Faculty of Science
Ludek Sykora, Ondrej Mulicek, Peter Kucera

CEPS/INSTEAD - Centre for Populations, Poverty and Public Policy Studies (CEPS), Luxembourg
Christophe Sohn, Sabine Dörry

Politecnico di Milano (PM)
Roberto Camagni, Andrea Caragliu, Ugo Fratesi

List of stakeholder cities and institutions

City of Vienna (Lead Stakeholder)
Department of Urban Development and Planning

City of Bratislava
Department for Spatial Systems Coordination

City of Ljubljana
Department of Spatial Planning

City of Prague
City Development Authority

City of Budapest
Studio Metropolitana, Nonprofit Ltd.

Table of contents

1. List of Abbreviatons

ATTREG	Attractiveness of European Regions and Cities for Residents and Visitors (ESPON Project 2012)
CAEE	The Case for Agglomeration Economies in Europe (ESPON Project 2010)
CEC	Central and Eastern European Countries
CC	Core City; administrative area of a city
CED-zone	Central European – Danube global integration zone
CLIMATE	Climate Change and Territorial Effects on Regions and Local Economies (ESPON Project 2011)
CORDIS	Community Research and Development Information Service
DEMIFER	Demographic and migratory flows affecting European regions and cities (ESPON Project 2010)
EFP	EU Research Framework Programme
EFTA	European Free Trade Association
ESDP	European Spatial Development Perspective
ESPON	European Observation Network for Territorial Development and Cohesion
EUROSTAT	Detailed statistics on the RU and candidate countries
FIRE firm networks	Finance Insurance and Real Estate
FMA	Functional Metropolitan Area
FOCI	Future Orientation for Cities (ESPON Project 2010)
FUA	Functional Urban Area; spatial delimitation for urban agglomerations in Europe as identified in ESPON 1.1.1 (ESPON Project 2005)
FUR	Functional Urban Region
GaWC	Global and World City Research Network
ICT	Information and communication technologies
ISCO	International Standard Classification of Occupations
INTERCO	Indicators of Territorial Cohesion (ESPON Project 2012)
KIT	Knowledge, Innovation, Territory (ESPON Project 2012)
LAU	Local administrative unit
LUZ	Large Urban Zone
MEGA	Metropolitan European Growth Area; FUAs with metropolitan functions as identified in ESPON 1.1.1 (ESPON Project 2005)
MR	Metropolitan Region
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
OFMA	Outer Functional Metropolitan Area
OMR	Outer Metropolitan Ring
POLYCE	Metropolisation and Polycentric Development in Central Europe

SURE	Success for Convergence Regions' Economies (ESPON Project 2010)
TRACC	Transport Accessibility at regional/local scale and patterns in Europe (ESPON Project 2012)
UA (URBAN AUDIT)	Comparable statistics and indicators for European cities
WP	Work package of POLYCE as indicated in the project plan (see Fig.13 in the Synthesis Report of the Interim Report)

2. Figures

2.1. Figures

2.2. Tables

3. Introduction

Two specific development trends are regarded important for the increasingly competitive context in which European cities find themselves: (1) »World city formation« is the process by which the global economy impinges upon cities and transforms their social, economic and physical dimensions in relation to their role in the global urban hierarchy (Friedman, 1986; Sassen, 1991). The emergence of specialized city systems is defining new roles for particular cities or groups of cities in the global urban hierarchy. Those cities integrated into the »functional city systems« (i.e. cross-border inter-regional urban networks) are also undergoing the process of world city formation – affecting urban form, structure and development. (2) The fall of the Iron Curtain and the process of integration changed the conditions for urban development – especially for cities in Central Europe. New opportunities and perspectives for economic activities arose along the integration process, providing new market potentials and new patterns of mobility of labor forces and capital. (Rodriguez-Pose, 2002) But at the same time the pressure of competition has increased as cities lost their centrality and dominant central functions in the former urban hierarchy on the national level.

Under conditions of globalization, the allocation of investments respectively of economic activities across different types of cities follows distinct characteristics of cities and the comparative advantages cities are able to provide. Resulting from this trend, the issue of competitiveness gained increasing importance in recent years (Parkinson, 2003; Begg, 1999) and place-based related strategies strengthening a territory's territorial capital are increasingly in discussion. (Camagni, 2007; 2009)

4. Objectives

POLYCE's main objective is to identify the importance of the mutual links between the process of metropolisation and polycentric development and the challenges and perspectives of future urban development. Theoretical and empirical research addresses structural, functional and strategic relations that are based on competition or cooperation, targeting the five metropolises with their territory and the CED-zone. Final conclusions and recommendations will take into account a metropolitan perspective regarding the five capital cities Bratislava, Budapest, Ljubljana, Praha and Wien as well as a European perspective based on the 5 metropolises as part of the macro Danube Region. Besides, POLYCE will provide added value in a methodological and policy perspective:

- Theoretical and empirical analysis will go beyond recent research efforts through the consideration of traditional factors as driving forces of urban development.
- Knowledge of stakeholders regarding potentials, resources and assets of metropolitan development are going to be considered explicitly. Important actors will be involved and their perceptions of assets as driving forces of metropolitan development are going to be considered comprehensively.
- Policy relevance of POLYCE will be fostered through the discussion and assessment of processes of metropolisation and polycentric development under the perspective of competitive and inclusive metropolitan development.

5. Conceptualization

The following chapters concentrate on the conceptualization of the POLYCE-project which corresponds to Work Package 2.0. Hence it serves as a guideline for the content-related part of the project and therefore has the following specific objectives:

- Elaborate a comprehensive understanding of the mutual relation between metropolisation and polycentric development
- Improve knowledge regarding the role of specific potentials and assets for metropolitan development in order to formulate strategic recommendations
- Assure comparability and transferability of information

In order to meet these challenges of a guide-line the scientific report of POLYCE concentrates on a basic understanding of metropolitan development, its policy relevance, basic assumptions, and methodological aspects across all Work Packages.

5.1. Basic understanding: metropolitan development based on specific potentials and assets

Over the last twenty five years there has been a remarkable shift in the conditions of urban development leading to specific new trends within cities. Processes of socioeconomic polarisation and marginalisation and increasing immigration of new ethnic groups endangered territoral cohesive development through strong processes of gentrification and segregation. Hence, discussion in urban development policy and planning was then shifting towards issues of mono- and polycentric development concepts (Kunzmann, 1996) and, more recently, towards strategic planning approaches in front of post-modern form of urban development (Friedman, 2002; Healey, 1999).

In literature these trends of urban development are discussed under different perspectives of urban restructuring. First, research in this context concentrated on the identification and assessments of nodes in global networks according to the emergence and meaning of new functions. Empirical research focused on the new definition of the meaning and role of cities in a global perspective and defined new urban systems and rankings according to their size and their functions in different fields of urban development (Hall, 1984; Sassen, 1991 and 2001; Keeling, 1995). According to this perspective even ESPON 1.1.1 report classifies European cities as Metropolitan Growth Areas (MEGA) and defines a specific hierarchy due to following criteria: size (Population), economic performance, connectivity and knowledge intensive activities

A second but related topic of research is the discussion of urban restructuring on the urban regional level under the term ‘metropolisation’. Of course, this is done from different points of views leading to a specific understanding of the process of ‘metropolisation’. Hence, it is regarded as:

- the result of a mutual process of spatial concentration of (new) economic functions and population having an effect on its growth and spatial extension through immigration (Friedman, 1986 and 2002; Geyer, 2002);
- a node of global networks of material and immaterial flows exercising command and control functions with excellent connectivity between each other (Keeling ,1995);
- economic restructuring towards knowledge intensive economic activities in specialized branches of production or service (Krätke, 2007);
- relative high concentration of metropolitan functions in the urban agglomeration (BBSR, 2010), or
- the allocation of specialized and specific functions as driving forces of economic and demographic development within the city or increasingly centred in a polycentric form

within the agglomeration (Kunzmann, 1996; Leroy 2000; Sassen, 2002; Elissade, 2004)

Concentrating on the second topic, in this project the process of metropolisation is regarded as a specific form of urban restructuring based on the city's ability to compete with other cities and to gain specific metropolitan functions. Therefore, this process of metropolisation provides a specific social, economic and spatial outcome which - generally spoken – is depending on specific local factors of influence. Because of this place related influencing factors metropolisation leads to specific local metropolitan characteristics producing in sum a metropolitan profile which differs across European cities, although metropolisation is a general trend.

Based on a comprehensive understanding we assume that metropolitan competitiveness is very much linked to its territorial capital. This territorial capital consists of different endowment related factors and potentials but also of specific forms of cooperative efforts with strategic planning character which –in combination - provide competitive advantages for the realization of metropolitan functions (Camagni, 2007 and 2009; Giffinger et al., 2009). In this perspective, metropolisation we therefore regard as the outcome of mobilized territorial capital.

5.1.1. Territorial capital as a base for metropolisation

Along with the process of European enlargement heterogeneity and differences in the conditions for urban-regional development increased enormously across regions. Due to specific political and economic conditions provided through the process of transformation in Central European countries, recent socioeconomic conditions, regional structures as well as political structures and administrative capacities vary strongly across different nations and regions. A comparative report of the OECD (2001) emphasized great differences in the preconditions for regional development as well as in economic performance. This report presupposes the first time that same investments respectively same external economic demand obviously will lead to different regional effects due to its specific 'territorial capital' - even on the national level. More specifically the OECD recognizes (p. 13) that "prosperity is increasingly a matter of how well each city, each region, can achieve its potential. It is a supply-side concept. Territorial capital refers to the stock of assets which form the basis for endogenous development in each city and region, as well as to the institutions, modes of decision-making and professional skills to make best use of those assets." Accordingly, territorial capital is regarded as a distinct bundle of factors which attracts investments and which makes the return of certain investments higher than in other regions and which generates a higher return for certain kinds of investments than for others (OECD, 2001, p. 15).

Over the last years, in the European discussion on competitiveness the term 'territorial capital ' was used partly. However, its basic idea and relevant arguments are considered increasingly in the drive on Territorial Cohesion (European Council 2007, Faludi 2007). Recently, the terms Territorial Capital and Territorial Governance have found prominent attention in the document 'The Territorial State and Perspectives of the European Union: Towards a Stronger European Territorial Cohesion in the Light of the Lisbon and Gothenburg Ambitions' (Luxembourg Presidency 2005) and in the paper titled 'Territorial Agenda of the European Union: Towards a More Competitive and Sustainable Europe of Diverse Regions' (http://bmvbs.de/Anlage/original_1005295/Territorial-Agenda-of-the-European-Union-Agreed-on-25-May-2007-accessible.pdf, 25.06.2010).

This approach of 'territorial capital' takes up this discussion on competitiveness in an increasingly comprehensive perspective. Its basic endowment and functional related elements are natural features, material and immaterial cultural, technical and social heritage; fixed assets as infrastructures and endowment related qualities of distinct places. Its basic relational elements are 'untraded' interdependencies (like customs, informal rules, understanding) or specific environments (such as institutions, rules and practices, common

strategies and policies) (Storper, 1997). In a more systemic perspective, Camagni (2009, p. 123) identifies 9 different goods which characterize a territory under the aspect of materiality and rivalry (see Figure 1).

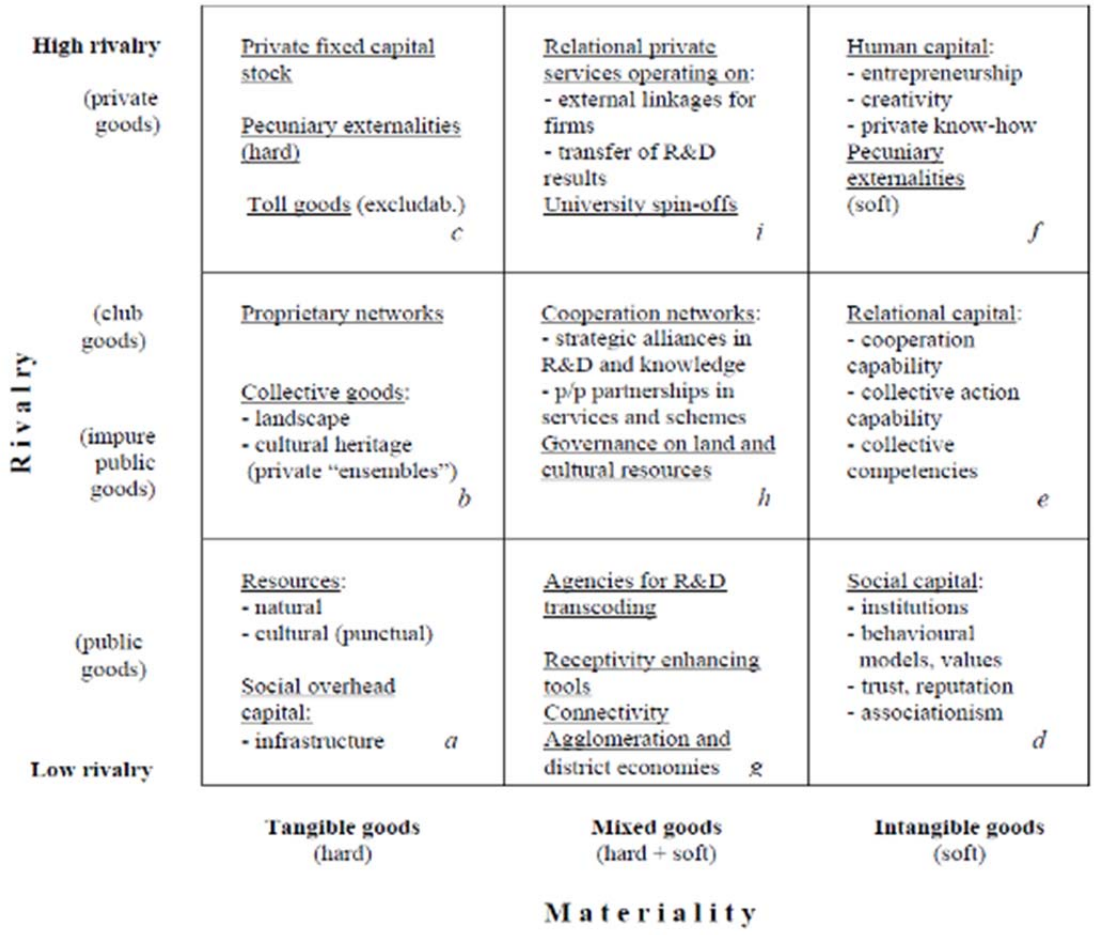


Figure 1: Theoretical taxonomy of the components of territorial capital

(Source: Camagni, 2009, p.123)

This classification emphasizes that different forms of non-material capital are important as intangible assets for metropolitan development. The focus of the theoretical analysis is no more merely on physical factors, which can easily be transported, but rather on space-specific assets, that cannot be reproduced by moving people and goods, and stem from local culture, values, and norms. In this view, urban competitiveness is linked to the territorial capital of cities, as a major driving force of metropolisation. Territorial capital consists of different endowment related factors and potentials but also of specific forms of co-operative efforts with strategic planning character which –in combination - provide competitive advantages for the realization of metropolitan functions (Camagni, 2009; Giffinger et al., 2009). In this perspective we regard metropolisation as the outcome of mobilized territorial capital as assets which provide specific area based advantages. Consequently, territorial capital with its specific assets is regarded as a precondition as well as the result of metropolitan development in different dimensions.

5.1.2. Metropolisation and polycentricity

The above described concept allows relating assets of strategic positioning regarding functional polycentricity on different spatial levels. Co-operative initiatives (strategic efforts of

governance) and relational capital are regarded as two important assets in the context of metropolisation (Camagni, 2007 and 2009; Giffinger et al., 2009): This process is usually characterized through the cooperation of stakeholders who represent different sectors, municipalities and even different regions. (Ottgar, et al., 2008) Therefore, intangible assets in form of cooperative efforts and relational capital will increase the higher the levels of trust and regional identity or of common competences as influencing factors are. These intangible assets, finally, provide rather absolute than relative area bounded advantages. This means that a metropolis' territorial capital is in particular enhanced through any form of cooperative initiatives and relational capital which enforce the linkage of cities or specific groups of actors (public, private), or the provision of clusters that are located in places where people can acquire and share tacit knowledge about how things work.

And indeed, agglomerations are the places of businesses, where social networks would thrive most (Storper and Venables, 2004). In cities characterized predominantly by the presence of small and medium enterprises, networks of firms interconnected by common knowledge of people and facts can share information and reduce transaction costs, thus allowing urban agglomerations to generate innovation, the absence of large firms notwithstanding (Aydalot, 1986; Camagni, 1991 and 1995). The concept of territorial capital therefore allows a more comprehensive systematization of the notion of urban innovative milieu, through the notions of relational capital and co-operative networks.

Consequently, the approach will consider the most relevant dimensions of territorial capital: on the one hand side traditional factors like private fixed capital or human capital are taken into account, and on the other side non-traditional factors of the more recent discussion like relational capital, social capital or cooperative networks are considered more or less explicitly. In particular relational capital and different forms of co-operative networks on different levels are discussed and operationalized in detail in order to work out the meaning of polycentricity in a morphological, functional and strategic perspective. Metropolitan competitiveness of a capital city therefore refers to a 'metropolitan territory' which is influenced by polycentric networks on different levels from a city's perspective enhancing and strengthening metropolitan polycentric development in a morphological, functional and a strategic perspective.

The debate on the concept of polycentricity already emerged in the European Spatial Development Perspective (ESDP) (CEC, 1999) and is still well represented within and beyond the ESPON programme (ESPON 1.1.1, 2005; Waterhout, 2002; Tatzberger, 2008). In very simple words, polycentrism means the existence of more than one spatial pole. Polycentrism can be understood in more morphological or functional ways, in more analytical or normative/strategic ways. However, large parts of the debate on polycentrism are linked to the question of scale. Hence, in theoretical and empirical discussion the characteristics of the relations between spatial entities as well as the spatial level of polycentricity became increasingly important.

In POLYCE polycentricity is going to be analysed according to definitions made in the most recent ESPON projects. This holds in particular for the terminology of spatial entities, which will build similar to the concepts used in FOCI. FOCI distinguishes four analytical levels: European (macro level), the inter-regional (meso level), the intra-regional (micro level) and the intra-urban level (ESPON FOCI Interim Report). POLYCE will concentrate on the first three levels in a slightly modified way.

Also, FOCI defined three spatial entities to empirically analyse polycentricity. A Core City (CC) which corresponds to the administrative city, a Metropolitan Area (MA) corresponding to LUZ/FUA and a Metropolitan Region (MR). As in POLYCE functional relations are of main interest "metropolitan areas" will be renamed into "Functional Metropolitan Areas (FMAs)". The operationalization of FMAs will be conducted in the Work Package 2.1 based on the posed question.

The micro level: Polycentricity within the metropolitan region

In the POLYCE approach the Metropolitan Region (MR) consists of a Core City (CC), a Functional Metropolitan Area (FMA) and a surrounding Outer Metropolitan Ring (OMR). Polycentricity at the micro-level will be analysed regarding all three entities. Empirical analysis does not only concentrate on empirical results of the aggregated entities as such but will in particular analyse interconnected elements within the Metropolitan Region (MR). These could be elements such as cities and municipalities, cross-border networks, infrastructural networks, etc. In Particular, WP 2.1 will focus on this definition and delimitation of the FMA in order to support empirical research on different forms of polycentricity in an accurate way.

The meso level: Polycentricity between metropolitan regions

Relations interlinking metropolitan regions will be identified and described. Polycentricity will be analysed for all MRs which are member of the CED-zone. Interrelations will be elaborated as far as indicators are not available from other ESPON projects.

The macro level: Large scale polycentricity

Relations of the five metropolises in the CED-zone will be analysed and compared to other metropolises as well as groups of metropolises in other European macro-regions. Quality and intensity of the inner polycentric structure can be assessed through the comparison with its outside relations.

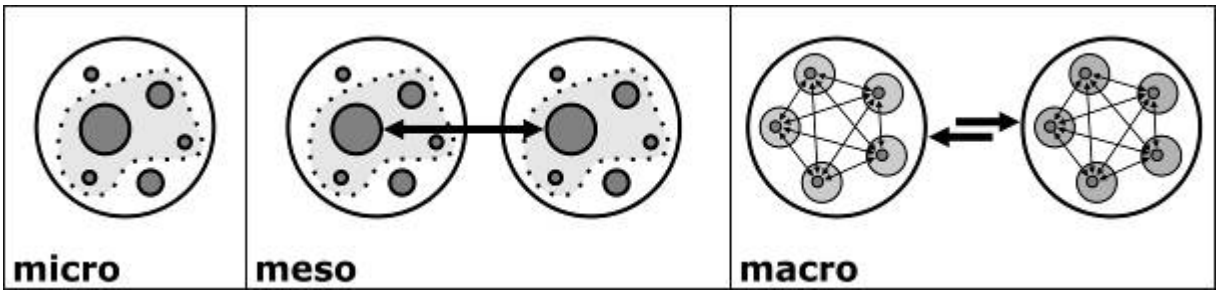


Figure 2: Scales of Polycentricity

5.1.3. Challenges of governance within the process of metropolisation

Since the 1990s, the nature and role of metropolitan governance for reaching common policy goals in metropolitan areas have been widely discussed, both politically, as it touches the competencies, preferences and interests of policy actors nested in different spatial scales (EU, national policies), and scientifically, as it brings together research interests of scholars from different scientific disciplines (e.g. regional economics, planning, political science). Up to now the scientific debate on metropolitan governance has been dominated by four strands of thought (Heinelt et al., 2005): the metropolitan reform tradition, the public choice concept, the new metropolitan governance approach and the concept of territorial capital. While the metropolitan reform tradition and the public choice approach have been partially marginalized because of their limited guidance for dealing with challenges of metropolitan governance, the latter two strands of research have developed well in terms of empirical research and political relevance. They will receive special attention in the following paragraphs in order to sketch out the crucial analytical dimensions of metropolitan governance used in the project.

The new metropolitan governance approach basically refers to the debate about the transformation of the state, which is packed in the well known notion of the “shift from government to governance” (Koimann, 1993; Le Galès, 2002; Pierre, 2000; Rhodes, 1997). Broadly speaking, from this point of view governance is grasped as an ongoing process,

which is based on different rule systems (market, hierarchy, networks; Mayntz et al., 1995) and on different structures of interaction (e.g. cooperation). Its main goal is to facilitate the coordination and steering of collective actions. New metropolitan governance has been increasingly used for describing new ways of governing in metropolitan areas (Heinelt et al., 2005; Basten, 2009; Salet et al., 2003), whereby "new" implies a form of governance, which is more inclusive and participatory compared to traditional hierarchical government. Governance is regarded as the capacity to influence and integrate interests of different social groups, organisations and policy actors in order to develop common strategies and to emerge as a collective actor. Consequently, in contrast to 'government', the idea of new metropolitan governance involves working across boundaries within the public sector (cross-departmental) or between the public and the private or civil society sector. Networking and partnership building are the key blocks of metropolitan governance, which, of course, do not upend the more formalized dimensions of politics, but should supplement them considerably.

5.2. Basic assumptions regarding metropolisation, urban size, polycentricity and governance

Based on these considerations through which factors processes of metropolisation are driven, the project is based on following assumptions:

A1: According to the territorial capital approach metropolisation is driven by different hard endowment related factors and soft relational factors which in combination activate and mobilize perceived potentials and transform them into assets. These assets provide area based advantages which strengthen the competitiveness of cities and attract specific metropolitan functions. Hence, metropolisation is the outcome of the activation of relevant potentials in a highly competitive situation between cities.

A2: Depending on the objectives and effectiveness of governance initiatives, polycentric relations and thereby metropolitan development can be stimulated and fostered. This includes the realization of strong functional complementarities as area-bound advantages (structural/functional relations) and cooperative efforts (institutional/strategic relations) at the micro-, meso- and macro level. Thus, functional and strategic polycentric structures which create area-bound advantages are assumed to become an asset for metropolisation.

A3: New governance exhibits 'soft' forms of policy-making and conflict avoidance, for example bargaining and learning processes. New metropolitan governance implicitly shows up an understanding of "territory" as a social and political product or construction, and sheds light on the role of actors and their interaction in solving problems of coordination and steering in a highly fragmented context. Hence, metropolitan development is driven by the process of accumulation of assets based on relevant cooperative governance initiatives. This process is the more effective and strong the more metropolitan assets are created which have a recursive and positive influence predominantly on economic and human capital and at the same time on relational capital - notwithstanding the high and unquestionable costs associated to large urban scales.

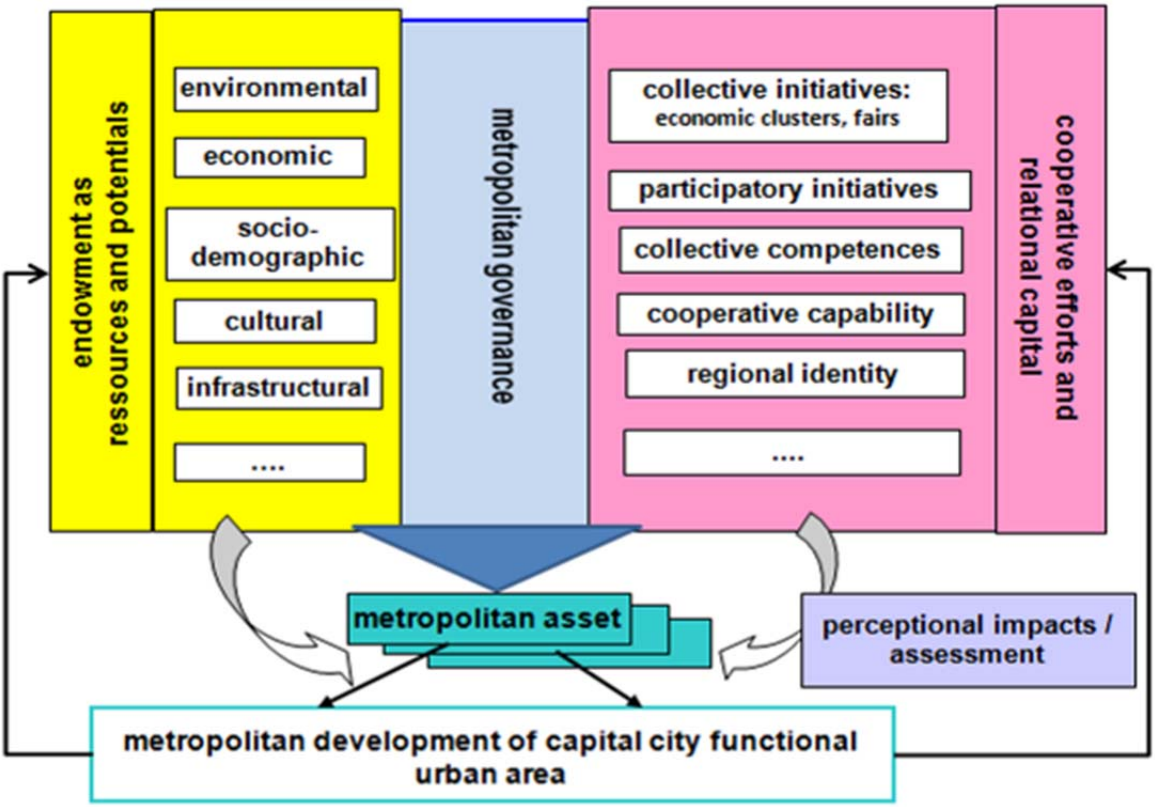


Figure 3: Hypothesis on metropolitan governance

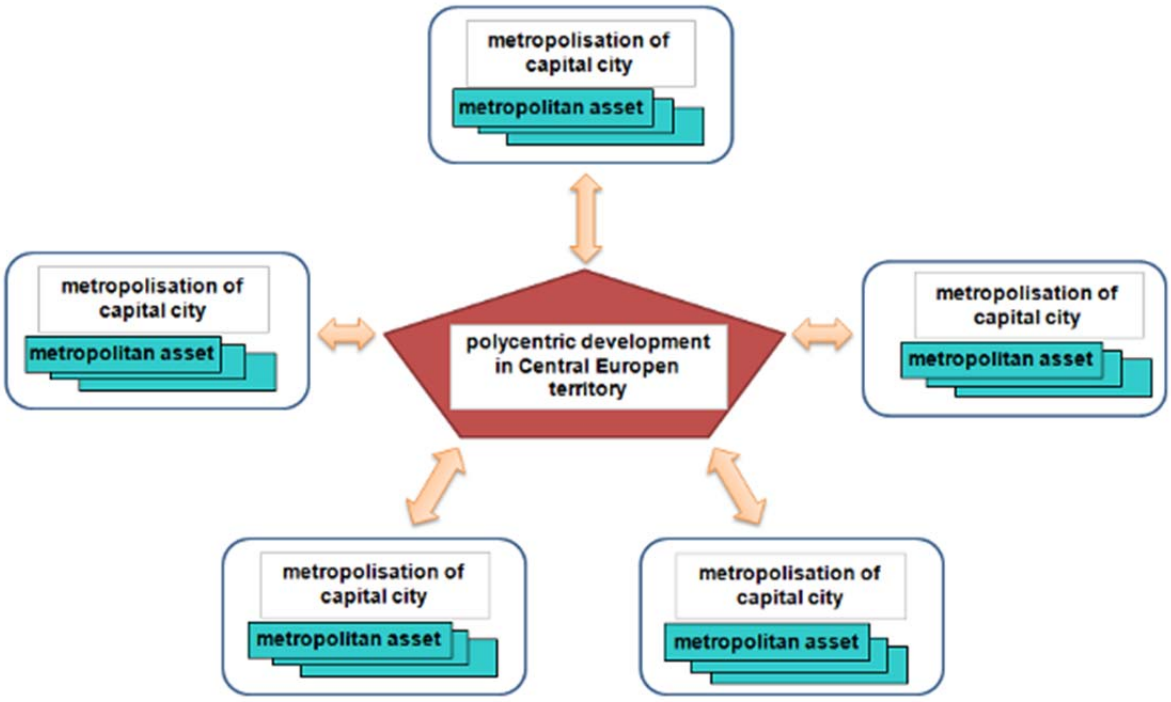


Figure 4: Hypothesis on polycentricity and metropolisation

A4: Metropolitan functions are established due to area bounded advantages. Due to endowment related factors very often metropolisation goes far beyond city borders. According to capacity and ability of governance approaches to steer allocation of metropolitan functions the process is realized in a polycentric way on the micro and meso level: strong functional complementarities of area bounded advantages (functional relations) and respective cooperative efforts (strategic relations) are assumed even to enforce polycentricity on the micro and meso level. Functional and strategic polycentric structures which enhance area bounded advantages on the meso level are likely to become an asset for metropolisation.

A5: Polycentric development between metropolises on the Central European level depends on two basic aspects. First, functional relations are likely to exist the more specific and individual are metropolitan characteristics and profiles and the more complementary the specialization of metropolises is. Of course, functional relations between metropolises are only realized if there is respective infrastructure enabling specific forms of interrelations. Thus, connectivity and accessibility in the global or at least European perspective plays an important role. Functional relations may be based on the principle of competition (specialization of metropolises) or on the principle of cooperation in respective strategic efforts. Therefore, polycentricity on the global or European level is even a specific asset of metropolisation and positioning. Besides these basic assumption concerning the project as a whole, some specific assumption are focussing on the specific topics or Work Packages and on methodological issues:

A6: Polycentricity on the micro level is a main base for future development of the core city and the whole Metropolitan Regions (MR), as it determines the possibility to strengthen and expand existing networks and to establish new ways of co-operation between the settlements and actors involved. Therefore the detailed analysis and comparison of both the morphological and the relational dimension of polycentricity in different cities is an essential requirement to assess the cities' potentials and to shape effective development strategies. Relational Polycentricity on the meso and macro level, which includes institutional relations, interactions and flows both among the five partner cities and between them and the "rest of the world", is the backbone of political and market integration of the metropolises. They have the choice between a close interaction and co-operation with the partner cities or a more global orientation towards other cities and regions. Still, there are some restrictions, since economic, political and research networks seem to be strongly influenced by geographic conditions and historic ties.

A7: The process of metropolisation implies, from an economic point of view, the concentration of high-skills industries, labor force and functions along with the increasing polarization of economic performance in and around large urban agglomerations. "Compared to the classical concentration process represented by cities in general, metropolisation is characterized by an increase of weight of the largest cities in the distribution of some functions, as well as by concentration of population in metropolitan areas. Contradicting some "forecasts" about decline of big cities, the metropolitan process relies on a networking of the main agglomerations in which phenomena of connectivity tend to prevail over proximity relations".

A8: Two main preliminary interpretations to metropolisation can be provided at this stage: on the one hand, cities are different in terms of functions and of territorial capital they are specialized in. A high-value added service city reaches the decreasing return threshold for a size different than that of a manufacturing city. On the other hand, the way in which a city organizes its activities within the general urban system, setting up relations with other cities

in a polycentric way on different levels, allows the city to overcome some of its physical limits.

A9:High ranking cities with their respective territories should attract not only basic economic functions on the interregional and national level but should compete on an international level transforming their potentials into tangible and intangible assets which provide respective place based comparative advantages. Two different perspectives regarding competitive and inclusive metropolitan development is the challenge of a strategic governance approach that becomes evident supporting a smart development as: 'Smart metropolitan development' indicates the ability of a metropolitan agglomeration to cope with the challenges of competitiveness and inclusive development which is based on its territorial cohesion under the polycentric perspective. The similarities and differences between the metropolises in Europe are assumed to be an outcome of the competitive and at the same time strategically steered process of metropolisation based on the specialisation in metropolitan functions.

A10: In the concept of territorial capital the functional meaning of specific factors of influence is emphasized. One argues that a territory's competitiveness is influenced by tangible or intangible assets. Due to their intrinsic character intangible assets are of great importance because they are not subject of market dynamics which may change in short terms. At the same time it is emphasized that the competitiveness as a driving force of metropolisation is given only if potentials are perceived and activated and transformed into specific assets. Learning processes are crucial between stakeholders on a metropolitan level.

5.3. Policy Relevance

Challenges of competitive metropolitan development have become subject of a comprehensive academic governance discussion (Parkinson, 1997 and 2003; Begg, 1999; Ottgaar et al., 2008; Salet et al., 2003; Healy, 1997). At the same time, challenges of intra-urban development already found attention in the policy debate within the URBAN-initiative of the first and second programme period at the European level. Based on the Lisbon-Agenda of 2000 the policy debate concentrated for some years on competitiveness predominantly. Up from 2008 The Green Paper stresses three issues regarding Territorial Cohesion: (EC, 2008, Green Paper on Territorial Cohesion Turning territorial diversity into strength; (found July 27, 2011 at: http://eur-lex.europa.eu/LexUriServ /LexUriServ.do?uri=COM:2008:0616:FIN:EN:PDF)

- concentration and specialisation of urban and rural/peripheral regions strengthen functional regional links,
- connection by different infrastructures: hard, ICT, networks in knowledge economy and research;
- cooperation: at various levels, horizontal and vertical multilevel governance.

Since some years policy discussion shifted to issues of social and territorial cohesion in front of problematic and divergent processes at least on the interregional level. Recently the Europe 2020 Strategy is raising again the issue of cohesion and emphasizes the objective of 'smart growth'. (found July 27, 2011 at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF) In this Europe 2020 Strategy the discussion of an EU Cohesion Policy after 2013 focusses on smart, sustainable and inclusive growth. This policy initiative is based on the premises that

- metropolises have decisive importance for Europe's competitiveness,

- connectivity between highly developed and specialized places and good accessible metropolitan areas is crucial,
- networks on different geographical scales are linking global market places, and
- good governance and territorial cooperation are vital elements for the enforcement of economic and social cohesion (ESPON, 2010, p.6).

From the spatial perspective inclusive growth should be based on its urban and regional competitiveness and at the same time it is regarded as "…not just economic and social cohesion, but also territorial cohesion." (ESPON, 2010, p.29) Very obvious, it is acknowledged that competitiveness on the one hand and economic and social cohesion on the other hand are two clear complementary aims. Stressing these complementary or even conflicting goals territorial cohesion becomes the most important challenge – as a political goal but also as a means to meet the respective challenges within a certain territory. Correspondingly, in the ESPON point of view inclusive development is directly linked to territorial cohesion overcoming the contradiction and mutual obstacles between competitiveness and economic performance on the one hand and cohesion, environmental standards and quality of life on the other. Hence, the notion of inclusive development clearly stresses the importance of territorial cohesion as one of its crucial pre-requisites. So, inclusive development has become an important aspect and political agenda of territorial development. However, its comprehensive understanding is described in a short review on its use in literature. (see Appendix 2: Conceptual Review of "Inclusive Growth")

To conclude from a policy perspective: Metropolisation is a process of attracting specific new activities, jobs and residents which is predominantly based on its competitiveness. This means, that the attraction of specific metropolitan functions and activities is based on a cities specific and usually strongest assets and important potentials which provide specific area based advantages. These pre-conditions make certain places/areas more attractive than others – even within cities or at least in a wider metropolitan territory. Along with this process new sub centres emerge and metropolitan development usually goes far beyond city borders in a more or less polycentric way. In this context metropolitan governance approaches become of crucial importance regarding territorial development: Through the enforcement of competitiveness and the attraction of such functions the risk of socioeconomic polarisation increases and spatial fragmentation is enforced increasingly because not every social group of metropolitan inhabitants and not every area is able to participate on competitive processes. Hence, the stronger these divergent processes are, the more will social polarisation increase and social cohesion is presumably jeopardized. At the same time such specific allocation of metropolitan function steers spatial development but even the risk of increasing spatial disparities. If this polycentric development implies mutual interlinks a cohesive economic and territorial development is secured. But, very often a metropolis's territorial development is enforced through spatially divergent processes which increasingly show the risk of spatial fragmentation the more distinct areas are not able to compete for new metropolitan functions.

In a territorial perspective policy on inclusive development is challenged as a normative approach on the socio-spatial level. Facing the impacts and risks of urban competitiveness inclusive development policy has to ask for the enforcement of territorial cohesion explicitly. Of course this goal is the more challenging the more metropolitan competitive development affects exclusively most attractive areas across different administrative entities and enforces divergent economic development trends and disparities within a metropolitan area.

5.3.1. Policy for Smart metropolitan development

Over the last years the term 'smart' has become a buzz-word in the discussion on processes of urban growth and urbanisation. But its meaning still varies. So the question on the

definition of the term ‘smart’ in the context of metropolitan development needs to be answered next.

Originally the term ‘Smart City’ was used to describe a city with a ‘smart’ industry indicating economic activities in the field of information and communication technologies (ICT). In this discussion its invention and production as new technologies as well as its implementation and use in specific production processes is regarded as very important for urban growth (Giffinger et al., 2007; Caragliu, et al., 2009). This ICT-dominated understanding of ‘smart city’ has become rather prominent over the last years discussing its implementation in different fields of urban development: from industry over the fields of urban traffic systems, mobility, energy efficiency and logistics to governance as so called e-governance . Accordingly, the availability and quality of ICT infrastructure are regarded as crucial components of smartness.

Besides the ‘wired’ (hard infrastructure) city other factors had been discussed as decisive arguments of a smart urban development (Caragliu, et al., 2009, p. 4/5): business-led urban development in a predominantly managerial understanding, social inclusion and equity-based urban growth, soft infrastructure-based development (e.g. knowledge networks), social and relational capital as preconditions for smart growth and social and environmental sustainability as decisive components of urban development. Hence, the emphasis on these different aspects makes evident that there is still no- clear definition.

Basically ‘smart growth’ is discussed in three dimensions within the European Union:

- Education which encourages people to learn, study and update their skills;
- Research/innovation which creates new products, services and jobs; and
- Digital society which uses ICT in the run of urban development.

Again, the link to technological issues is very obvious (European Commission, Europe 2020; found at http://ec.europa.eu/europe2020/priorities/smart-growth/index_en.htm). In a more spatial and policy-related perspective it is emphasized that “To achieve smart growth Europe will need smart places” (European Commission, 2010, p.31). Smart places are then defined in the perspective of competitiveness as such places which attract people and firms and where knowledge and innovation, strategies and territorial governance, networks and connectedness are crucial characteristics. In this respect smart cities can be seen as ‘smart places’ that are competitive due to their use of assets deriving from functional specialization and connectedness. Hence, even the concept of smartness indicates that the connectedness becomes important but it does not go into detail regarding the different forms of polycentricity.

Based on different arguments of urban development theory Giffinger et al. (2007) identified several fields within which the smartness of urban development is challenged. Accordingly smart cities are defined ”… with regard to their ability to come to terms with the challenge of increasing city competition in a knowledge-based economy. For that purpose the cities have to be described from a functional perspective by new indicators which go far beyond conventional location related factors. These indicators must not be confined solely to local facilities of endowment; they also have to cover the activities of self-decisive and independent citizens in terms of awareness and participation of a city’s inhabitants in addressing new challenges. Accordingly, ‘smart’ implies in particular the implicit or explicit ambition of a city to improve its economic, social and environmental standards and consequently its competitiveness in urban competition” (Giffinger et al., 2010, p.304 f.). This understanding does not exclusively concentrate on technological issues but emphasizes in particular the interplay of inhabitants, economic actors and policy and asks for governance approaches which have to cope with different challenges. Hence, this concept does not focus merely on the potentials and endowments in the different fields of an urban agglomeration but it underpins the activation and acceptance of assets (but not only those in the ICT sector) by metropolitan actors as decisive driving forces.

To conclude, scientific literature, public discussion and governance concepts do not provide a clear definition of 'smartness' of a territory. However, the definition of a 'smart city' in POLYCE will stay in line with what was defined in the project 'European Smart Cities' (www.Smart-Cities.eu), whereby the emphasis lies on the different challenges (through technological innovation, sociodemographic processes and economic restructuring) a city has to cope with balancing competitive and inclusive metropolitan development. In particular this policy related perspective allows considering the complementary and sometimes even conflicting issues of competitiveness and social cohesion as basic elements of territorial cohesion with regard to metropolitan development driven through processes of metropolisation and polycentric dvelopment.

5.3.2. Understanding Smart Metropolitan Development

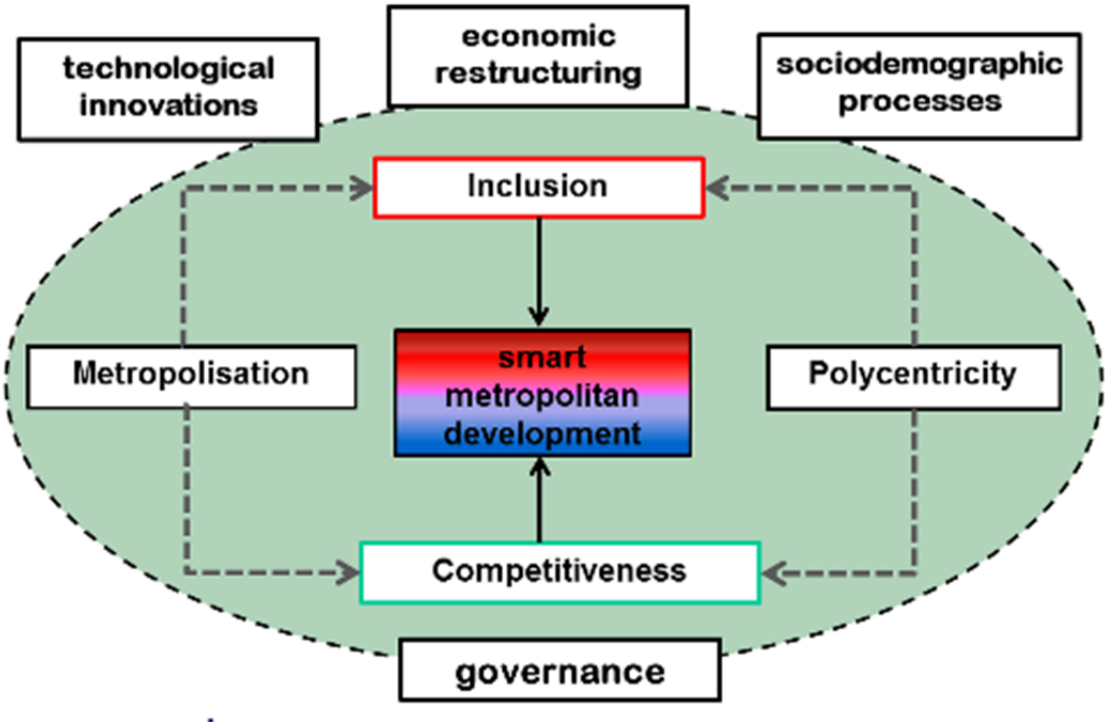


Figure 5: Unterstanding Smart Metropolitan Development

Based on the above discussion of 'smartness' a smart metropolis is therefore understood as a functional and polycentric metropolitan area within which competitive and inclusive development takes place in a mutually supporting or conflicting form which has to be steered by relevant governance approaches in a balancing way. Hence, the formerly broad definition of a 'smart' city is now précised in the following way:

> *'Smart metropolitan development' indicates the ability of a metropolitan agglomeration to cope with the challenges of competitiveness and inclusive development which is based on its territorial cohesion under the polycentric perspective. Besides, this ability is not related to local facilities of endowment as potentials only, but it also considers covering the activities of self-decisive and independent citizens in terms of awareness and participation of a city's inhabitants in addressing and activating new potentials and supporting and strengthening existing assets.'*

To conclude, policy integrating competitive and inclusive development in a smart way becomes even more challenging the more metropolisation provokes social polarisation and processes of precarisation jeopardize social cohesion (having a negative impact on competitiveness again). However, polycentricity – in particular on the micro-level within the functional metropolitan area – is likely to enforce territorial cohesion the more corresponding polycentric factors support functional relations and the more economic growth is distributed across all intra-metropolitan areas. Hence, policy supporting smart metropolitan development has to foster and enhance institutional polycentricity in form of strategic development approaches.

5.4. Methodological perspective

From a methodological point of view the concept of POLYCE on the one side demands for the description and analysis of specific 'phenomena' of metropolitan development and components of a metropolis's territorial capital. On the other side the concept demands for an evidence based explicit identification and assessment of potentials and assets and a place related elaboration of strategic recommendations. Hence, a combination of two types of methodologies is applied in the run of the empirical analysis under an ontological perspective. (Werlen, 1995) First, empirical research is realized applying an analytical-obejctivistic approach. Accordingly, concepts and hypothesis are formulated based on recent theoretical discussion and in WP 2.1, 2.2 and 2.3 empirical analysis applies relevant quantitative methods. Then – based on finding of analytical Work Packages – in WP 2.4 and 2.5 qualitative methods are applied in order to improve perception of potentials and to provide assessments of assets and the elaboration of strategic findings. Hence, distinct qualitative methods are used which support learning processes and discursive identification of strategic recommendations.

Based on the understanding of polycentricity which considers different forms and different spatial levels, distinct dimensions of morphological and relational (i.e.functional) polycentricity are defined and operationalized through corresponding quantitative indicators and measures. Most of these indicators are related to the micro level. According to our understanding this means empirical description of morphological and or functional polycentric characteristics for the five metropolises. Besides, some indicators describe functional characteristics of polycentricity on the meso and macro level. This empirical analysis not only provides information on strengths and weaknesses of polycentricitywith in this potential integration zone of the five metropolises, but also to its polycentric features towards other potential integration zones in a wider European context, in some aspects even the Danube macro-region. Empirical analysis is based on detailed data collecting and respective calculations.

In a combined neo-classical and regional science perspective urban size, metropolisation and polycentricity are analysed in front of the counter-intuitive trend occurring in most EU cities, showing a continuous population increase notwithstanding the high and unquestionable costs associated to large urban scales. First, in an econometric approach based on assumptions of spatial equilibrium optimal city size has to be detected discussing benefits and costs of urban size. Then, beyond the traditional view, some additional hypothesis on city size through metropolisation and polycentricity are tested. Building on a macro urban growth model, a specific discussion of relevant influencing factors of urban growth, through the interpretative lenses of the paradigms of urban rank, metropolisation and urban polycentricity is realised. The model finally provides information discussing future expected urban growth patterns. Empirical analysis is based on a sample of 59 EU27 Functional Urban Areas in the period from 1989 to 2010. Relevant indicators are elaborated on the base of ESPON data sources.

In order to describe metropolises in a comparable and quantitative way 'urban profiles' will be defined and operationalized through corresponding indicators. Special attention is given to the empirical description of both terms 'metropolisation' and 'polycentricity'. According to

former empirical studies this description of metropolitan development should comprehend in particular characteristics in the fields of economy, people, environmental and living standards, mobility, policy and governance conditions. In particular, here the concept of territorial capital is used for the definition of indicators which describe every city in a bundle of characteristics which are related to metropolisation and/or polycentricity. In order to describe metropolises in their territorial capital dimensions a large sample of indicators is defined based on ESPON data sources of different former projects or even from Urban Audit. This large group of indicators will be aggregated applying a relevant aggregation procedure considering statistical problems. As a result the empirical analysis provides quantified metropolitan profiles for every city included. Hence, the position of every city in the European urban system as well as the comparison and benchmarking against other cities will be described through this approach. The city sample is based on about 100 European metropolitan growth areas (MEGAS – ESPON, 2005, Report 111) including the five metropolises Bratislava, Budapest, Ljubljana, Prague and Vienna.

Based on different quantitative results regarding metropolisation and polycentricity in the second phase of POLYCE project the main objectives are to identify further metropolitan potentials and to assess findings regarding their meaning and importance as an asset for metropolitan development. Two different qualitative methods will be applied.

Questionnaire:

Interviews with about ten to fifteen important stakeholders are to be realized in every metropolitan area Three different groups of questions were asked according to the project's objectives: Recent urban development trends and city profile of the respective city, Perspectives for future development, and Realization of inclusive metropolitan development through cooperation. Further details and questions see Appendix 3: Questionnaire.

Local workshop

A workshop with about 25 stakeholder participants will provide the opportunity to assess quantitative empirical results and information taken out of the interviews. Due to specific forms of moderation the analytical results will be condensed to most relevant potentials which should be activated, and defined as most relevant assets for positioning in the European urban system.

Of course, policy relevance of empirical research will be considered in detail. Based on the empirical findings assets and potentials are discussed and evaluated regarding their meaning for future smart metropolitan development. This means that in the last phase of POLYCE project the discussion and empirical analysis of strategic documents has to focus on the meaning of metroplisation and polycentricity as steering factors of inclusive and/or competitive development. This discussion and assessment is realized in the second part of the local workshops with metropolitan stakeholders and in a final analysis of recent strategic documents and initiatives. Outcome of this last phase are recommendations regarding smart development for the five metropolises (on the micro level) and for the CED - region as part of the wider macro Danube region (most of all on the meso level, partly on the macro level) (see Figure 6 below).

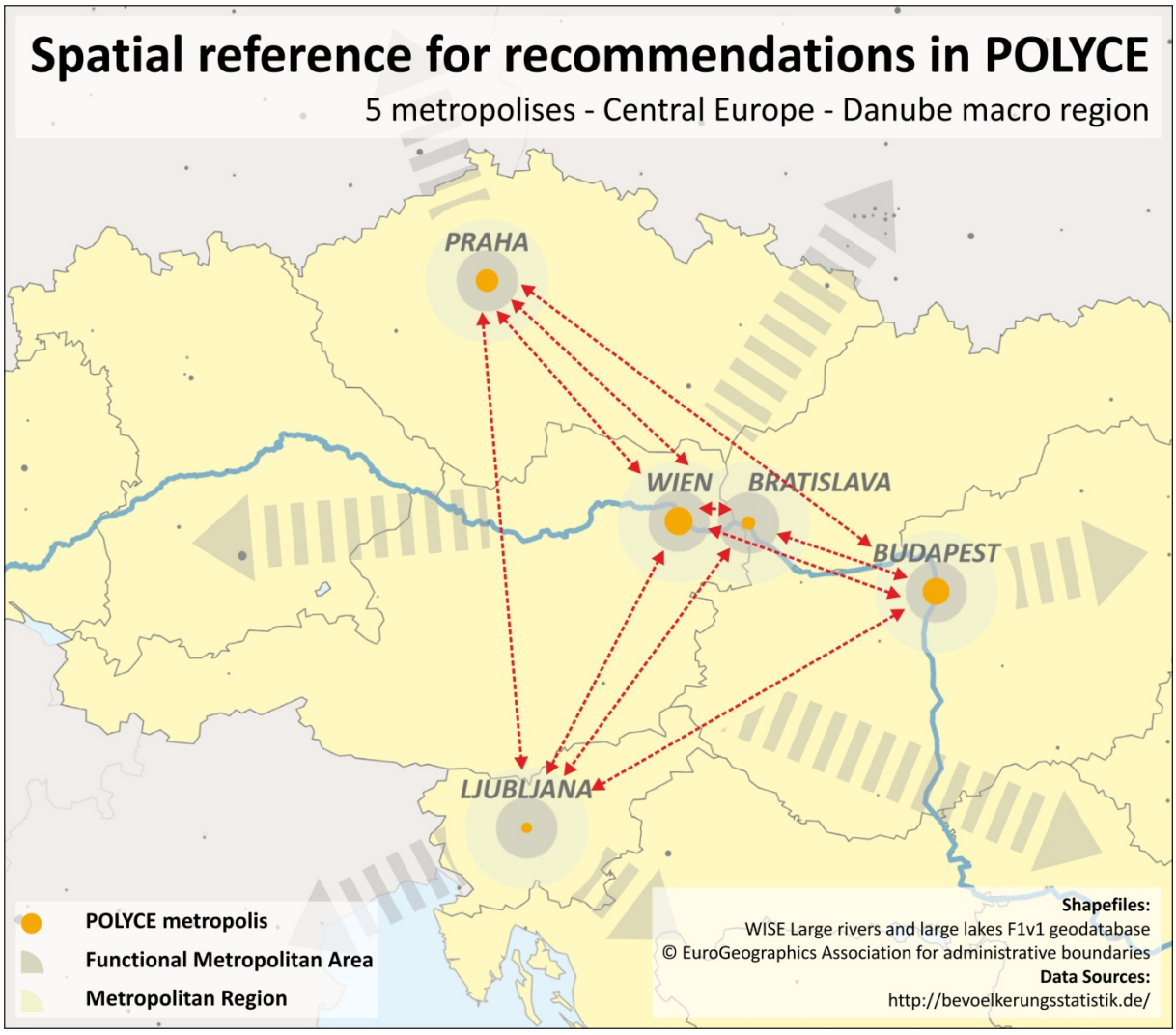


Figure 6: Spatial reference for recommendations in POLYCE

5.4.1. Scales of Polycentricity

Within the ESPON framework, the analytical understanding has mainly referred to four scales (for the most recent overview see ESPON FOCI Interim Report Annex p. 165): Polycentric structures are analyzed and discussed in a policy perspective of cohesive development on the European (macro level), the interregional (meso level), intra-regional (micro) and intra-urban level. The empirical analysis of POLYCE does not consider the fourth level.

Policy debate in POLYCE addresses the polycentric network on two levels: on the macro-regional level which refers to the urban system in the Danube Region; on the meso/micro-level which refers to polycentric structures of metropolises as functional urban regions. (ESPON 1.1.1, 2005)

6. Polycentricity

The aim of the analysis in WP 2.1 was the assessment of polycentricity in urban systems of the CED-zone on **three territorial scale levels:**

1) Intra-metropolitan polycentricity;

2) Polycentricity within the Central European - Danube global integration zone;

3) Position of the CED-zone within Europe.

The analysis focused on **capital cities, their functional metropolitan areas (FMAs) and metropolitan regions (MR)** as major growth poles and engines of regional development, while reflecting their position within national urban and regional structures.

6.1. Definitions and methodological approach

6.1.1. The concept of polycentricity

Polycentricity in POLYCE is conceptualized as an important feature of urban systems, which are understood as functionally integrated socio-spatial entities (in ESPON POLYCE, these are Functional Metropolitan Areas (FMA), Metropolitan Regions (MR) and Central European Danube Zone (CED zone)). A functionally integrated urban system consists of multiple nodes (centers) with several possible internal spatial arrangements ranging from the dominance of one centre over the rest of the system (monocentric) to plurality of centers of the same size and significance (Clark, 2000; Kloosterman and Musterd, 2001; Hall and Pain, 2006). In reality, any system of centers in a functionally integrated urban system is hierarchically organized, however with tendencies to higher monocentricity or higher plurality between more centers. The later is usually associated with polycentricity. Polycentricity in terms of higher plurality between centers in an integrated urban system is from a normative point of view seen as creating better conditions for efficient, cohesive and sustainable development in comparison with a monocentric form (CEC, 1999; ESPON, 2005; Kragt, 2006). This is why it is attractive as urban and regional planning concept (Davoudi, 2003; Faludi, 2004; Meiers, Waterhout and Zonneveld, 2005a,b).

Polycentricity has several mutually interlocked aspects, which operate together. They include:

- more even (polycentric) structure of nodes according to their size and significance (rank and size) – this is called **morphological polycentricity** (as indicator we use regression coefficient that measure the slope of rank size distribution of centers)
- reciprocal and multidirectional flows and interactions between nodes (as opposed to unidirectional to single centre), including conditions for these flows and interactions – this is called **relational polycentricity** (as indicator we use the share of reciprocal component of lows on the total commuting to work)
- mutual interests, considerations, inspiration, collaboration, complementarity in decision making in the nodes and between nodes (beside individual bottom up activities, the whole system can have holistic integrated top-down/bottom up strategy for enhancing polycentricity) – **relational polycentricity in governance** (we evaluate policies and planning strategies at FMR, MR and CED zone levels)

Polycentric urban system is functionally integrated socio-spatial entity that consists of multiple urban nodes that may differ in size yet all play important role in the system, are linked through intensive reciprocal and multidirectional relations with further development influenced by governance strategies that recognize, consider and support future enhancement of mutual interests, complementarities, synergies and potentials for collaboration.

6.1.2. Territorial units

There are three key methodological questions for the analysis of polycentricity: **territorial units of analysis**, **identification of centers** and **indicators of polycentricity**. As indicators can not be treated out of territorial framework, both issues are tightly related. Furthermore, territorial units and data should well consider and reflect **natural, organic, integrated socio-economic spatial formations**.

Territorial units of analysis reflect work done up to present within ESPON framework, yet they are further developed it in relation to the specificities of **local and regional context of Central European - Danube Zone.** The basic territorial unit of analysis is metropolitan area. ESPON POLYCE investigates **intra**-metropolitan polycentricity within metropolitan areas and **inter**-metropolitan polycentricity between these areas within Central European – Danube Zone and in relation to wider European space.

For the analysis of polycentricity on the micro-scale three types of spatial delimitations were made:

- **Core City (CC)** - capital cities in their administrative delimitation
- **Functional Metropolitan Area (FMA)** - daily urban system at micro-regional level delimited as areas of intensive commuting to work
- **Metropolitan Region (MR)** - wider economic mezzo-region reflecting the territorial networks of a city's economy

The **intra-metropolitan polycentricity** is assessed within Functional Metropolitan Areas (FMA) and Metropolitan Regions (MR). The basic unit of intra-metropolitan polycentricity analysis is municipality or aggregate of neighboring and functionally integrated municipalities. **Polycentricity within the Central European - Danube global integration zone** and **position of the CED-zone within Europe is assessed based on** Core City (CC), Functional Metropolitan Areas (FMA) and/or Metropolitan Regions (MR) as the basic units of analysis.

The **intra-metropolitan polycentricity** assessment uses Functional Metropolitan Areas (FMA) and Metropolitan Regions (MR). Both are organic territorial units that reflect real socio-economic-spatial systems. **Functional Metropolitan Areas (FMA)** represent daily urban system of the capital city at micro-regional level understood as areas of intensive commuting to work. They are a good base for comparative analysis as the organic territories are better comparable than administrative regions that substantially differ between countries. **Metropolitan Region (MR)** represent wider economic mezzo-region that includes territorial networks of the capital city's wider regional economy. Metropolitan Regions (MR) itself consists beside FMA of several other functional urban areas (FUAs) with their urban cores. Hence the assessment of polycentricity involves larger and more independent urban centers.

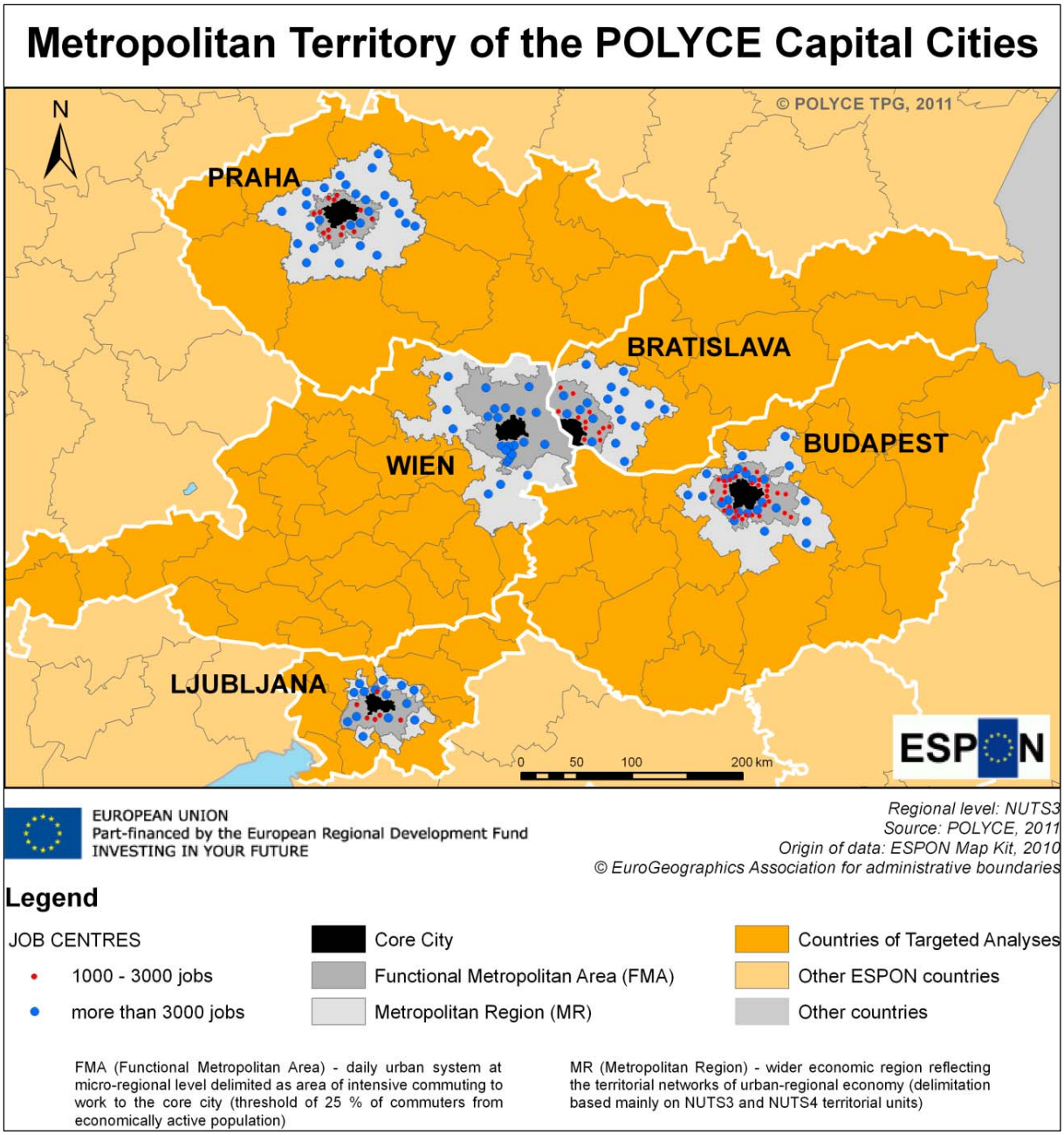


Figure 7: Metropolitan Territory of the POLYCE Capital Cities

For the assessment of **polycentricity within the Central European - Danube global integration zone** and **position of the CED-zone within Europe** we can use Core Cities (CC), Functional Metropolitan Areas (FMA) and/or Metropolitan Regions (MR) as the basic units of analysis. Capital cities in their administrative delimitation, i.e. Core Cities (CC) well represent the majority of population, economic activities and relations. Therefore, we do not necessarily need to use FMAs. Data are readily available for CC in comparison with FMA, that are not government and statistical units for which data would be readily available

Hence for FMA we can use only data available at municipal (LAU2) level and aggregated for FMA. It also has some cons - we do not use FMAs as basic territorial building blocks, despite they are the most organic socio-spatial entities. Alternatively, we can use whole Metropolitan Regions (MR) which represent wider regional economies clustered around the capital city and its FMAs. For MR, especially economic data are available.

Core City (CC) is central/capital city in its administrative boundary. **Functional Metropolitan Area (FMA)** was delimited using data on commuting to work reflecting the threshold of 25 percent of commuters to core city from economically active population was used respecting the principle of territorial consolidation (excluding municipalities that are islands outside the core territory and including those that form windows inside the territory). There can be certain differences in the level of economic development and spatial mobility of population between individual countries, so the arbitrarily set threshold of commuting levels might slightly differ from realities in individual countries and their settlement and regional systems.

However, the main aim of ESPON POLYCE is to asses the level of internal morphological and relational polycentricity based on the structure of and relations between centers within FMA and small differences in the FMA delimitation has only negligible, if any, influence on polycentricity indicators. **Metropolitan Regions (MR)** can not be delimited using more precise/accurate methodology of spatial integration flows as in the case of FMA and commuting to work. The delimitation in ESPON POLYCE was based on the expert assessment of national teams and consultations with the stakeholders. In general, NUTS3 and in some cases, such as Budapest, NUTS 4 regions were used for the delimitation of MR.

6.1.3. Indicators of intra-metropolitan polycentricity

Polycentricity in urban system is given by the structure of and relations between urban nodes within given urban and regional system. Hence, first we had to **identify urban centers** in FMA and MR of each capital city.

We identified employment nodes at municipal (LAU2) level using data about the number of jobs. **Job centre** was considered to be a municipality or cluster of neighbouring municipalities that provide proximity of employment areas (municipality in a cluster must have a minimum of 500 jobs) with a total of certain concentration of number of jobs. Job centers within FMAs were identified using a threshold of 1000 jobs: these are job centers with local influence. Within MRs we used a threshold of 3000 jobs for the identification of job centers with microregional influence. There must be a difference in analyzing two spatial levels of FMA and MR as the nature of socio-economic relations constitutive of these two spatial levels is different.

Based on local expertise, municipalities with less or more than indicated thresholds could be included/excluded from the list of job centers within FMA and MR, due to specific local circumstances. As statistical sources usually do not provide data on number of jobs in municipalities we calculated it from economically active population, less economically active women on maternity leave, less unemployed, less out-commuting for work plus in-commuting for work.

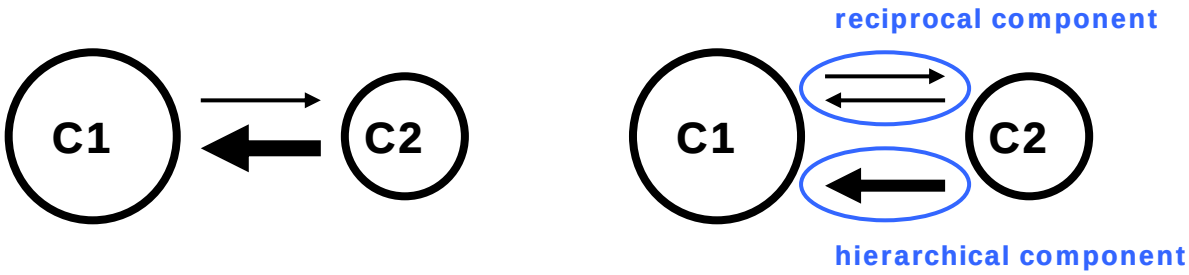
Two approaches were used to measure the level of polycentricity in FMA and MR: **morphological** analysis and **relational** analysis. Both analyses work with the core city and centers identified within FMA and MR territories.

Morphological polycentricity was analysed evaluating rank-size distribution of centers. We used two analytical tools. First, we compared the real distribution of population/jobs with the "ideal" rank-size curve based on the presumption: 1. = 2. + 3. + 4. = 5. + 6. +...+ 11. +12. = 13. +...+ 34. (the size of the city of the first rank is equal to the sum of sizes of second, third and fourth city, etc.). Second, we used the Zipf regression function describing the nature of rank-size distribution within FMA and MR (see Appendix 4: Zipf regression function). The level of polycentricity is given by the measure of the slope of regression line (regression coefficient). The coefficient expresses the theoretical decrease of size (job or population size measured on log-scale) when increasing the rank of the center by one unit. The higher the coefficient, the steeper is the regression line – indicating higher hierarchy and lower mophological polycentricity. For each job centre and the evaluation of morphological polycentricity, we collected data on population, jobs, jobs in III and IV sector if available,

economically active population, ea in III and IV sector if available, for 1990 – 2000 – 2010 (if available). For morphological polycentricity in MR we used only job centres with microregional influence, i.e. with at least 3000 (or so) jobs.

Relational polycentricity was analyzed evaluating functional linkages between centers within FMAs and MRs. Analyzing the matrix of commuting-to-work flows between centers in FMA and MR, we distinguished between reciprocal and hierarchical component of each commuting flow. Reciprocal component is the sum of commuting fluctuation between the two centers. Hierarchical component is the remaining unidirectional flow (see Figure 8).

Figure 8: Reciprocal and hierarchical components of commuting flows



We have calculated the share of reciprocal component on total commuting for the relation between each couple of centers and distinguished between three levels of reciprocity. In instances with reciprocal component accounting for over 65% we considered the relation as **reciprocal**, while relations with reciprocal component below 35% were considered as **hierarchical**. Relations with reciprocal component between 35% and 65% were considered as plural relation that maintains certain hierarchical subordination yet with significant reciprocal both directional relations.

All relations were visualized in maps of metropolitan areas showing the composition and possible predominance of either hierarchical or reciprocal relations and thus the character of relation polycentricity in the area. Furthermore, we have calculated the **level of relational polycentricity** in the whole FMAs and MRs of individual cities as the share of reciprocal flows (reciprocal component) on the total sum of flows between all centers within given territory.

6.1.4. Overview: Basic data of the five metropolises

The basic indicators of population size and no. of jobs in CC, FMA and MR and in centres within FMA and MR of individual metropolises are provided in Table 1, which also gives the number of municipalities and number of job centers in FMA and MR.

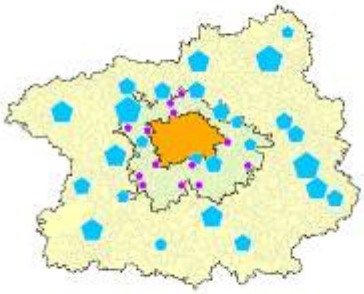
Table 1 Basic data of CC, FMA and MR

Indicators	Vienna	Prague	Budapest	Bratislava	Ljubljana
Population CC	1 550 123	1 169 106	1 777 921	442 291	256 881
Population FMA	2 227 580	1 391 579	2 545 841	655 674	456 915
Population MR	2 900 846	2 291 579	3 208 658	1 337 586	650 119
Jobs CC	821 458	746 427	856 193	317 322	178 020
Jobs FMA	1 060 921	837 017	1 051 127	403 309	230 135
Jobs MR	1 306 051	1 230 856	1 231 143	733 496	299 037
Population in FMA centers	1 788 029	1 266 753	2 382 582	569 729	426 004
Population in MR centers	1 927 263	1 619 180	2 370 414	859 870	541 004
Jobs in FMA centers	982 150	794 666	1 025 514	376 865	224 827
Jobs in MR centers	1 092 606	1 016 289	1 061 810	575 516	277 212
No of FMA municipalities	220	236	109	100	24
No of MR municipalities	507	1149	284	372	35
No of FMA centers	20	20	47	19	14
No of MR centers	26	27	26	18	15
area CC	415	496	525	368	275
area FMA	6 490	2 104	3 479	2 385	2 206
area MR	14 625	11 510	10 291	7 082	4 014

Figure 9: MRs, FMAs and Job Centres of the POLYCE cities

Vienna

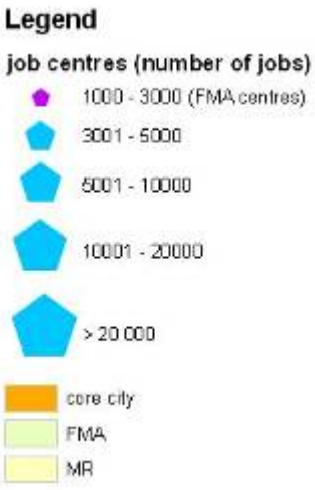
Prague



Budapest

Bratislava

Ljubljana



6.2. Morphological and relational polycentricity within the five metropolises

6.2.1. Morphological polycentricity

For measuring morphological polycentricity we used population size and no. of jobs in FMA and MR centers (job centers in FMA with below 3000 jobs are not considered as job centers within MR). Table 2 provides an overview of rank size distribution for centers in FMAs and MRs. FMAs are sharply dominated by their core cities especially in terms of jobs. Ljubljana shows the lowest and Prague the highest level of dominance in FMA. Core cities also dominate their metropolitan regions (MR), yet on lower level than in the case of FMAs. Bratislava and Ljubjana have both relatively high and similar levels of morphological polycentricity which substantially differ from the other three metropolitan regions that are strongly monocentric, with the highest dominance of Vienna in terms of population concentration to core city and Budapest in terms of job concentration to the core city.

Table 2 Rank size distribution (2001, Ljubljana 2002)

FMA pop.	**1.**	**1. (%)**	**2.-4.**	**2.-4. (%)**	**5.-12.**	**5.-12. (%)**	**13.-34.**	**13.-34. (%)**
Vienna	1550123	100	69704	4,50	105360	6,80		
Prague	1169106	100	36205	3,10	38302	3,28		
Budapest	1777921	100	117125	6,59	163978	9,22	245167	13,79
Bratislava	442291	100	53528	12,10	51382	11,62		
Ljubljana	265881	100	66751	25,11	84542	31,80		
FMA jobs	**1.**	**1. (%)**	**2.-4.**	**2.-4. (%)**	**5.-12.**	**5.-12. (%)**	**13.-34.**	**13.-34. (%)**
Vienna	837173	100	45980	5,49	63447	7,58		
Prague	746427	100	19686	2,64	18732	2,51		
Budapest	856193	100	41717	4,87	51898	6,06	58547	6,84
Bratislava	317322	100	28896	9,11	22159	6,98		
Ljubljana	178020	100	20969	11,78	23596	13,25		
MR pop.	**1.**	**1. (%)**	**2.-4.**	**2.-4. (%)**	**5.-12.**	**5.-12. (%)**	**13.-34.**	**13.-34. (%)**
Vienna	1550123	100	111545	7,20	141619	9,14		
Prague	1169106	100	151273	12,94	155283	13,28	176754	15,12
Budapest	1777921	100	167092	9,40	214346	12,06	309520	17,41
Bratislava	442291	100	188177	42,55	165691	37,46		
Ljubljana	265881	100	107604	40,47	142507	53,60		
MR jobs	**1.**	**1. (%)**	**2.-4.**	**2.-4. (%)**	**5.-12.**	**5.-12. (%)**	**13.-34.**	**13.-34. (%)**
Vienna	837173	100	90852	10,85	90289	10,78		
Prague	746427	100	93386	12,51	96217	12,89	91920	12,31
Budapest	856193	100	61419	7,17	79179	9,25	88338	10,32
Bratislava	317322	100	122779	38,69	99528	31,36		
Ljubljana	178020	100	45569	25,60	43493	24,43		

Table 3 shows a comparative summary of indicators of morphological polycentricity, for which we used the regression coefficient from the Zipf regression function describing the nature of rank-size distribution within FMA and MR. MR and FMA are less polycentric using job data. This is given by the higher level of job concentration compared to population. There is higher level of polycentricity in MR compared to FMA for all cities but Budapest. This is not surprising as the capital city usually has higher dominance over immediate FMA rather than its wider region. The regression line is strongly influenced by the capital city, which is in all cases dominating the system, i.e. is above the regression line. However, it is also impacted by the evenness or unevenness between other centers in FMA and MR. Therefore, we have to consider both these impacts in our interpretations of morphological polycentricity.

Table 3 Indicator of morphological polycentricity (regression coefficient) (2001, Ljubljana 2002)

MR/FMA	MR pop.	MR jobs	FMA pop.	FMA jobs
Vienna	1,1696	1,2418	1,2202	1,2620
Prague	1,2469	1,2421	1,4371	1,5901
Budapest	1,0680	1,1881	0,9432	1,1522
Bratislava	1,3021	1,3246	1,3898	1,6084
Ljubljana	1,0841	1,2545	1,2715	1,5361

Comparing both measures of morphological polycentricity the highest contradiction is between the high level of dominance of Budapest in both FMA and MR compared with the lowest slope of regression line and thus the relative evenness between the job centers concerning their population and job size. This is given by the rank size distribution that on one hand side is characterized by the dominance of 1st city but on the other hand side shows relatively smooth decrease between sized of other centers. In other words, Budapest FMA and MR would have very high level of morphological polycentricity provided there is not the dominance of the Budapest itself. Another example is Bratislava with the lowest dominance of the core city in metropolitan region, yet highest slope of regression line, due to higher slope and faster pace of descending of job centers in MR.

6.2.2. Relational polycentricity

For the measuring relational polycentricity within FMA and MR we used commuting-to-work flows between job centers. We distinguished between reciprocal and hierarchical component of each commuting flow (see methodology) and calculated the share of reciprocal flows on the total commuting within each FMA and MR. Table 4 shows the indicator for 2000/2002. Unfortunately, data for Bratislava were not available.

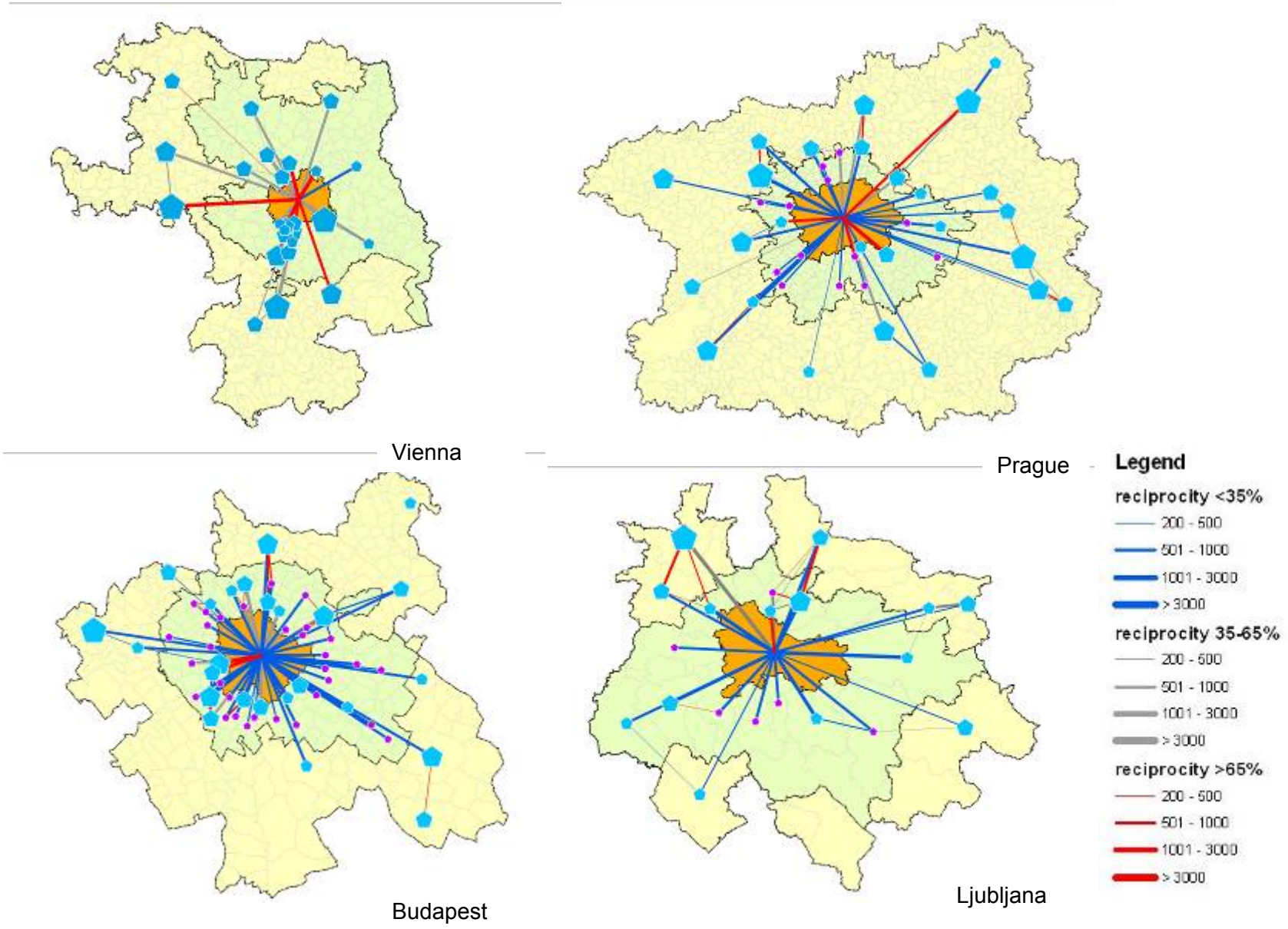
Table 4 Indicator of relational polycentricity: share of reciprocal commuting flows

		total flows	reciprocal flows	share (%)
Vienna	flows in FMA between centres 2001	94214	55362	58,76
	flows in MR between centres 2001	111887	66458	59,40
Prague	flows in FMA between centres 2001	25712	11008	42,81
	flows in MR between centres 2001	67689	24910	36,80
Ljubljana	flows in FMA between centres 2002	42029	12942	30,76
	flows in MR between centres 2002	64530	23132	35,85
Budapest	flows in FMA between centres 2001	147562	54782	37,12
	flows in MR between centres 2001	164328	58760	35,76

There is striking difference between Vienna, with high levels of commuting reciprocity (approaching 60%) and thus functional or relational polycentricity, and other cities with reciprocal flows between centers in FMA and MR accounting for 30-40%. Only Prague FMA has the share of reciprocal flows over 40% in 2001, reflecting residential and job suburbanization that started in the second half of the 1990s.

Unfortunately, up-to-date information, which would reflect situation around 2010 is not available. It is likely, that due to rapidly developing suburbanization the share of reciprocal flows will be quickly increasing.

Figure 10: The POLYCE cities compared: hierarchical and reciprocal commuting



The situation around 2000 clearly demonstrate the difference between the more open and functionally integrated organic urban system of Vienna metropolitan area and urban systems of metropolitan areas in former communist countries dominated by capital cities and their labour markets through unidirectional commuting to core city and hierarchical subordination of centers in metropolitan area to the core city.

The aggregate view on all relations between job centers in MRs and FMAs (Figure 10 and detail Figures in Appendix) clearly shows virtual non-existence of hierarchical unidirectional flows in Vienna region, while they dominate regions of Prague, Budapest and Ljubljana. However, we can see several examples of reciprocal flows in metropolitan areas of post-socialist cities. There are usually two instances. First is reciprocal commuting between the core city and new suburban job centers in FMA. Second is reciprocal commuting between job centers in MR and/or FMA. Very exceptional is commuting with high level of reciprocity between the core city and larger job centers in MR (Mladá Boleslav in Prague MR).

Comparing measures and indicators of morphological and relational polycentricity, we can find that they do not correspond. For instance, metropolitan area of Vienna is in morphologic terms highly dominated by Vienna, yet the region shows high levels of functional relational polycentricity. On the other hand side, Ljubjana metropolitan area is much less dominated by the core city of Ljubljana itself. Therefore, we could say that this means high predispositions for functional polycentricity. However, the level of reciprocity and hence relational polycentricity is in Ljubljana region lowest among the investigated cities.

While the morphology in terms of rank-size distribution of cities can create certain conditions for the development of functional polycentricity, there seems to be more important conditions and causes of transition from monocentric and hierarchically organized metropolitan areas to more polycentric and mutually organically interrelated metropolitan areas. We can only suggests that this might be partly related to new metropolitan economies with industrial job locations outside core cities and advance service jobs in central cities, which is causing so called spatial mismatch in job and housing location of respective working strata and reverse commuting. It can also be caused by higher levels of choice on the job market and especially in various locations well related to places of residence by efficient transportation system that decreases commuting times and increases accessibility of jobs for residents in different parts of metropolitan areas. As post-socialist cities do not have so well developed transportation systems in their metropolitan areas, they still lag behind of the trend, which we can observe in Vienna.

6.3. Relational Polycentricity within the CED-zone and its position within Europe

The following chapter deals with the relational aspect of polycentricity on the meso and macro level, which means that it tries to provide an insight into the institutional and structural relations both between the five cities and with other cities outside the CED-zone. According to the definitions given in ESPON 1.1.1 institutional (or political) relations rely “on co-constructions, co-operation, and on the willingness of territorial agencies to work together on joint projects and strategies” (ESPON, 2005 pp.46), whereas structural relations are constituted by the interactions between the actors, including transport, financial, migration or information flows. Due to the poor availability of relational data, it is not possible to cover all aspects of these two dimensions of relational polycentricity. The challenge, however, is to provide relevant data, which give some evidence on the relations between the five cities (meso level) and with the “rest of the world” (macro level). In this context the share of “internal” and “external” relations will be of special interest.

The analysis of relations will be based on some evidence on the physical distances and travel times between the five cities. Additionally, ethnic and historic relations will be analysed on the national level by nationality data, which reflect long-term relations between nations, regions and cities on the one hand and are a driving force of future interaction on the other. Based on these determining factors the actual internal and external interactions of the five cities are investigated firstly through firm networks of service industries, secondly through research co-operations and thirdly through an analysis of Google web search queries. Since these data only cover a small part of relevant inter-city relations, the indicators given in the following sections should be treated as proxies, which provide a rough indication of relational polycentricity on the meso/macro level without considering all relevant aspects of this issue.

6.3.1. Travel time

Contrary to some theoretical approaches, which postulated the decreasing role of physical distance in the post-industrial information society (e.g. Cairncross 1998), there is empirical evidence that the location of economic actors still strongly determines their behaviour and decisions. From that point of view it is necessary to consider travel times as an important determining factor of actual flows and interactions between different cities. For that reason the average travel times between the five cities were collected for road and rail connections by querying common websites for shortest car and train connections (see Table 5).

Table 5 Travel time road / rail

	Bratislava		Budapest		Ljubljana		Prague		Vienna		Total	
	road	rail	road	rail	road	rail	road	rail	road	rail	road	rail
Bratislava			117	161	259	426	191	228	54	57	621	872
Budapest	118	152			272	507	297	405	143	155	830	1219
Ljubljana	260	453	274	513			421	651	231	347	1186	1964
Prague	193	252	297	416	420	659			211	265	1121	1592
Vienna	54	58	143	156	229	336	211	269			637	819

Source: Austrian Federal Railways (www.oebb.at), ViaMichelin (www.viamichelin.at), own calculations

The right column in Table 5 proves the central location of Vienna and Bratislava within the CED-region, which is expressed by the shortest travel time to the other partner cities. Additionally, the immediate vicinity of two “twin-cities” implicates very good accessibility with each other. Contrary, Prague and Ljubljana as the northern and southern outposts of the region are less connected to the other partner cities, which means much longer travel times (especially by train) to the partner cities. The distances between some of the five cities are short enough to allow one-day-trips for business meetings. Assuming a maximum travel time of three hours as the upper limit, one-day-trips between Vienna, Budapest and Bratislava are possible both by car and by train, whereas all other relations require at least one overnight stay to have a meeting. For these trips air traffic plays an important role, there are daily connections from Vienna (Vienna Airport can be reached within less than one hour from Bratislava) and Budapest to the two other partner cities. The connection between Prague and Ljubljana, which takes about 7 hours by car and almost 11 hours by train, is the only relation, for which car and train transport play a negligible role for short-term business trips.

Table 6 Quality of train connections

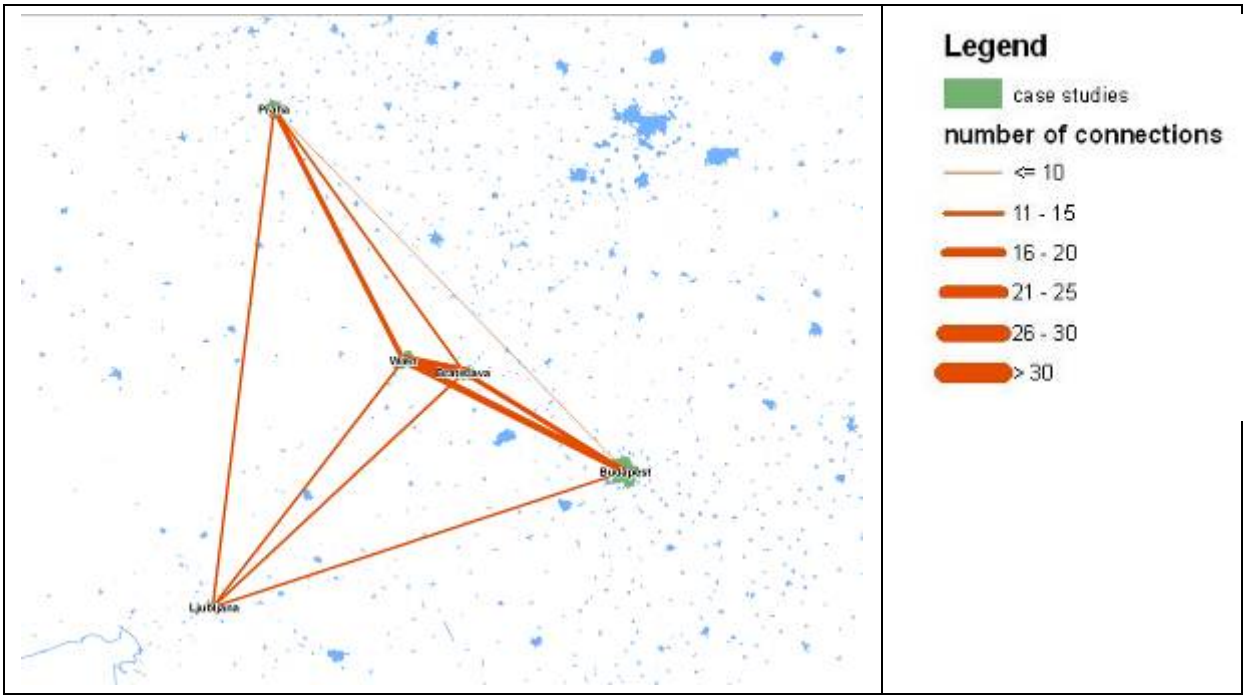
	Bratislava			Budapest			Ljubljana			Prague			Vienna		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Bratislava				17	74,5	1,38	11	63,1	1,64	11	88,4	1,19	36	82,1	1,06
Budapest	13	79,3	1,29				17	54,6	1,86	10	78,4	1,36	30	94,1	1,08
Ljubljana	11	59,5	1,74	16	54,0	1,87				10	65,2	1,55	11	66,2	1,50
Prague	10	80,2	1,31	11	76,3	1,40	13	64,4	1,57				12	75,6	1,26
Vienna	35	81,7	1,07	26	93,5	1,09	11	68,2	1,47	14	74,5	1,27			

(1) … Number of daily connections
(2) … Average travel speed
(3) … Ratio travel time rail / road

Source: Austrian Federal Railways (www.oebb.at), ViaMichelin (www.viamichelin.at), own calculations

The attractiveness and competitiveness of rail transport between the cities is not only determined by the absolute but also by the relative travel time (in comparison to the travel time by car) and by connection frequency. As the first column in Table 6 shows, all relations have an acceptable supply of train connections with at least 10 trains per day in both directions (see also Figure 11). The three "central" cities Vienna, Bratislava and Budapest are even better connected: In the daytime there are about two train connections per hour from Vienna to both Budapest and Bratislava.

Figure 11: Railway connections between the POLYCE cities (2011)



Note: the number of connections between two cities is an average from the two flows

The high deviations of average travel speed reflect the different quality of rail infrastructure. According to the results shown in column 2 most connections have a reasonable travel speed between 75 and 95 km/h, which is, however, still very low in relation to comparable polycentric regions in Western Europe. The worst situation can be detected for the city of Ljubljana, which seems to be totally cut off from high-speed rail networks. The travel time to all other cities shows average travel speed of about 60 km/h, for most connections passengers have to change trains two or even three times. Consequently, trips per train are much longer than by car (see factors given in column 3), which makes trains totally uncompetitive. According to this indicator, the most competitive relations are from Vienna to Prague, Budapest and Bratislava and between Prague and Bratislava. Still, the fact that all train connections are slower than a trip by car proves that the CED region has got a lot to catch up concerning its rail infrastructure.

At the macro level of polycentricity railway connections were analyzed with regard to the position of the CED zone within Europe. Daily connections between the 5 ESPON POLYCE cities and the set of MEGAs cores were analyzed (including the 5 metropolises), based on the web search-engine of Deutsche Bahn (www.bahn.de). All connections were queried for Wednesday May 11th 2011 as a typical day in the middle of the week where there were no major European holidays.

In total there were 3100 connections with Vienna accounting for the largest and Ljubljana for the smallest share (Table 8). There were more connections from Bratislava than from Budapest indication better connectivity of Bratislava within Europe. The analysis shows furthermore a prevailing overall orientation of POLYCE cities to the MEGAs in PENTAGON, especially Germany, Benelux, France and northern Italy, plus Switzerland (Figure 12, Table 7). Importantly, the 5 ESPON POLYCE metropolises are among the 8 most important railway connection destinations (Table 7).

There are important differences between the 5 capital cities concerning their relations to ESPON POLYCE metropolises in the context of overall connections. While 12% of all connections from Vienna, Budapest and Bratislava are towards the ESPON POLYCE metropolises, Ljubljana accounts for mere 9% and Prague only for 5% (Table 8). This seems to be influenced by the proximity between the three cities and their more central position within Central Europe – Danube space. The analysis shows that Prague is least integrated within the other ESPON POLYCE metropolises while being more oriented to Western Europe.

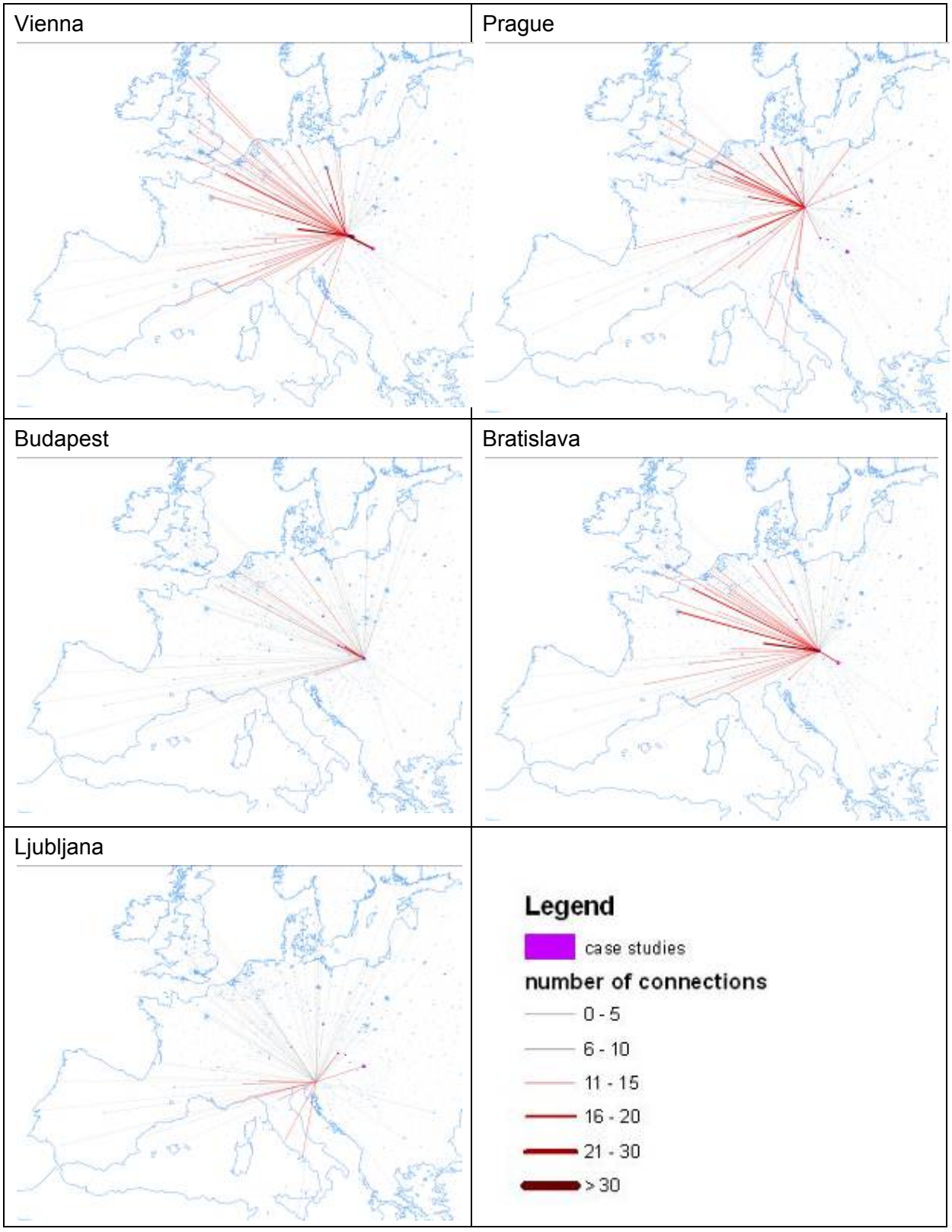
Table 7 Cumulative ranking of destination positions from the 5 POLYCE metropolises

rank	destination	no. of connections
1	**Wien**	77
2	Lille	72
3	**Ljubljana**	49
4	Bremen	66
5	**Bratislava**	73
6	**Budapest**	55
7	Hamburg	56
8	**Praha**	46
9	Dusseldorf	52
10	Milano	59
11	Amsterdam	55
12	Marseille	58
13	Zurich	45
14	Rotterdam	55
15	Lyon	58
16	Bern	53
17	Munchen	73
18	Berlin	60
19	Stuttgart	66
20	Napoli	55

Table 8 Railway connections from POLYCE cities to MEGAs

	Vienna	Prague	Budapest	Bratislava	Ljubljana	Total
No. of connections to all MEGAs	727	685	538	674	476	3100
Share of connections to POLYCE cities on all MEGA connections	11,69	4,96	11,52	11,57	8,61	9,68

Figure 12 Railway connections of POLYCE cities with core cities of MEGAs (2011)



6.3.2. Ethnic and historic relations

Economic, social and institutional interaction does not happen in a vacuum, but is always embedded in an existing network of established relations and traditions. From that point of view the ethnic and historic relations between two cities (common history, culture, language,…) are a main influencing factor of any interaction. In order to consider the relevance of these conditions, which have often grown and developed over centuries, an indicator on relevant ties between cities has to be generated: The simplest way of defining an applicable indicator is to consider ethnic relations based on nationalities. This was done by collecting the number of inhabitants with the other country's nationality and comparing it to the total number of foreigners. Due to the lack of available data on the city level this indicator could only be provided for the home countries of the five cities (see Table 9).

Table 9 Population by Nationality

	Foreigners from						Share of foreigners		
	SK	HU	SL	CZ	AT	CED	CED	EU27	total
Slovakia		2702	132	5965	1472	10271	0,19%	0,48%	0,76%
Hungary	4944		133	284	2571	7932	0,08%	1,00%	1,76%
Slovenia	457	127		118	295	997	0,05%	0,20%	3,39%
Czech Republic	67889	587	211		3373	72060	0,69%	1,27%	3,35%
Austria	15665	19318	6973	8287		50243	0,60%	3,48%	10,04%
CED countries	88955	22734	7449	14654	7711	141503	0,19%	0,48%	0,76%

Source: EUROSTAT

One of the main results of this analysis is Austria's role as an immigration country. Contrary to the four partner states, Austria has become an attractive destination for migrants over the last 50 years. Consequently it is the only country with a remarkable share (10%) of foreign population, which can presumably be considered as an asset for establishing international networks and co-operations. The values in the 4 partner states are at the end of the European scale, which can easily be explained by the fact that they accessed the European Union only in 2004. The relatively high share in Slovenia can probably be attributed to non-EU foreigners from the former fellow states in the Balkans to a large extent, the value in the Czech Republic is caused by a large group of Slovakian inhabitants.

Although the number of Slovaks in the Czech Republic is more than ten times higher than the other way round, there is still a strong ethnic connection between Slovakia and the Czech Republic, which can easily be attributed to the fact that these two countries were united until the year 1992. Another remarkable ethnic relation, which can be explained by historic ties, exists between Slovakia and Hungary. Nevertheless, migration between the five partner states seems to be rather weak, since the share of people from one of the other countries is extremely low. Apart from the special situation between the Czechs and the Slovaks, only Austria hosts a remarkable number of people from the neighbouring states. The enhancement of common networks and co-operations will definitely increase these numbers as a sign of close social and economic interaction on the one hand, and be a good condition for the further deepening of mutual relations on the other.

6.3.3. FIRE Firm networks

As has been repeatedly argued, one way of understanding cities under conditions of accelerated globalization is by analyzing the intensity and reach of their external linkages and by identifying their position in a global network of cities (see Taylor, 2004). Building on the conceptual work on the global city (Friedmann, 1986; Sassen, 1991) one strand of research devoted to this endeavor has established in recent years that analyzes inter-city linkages based on FIRE[1] firm locations (Taylor and Walker, 2001). Out of this broader project emerged the Global and World City Research Network (GaWC), which also provides publicly available datasets on FIRE firm locations. For the present analysis a GaWC dataset was used that is based on a sample of 100 FIRE firms and their locations in 315 global cities.[2] [3]The data stem from the year 2000 and include two types of information relevant for the analysis: Firstly, information on the presence or absence of a FIRE firm in a city, and secondly, information on the importance of a firm's location in a city (international headquarter, regional office, local office, etc.). Through the proxy of firm locations the data reveal whether or not a relation exists between two cities. If a firm has a location in two cities, there is a relation between them. Hence, the data can be used as an indicator for relational polycentricity. The described dataset was extracted from the GaWC website and analyzed for the five POLYCE cities. Both relations between the five POLYCE as well as relations of the POLYCE cities to cities in other regions were calculated, in order to account for inner-regional connectivity as well as extra-regional, global embeddedness of the five cities (Table 10).

Table 10 FIRE firm networks 2000

	Bra	Bud	Lju	Pra	Vie	CED	Europe	Overseas	Share CED
Bratislava		26	10	27	22	85	1006	1875	2,87%
Budapest	26		16	50	41	133	1745	3254	2,59%
Ljubljana	10	16		15	16	57	662	1395	2,70%
Prague	27	50	15		43	135	1917	3560	2,41%
Vienna	22	41	16	43		122	1792	3395	2,30%

Source: GaWC Research Network

Most importantly the analysis reveals that within the CED zone, Prague, Budapest and Vienna are much better connected through international FIRE firm networks than Bratislava and Ljubljana. Prague has the highest number of relations, closely followed by Budapest. Vienna ranks third. The two smaller cities in the region have much less relations than the three major capitals, indicating that they are not the first locational choice for FIRE firms. This pattern is replicated in the relations between the individual cities, with Budapest, Prague and Vienna having by far most relations with each other but much less with Ljubljana and Bratislava. Also when looking at extra-regional relations with all other European cities and with cities overseas Prague takes the lead

[1] FIRE stands for Finance Insurance and Real Estate

[2] For a detailed data description see http://www.lboro.ac.uk/gawc/datasets/da11.html

[3] Certainly, FIRE firms make up only a share of all economic activtites, and therefore also only a share of economic relations between cities can be displayed on the basis of FIRE firm networks. However, FIRE firms are considered to be the most growth-intensive services and are therefore of high importance for urban economies.

and shows the highest embeddedness, followed by Vienna and Budapest. The importance of inner-regional relations within the CED zone for the five cities hardly differs (see column Share CED). However, especially Vienna and Prague are relatively less dependent on inner-regional relations, underlining their greater embeddedness in firm networks in Europe and overseas.

Since the GaWC data classify the firm locations according to their importance, it is also possible to provide an indication of hierarchies and dominances in these relations. For that purpose each firm which is situated in two of the five partner cities is assigned to the city with the higher-ranked location. If both locations have the same importance, each of the two cities involved gets half a point. In that manner the number of relations between the 5 cities as shown in Table 10 are divided to the two cities involved according to the importance of the firm locations. The values given in Table 11 show for each relation the number of firms, which are situated in both cities with a higher-ranked location in the city indicated in the row and a lower-ranked location in the respective column.

Table 11 Dominance in FIRE firm networks 2000

	Bra	Bud	Lju	Pra	Vie	Dominant relations	Inferior relations	Difference
Bratislava		11,5	5,5	11,5	8	36,5	48,5	-12
Budapest	14,5		9,5	26,5	19,5	70	63	+7
Ljubljana	4,5	6,5		5,5	4,5	21	36	-15
Prague	15,5	23,5	9,5		20	68,5	66,5	+2
Vienna	14	21,5	11,5	23		70	52	+18
CED	48,5	63	36	66,5	52			

Source: GaWC Research Network

The most significant information of this matrix is the difference between the number of dominant relations (sum of the single columns) and the number of inferior relations (sum of the single rows). The results show that the two smaller capitals (Bratislava and Ljubljana) are predominantly dominated by other cities in these firm networks, which might be caused by their comparable small size and low functionality in global city competition. The positive differences between dominant and inferior relations in Vienna, Budapest and Prague indicate that the main control functions are to be found in the three bigger cities. Especially Wien seems to cope successfully with its role as a central economic player in the region: A positive difference with all four partner cities proves that the city hosts higher-ranked firm locations than their opponents. This fact, which could be well expected for the relation to Bratislava and Ljubljana, is also true in a highly competitive situation with Budapest and Praha.

6.3.4. Research networks

Another way of measuring relations between cities is to look at co-operation of institutions in research projects. The CORDIS online database provides a useful information source for such an analysis. It includes data on EFP (EU Research Framework Programme) projects differentiated by participating institutions. Thus, the database makes possible to analyze research cooperation between institutions in different cities and thereby to determine the general degree of embeddedness of a city in research networks as well as, more specifically, to identify relations between cities based on these networks. For the present analysis data were extracted from the

CORDIS online database and analyzed for the five POLYCE cities. In a first step the overall embeddedness of the five cities in research networks was examined (Table 12) followed by a second step in which the interrelations between the five cities in the CED zone were investigated (Table 13 below).

Table 12 Participations in EFP research projects 2001-2010

	Project participations		Domestic lead partner[4]	
	Total 2001-10	Change 01-05 to 06-10	Total	Share
Bratislava	502	-31,5%	48	9,6%
Budapest	1539	-3,4%	202	13,1%
Ljubljana	919	+3,8%	75	8,2%
Prague	1271	-5,7%	119	9,4%
Vienna	2088	-13,7%	613	29,4%

Source: CORDIS online database

The total number of participations in EFP (EU Research Framework Programme) projects show that especially Vienna seems to be excellently integrated in European research networks. Compared with Budapest and Prague, which are both about the same size, Vienna takes part in significantly more research projects than the two direct opponents, which might probably be attributed to established networks and co-operations with the Western EU member states. Surprisingly, Ljubljana is not far behind Prague but stays far ahead of Bratislava, although the city is much smaller in population and employment. In addition, the Slovenian capital is one of the few cities, which have increased their project participations from the first to the second half of the decennium, although the number of projects has been reduced due to bigger project sizes. The decline in Vienna, Prague and Budapest does not indicate that these cities have been downgraded relatively, since the change rates are on European average, whereas the numbers suggest that Bratislava has further deteriorated its position in European research networks.

The query of the CORDIS database on the internet does not allow to ask for the exact location but only for the nationality of the lead partner. Therefore the share of projects, which have a “domestic” lead partner, also includes projects leaded by an institution located somewhere else in the country. Since the five cities play a similar role within their countries (all with a population share of about 10 to 20%), these values can be well compared in spite of this inaccuracy. The results clearly demonstrate the dominant role of Vienna in EU-research projects: Even if the more dispersed spatial structure of scientific research in Austria is taken into consideration, a share of almost 30% of projects leaded by Austrian institutions suggests that the city of Vienna (as the centre of most research institutes) plays in central role in many scientific networks. In this respect Budapest with a share of 13% performs a bit better than the other three cities, where just under 10% of the projects are leaded by a domestic institute.

The second part of the CORDIS data analysis focused on the relations of the five partner cities in the research projects of the EFP. For that purpose, the number of

[4] Number of projects with participation of research institutes located in the city and leaded by an institution located in the same country.

projects, in which two of the five cities take part, was collected (see Table 13). Since the query was done separately for all pairs of cities, the numbers partly coincide due to double counts, which means that they must not be added for different relations. The shares which are also displayed for all internal relations, provide the percentages of all project participations, in which another partner city is also involved.

Table 13 Cooperations in EFP research projects 2001-2010

	Bratislava		Budapest		Ljubljana		Prague		Vienna		total
	no.	share	no.	share	no.	share	no.	share	no.	share	no.
Bratislava			148	29,5%	101	20,1%	123	24,5%	158	31,5%	502
Budapest	148	9,6%			198	12,9%	253	16,4%	351	22,8%	1539
Ljubljana	101	11,0%	198	21,5%			149	16,2%	232	25,2%	919
Prague	123	9,7%	253	19,9%	149	11,7%			244	19,2%	1271
Vienna	158	7,6%	351	16,8%	232	11,1%	244	11,7%			2088

Source: CORDIS online database

The absolute numbers given in Table 13 point out that there are especially strong ties in scientific research between Vienna and Budapest, which are both comparably less connected with Prague. The relative shares show that Bratislava, which is lagging behind in total FP participation, is highly dependent on research co-operations with the other partner cities, especially with Vienna and Budapest. This result indicates that the Slovakian capital is less integrated in research networks with other European partners. Vienna seems to be in a much more comfortable situation, because in spite of big number of project co-operations with the partner cities, the city is much more integrated in “external” research networks than the other cities, which is expressed by relatively low shares in the table.

6.3.5. Google web search queries

Another analysis of relational links between cities studied the intensity of web searches on Google's web search service (http://www.google.com/insights/search/). Queries are scalable to regions, although not in the case of Slovenia and Slovakia. Web searches are evaluated for the period 2004 to June 2011. The research question was “How intense were search queries for the names of cities B, C, D, E in the country of the city A”?

First, 5 ESPON POLYCE metropolises were analyzed as closed system of mutual relations mirrored in intensity of web searches on each other. Figure 13 shows the relative distribution of web search from one city to the others. The thicker line means larger portion of searches on name of the connected city compared to searches on names of the other cities in our sample.

Figure 13: Relative web search intensity on name strings of POLYCE cities

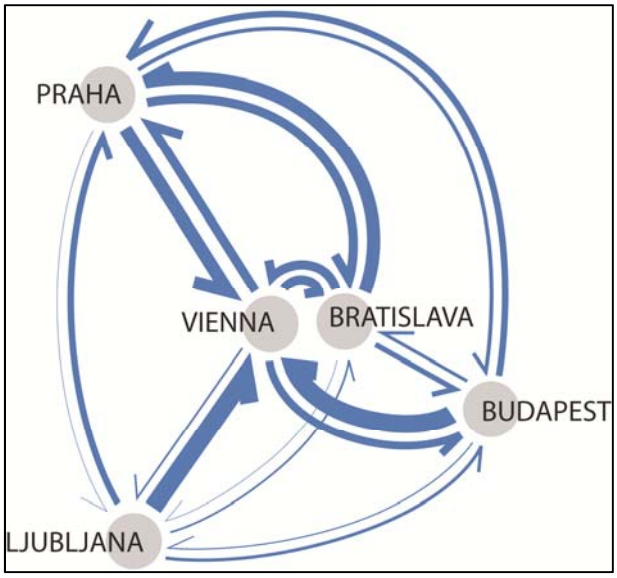


Table 14 Relative web search intensity on name strings of POLYCE cities

search from / search for (%)	Prague	Bratislava	Vienna	Budapest	Ljubljana
Czech Republic	---	34	49	15	1
Slovakia	47	---	36	16	1
Austria	37	31	---	27	5
Hungary	24	10	63	---	2
Slovenia	19	8	60	13	---

Vienna seems to be the most important node in the regional system of 5 cities as it is the main destination for searches from Ljubljana and Budapest. Vienna distributes its attention to Prague, Bratislava and Budapest almost evenly. Ljubljana has very low incoming search connectivity, indicating its peripheral position within the region. Prague has strongest linkage to Vienna than to Bratislava. But Bratislava is more strongly connected to Prague than to Vienna. Budapest is strongly oriented to Vienna, but it is not mutual; Bratislava stands aside of Budapest attention.

Second was the analysis of web search based relations among metropolises positioned within the European network of MEGAs. Searches from each of 5 ESPON POLYCE cities for MEGAs were analyzed. Most of the attention to ESPON POLYCE cities is paid from Slovakia/Bratislava (41%) and least from Vienna (10%) (Table 15). Among ESPON POLYCE cities, Vienna receives the highest share from the total attention (8%) followed by Prague, Bratislava and Budapest with Ljubljana receiving least attention. The standing of cities is influenced by their tank-size position and proximity, which is apparent especially in the case of Bratislava.

Table 15 Web search based attention paid to and received from POLYCE cities

	(1)	(2)
Prague	19,2%	4,3%
Slovakia/Bratislava	40,7%	3,4%
Vienna	9,8%	7,6%
Budapest	19,2%	2,2%
Slovenia/Ljubljana	15,6%	0,4%

(1) … Relative attention from the city to ESPON POLYCE cities from total attention to all MEGAs
(2) … Share of attention to the city from the total attention to all MEGAs

Table 16 Cumulative ranking of MEGAs by Google search from the 5 POLYCE metropolises

rank	city	relations	average rank
1	**Wien**	161	3,0
2	London	183	3,4
3	Paris	175	3,6
4	Barcelona	96	6,0
5	**Praha**	120	6,2
6	Berlin	106	6,4
7	Munchen	97	8,2
8	**Budapest**	55	8,4
9	**Bratislava**	44	8,8
10	Madrid	65	10,4
11	Amsterdam	45	11,8
12	Milano	53	12,0
13	Frankfurt am Main	39	13,6
14	Manchester	43	13,6
15	Bruxelles	31	15,6
16	Hamburg	30	16,4
17	Dublin	21	19,2
18	Stockholm	18	22,0
19	Koln	19	22,6
20	Zurich	24	23,2
39	**Ljubljana**	5	37,2

Vienna is the most searched for city among all MEGAs from ESPON POLYCE cities, followed by London, Paris and Barcelona (Table 16). Prague ranks as second among ESPON POLYCE cities, followed by Budapest and Bratislava, all among the 10 most searched cities within MEGAs. Ljubljana dwarfs only on 39th position. Table 17 shows

ranking of outgoing and incoming relations among ESPON POLYCE cities in the context of relations to all MEGAs. Vienna is no. 1 for searches from Budapest, 2 from Slovakia, 3 from Prague and 4 from Slovenia. The other high ranking city is Prague being 1st on the search list from Slovakia, but only 8th on searches from the other 3 metropolises.

Table 17 Rank of web search based attention for outgoing and incoming relations

to/from	Prague	Slovakia	Vienna	Budapest	Slovenia	average
Vienna	3	2	---	1	4	2,5
Prague	---	1	8	8	8	6,25
Budapest	9	5	11	---	12	9,25
Bratislava	5	---	7	12	15	9,75
Ljubljana	50	50	40	39	---	44,75

6.3.6. Correlations and dependencies

Though all the indicators can only be considered and interpreted as proxies for relational polycentricity, it is interesting to see whether they correlate in some way. Therefore a simple correlation analysis between the actual relations of firms and research institutions on the one hand and travel times and ethnic ties (as "explaining factors") on the other should give some indication of interrelations and dependencies of these indicators. A main limitation of the analysis consists in the low number of cases: Since the relations between the five cities are symmetrical in both directions, this analysis is based on only 10 observations, which makes the results rather uncertain and insignificant. Still, the results shown in Table 18 might indicate some interesting conclusions.

Table 18 Correlation coefficients between travel time, ethnic ties and intercity relations

	Travel times[1]		Ethnic ties[2]	Relations[3]	
	Car	Train	Foreigners	Firms	Research
Firm relations (GaWC)	-0,106	-0,202	-0,144	+0,674	
Research relations (CORDIS)	-0,181	-0,353	+0,138		+0,674

1… Average travel time between the two cities in both directions

2… Population with the other country's nationality (in both directions)

3… Absolute number of relations between the two cities

Source: own calculations

The first issue refers to the role of physical distance for interaction, co-operation and networking. Even though the technological revolution in the telecommunication sector offers new opportunities for exchanging information and knowledge, there is some evidence that distance still matters. With regard to the results presented in this section that would imply that travel times between the 5 cities have a significant influence on firm and research networks. The analysis shows low negative correlation coefficients between both modes of transport and the two indicators on actual relations, which slightly hints at the accuracy of the assumption.

Contrary to this result, the data do not prove any influence of ethnic ties on current relations. This first result, however, is distorted by the very high value of ethnic relations between Prague and Bratislava (expressed in big numbers of foreigners from the other country), which is due to the common history of Slovakia and the Czech Republic. Eliminating this value from the sample changes the correlation coefficients to 0,549 (firm networks) and 0,380 (research networks). With all reservations due to the poor empirical base these results indicate that historic and ethnic ties do have some influence on present relations.

Finally, the clearly positive correlation between the extent of firm and research relations demonstrates that different kind of flows, networks and co-operations between cities cannot be separated but often go hand in hand with each other. Although the two proxy indicators only represent a very small part of intercity relations it can be assumed that all kinds of interactions are connected in some way and therefore stimulate and strengthen each other. In this context it would be very helpful to make other data sources available and to broaden the sample of cities, in order to get more significant and stable results on dependencies, discrepancies and determining factors of intercity relations.

7. Metropolisation, polycentricity and urban size

In this chapter we link the neoclassical and regional science perspectives on urban performance. We set up a simple model based on the assumption of spatial equilibrium, and we find predicted optimal city sizes in a sample of 59 EU27 Functional Urban Areas in the period 1989-2010. The model allows us to predict future expected growth patterns for the cities in the sample.

Besides, we go beyond the notion of optimal city size, and test a set of additional explanations for urban overload, including metropolisation, polycentric development, city network effects, and agglomeration. We find strong evidence that cities more embedded in international scientific networks, with a richer endowment with control and power functions and characterized by a denser urban structure are on average larger. Finally, we verify that, ceteris paribus, cities hosting administrative power functions are also on average characterized by a larger size.

7.1. Introduction

For centuries the fundamental questions “Why do cities exist?” and “What are the determinants of urban performance?” have been asked. Economists now enjoy a rich set of theories aiming at explaining the strikingly increasing concentration of people in urban areas. Figure 14 shows for instance that the percentage of EU27 citizens living in cities rose to slightly less than three-quarters of the total population; this increase has been equally matched by a simultaneous concentration of European citizens in large urban agglomerations.[5]

[T]The continuous line represents the total population living in the 59 cities on which the empirical analysis in this paper is run. For a complete list of such cities, see City sample..

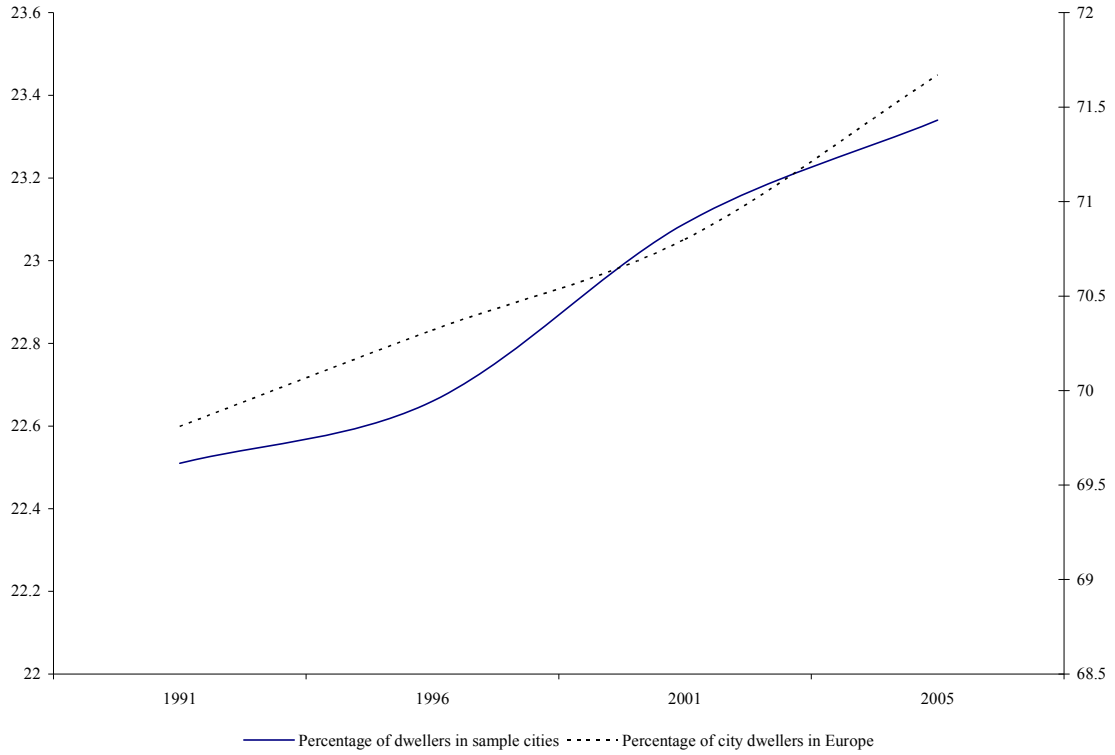


Figure 14: Metropolisation in the EU27

Source: authors' calculation. Raw data from Urban Audit and UN's World Urbanization Prospect 2009.

This concentration of people and firms in large urban areas changes the form of the environment, and pushes most urban areas towards incorporating significant shares of the green space around them. However, such process of increasing concentration is simultaneously matched by a lasting validity of a hierarchical structure, with large cities cohabiting with smaller centres, much as predicted in classical location theories (Christaller, 1933; Lösch, 1954); stylized facts suggest that the urban system is slowly polarizing with the emergence of larger and larger urban agglomerations of skilled labour, characterized by a wealth of amenities, along with a process of stagnation of medium-small urban centres.

In this report we address simultaneously the fundamental questions above mentioned, and tackle at the same time the issue of the reasons of existence of cities, as well as the determinants of their sizes. To this aim, we first critically and briefly review some highlights of the rich literature preceding this paper (Section 7.2); next, we set down a theoretical model capable of predicting different (optimal) city sizes, on the basis of city-specific costs and benefits (Section 7.3); then, in Section 7.4 we describe the data set assembled to test our model. Section 7.5 shows the results of the empirical validation of the model, while finally Section 7.6 concludes.

7.2. Literature review

7.2.1. Traditional views on cities

Cities attracted only relatively recently the interest of economics. Most often, theories and models analyze the way cities work, how the land rent generates and is regulated by market forces, the effects of agglomeration economies on urban performance, and

so on. All such theories agree on the primacy of the object "city" in terms of the spatial organization of economic activities.

Cities are also complex to manage; this is probably why no proper "urban agglomeration" ever existed before the invention of agriculture (Bairoch, 1988).[6] In this Section we offer a brief and critical overview of the wealth of theories aiming at explaining why cities exist in the first place, and which factors explain best their performance over time. For a comprehensive review of the rich set of theories being here summarized, the reader may resort on Nijkamp and Mills (1986), and Capello and Nijkamp (2004).

Apparently the main reason for the emergence of cities can be synthesized in the benefits stemming from agglomeration. As forces exist exerting centripetal and centrifugal forces on economic activities, some benefit has to prevail in the former, which has been variously declined over time:[7]

- Localization economies, best known as "Marshallian economies" (Marshall, 1920), which can in turn be synthesized as encompassing:
    - A thick labour market, with easier contacts between employers and potential employees;
    - An industrial atmosphere, providing a fertile soil for the emergence of start-ups, and a better environment for their success;
    - The possibility to share costly common production factors.
- Economies related to the industrial structure of the city, and in particular:
    - Urbanization economies, i.e. reductions of production costs due to the possibility of firms and individuals to share the costs of public intervention, to create a large common market, and to exploit the city as an incubator of production factors (Camagni, 1993);
    - Diversity (Jacobian) economies, stating that agglomerations of people working in technologically different industries would be more creative;
- Learning economies, or more precisely, localized knowledge spillovers, due to the decay process affecting what is traditionally known as "tacit knowledge (Polanyi, 1966; Bathelt et al., 2004)". The crucial relevance of this last set of theories, in particular in a world where pure geography seems to matter less, is advocated Capello (2010).

Moreover, structural views have been developed also on the way cities are organized internally as well as externally. Internally, cities based on market systems are regulated with the rent mechanism (whereas activities with a higher willingness to pay for a higher accessibility are assigned locations closer to the Central Business District). Internal traffic flows and external connections of a city have been successfully described with gravitational models (Zipf, 1949), while external relations of cities have been modeled with hierarchical theories (Christaller, 1933; Lösch, 1954).

This theoretical body has been matched by an equally impressive array of empirical estimates, mostly confirming the validity of these assumptions on the rationale for agglomerative behaviour. However, more recently a new stream of studies has focused the attention of academics and policymakers on more subtle, yet insightful, reasons why people decide to agglomerate in the first place, and then which additional, other

[6] This view has nevertheless been famously contested by Jacobs (1969), where the birth of cities is assumed to precede the invention of agriculture.

[7] In this paragraph we follow the classification first proposed by Rosenthal and Strange (2004).

than pure hierarchical or gravitational, factors rule the urban system we live in. This second wave of studies is summarized in the next Section.

7.2.2. Beyond traditional views

Recently different views on the structure of urban systems and the reasons for urban performance have emerged. Among the most influential, we review here the effects of policentricity, metropolisation and density.

Policentricity *"occurs when the system is characterized by several cities at different levels rather than just being dominated by one city*" (ESPON 2004, p.17). Within the POLYCE project, and following previous work carried out in other ESPON projects, policentricity is defined in three, not entirely mutually exclusive, ways, depending on the spatial scale at which polycentric urban structure is looked at, which in turn relates to the type of definition underlying the final measure (Table 19):

Table 19 Definitions of policentricity according to the POLYCE project.

Spatial scale	Micro	Meso	Macro
Definition of policentricity	Presence of multiple job centres within the Metropolitan Region	Ratio of wealth production within the FUA w.r. to lower rank areas outside the FUA	Openness of the metropolitan area to external relations (i.e., urban networks8)
Type of policentricity	Structural	Morphological	Relational

In this report, we review the impact on urban efficiency of the second and third definitions of policentricity, as these indicators are believed to provide diversified and equally relevant impacts on urban efficiency. However, future work may include a measure of the first kind of policentricity.

A second interesting and massive process is referred to as "metropolisation". This process, both morphological as well as functional, is in fact a way to describe the spatial organization being increasingly centered around large cities (Elissalde, 2004; Leroy, 2000). In this paper we focus on the second definition of metropolisation, which is strongly connected with the work described in Sassen (2002).

A third element here taken into account related with the positive effects of pure density. In fact, agglomerative forces as summarized above in Section 7.2.1 imply more indirect effects. A relatively recent wave of quantitative assessments found that pure density may explain up to half the total variance of half of the variance of output per worker (Ciccone and Hall, 1996). These positive effects may be best conceived as the reduced spatial impedance in a dense and agglomerated area, which is expected to raise the levels of competition, thus fostering productivity increases.

Finally, we dig into the notion of sprawl and verify whether, as mostly expected in the urban literature, a compact urban form contributes to a more efficient allocation of economic resources within metropolitan areas, thus in turn fostering – once again – productivity increases, and allowing cities to reach on average a larger size. Besides,

[8] This argument is made, among others, by Meijers (2005).

we verify the assumption that, *ceteris paribus*, cities hosting relevant administrative power functions (i.e., being the capital of the country) may on average enjoy a large size.

Both traditional and recent work on urban performance leads us to the fundamental question on this work package:

RQ. What are the determinants of equilibrium city size?

This research question will be answered by setting up a simple urban growth model (Section 7.3), which will be tested on a sample of 59 European Metropolitan areas. The data set we assembled to estimate our model is described in Section 7.4, while empirical results are summarized in Section 7.5.

7.3. The model

In order to answer the research question previously introduced, we set up a simple urban growth model which provides the framework for our empirical analyses. The model is rooted in the literature summarized in chapter 5 in Fujita (1989), and moves from the work in Capello and Camagni (2000).

We start by assuming the following implicit urban cost and benefit functions:

$$C = f\left(size, rent, sprawl, malaise\right) \tag{1.}$$

and

$$B = f\left(amenities, humancapital, diversity, size\right) \tag{2.}$$

The choice of the arguments for the costs and benefits function is based on the literature summarized in Section 7.2. In particular, the literature usually finds a non-compact urban form to represent a cost for dwellers (e.g. Jacobs, 1961; with however a notable exception in Glaeser and Kahn, 2004), and equally identifies in a general distress effect the possible consequence from over-concentration of people in large urban areas. This last cost to agglomeration is here labeled as “malaise”.

On the benefit side, we include as arguments the quality of urban amenities (Carlino and Saiz, 2008), human capital (in line with the learning economies assumption summarized in Section 7.2 (see for instance Black and Henderson, 1999), and sectoral diversity (Jacobs, 1969).

Notice that in both equations we assume that urban size represents both a cost as well as a benefit for the city. Size is therefore a dual concept, representing a joint source of positive as well as negative externalities for city dwellers; this assumption is the key to solve the model and obtain an estimable function.

We choose to adopt a standard Cobb-Douglas specification for both function. This specification is more tractable than most others, while also enabling us to avoid the implausible assumptions about the elasticity of the function’s arguments (Uzawa, 1962).

Equations (1.) and (2.) therefore, become, respectively:

$$C = size^{\alpha} rent^{\beta} sprawl^{\gamma} malaise^{\delta} \tag{3.}$$

and

$$B = amenities^{\zeta} humancapital^{\eta} diversity^{\vartheta} size^{\kappa} \tag{4.}$$

We also assume, in order to increase the tractability of the model and without losing generality, that all cost and benefit coefficients are bounded in the interval (0,1), but the

size parameter in the cost function, which, à la Alonso, is larger than one in absolute value, reflecting an exponentially increasing cost function.

Notice that both equations are well-behaved with respect to city size. In fact, we assume that urban costs are increasing in city size, more than proportionally; conversely, we assume that urban benefits are increasing with city size, but less than proportionally. Analytically, this implies the following conditions:

$$\begin{aligned} \frac{\partial C}{\partial size} &= \alpha size^{\alpha-1} rent^{\beta} sprawl^{\gamma} malaise^{\delta} \quad >0, \\ \frac{\partial "C}{\partial size"} &= \alpha(\alpha-1) size^{\alpha-2} rent^{\beta} sprawl^{\gamma} malaise^{\delta} \quad >0 \end{aligned} \tag{5.}$$

and

$$\begin{aligned} \frac{\partial B}{\partial size} &= \kappa amenities^{\zeta} humancapital^{\eta} diversity^{\vartheta} size^{\kappa-1} \quad >0, \\ \frac{\partial "B}{\partial size"} &= \kappa(\kappa-1) amenities^{\zeta} humancapital^{\eta} diversity^{\vartheta} size^{\kappa-2} \quad <0 \end{aligned} \tag{6.}$$

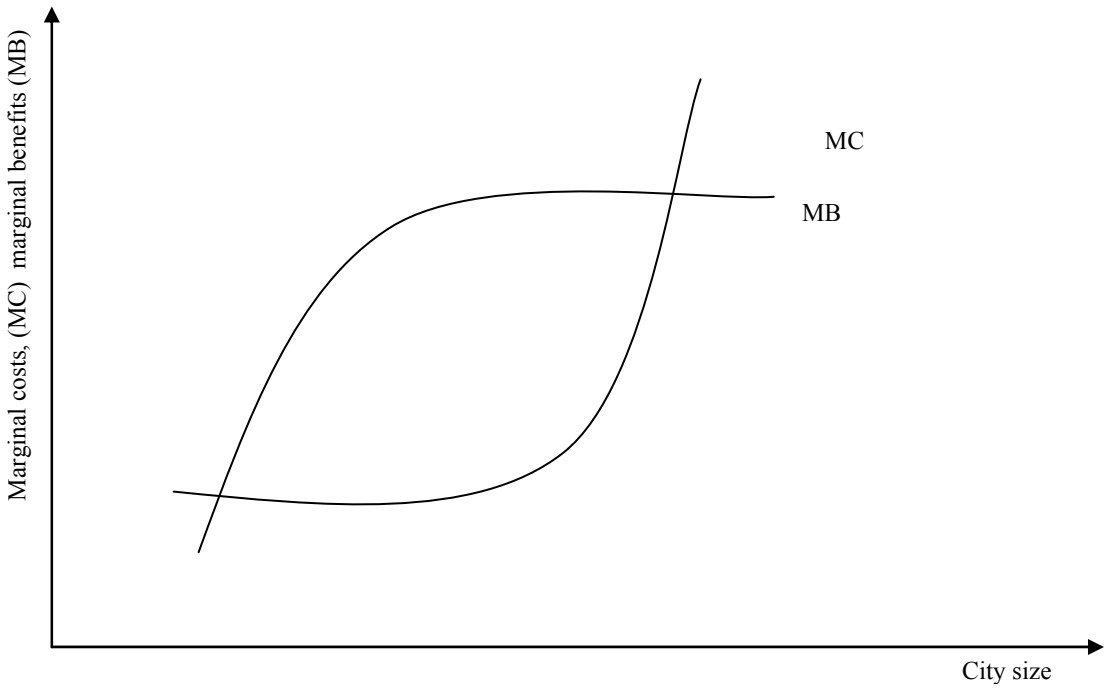
For the model to be sustainable, the α and κ parameters must be different, so that the costs and benefit curves cross each other, thereby allowing an equilibrium to exist.

The way we close the model is to assume spatial equilibrium across the analyzed urban system. In other words, as people can freely move across space in order to look for better living conditions (in other words, they can look for cities characterized by higher benefits or lower costs).

Therefore, in order to be in equilibrium, the urban system must satisfy the condition in which marginal costs equal marginal benefits (MC=MB). This condition is represented in Figure 15.[9]

[9] As Figure 15 shows, the equilibria may actually be two, with the first being not sustainable, since to its right the marginal benefit curve remains above the marginal cost one.

Figure 15: Marginal costs and marginal benefits for city size



Analytically, this implies the following condition:

$$\frac{\partial C}{\partial size} = \alpha size^{\alpha-1} rent^{\beta} sprawl^{\gamma} malaise^{\delta} = \frac{\partial B}{\partial size} = \kappa amenities^{\zeta} humancapital^{\eta} diversity \quad (7.)$$

which in turn implies

$$\frac{size^{\alpha-1}}{size^{\kappa-1}} = \frac{\kappa}{\alpha} \frac{amenities^{\zeta} humancapital^{\eta} diversity^{\vartheta}}{rent^{\beta} sprawl^{\gamma} malaise^{\delta}} \quad (8.)$$

that is

$$size^{\alpha-\kappa} = \frac{\kappa}{\alpha} \frac{amenities^{\zeta} humancapital^{\eta} diversity^{\vartheta}}{rent^{\beta} sprawl^{\gamma} malaise^{\delta}} \quad (9.)$$

Eq. (9.) can be log-linearized in order to obtain an estimable function. This process yields to the following functional form:

$$(\alpha-\kappa)\ln(size) = \ln\left(\frac{\kappa}{\alpha}\right) + \zeta \ln(amenities) + \eta \ln(humancapital) + \vartheta \ln(diversity) - \beta \ln(rent) - \gamma \ln(sprawl) - \delta \ln(malaise) \quad (10.)$$

and finally

$$\ln(size) = \frac{\ln\left(\kappa/\alpha\right)}{(\alpha-\kappa)} + \frac{\zeta}{(\alpha-\kappa)}\ln(amenities) + \frac{\eta}{(\alpha-\kappa)}\ln(humancapital) + \frac{\vartheta}{(\alpha-\kappa)}\ln(diversity) + \\ -\frac{\beta}{(\alpha-\kappa)}\ln(rent) - \frac{\gamma}{(\alpha-\kappa)}\ln(sprawl) - \frac{\delta}{(\alpha-\kappa)}\ln(malaise) \quad (11.)$$

Eq. (11.) is the basis of our analyses.

The model in eq. (11) can be drawn for simplicity in a linear fashion (Figure 16). Notice that the variables entering the model are those traditionally devised in the literature as the substantial determinants of urban performance.

However, in this work package we bring together traditional and modern theories on urban performance, by letting measures of policentricity, metropolisation, density and sprawl in the model as "vertical shifters" of the benefit function (vertical arrows in Figure 16). This point will be discussed further in Section 7.5.

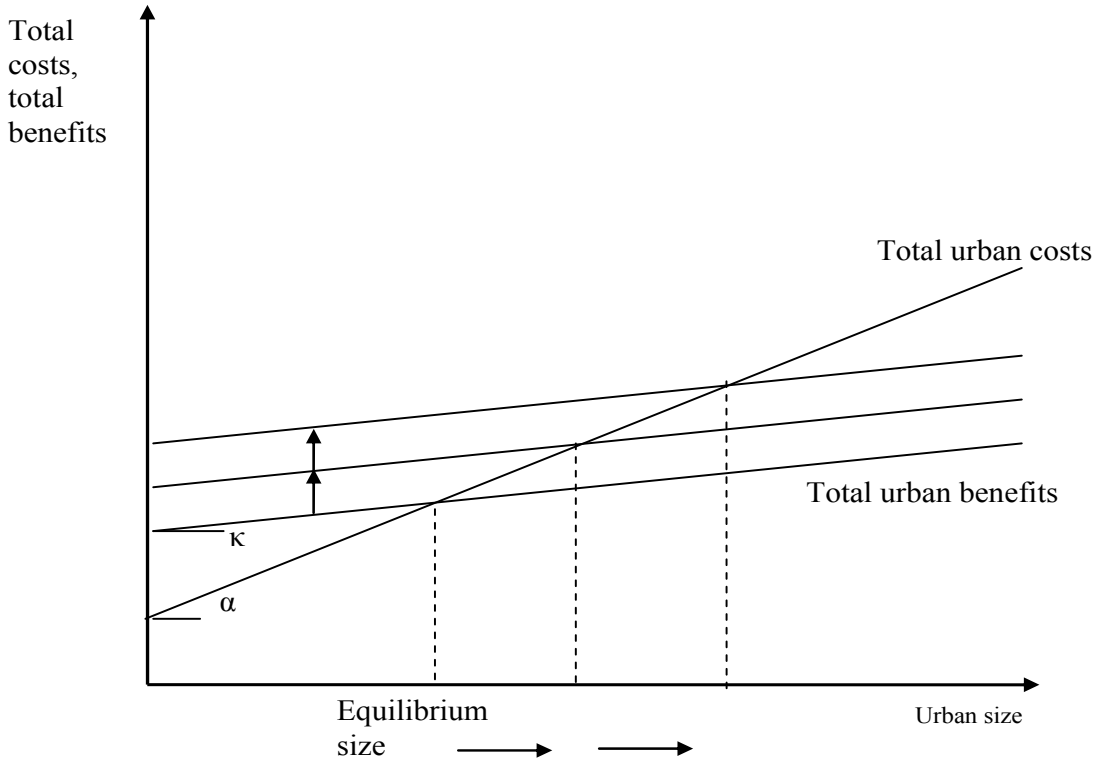


Figure 16: A linearized version of the model in eq. (10)

7.4. The data set

Our empirical test of the model in eq. (10) is based on a set of 59 Larger Urban Zones, EUROSTAT's definition of the concept of a Functional Urban Area. This choice is mainly motivated by data availability, since the data set merges information from two main sources, viz. EUROSTAT and the ESPON project "Future Orientations for Cities (FOCI).

City sample for Work Package 2.2.shows a map of the city sample employed in this analysis, and presents some revealing figures on the consistent percentage of wealth produced, and population and labour force living, in the metropolitan areas covered.

Table 20 presents instead a summary of the data set built for the empirical analysis.

Table 20 The data set

Class of variable	Variable	Measure	Source of raw data
Dependent	Size	Log of population levels in 59 LUZ[10]	FOCI/Urban Audit
Urban benefits	Amenities	Log tourist inflows over available years	Urban Audit
	Human capital	Log workforce in ISCO professions 1 and 2 (respectively, legislators, senior officials and managers and professionals).[11]	FOCI
	Diversity	Log sectoral diversity index measured as 1- the share of top 5 NACE 2 digits industries.[12]	FOCI
Urban costs	Land rent	Log cost of average quality apartment per square meter	Various (see table "Land rent sources"in Appendix 5: City sample.)
	Sprawl	Log percentage of non-urbanized soil	FOCI
	Malaise	Log number of crimes registered per year	Urban Audit
Vertical shifters	Policentricity (structural)	Log disparities in the GDP per capita level between the metropolitan area and its regional hinterland	FOCI
	Policentricity (relational)	Intensity of participations in Framework Programme 5 projects	CORDIS
	Metropolization (functional definition)	Owned subsidiaries without local subsidiaries minus (external subsidiaries/subsidiaries owned by HQ outside FUA + subs owned outside the FUA)	FOCI
	Agglomeration	Log population density	Urban Audit

- **Urban benefits**: the three determinants of urban benefits included in the model, namely urban amenities, proxied by the inflows of tourists in the Metropolitan Area; the wealth of human capital, consistently measured with the workforce employed in ISCO professional groups 1 and 2 share; and the Jacobian source of externality stemming from a diversified labour market, measured with the Glaeser et al. (1992) indicator.
- **Urban costs**: urban costs include the pure cost associated to the land rent (accurately measured with the prices per square meter of average quality apartments in downtown metropolitan areas); sprawl (measured with the

10 "The larger urban zone (LUZ) is an approximation of the functional urban zone centred around the city" (from EUROSTAT).

11 Data for this and the following index are collected at NUTS2 level, and rescaled at the FUa level according to the ratio of FUA population/NUTS2 population.

12 See Glaeser et al. (1992) for its inception.

percentage of non-urbanized soil) and social malaise/distress, captured by the number of crimes recorded for the metropolitan area.

- **Vertical shifters**: these factors, which are deemed to shift upwards the urban benefit function. These include three forms of policentricity
- **Structural policentricity**: this form of policentricity is measured as the difference in the development level of the core areas and its surroundings, i.e.

$$StrPol = \left(\frac{pcGDP_{MA}}{pcGDP_{RH}} \right) - 1 \quad (11)$$

- where: MA stands for metropolitan area, while RH indicates its regional hinterland.
- **Relational policentricity**: following the definition of WP 2.1 within this project, polycentric urban development is also assumed to be fostered by the extent of external relations with other urban centres. This is in this work package measured with the number of Framework Programme 5 projects to which institutions of Metropolitan Areas in this analysis jointly participate.
- **Metropolisation**: following the functional definition of this concept, it is measured as the total number of subsidiaries of multinational enterprises outside the FUA plus the ratio calculating the degree of internal control of the total number of subsidiaries both owned by companies located within, as well as ouside, the FUA. This indicator (originally labeled as “POWNSUB”) has been calculated within the FOCI project by the Institute of Geography of the University of Lausanne.
- **Agglomeration**: complementary to the sprawl versus compact urban form debate, a measure of pure agglomeration, i.e. the log population density, including the vertical development of the metropolitan area, and therefore the pure probability of “contagion” of new ideas, is also included in this analysis.

7.5. Empirical results

Table 21 shows the results of estimating the main model described in Section 7.3. Results are ordered as follows.

Urban size determinants are ordered vertically with horizontal blocks; first, urban size is regressed against urban cost variables (block 1), then urban benefit variables are included (block 2); finally, the model is completed with urban shifters (block 3). Across all regressions, robust standard errors are employed, in order to correct for likely heteroskedasticity in the data, provided the persistence of country effects.

Results show a remarkable adherence with theoretical ex-ante expectations. If the spatial equilibrium assumption does hold, and people are more or less free to move and look for better life conditions, these estimates provide a reliable first-layer assessment of urban size determinants in the European urban system.

In particular, results show that:

- Land rent, after netting out its relations with other benefit and cost variables, is the single highest cost for urban dwellers, reflected in the highest parameter estimate within our framework
- Traditional views on the paramount importance of the concentration of human capital as the rationale of urban agglomerations are indeed perfectly right, as the associated parameter is consistently found to be positively associated with a large urban size

Table 21 Empirical results for estimating eq. (10.).

Equilibrium city size (Log city population 2004-2006)													
Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Constant	8.80***	11.97***	16.74***	13.19***	12.86***	5.87*	7.88***	8.42***	8.18***	6.87***	7.81**	7.48***	6.96***
	(1.49)	(1.60)	(1.36)	(1.49)	(1.49)	(3.45)	(2.57)	(2.66)	(2.58)	(2.51)	(3.60)	(2.62)	(2.49)
Land rent (cost of downtown apartments per square meter)	0.70***	0.46**	0.27*	-0.08	-0.12	-0.18	-0.38***	-0.43***	-0.36***	-0.37***	-0.25	-0.42***	-0.46***
	(0.20)	(0.19)	(0.15)	(0.16)	(0.15)	(0.14)	(0.12)	(0.14)	(0.12)	(0.11)	(0.21)	(0.13)	(0.13)
Sprawl (percentage of non built urban area)	-	-0.38***	-0.26***	-0.23***	-0.21***	-0.20***	-0.15**	-0.15**	-0.15***	-0.11*	-0.21*	-0.12*	-0.09
		(0.11)	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)	(0.06)	(0.11)	(0.06)	(0.06)
Crime (Total number of recorded crimes per 1000 population)	-	-	-0.41***	-0.29***	-0.26***	-0.23***	-0.24***	-0.24***	-0.24***	-0.23***	-0.27***	-0.23***	-0.20***
			(0.07)	(0.08)	(0.08)	(0.07)	(0.05)	(0.05)	(0.05)	(0.05)	(0.08)	(0.05)	(0.05)
Urban amenities (log of tourist overnight accomodations)	-	-	-	0.35***	0.31***	0.31***	0.25***	0.26***	0.25***	0.24***	0.18*	0.25***	0.25***
				(0.08)	(0.08)	(0.07)	(0.06)	(0.06)	(0.06)	(0.07)	(0.09)	(0.07)	(0.07)
Human capital/urban functions (log workforce in ISCO profession groups 1&2)	-	-	-	-	0.15*	0.19**	0.21***	0.20***	0.21**	0.19***	0.22**	0.17***	0.16**
					(0.09)	(0.09)	(0.08)	(0.07)	(0.08)	(0.07)	(0.08)	(0.06)	(0.07)
Urban diversity (1-share of workforce in top 5 NACE 2 digits industries)	-	-	-	-	-	0.18**	0.15**	0.15**	0.14**	0.15***	0.14*	0.15**	0.16***
						(0.08)	(0.06)	(0.06)	(0.06)	(0.05)	(0.08)	(0.06)	(0.06)
Relational policentricity (log of Framework 5 Programme projects participations)	-	-	-	-	-	-	0.22***	0.23***	0.22***	0.23***	0.16***	0.24***	0.22***
							(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
Morphological policentricity (Disparities in the GDP per capita level between the metropolitan area and its regional hinterland)	-	-	-	-	-	-	-	0.12	-	-	-	0.11	0.29*
								(0.14)				(0.13)	(0.17)
Metropolization (functional definition) (Log of subsidiaries controlled by LUZ companies /subsidiaries located in LUZ)	-	-	-	-	-	-	-	-	0.06	0.08*	0.01	0.08*	0.07
									(0.04)	(0.04)	(0.05)	(0.04)	(0.05)

Agglomeration economies (Log population density in the FUA)	-	-	-	-	-	-	-	-	-	0.16* (0.08)	0.25* (0.12)	0.16* (0.08)	0.18** (0.08)
Dummy capital	-	-	-	-	-	-	-	-	-	-	-	-	0.25* (0.13)
R2	0.20	0.34	0.61	0.73	0.74	0.76	0.83	0.84	0.84	0.86	0.95	0.86	0.87
Joint F test	12.51***	14.18***	32.01***	41.40***	37.33***	35.07***	50.79***	42.30***	49.79***	35.34***	-	30.37***	26.96***
Robust standard errors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	No	No	No	No	No	No	No	No	No	No	Yes	No	No
Number of observations	59	59	59	59	59	59	59	59	59	59	59	59	59

Note: Standard errors in parentheses. * = significant at the 90% level; ** = significant at the 95% level; *** = significant at the 99% level.

- Modern views on determinants of urban performance are right, too: indeed a relevant share of urban benefits, with the highest parameter estimate being associated to this benefit variable, is also explained by the measure of urban amenities. These alone explain about 12% of the total linear variance;
- Polycentric urban development is indeed associated with a – on average – larger urban size, *both* and *simultaneously* measuring policentricity in morphological as well as in relational terms;
- Metropolised cities, viz. cities with a denser presence of power functions, also reach on average a larger size, although the evidence is here quite weak;
- Finally, the presence of administrative and power functions typical of a capital city also contribute to the equilibrium city size, with capital cities being on average, and ceteris paribus, 3% larger than the rest of the sample.

7.6. Conclusions

Since the birth of the object city, urban agglomerations have been the loci of innovation, where human capital is attracted as is paid its highest return, and, as one famous saying goes, the place where people are truly free.[13] Recent developments in the urban world, however, prompted the emergence of new trends for urban location. Not only does it pay off to accumulate human capital and locate where the returns associated to education are highest, but also, it becomes increasingly important to enjoy the more open atmosphere which characterizes modern urban agglomerations.

In this scientific report we review traditional and recent urban trends as sources of urban performance, framing them in a theoretical model which brings together the neoclassical and modern approaches to urban performance. This model is then tested on 59 Functional urban Areas within the EU27.

The evidence suggests that indeed modern paradigms explain much of current disparities in terms of urban performance (and in particular of city size). While rent, net of the urban benefits it reflects, still represents the single highest cost associated to urban size, cities now benefit not only from attracting highly educated professionals, and hosting a rich and diversified labour market, but also from pure amenities, which are found to be associated with a better urban performance.

Besides, results clearly and consistently show that being connected to a network (in this case, of scientific relations), i.e., being relationally polycentric, also fosters urban performance. Less clear, although still positive, is the effect of a metropolised urban system on overall city performance. However, this concept may actually offer a blurred image, being in part overlapping with the professional definition of human capital previously mentioned.

[13] *Stadtluft macht frei*.

8. Positioning of European Metropolises: Urban Profiles

8.1. Objectives

The key objective of WP2.3 is to identify the similarities and differences between the five POLYCE capital cities metropolises and other metropolises in (Central) Europe. This differentiation is assumed to be an outcome of metropolisation and more or less of polycentric development based on the specialization in metropolitan functions (Krätke, 2007; Friedman, 2002).

WP 2.3 analyses the profiles of metropolises in two ways:

- a group of European cities (MEGA) including the five POLYCE metropolises are described by a set of development and policy characteristics;
- additional factors regarding the characteristics of polycentricity (with input from WP2.1, WP. 2.2. and WP 2.4 and other ESPON projects) will provide a more specific analysis of the territorial capital of five POLYCE metropolises.

8.2. Benchmarking as a strategic tool steering metropolitan development

Generally, the process of urban development is more since ever driven by processes of economic restructuring, socio-demographic processes and technological innovations. Some cities in particular are characterized through the process of metropolisation (see chapter 7) which is regarded as the outcome of the specific competitiveness through growth in terms of population, jobs and traffic, through the attraction of specific and high ranked functions and economic specialization.

In front of increasing competition (European) cities are challenged in a particular way because the allocation of investments respective of economic activities is done predominantly according to comparative advantages between cities. And comparison is done increasingly across large cities and independent of countries – due to less importance of national borders. Hence, in a globalizing economy metropolitan regions find themselves in competition with other cities and regions. This means, high ranking cities with their respective territories should attract not only basic economic functions on the interregional and national level but should compete on an international level transforming their potentials into tangible and intangible assets which provide respective place based comparative advantages (Camagni, 2009). Competitiveness in a strategic perspective becomes important.

At the same time processes of globalisation and increasing competition enforce socioeconomic trends of unemployment, social polarisation and precarious conditions of living for increasing numbers of residents. Very often – based on housing market dynamics – social segregation is combined or even enforced through processes of gentrification and spatial segregation. Although the allocation of high ranked metropolitan functions is a pre-condition for structural and functional polycentricity in a wider functional metropolitan area, at the same time it may become a driving force of urban sprawl. In some cases it will even become a driving force for spatial fragmentation. Hence, metropolitan competitiveness will jeopardize economic and social cohesion with corresponding negative effects on inclusive metropolitan development. Hence, inclusive development in a strategic perspective becomes important, too.

In front of these two different perspectives regarding competitive and inclusive metropolitan development the challenge of a strategic governance approach becomes

evident supporting a smart development as defined above: '*Smart metropolitan development' indicates the ability of a metropolitan agglomeration to cope with the challenges of competitiveness and inclusive development which is based on its territorial cohesion under the polycentric perspective.*
Following this definition cities are challenged to introduce more strategic instruments in order to concentrate relevant organizational capacities and to identify most relevant strategic projects steering urban and metropolitan development in a smart way.

As one of several consequences comparative approaches like city rankings have experienced a remarkable boom: On the one hand the comparison of cities can support investors in their choice of location, on the other hand it can be an important guide for the cities to judge their position in an urban system and to define their goals and strategies for future development (Giffinger et al., 2009). However, there is some evidence that the discussion of city rankings is mainly concentrated on the final ranks totally neglecting (1) the methods and indicators used respectively, (2) its purpose and effectiveness for strategic planning.

Acknowledging these deficits of a ranking approach, the main attention in this WP2.3 is therefore not put on the meaning and results of ranks but on the definition of urban profiles which are defined according to the i.e. "Smart city approach" implemented in year 2007 (Giffinger, et al., 2007; Giffinger et al., 2010) This approach (see below) delivers non-hierarchical results in a multidimensional way. The main focus is put upon characteristics in different fields of urban development but with special attention to aspects of metropolisation and polycentric features.

Instead of ranks, the main results in form of visualized metropolitan profiles (bundle of characteristics for every city) allow an easy benchmarking between cities. In particular, results will provide the base for a further assessment of competitive or inclusive development and a starting point for the evidence based elaboration of strategic recommendations on territorial cohesion as a pre-condition for a balanced smart metropolitan development.

8.3. Methodology

The metropolitan profiles will be defined by a set of development and policy-oriented characteristics (*Economy, People, Mobility and ICT, Environment, Living*). They are composed of a bundle of factors describing metropolitan development in a multidimensional way. Empirically each metropolis will be defined through a set of indicators (key, core, research) and factors describing specific properties of the mentioned fields of development characteristics as they are assumed to be relevant for the process of metropolisation.

In a hierarchical approach a corresponding method - already applied in the *'European Smart-City project'* (see Giffinger et al., 2007) is implemented. This will allow the identification of metropolitan profiles derived from indicators, factors and key development characteristics (e.g. *economy, people, mobility and ICT, environment, living*). Also, the morphological and relational polycentric structure of the five POLYCE metropolises will be described on the level of indicators defined in POLYCE WP 2.1, WP 2.2, as well as results and indicators from other ESPON projects, especially FOCI (2008-2010), ATTREG (2010-2012) and INTERCO (2010-2012) and some other recent projects included in ESPON 2013 DB.

Data collected from publicly available data sources (URBAN AUDIT, EUROSTAT, ESPON 2006 - 2013 DB) will allow for a comparison between POLYCE metropolises and other MEGA cities in Europe (as defined by ESPON 1.1.1 project, 2005) and will provide the basis for an improved positioning of the POLYCE metropolises within the European urban system (Giffinger et al., 2007; Giffinger et al, 2009).

8.3.1. Selection of European cities for POLYCE benchmarking analysis

According to ESPON 1.1.1 (2005) project about 1595 FUAs (Functional Urban Areas) with more than 20,000 inhabitants have been identified in Europe. **MEGAs (*Metropolitan European Growth Area)*** correspond to FUAs with the highest average score with regard to *Population, Transport, Manufacturing, Knowledge and Decision Making*. About 76 MEGAs have been identified in Europe 27 divided into 5 categories, including a specific category for the two global nodes of London and Paris.[14]

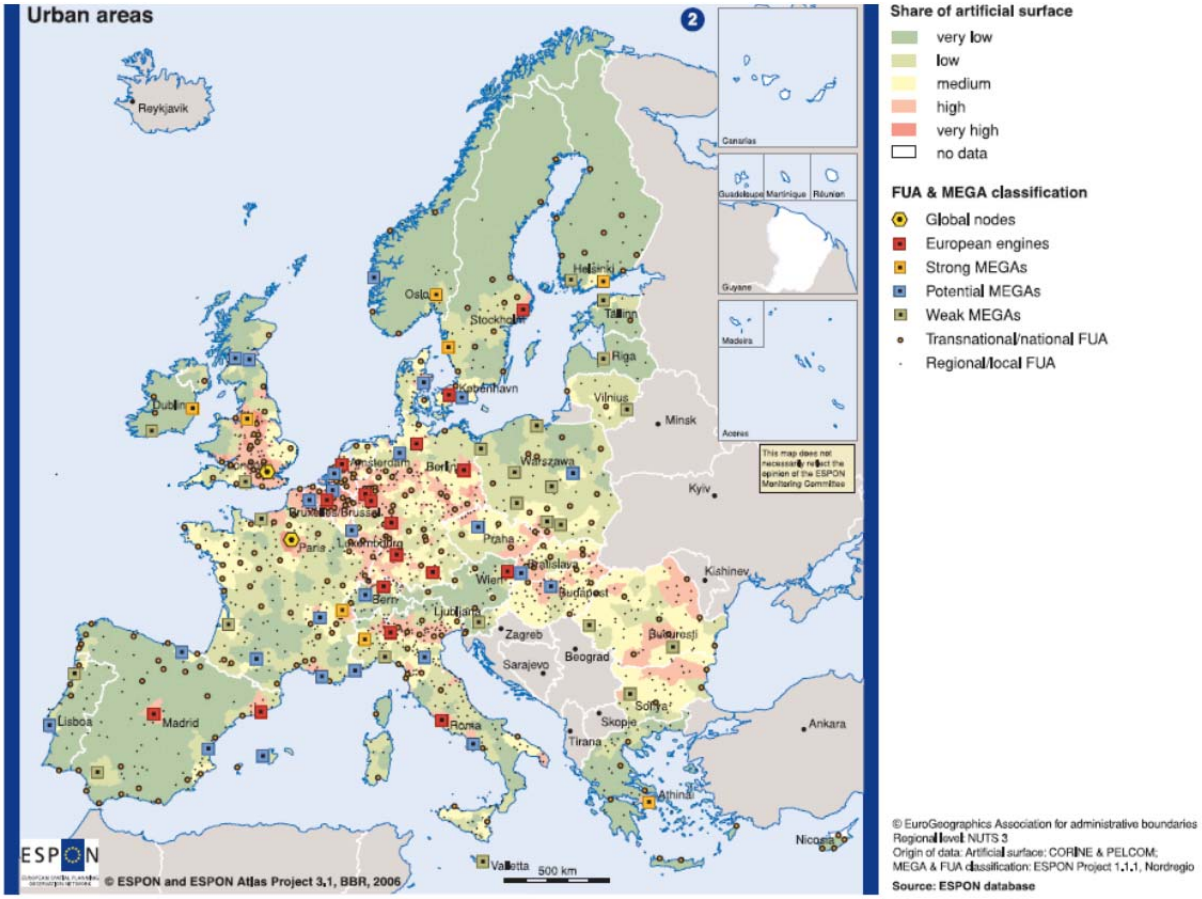


Figure 17 FUA and MEGA classification of European urban system (ESPON 1.1.1, 2005)

- 1st. rank (2 MEGAs): London, Paris;
- 2nd. Rank (13 MEGAs): Munich, Frankfurt, Madrid, Milan, Rome, Hamburg, Brussels, Copenhagen, Zurich, Amsterdam, Berlin, Barcelona, and Stuttgart;
- 3rd. rank (11MEGA): Stockholm, Helsinki, Oslo, Düsseldorf, Geneva, ***Vienna,*** Cologne, Manchester, Athens, Dublin, Gothenburg;
- 4th. Rank (26 MEGA): ***Prague,*** Warsaw, ***Budapest, Bratislava***, Bern, Luxembourg, Lisbon. Lyon, Antwerp, Turin, Rotterdam, Aarhus, Malmö,

[14] FUA (Functional Urban Areas) were defined as for: (i) countries with more than 10 million inhabitants, a FUA is defined as having an urban core of at least 15,000 inhabitants and over 50,000 in total population; (ii) for smaller countries, a FUA should have an urban core of at least 15,000 inhabitants and more than 0.5% of the national population, as well as having functions of national or regional importance

Marseille, Nice, Bremen, Toulouse, Lille, Bergen, Edinburgh, Glasgow, Birmingham, Palma de Mallorca, Bologna, Bilbao and Valencia;

- 5th. Rank (24MEGA): Bucharest, Tallinn, Sofia, ***Ljubljana,*** Katowice, Vilnius, Krakow, Riga, Lodz, Poznan, Szczecin, Gdansk-Gdynia, Wroclaw, Timisoara, Valletta, Cork, Le Havre, Southampton,Turku, Naples, Bordeaux, Seville, Porto, Genoa.

POLYCE metropolises - Vienna is ranked as 3rd MEGA, Prague, Budapest and Bratislava as 4th MEGA, Ljubljana is ranked as 5th MEGA.

8.3.2. Steps for selection of cities and indicators for hierarchical analysis

- *First step:* selection of MEGA (ESPON 1.1.1): 76 MEGA in Europe including all 27 EU member states as well as Norway and Switzerland (but excluding Iceland and Liechtenstein);
- *Second step:* selection of MEGA that are also covered with Urban Audit (UA) database for the Core City (CC) and Larger Urban Zone (LUZ) and approximation of LUZ to NUTS 3 and NUTS 2 regional level as defined by the ESPON FOCI project;
- *Third step:* exclusion of MEGA 1st class: London and Paris as well as The Hague (not defined as MEGA) and some MEGAs 5th rank: Bilbao (Spain), Le Havre (France), Turku (Finland), Southampton (UK) and Cork (Ireland) that are not included in FOCI LUZ list with approximation to NUTS 3 and NUTS 2 levels. Therefore 69 MEGA were selected for data collection (including 25 capital cities). This is the e.g. WP 2.3 *"Master (or MEGA) Data File*".
- *Fourth step:* data collection are implemented primarily for LUZ (according to UA definitions and database coverage for 1999-2008) as proxy to MEGA, as well as LUZ approximation to NUTS 3 and NUTS 2 level from the FOCI database, FUA/MEGA data (from several ESPON projects), NUTS 2 level data (as proxy to LUZ) collected directly from the EUROSTAT or by ESPON ATTREG TPG, or data for LUZ or CC collected directly from UA (i.e. if data are not included in FOCI database);
- *Fourth step:* after collection of data for approx. 160 indicators decision for exclusion of some MEGA that are insufficiently covered by data (< 80% data coverage) as well as selection and reduction of the number and type of indicators (from 160 to cc 120) are necessary for hierarchical analysis (i.e. upon decision of POLYCE TPG).
- Fifth step: hierarchical analysis with grouping of indicators in bundle of factors and five key development characteristics with transformation of indicators values in z-values, pondering of indicators and factors to provide scoring of factors, characteristics and overall city ranks. This is necessary in order to obtain the starting point for. "city profiles" for selected MEGA and further benchmarking of five POLYCE metropolises.

POLYCE WP 2.3 Master (MEGA) Data File will be also utilised for other descriptive statistical and benchmarking analysis of five POLYCE metropolises (CC, LUZ, LUZ approximation to NUTS 3 or NUTS 2 level, MEGA) *vis-à-vis* other 64 MEGA (e.g. capital cities, EU12 / EU15 vs. new EU members states, Pentagon vs. other macro-regions (e.g. Central and Eastern Europe, Danube region), etc.; WP 2.3 Master (MEGA) Data File represent the *state-of- the-art* or the level of metropolisation of 69 MEGA between 1998-2008. For benchmarking analysis Master (MEGA) Data File is complemented with data file of five POLYCE metropolises (CC and LUZ) covered by UA database for five periods from 1989-1993, 1994-1998, 1999-2002, 2003-2006, and

2007-2010. Missing data are to be completed by POLYCE TPG from local/national statistical data sources for 1998-2010 periods (if possible) or from individual research projects, or estimates based on expert evaluation of trends in POLYCE metropolis that will complement data and results from other sources - FOCI, ATTREG, INTERCO analysis (as well as other ESPON projects). Based on these results five POLYCE metropolitan profiles in Central Europe will be developed based on ***territorial capital assets*** as necessary input for policy recommendations and further governance and stakeholders actions.

8.3.3. WP2.3 empirical analysis will focus on:

- Collecting and processing comparable data from different publicly available *data bases* (ESPON 2006-2013 DB, EUROSTAT, URBAN AUDIT, etc.) for 69 MEGA (including five POLYCE metropolises) and establishment of POLYCE WP 2.3. Master (MEGA) Data File with meta-data;
- Elaboration of a *hierarchical approach* describing metropolitan (and polycentric) characteristics through factors which are defined by a bundle of relevant indicators (based on final selection of indicators and MEGAs by POLYCE TPG);
- Description of POLYCE metropolises on *different spatial levels*: based on comparable data, analysis and results of other (inter)national/local research projects and national/local statistical offices in the five POLYCE metropolis;
- Updating and collecting *new data* and information (including POLYCE TPG and stakeholders evaluations) describing resources, potentials and assets of ***smart, inclusive and sustainable*** metropolitan and polycentric development of the five POLYCE metropolises in Europe;
- Comparing the five POLYCE metropolises vis-à-vis other European metropolises and macro-regions in Europe building on findings from POLYCE WPs., as well as other ESPON projects;
- Selection of typologies from different ESPON projects and European policy documents (Europe 2020, Cohesion Policy, etc) as benchmarking for five POLYCE metropolis / Danube Region;
- Based on these results five POLYCE metropolitan profiles in Central Europe will be developed based on *selected* ***territorial capital assets*** as necessary input for policy recommendations and further stakeholders actions.

8.4. Data Sources and Indicators Formation

All indicators and data which are used for analysis and ranking of POLYCE metropolis and other MEGA cities are obtained from publicly available databases: UA (CC, LUZ), EUROSTAT (NUTS 3, NUTS 2), ESPON 2006 - 2013 DB and data sources developing within new ESPON 2013 projects: FOCI, ATTREG, INTERCO, etc. The majority of all indicators in WP 2.3 Master (MEGA) Data File are defined on the local level (LUZ, CC). Others which are derived from data on the NUTS 3 and NUTS 2 level are included because they provide additional information not only about the endowment of MEGA and POLYCE metropolises but also about the perception and assessment of specific policy developments before year 2008.

8.4.1. ESPON 2006 - 2013 DATABASE

The ***ESPON 2013 Database*** is a complex information system dedicated to the management of statistical data about the European territory, spanning over a long period of time. The ESPON 2013 DB aims to improve the access to regional and

spatial information. This process has been initiated by the previous ESPON 2006 Programme in order to increase the number of variables that may positively support the analysis of spatial structures and trends across European cities and regions. The ESPON 2013 DB project collects important information for the ESPON programme mainly derived from EUROSTAT and other regional sources and included indicators and typologies generated by the various ESPON projects. This database gives a detailed picture of a large number of statistical fields in the 27 Member States of the EU, as well as in EFTA and in some cases in CEC countries.

A broad set of regional indicators can be extracted from the ESPON 2013 DB covering aspects of demographics, labour market, gross domestic product, household accounts, structural business statistics, information society, science, technology and innovation, education, transport, tourism, health, agriculture, geographical specificities, and a study on a new urban-rural typology. All the information collected is already recorded with the NUTS 2006 classification, which is an important feature of the data to allow temporal comparability. Changes between the codification used in 2003 and 2006 are minor and are often associated to codes/names changes at least at the NUTS2 level.

8.4.2. **ESPON FOCI: Future Orientations for Cities (2008-2010) …**

… provides important analyses and information on the current state, trends and development perspectives for the largest cities and urban agglomerations within the European territory. It provides information on the forces driving urban development in Europe and scenarios for the development of Europe's cities and generates associated policy options. FOCI project is also complementary to the (new) State of European Cities Report (DG Regio, 2011). The aims of FOCI project are to; (i) review of current literature to extract the knowledge about trends, perspectives and, most importantly, driving forces for urban development in different thematic fields; (ii) each of the teams focused on one or two innovative empirical research questions, generally tapping new data sources, (iii) scenario team has taken the work of the other teams, and substantially augmented it through additional literature review, aiming at covering an even larger horizon and to provide a complete knowledge base on urban development, necessary for integrated prospective thinking. On this basis the scenarios were developed. The structure of the main report reflects these three strands, adding a fourth, new strand, which consists in an assessment of the current national policy visions on urban issues across Europe.

POLYCE project uses the data collected (and developed) by FOCI projects for selection of indicators and cities (LUZ) in order to develop the WP 2.3. Master (MEGA) Data File. The results of different research tasks within FOCI WP are presented in the Final Report (December 2010). The final FOCI results will be utilised for metropolitan profiles of five POLYCE metropolises. Most FOCI indicators and data come from the URBAN AUDIT (LUZ / CC), EUROSTAT (/NUTS 3 / NUTS 2) and ESPON 2013 DB as well as from some independent databases (e.g. ORBIS, CORDIS, etc)

8.4.3. ATTREG: ESPON ATTREG: Attractiveness of European Regions and Cities for Residents and Visitors (2010-2012) …

… identifies the main attraction factors of European cities and regions with respect to a wide range not only of population mobility of residents and visitors (migration flows associated with labour vs. leisure) but also a continuum of mobilities differentiated by different attraction factors, in order to categorise European regions and cities in relation with other established ESPON regional classifications. ATTREG project builds on findings of ESPON 1.3.3 (2004-2006) as the first attempt to map attraction factors in European regions and to explain their differential capacity to "valorise" their attractiveness as a development asset. In many cases ATTREG collected data directly

from EUROSTAT for NUTS 2 (and in some cases NUTS 3 level) but data were also collected using alterative data sources, as the ICCA (congress events), Touring Club Guidebooks series (touristic points), DG for Regional Policy (e.g. number of universities and university students), EC Education and Training (e.g. Erasmus students).

POLYCE WP 2.3. has reviewed indicators and data collected (and developed) by the ATTREG project and their relevance for building the Master (MEGA) Data File and the five POLYCE metropolises profiles. POLYCE project partner (University of Ljubljana) is also involved as a project partner in ATTREG project and therefore participates in data collection and analysis of indicators collected for NUTS 2 regions in Europe. ATTREG project is also developing own indicators and indices as well as new typologies.

8.4.4. ESPON INTERCO: Indicators of Territorial Cohesion (2010-2012) …

Builds on ESPON 4.1.3 project "Feasibility study on monitoring territorial development based on ESPON key indicators" has developed a framework for the selection of a first set of appropriate territorial indicators. ESPON 2013 Database project has designed and implemented a framework for the integration of the data (and metadata) needed to calculate and to map indicators. The INTERCO project intends to build on these results by inserting additional/new/more detailed indicators, developing additional metadata specifically designed for describing indicators, defining conceptual/logical links between the different sets of indicators and refining the tools and procedures for selecting / validating the relevant indicators. INTERCO has created a preliminary inventory of indicators containing a large number of ESPON 2006 and 2013 projects indicators as well as EUROSTAT classified per themes and subthemes, types, scales, as well as other characteristics and sources of indicators mostly for NUTS 3, NUTS 2 or NUTS 1 level (subject to availability of data). Particular attention was given to (i) the overall ESPON 2006 and ESPON 2013 programmes, (ii) ongoing ESPON projects, and the (iii) Eurostat Regio Database. In addition, statistical data from the European Environment Agency (EEA), Spatial Planning and Geoinformation (RRG), SILC, and the UNDEP have been used. Some statistical data have also been calculated by using GIS methods and tools, i.e. concerning land use indicators. Other indicators have also been generated with the help of complex simulation models, such as different accessibility indicators combining different GIS and statistical data into one model.

POLYCE WP 2.3 has reviewed the selection of indicators and data collection for NUTS 3 and NUTS 2 level in Europe and their relevance for the POLYCE W.P. 2.3 Master (MEGA) Data File and POLYCE project.

8.4.5. ESPON Typology Compilation …

The purpose is to provide a compilation of existing territorial typologies and to propose a set of eight territorial typologies which can be used throughout the ESPON 2013 Programme. The fields to be addressed are: (1) urban / metropolitan regions, (2) rural regions, (3) sparsely populated regions, (4) regions in industrial transition, (5) cross-border regions, (6) mountainous regions, (7) islands, and (8) coastal regions. The Interim report provides a first overview on the 56 existing typologies identified and the proposals for the eight envisaged typologies. TPG has developed proposals for the typologies which bring together elements form the various typologies reviewed and which compose a coherent set of eight homogenous ESPON typologies. In addition to the ESPON typologies, OECD, DG Regio, EEA, JRC, CMPR or AEBR have developed territorial typologies within their domains, which are relevant for European territorial development. Revised Final Report of the Typology Compilation project has not been available as yet (July 2011) on ESPON webpage. POLYCE WP 2.3 has reviewed the selection of preliminary typologies presented in the Interim Report (2010) with special

focus on their relevance for the five POLYCE metropolises as well as for WP. 2.3 Master (MEGA) Data File.

8.4.6. Other ESPON projects

Some other ESPON 2013 projects have been also revised but most of the data are available for NUTS 1-2-3 regions and not for urban areas as such (e.g. FUA/MEGA, CC/LUZ) - only through selected city case studies. In the later stage of the POLYCE projects while establishing the five POLYCE metropolis profiles some conclusion of these projects will be used to confront the situation in POLYCE metropolis looking at the approximation of LUZ to NUTS 3 or NUTS 2 areas. These ESPON projects are: *DEMIFER, CLIMATE, SURE, CAEE.*

- **DEMIFER project: Demographic and migratory flows affecting European regions and cities** examines how different regions of Europe are affected by the demographic changes (natural change, migratory flows, change in active population etc) that have already taken place as well as what changes are expected to happen.
- **CLIMATE project: Climate Change and Territorial Effects on Regions and Local Economies** examines the climate change, the factors that cause or deteriorate it, how it affects different areas (which areas are more vulnerable etc) as well as the consequences of climate change (also with the use of case studies).
- **SURE: Success for convergence Regions' Economies** structured empirical analysis for convergence regions identifies success factors for consolidated growth. Final goal of the project is to better understand and explain economic imbalances between different European regions, providing insight into the processes and factors behind the economic development of Convergence Regions.
- **CAEE: The Case for Agglomeration Economies in Europe** examines the relationships between agglomeration economies and city-regional/metropolitan governance.

After implementing statistical analyses (autumn 2011) the TPG will decide about the relevance of collected indicators for POLYCE and the selection of cities (MEGAs) of the data set. Detailed indicator descriptions will be provided in the POLYCE (Draft) Final Report.

8.4.7. EUROSTAT - URBAN AUDIT

In many cases collected data used in ESPON projects come directly from EUROSTAT Regio database for NUTS 2 (and in some cases from NUTS 3) regional level for time period between 2001-2009. Under the coordination of EUROSTAT, URBAN AUDIT (UA) aims to gather comparable data covering most aspects of urban life in European cities and towns. Urban Audit I (UA) was conducted at the initiative of the DG Regional Policy at the European Commission. It aims to collect comparable statistics and indicators for cities, at three different spatial scales: *Sub-Districts, City Core (CC) and Larger Urban Zones (LUZ)*. National Statistics Offices in EU member states is the link between EUROSTAT and the cities involved. They collect and gather data in their respective countries before passing it to EUROSTAT. Four different rounds of data collection occurred until year 2011. A first phase (pilot phase) was launched in year 1998, a second round between 2003 for EU Member States and 2004 for Candidate Countries (UA II 2001), a third round between 2006 and 2007 (UA III 2004). The last

round (UA IV 2008) is ongoing now and data dissemination has been available since year 2011. UA is not a top-down approach (starting from identical definition criteria and trying to enrich it by taking into account national diversity but a bottom-up approach. Countries are required by UA to choose and send national definitions of LUZ, sometimes changing them when taking into account some recommendations. The ***Larger Urban Zone*** (LUZ) is conceived by UA to approach the functional urban region (FUR) definition. To ensure a good data availability, the UA works primarily with administrative boundaries that approximate the FUR However, each UA participating city has not systematically developed the three spatial representations: some UA cities have no LUZ but one CC, other have the same perimeter for LUZ and CC; sometimes two CC share the same LUZ. In 2004 UA round number of indicators was 338 and number of participating cities 367 but with different data coverage.

ESPON FOCI project has identified in their *Interim Report (*2009) three fundamental problems with the UA data: lack of data, insufficient quality of data, problems with city delimitations. The ESPON DB team has spent a considerable amount of work trying to understand the different city delimitations and compare them. The definition of LUZ has very different meanings between countries, thus leading to different meanings of the data related to them. The UA has great potential as an important source of information and data in the future, but at this stage it is still somewhat work in progress. Therefore the FOCI project has decided to use in some cases the alternative sources based on data availability and approximation of LUZ to NUTS 3 and NUTS 2 from EUROSTAT DB (see Annex 11 of the FOCI Interim Report) if data for LUZ was not sufficiently covered in UA database..

8.5. Factors and indicators describing key development characteristics (policy relevant areas)

POLYCE Master (MEGA) Data File is developed using data from above mentioned sources - EUROSTAT, URBAN AUDIT, ESPON 2006-2013 DB, ESPON projects (FOCI, ATTREG, INTERCO, etc) for 69 MEGA – European metropolises including five POLYCE metropolises. Data were collected for approximately 160 indicators grouped in a bundle of approximately 30 factors and five key development characteristics as relevant policy areas.

Table 22 POLYCE WP 2.3 factors describing key development characteristics (key policy areas)

ECONOMY (Competitiveness)	**PEOPLE (Social and Human Capital)**
Productivity *Entrepreneurship* *Innovative spirit* *Flexibility of labor market* *Investments* *International embeddedness* *Structural disparities*	*Demography* *Level of qualification* *Affinity to life-long learning* *Ethnic plurality* *Social cohesion*
MOBILITY (Transport and ICT)	**ENVIRONMENT (Natural resources)**

Public transport *Commuting* *(Inter-)national accessibility* *Availability of ICT-infrastructure*	*Sustainable land use* *Attractivity of natural conditions* *Pollution* *Sustainable resource management* *Environmental protection* *Individual assessment of urban environmental quality*
LIVING **(Quality of life)**	**GOVERNANCE** **(Participation)**
Cultural facilities *Health facilities* *Housing quality* *Education facilities* *Individual safety* *Touristic attractivity* *Individual assessments of the quality of urban services delivery*	*Participation in decision-making* *Transparent governance* *Municipal budget* *Not enough data from publicly available data sources for selected MEGAs. To be completed by POLYCE TPG assessments for 5 POLYCE metropolises and information from WP2.4 and WP2.5.*

8.5.1. ECONOMY

Economic factors relates to the performance of the economy assessing the ***competitiveness*** of MEGA and POLYCE metropolises as important attributes of metropolisation of European larger cities covering the period between 1995-2008. Most indicators are showing the situation before year 2008 i.e. economic and financial crisis in Europe. Since than many MEGA and POLYCE metropolises are under different impacts of these changes on economic endowments which will have to be evaluated by POLYCE project partners and stakeholders.

Economic factors relate to the performance of the economy within the LUZ and their approximate NUTS2 or NUTS 3 regions as well as CC (lack of data for LUZ). The selected indicators cover factors of *»productivity«, »entrepreneurship«, »innovative spirit«, »flexibility of labour markets«, »investments«, »international embeddedness« as well as »structural disparities«.* Data cover different spatial levels of selected MEGA and come from different sources such as EUROSTAT, UA, ESPON (FOCI and ATTREG projects) (see Annex for the list of indicators). Data coverage (missing value) for cc 30 indicators and 69 MEGA range from 0 (full coverage with data) to 46 (missing values mainly from UA database). Initial results favour equally metropolitan areas and national capitals, with a higher concentration on economically strong MEGA in EU 15 but also five POLYCE metropolises. Most indicators are showing the situation before year 2008 i.e. economic and financial crisis in Europe. Since than many MEGA and POLYCE metropolises are under different impacts of these changes on economic endowments which will have to be evaluated by POLYCE TPG and stakeholders.

8.5.2. PEOPLE

Social and Human factors capture the characteristics of the people living within selected MEGA and POLYCE metropolis assessing the social and human capital competitiveness as well as inclusion attributes as important factors of European metropolisation. Human capital endowments are classically related to ***social cohesion*** policy interventions such as the provision of education programmes and active labour market programmes, including the integration of foreigners, and disadvantages social groups.

The selected indicators cover factors in terms of »demographic«, »level of qualification«, »affinity to life long learning«, ethnic plurality« and »social cohesion« assessing the social and human capital assets as well as inclusion attributes of selected MEGA and POLYCE metropolis as important factors of metropolisation of European larger cities. Data cover different spatial levels of selected MEGA and come from different sources such as EUROSTAT, UA, ESPON (FOCI, ATTREG, DEMIFER projects) (see Annex for the list of indicators). Human capital endowments are classically related to policy interventions such as the provision of education programmes and active labour market programmes, including the integration of foreigners. Data coverage (missing value) for 69 MEGA ranges from 0 (full coverage of indicator with data) to 43 (missing values mainly from UA database). Initial results favour equally metropolitan areas and national capitals, with a higher concentration of elderly, well educated people and foreigners in MEGA EU 15 but also in five POLYCE metropolises.

8.5.3. MOBILITY AND ICT

Mobility and ICT factors relates to the nature of infrastructure and the facilities that frame the intra-urban and inter-urban accessibility of MEGA and POLYCE metropolises. The nature of infrastructure provision is open to multi-level policy action (i.e. investments in transport infrastructure). The other dimensions of accessibility and access are their role in endogenous development, since they permit to every territory, whatever its territorial capital, to increase its development (particularly thanks to ICT) and to participate to global competitiveness. Accessibility and infrastructures of all types are crucial for competitiveness and cohesion since they should contribute to the reduction of disparities. Accessibility and social inclusion is about quality of life and participation of every MEGA and other territories to a balanced and sustainable development with reduction of poverty and access to basic services, jobs and market.

Mobility and ICT factors are related to »public transport« and »commuting« patterns, »(inter)national accessibility«, »availability of ICT infrastructure« (Internet and broadband access) of selected MEGA and POLYCE metropolises as important factors of metropolisation of European cities. Mobility and ICT endowment factors cover cc 20 indicators for 69 MEGA ranging from 0 (full coverage of indicator with data) to 51 (missing values mainly from UA database). Initial results favour larger metropolitan areas and capital cities, with a higher accessibility, public transport facilities and ICT infrastructure. Data cover mainly CC level but also LUZ, FUA, NUTS 3 and NUTS 2 spatial levels of selected MEGA cities and come from different sources such as EUROSTAT, UA, ESPON (FOCI, ATTREG, other ESPON projects) (see Annex for the list of indicators). Some other indicators from ESPON projects KIT and TRACC will be revised for their possible use in the POLYCE project.

8.5.4. ENVIRONMENT

Environmental factors relates to the quality of the built environment, attractivity of natural conditions, (low) pollution levels, sustainable resource management and environmental protection of MEGA and POLYCE metropolis. Environmental endowments determine an advantage of some places with interesting spatial differences regarding some factors and indicators. Environmental endowments are related to different multi-level policy interventions such as land use, the provision of water supply, sewage and waste management infrastructure, provision of green and open spaces, and anti-pollution measures. Environmental endowments encompass three dimensions: risks, resources and quality of life. Climate change is a global challenge which must be tackled at all scales and it represents a multi-dimensional risk in future, since its impacts are numerous and asymmetric. Finally, better quality of life

in a preserved natural patrimony will ensure attractiveness of MEGA and Europe as a smart and sustainable place.

Data cover mainly CC spatial levels of selected MEGA cities and come from different sources such as EUROSTAT, UA, ESPON (FOCI, ATTREG projects) (see Annex for the list of indicators). Data coverage (missing value) for cc 35 indicators and 69 MEGA range from 0 (full coverage with data) to 33 (missing values mainly from UA database).

8.5.5. LIVING

Living or quality of life factors measure the provision of public services/investment in selected MEGA and POLYCE metropolis as well as the degree of satisfaction of residents with public services and the city itself. These factors and indicators can be taken as proxies for good *governance* and frame the likely capacity of place-based institutions to maintain quality of life in European cities. Quality of living endowments is related to different national/local policy interventions such as provision of housing, urban services, anti-crime measures, or provision tourist attraction services for smart, inclusive and sustainable European cities and regions.

Living or quality of life indicators describe factors of »cultural facilities«, »heath facilities«, »housing quality«, »safety« as well as tourist attractivity« and »individual assessments of the urban services delivery and quality of life in the city«. The indicators highlight that attractiveness is facilitated between and within EU15 and EFTA countries but hindered between EU 12 accession countries and the EU15. Tourism flow cluster in “classic” destination and economically stronger MEGA areas. Data cover mainly CC and LUZ spatial levels of selected MEGA and come from different sources such as EUROSTAT, UA, ESPON (FOCI, ATTREG projects) (see Annex for the list of indicators). Data coverage (missing value) for cc 35 indicators and 69 MEGA range from 0 (full coverage with data) to 42 (missing values mainly from UA database).

8.6. Assessment of the preliminary selections of factors and indicators and data collection for 69 MEGA and 5 POLYCE metropolitan profiles

One main aim of the work at this stage of the WP 2.3 has been to convert the concepts of metropolisation and polycentricity into factors and indicators for analysis and to utilise the publicly available databases (EUROSTAT, URBAN AUDIT, ESPON, other institutional or research databases) outputs of the new ESPON projects that have become available during 2010-2011. This process has involved specifying factors/indicators in WP 2.3. in terms of content (what does the factor tell us), in terms of time (at what time periods is the factor measured) and in terms of scale (at what scale is data available to construct robust factors). Our main working hypothesis is that a metropolisation capacity of POLYCE MEGA cities depends on a different (at least in part) set of factors and indicators, relating to key development characteristics (as policy areas) that could be defined also as “territorial capital assets”, in different various dimensions. They all are more likely to occur in place where there are good jobs, infrastructure and public services, high quality environmental and cultural assets, and good environmental conditions. After the process of verification of sources and existing data, it was possible to collect the data for chosen indicators describing bundle of factors and key development characteristics (as relevant policy areas).

A first selection of indicators and data collection have been completed by the WP 2.3 leaders and they are revised according to the data availability for selected MEGAs and updated for POLYCE metropolises (in the case of missing data) in cooperation with POLYCE TPG. Preliminary statistical analyses are showing us the further use of

selected and revised indicators with sufficient data coverage for MEGAs in order to proceed with hierarchical analysis until 5th TPG in Praha.

The five characteristics allow us to focus on few themes, since indicators have to cover five key development characteristics 8as relevant policy areas). Indicators have to be very close to each factor within the key development characteristics and policy relevant areas. Showing the linkages between each indicator and factors is important – taking in consideration that territorial development of »smart, inclusive and sustainable« European (both MEGA and POLYCE) metropolis is supposed to improve in future – under different constraints - like the effects of economic and financial crisis, climate change, or demographic and social factors.

The other criterion is the data availability and their acquisition from publicly available data sources (ESPON, EUROSTAT, URBAN AUDIT, other sources) as well as documentation (metadata) and structuration of database (see Annex for details on selection of indicators for 69 MEGA). The next step is calculation of indicators according to defined models and the presentation of the first results at the 5th TPG meeting in Praha as well as discussion with project partners of the classification scheme.

Most of the indicators and data are available before the period of economic crisis covering the time period 1998-2008 as the most prosperous years for European cities. Selected indicators are showing more "competitive" nature of metropolitan development, some of them are "inclusive" - some are both - depends of common understanding and perception of metropolisation as well as POLYCE TPG decision over the selection of indicators, data coverage and choice of statistical analysis, About 160 selected indicators are grouped in cc 30 factors and 5 key development characteristics as policy relevant areas (*Economy, People, Mobility and ICT, Environment, Living*) that can be used to describe both "metropolisation" (competitiveness / inclusion) and territorial capital assets of selected MEGAs and five POLYCE metropolis as well as "polycentricity" (networking) of MEGAs at *European level*.

In order to evaluate “polycentric" development of 69 MEGA - there are two paths:

(i) ***Polycentricity*** **on meso and macro level:** through e.g. *networking* of MEGAs including five POLYCE metropolis (accessibility, connectivity, cooperation - e.g. air passengers, tourist flows, foreign students, foreign firms/subsidiaries, participation in EU-funded research projects, international conferences and congresses, etc) showing the role and position of different MEGA in European urban system and - connectivity of POLYCE metropolises - mainly to MEGAs in Pentagon macro-region.

(ii) The other path to access ***polycentricity*** is through analyses on the **micro level** (as partially performed in WP 2.1) – relationship between CC and LUZ (or LUZ approximation to NUTS 3 / NUTS 2) in five POLYCE metropolis - showing the differentiation in performance of selected indicators between CC and LUZ and their distribution over period of time (e.g. people, jobs, economic activities, housing, services, investments, wealth, etc. according to selected indicators).

For micro level analysis of polycentricity WP2.3-leader has collected data for both CCs and LUZs of the five POLYCE metropolises. The aim was to cover several time periods between 1991 and 2008 in order to explore the spatial and temporal differences between CCs and LUZs. As URBAN AUDIT does not provide data for all POLYCE CCs and LUZs within the several timeframes, PPs will try to add missing values for their respective cities.

For micro level analysis of polycentricity WP2.3 leader has collected the data for both CC and LUZ for five POLYCE metropolises from the URBAN AUDIT for all time periods

between 1991-2008 – in order to explore the spatial and temporal differences between POLYCE CC and LUZ. Unfortunately data coverage for five POLYCE CC/LUZ are not sufficient and further analyses will depend on POLYCE TPG decisions regarding the availability and accessibility of additional data collection in their respective cities.

For five POLYCE metropolises TPG will need to link the spatial levels of CC, FMA, MR (as defined in WP 2.1) - and corresponding data availability for CC and LUZ in URBAN AUDIT, (or LUZ proxy to NUTS 3 / NUTS 2 from EUROSTAT) or ESPON 2006-2013 DB, or other publicly available data bases, including national/local research projects and experts evaluations. These analyses will depend on data availability and comparability between five POLYCE metropolises and TPG decisions.

POLYCE TPG will need to link WP 2.3 selection of factors and indicators with the stakeholders expectations - most notably their list of (traditional) indicators and sector base policy analysis used for preparation and implementation of strategic and spatial development plans until 2020. TPG will need to link key development characteristics and bundle of factors with *territorial capital assets*.

The aim in the next stage of WP 2.3. (before statistical analysis of data) is to reduce the number of indicators (from 160 to approx. 120) and select MEGAs (with more than 80% data coverage) for benchmarking of five POLYCE metropolises in order to proceed with hierarchical analysis. This is to be achieved through TPG decisions and some cross-correlating statistical analysis indicators within each type of endowment factor. Where there is a high degree of inter-correlation, indicators may be removed leaving some indicators to represent groups of highly-inter-correlated ones. In addition simple factor analysis (principal component analysis) will be applied within each bundle of endowment factors to explore whether easily interpretable factors can be identified (and subsequently used in the analysis).

9. Perceptions, assessments and perspectives

This chapter will give an overview of the current state of WP 2.4. It starts out with a brief introduction of objectives before discussing the methodological approach of the WP. This is followed by a third part that presents first results of the analysis conducted in the five POLYCE cities.

9.1. Objectives

WP2.4 focuses on the perceived spatial characteristics of the five cities with regard to environmental, economic, social and institutional aspects. The main goal of this WP is a qualitative evaluation of the strengths, weaknesses, potentials, assets and challenges of the examined core cities and their metropolitan regions. The results are meant to complement the quantitative assessment of spatial characteristics obtained in other WP, mainly WP2.3. Hence, the main focus lies on the interplay of objectively described and individually perceived characteristics. Methods and tools used in this WP are developed in close coordination with other WPs. The results will provide additional context for the interpretation of data gathered in other WPs.

The three main objectives of WP2.4 are:

- Identification of most relevant potentials, factors and assets of the five cities on the micro, meso and on the macro level. These potentials, factors and assets of the examined five core cities and their metropolitan regions will be discussed from an analytical and a strategic point of view in comparison of the five metropolises.

- Widening the perception of important assets and potentials among the stakeholders
- Assessment of assets for future positioning of the five cities as metropolises on the macro level
-

Main tasks within WP2.4 are the following:

- to prepare and implement a methodological framework for the analysis
- to conduct a participative assessment of perceived strengths, weaknesses, potentials, assets and challenges for each city
- to compare major strengths and weaknesses of each city
- to analyze and compare the profiles of the five cities at the local and regional level
- to detect relevant synergy effects of the five cities and their cooperative efforts

9.2. Methodology

9.2.1. Stakeholder survey

General Approach

Questionnaires (completed and precised by additional interviews) have been selected as the main method in WP2.4. They served as a tool to identify and assess perceived spatial characteristics of each core city and its metropolitan region. The word "perceived" indicates that we are not measuring/examining knowledge but rather subjective categories of attitudes, opinions and leans. These categories are not measurable directly.

The most renowned definition states that attitudes are learned predispositions to favouring or refusing reaction toward a given object, person or event (Fishbein, Ajzen 1975, In Hayes, 2003, p. 95). Generally, the attitudes are learned, mutually consistent, stable in time and space and are concerning the positive or negative reactions. Each attitude has cognitive (opinion based on rationalities), emotional (feelings and emotions) and behavioural (willingness to act) dimension.

Ajzen and Fishbein formulated in 1980 the theory of reasoned action (TRA). Theory of Reasoned Action is based on the supposition that individual behaviour is based upon the intention to perform the behaviour and that intention is a function of individual set of attitudes. Expressed behaviour is always based on intention, which might be unconscious. Intention is thus the cognitive representation of a person's readiness to perform a given behaviour, and it is considered to be the immediate antecedent of behaviour.

Each intention is basically determined by the underlying attitude, the set of subjective norms and the individual behavioural control. Subjective norms might strengthen or diminish the intensity of the expressed attitude. In other words, the people with rather strong subjective norms might inhibit their attitudes and behaviour in significant way. For example, if the reference social group is rather condemning some attitudes and behaviour, the mere belief or individual assumption might not be strong enough to modify the attitudes and intentions into open expression (or behavioural act) (See also UTWENTE).

Attitudes can be modified and changed both internally and externally. Modifications and shifts within the one´s attitude in time and space is conceivably explained by theory of cognitive balance and cognitive dissonance (Heider, Festinger 1957, In Hayes 2003).

Discrepancy within own attitude system is solved by the change or shift of one or more attitudes. The internal harmony and balance is restored.

Another theory, so called „self-perception theory“ (Bem, Cooley, in Hayes 2003) interpretes attitudes as a result of continuous individual comparative analysis. Each individual is taking into consideration the following assumptions:

1. supposition how own individual is influencing others
2. supposition, how the others evaluate own behaviour
3. feeling of pride, shame and dissapointment conducting own behaviour

There is a range of subtle distinctions between attitudes and opinions. In general the following ones are considered to be most significant:

Attitudes

- are more difficult to research, because they might be hidden and invisible
- are stable in space and time, deeper anchoraged and usually are modified continuously
- are more consistent within each other
- are resistent to arguments
- are more related to abstract and philosphical themes (ethic, truth, moral...)
- have certain logical structure

An example of a question concerning attitudes in our questionnaire is question 10.

Opinions:

- are more rational and civil
- are more focused on external, non-personal issues (e.g. the right approach toward technical difficulties conducting the revitalisation of urban area...)
- are more sensible toward contra-arguments
- are more easily to modify or shift
- are easier to measure and to evaluate

An example of a question concerning a respondent’s opinions in our questionnaire is question 3.

We assume that the attitudes, opinions and leans of respondent are influenced mainly by the following patterns and factors:

- professional experience and background
- situational context (whether the respondent is now working on projects regarding the examined city, the political situation, previous experiences from similar surveys etc.)
- personality of respondent (his/her personal values, characteristics, interests, hobbies)
- social desirability (tendency to answer in expected way, especially when the researcher is somebody who is personally known/respected by the respondent)
- individual motivation and engagement of the respondent

The questionnaires included open, as well as semi-open and closed questions. The following techniques were used to structure the particular items of the questionnaire:

a) Likert scales

Likert scales are one of the most frequently used methods for evaluation of attitude/behaviour related to the proposed topic/statement/thesis. Most frequently, this tool is measuring the degree of agreement with the proposed statement – e.g. measuring the degree of trust, positive affiliation, willingness to act etc. This degree reflects the attitude of the individual.

The Likert-type scale has been used for measuring the attitudes by researchers for over many decades. The original scale of this type was developed by Rensis Likert and is explained in his article, "A Technique for the Measurement of Attitudes," in Achieves of Psychology (1932). He reported very satisfactory reliability data for the scales developed with his procedure. Subsequent research has generally confirmed the fact that the Likert-type attitude scales are quite reliable and valid instruments for the measurement of attitudes.

The most essential criteria for using Likert-type scales are the following (according to Maranell, 1974):

- each statement should enable to express an individual opinion
- the statements are measuring the subjective attitude/behaviour not a knowledge of objective fact
- the statements should measure the present attitude not a past one or a future possibility
- the statements should be clear, concise and straight-forwarded
- the vocabulary should avoid double-edged, unclear and ambiguous formulations
- each statement should measure only one attribute (avoid double negation).

A Likert-type scale consists of a series of declarative statements. The subject is asked to indicate whether he agrees or disagrees with each statement. Commonly, five options are provided: "strongly agree," "agree," "undecided," "disagree," and "strongly disagree." Other Likert-type scales include four or six steps rather than five, excluding the undecided position. We used the 4-option scale in one question and 5-option scales in two questions. The 4-point scale tends to over-scale the answers, going to extreme values more than the 5-point Likert scale. To some extent and in some cases, it can exaggerate the answers, so we restricted this scale (4points) to only one question.

The measured attitude was modified from the simple approval (agree-disagree) toward the expression of perceived importance (low-high) and performance (low-high).

Originally, scales developed by the Likert method ranged from six to thirty declarative statements. Some of these statements were stated in a positive manner and other in a negative manner. Optimizing our questionnaire, we decided to use only positively formulated items. In questions 10 and 11, we tried to cross-check the perceived importance in general, and the satisfaction with the current state of art of each measured factor. The negative differential between the high importance and low satisfaction indicate the critical issues. Generally, the Likert-type scale provides a very useful and relatively uncomplicated method of obtaining data on people's attitudes (Arnold, Croskey, Prichard 2011).

Example from questionnaire:

Question 10:

Independent of the situation in (add city here), which of the following factors do you generally consider to be important preconditions for cooperative efforts? Please rate the following factors according to their importance and add others you regard as important. (1 = low importance, 5 = high importance)

Legal stability	‘1 ‘2 ‘3 ‘4 ‘5
Political stability	‘1 ‘2 ‘3 ‘4 ‘5
Leadership and decision-making qualities	‘1 ‘2 ‘3 ‘4 ‘5
Etc.	

Assets of Liker-type scales:

- easy to score and evaluate
- allow statistical summaries and further application of data (although in our case the sample of respondents is numerously too small for further utilisation of advanced statistical tools).
- enable to repeat the survey in certain time and thus make a profound longitudinal research
- in our case, this tool enables to compare the examined core cities and their metropolitan regions altogether and to make individual bilateral comparison between any given cities
- rather simple tool to comprehend the scope of the question, the used scales make the scope of the question rather comprehensible and understandable
- enables to set up the hierarchy among the examined factors (combination of importance and satisfaction)

Possible drawbacks of Likert-type scales:

- a lot of neutral answers, risk of influencing responses by forcing choices social desirability (tendency to answer in expected way)
- measured items must avoid any ambiguity in interpretation ! measured items must not measure the facts, but they must be focused on attitude/behaviour !
- we are working with small number of respondents, therefore individual selection may significantly bias the final results

b) Semantic differential

Semantic differential is a scale designed by Osgood (1957). Its main aim is to measure coonotative meaning of persons, objects, events or concepts. Respondents have to evaluate the connotative characteristics of given object/concept on the bipolar scale consisting from mutually opposite adjectives („good-bad“). Connotative meaning means that they are not assesing the objective facts, but rather subjectively evaluating the proposed characteristics and traits of the examined object/concept. Respondent should indicate his/her personal opinion within the given scale. Attitude measurement has been examined in sociology, psychology, political science etc, in many ways and approaches and semantic differential technique has proven to be a well-respected measuring device within this filed.

Osgood performed a factor analysis of various scales and divided their content onto three principal scopes: evaluation, potency, and activity:

The first scope (evaluation) measures the impression within the categories of acceptance or refusal (good-bad, agreeable-obnoxious)

The second scope (potency) measures the strength or vitality (dominant-submissive, strong-weak, vigorous-unprofiled).

The third scope (activity) measures the dynamics (active-passive, hectic-calm).

The studies of Osgood and his colleagues revealed that those three scopes of factors deliver most precisely the essence of the most of personal attitudes. Thus, the semantic differential is today one of the most widely used scales used in the measurement of attitudes. One of the reasons is the versatility of the items. The bipolar adjective pairs can be used for a wide variety of subjects and topics and the principle of the questionnaire is easily understood for all individual familiar with the used language.

In our questionnaire, the semantic differential (measuring the leaning of respondents toward certain connotations, e.g. the perceived characteristic/trait of the city) was used in one question (city image). Respondents were asked to express their personal evaluation of the examined characteristic of the city on the bipolar scale.

Question 3:

How would you describe the city following the below-mentioned categories?

	Very	Rather	Neutral	Rather	Very	
attractive	‘	‘	‘	‘	‘	unattractive
ordinary	‘	‘	‘	‘	‘	unique
friendly	‘	‘	‘	‘	‘	hostile
etc.						

Assets of semantic differential:

- this method enables to compare the examined cities altogether as well as to make individual bilateral comparisons between them
- rather simple tool to comprehend the scope of the question
- measuring the connotative meaning of the objects and displaying (undirectly) the attitudes of the respondents
- particular items might be analysed by factor analysis which enables to survey both the individual (degree of consistency of attitudes) and group diagnostics (prevailing attitudes)

Possible drawbacks:

- selection of the adjectives might be biased by culture, language, linguistic parameters etc.
- it is not easy to obtain bipolarity in all requested fields (e.g. what is opposite adjective of “boring” – “manifold/exciting/creative”?) national language specificities (some adjectives might be translated/interpreted differently in different languages), some adjectives might bear more double-edged connotations in certain languages social desirability (tendency to answer in expected way) tendency to prefer medium/average points of scale
- we are working with small number of respondents, therefore individual selection may significantly bias the final results

All in all, semantic differential is a useful tool of measuring subjective connotations, and this method is used in our questionnaire as an additional tool.

c) Semi-forced option

Several items in our questionnaire were constructed via semi-forced option method. Respondents had to opt from the proposed list of options. Multiple answers were possible.

Selection of the adjectives should inspire the respondents to take into the consideration different aspects of the evaluated subject. Even the mutual compatibility/incompatibility of the selected characteristics might bear a diagnostic value (if somebody picked up the social environment both as friendly as well as split/apart, it may indicate that social environment within the city significantly differ in various locations/segments/milieus).

Question 4:

What is your experience regarding the social environment in the city?

supportive ‘
inspiring ‘
friendly ‘
cooperative ‘
etc.

Assets:

- broad choice of alternatives. The respondents have the option to choose from 10 alternatives
- opportunity to compare different cities altogether and an opportunity to compare the examined cities bilaterally
- possibility to include multiple options makes this method an excellent opportunity to express own attitude in more optimal, balanced way
- possibility to include own choice is an excellent opportunity to tackle characteristics which might have been overlooked by author of questionnaire

Possible drawbacks:

- the semantics of the selected option might be interpreted differently (e.g. “inspiring social environment” might refer to inspirative “governance culture” as well as to selected characteristic of the broader social milieu including rather in-formal communities and genres etc.)
- the selection of the proposed characteristics might be influenced by the cultural variables, language specificities and cognitive styles of the authors of the questionnaire

d) Open questions

Open questions provide more space for individual assessment, presentation of own particular point of view and the feedback toward the survey. Respondents are not forced to opt from the given answers, but are encouraged to formulate their own opinion, answers and reactions to relevant subject. Their answer is not strictly limited by time and space. There are issues which are so complex, multidimensional or unique, that standardised scales are inappropriate to use.

Open questions represent the majority of the surveyed items in our questionnaire. Due to the limited sample of interviewees, we can focus on individual perception of those issues. This method enables to concentrate on unique, specific and peculiar features of the investigated cities.

Question 8a:

From your point of view, which projects or activities do you consider to be important for future metropolitan development?

Question 15:

Finally, we would like to hear your opinion on the future development of the city and ways to steer this development. What are your strategic recommendations for achieving a territorially-inclusive metropolitan development in selected city?

Assets:

- opportunity to gain more personal feedback based on the feelings, attitudes, personal experience and understanding of the respective topic.
- this type of question enable to provide more information, especially concerning the particular specificities and peculiarities of the examined city. Answers given to open-ended question might sometimes reveal the issues that have previously not been taken into consideration at all.
- higher motivation of respondents to express something individual, with higher added value,
- respondents are not likely to forget the answers they have to choose from if they are given the chance to respond freely, and open questions simply do not allow respondents to disregard reading the questions and just "fill in" the boxes with some superficial evaluation
- it is highly unlikely that the given answers of several respondents will be too similar or same in the nature
- open questions are frequently used as a secondary analysis, revealing the context (e.g. if respondents are other researchers or insiders within examined field) and providing the multiplicated knowledge.

Possible drawbacks:

- the evaluation might be difficult and time-consuming
- it may be difficult to make clear-cut comparison between the particular answers as well as between examined cities
- respondents with higher motivation may make more comments and entries that respondents with more indifferent attitude but relevant and valid observations too general or too specific answers
- less articulate respondents may have difficulties to provide plausible answers

Selection of respondents

Appropriate selection of respondents is fundamental precondition of the validity and reliability of every survey. Due to the limited number of respondents, we could not take into the consideration the usual demographic and social criteria (age, sex, education etc.). First we tried to set up the basic common criteria. We agreed that selected respondents:

- should be competent to assess the question/issues. Although there are supposed different opinions and points of view (even controversial), the respondents should be able to underline their opinions with certain knowledge and experience within the examined field.
- should be from different background (academic, commercial, municipal). This variety is essential, because each sector will be represented by limited amount of respondents. The domination of certain sectors might significantly distort or bias the results.

- should be motivated to participate. This is essential especially in open-ended questions, high motivation is a basic precondition of thorough and profound answers related to those questions. Even in close-ended questions, higher motivation will reduce risk of superficial answers to questions which were not properly understood etc.
- should be instructed that the principal tool is questionnaire (not interview). Additional communication (interview) should serve as a tool of precision of the given answers, not as the further investigative tool (in order to secure validity and reliability of the research).

The profile of the sample of the respondents in particular cities should be mutually comparable according to several indicators (background, amount, motivation). More on this issue see below.

After open discussion and brainstorming session we decide to use the following sample of participating respondents:

Field of activity

1. politician
2. planner from capital city (city administration)
3. chamber of commerce
4. media
5. economic development agency
6. academic
7. real estate developer / project manager (city administration)
8. representative international enterprise (private)
9. representative international organization (public, semi-public)
10. representative of cultural institution
11. tourist agency
12. politician from city in Metropolitan region (2)
13. NGO
14. private planner

The interviewees will be the leading personalities and opinion-makers related to the particular city (stakeholders). The main thematic issues covered in the interviews will revolve around potentials, assets, challenges, strengths and weaknesses of the five cities. These dimensions will help to reveal the unique added value of each examined city and its USP (unique selling proposition) on the international marketplace.

Content

The content of the questionnaire might be divided into three parts:

Part 1

The first part deals with the recent development of the city in economic, social, environmental and infrastructural terms, as well as with the overall profile of the city (performance of city, image, social climate, past achievements and failures). It integrates both the items which are perceived more subjectively and even emotionally (image of the city, social environment) and the items assessed more rationally (overall development and performance of the city in the delimited dimensions). The first 5 questions delimit the framework for general subjective evaluation of a city's particular achievements and setbacks, with the opportunity to describe its individual subjective connotations creating unique identity. This part of the questionnaire is rather descriptive and empirical. The design of the questions attempts to give the respondents proper opportunity to express their subjective and individual opinions.

Part 2

The second part deals with the future perspectives of the city. Future potentials are identified against the background of existing strengths and weaknesses. The emphasis is placed on the issues that might be actively shaped and influenced by the city itself. This part of the questionnaire is rather analytical and more in-depth oriented. Questions used in this part require a certain degree of knowledge and expertise in the field of urban and regional development of the particular city and its metropolitan region. Next to asking about the most significant strengths and weaknesses, also the most important and most challenging/controversial actions within city´s territory are relevant here. The implications of those events/projects on the positioning of the city are the last item of this part. A fine-grained evaluation of past and current activities is indirectly revealing the attitudes of the respondents (whether they tend to prefer more social oriented, environmental friendly solutions or they appraise rather neoliberal, progressive, business driven actions etc.).

Part 3

The third part of the questionnaire deals with the cooperative initiatives and factors that are important for an inclusive metropolitan development (factors important for cooperative effort, fields of cooperation, partnerships, strategic recommendations etc.). This section of the questionnaire is focused on measuring the attitudes (what are the preconditions for effective cooperation) and the reflection of satisfaction with the current state in this field (degree of satisfaction related to factors conditioning the effective cooperation in respective city). Further questions are investigating the importance of particular fields of metropolitan development with regard to cooperation, attractiveness of the city as a partner, potential future partners for cooperation and strategic recommendations for the future. The last item of the questionnaire is set up as an open question, giving the respondents the opportunity to raise previously unmentioned aspects. This might shed light on the important fields of future development, strategic direction, visions etc. These impulses might be further discussed and evaluated at the local city conferences in each respective city.

Evaluation

Interpretation of the data and statements from questionnaire/interview will combine statistical analysis and content analysis. The essential guide how to proceed with the evaluations should take into the consideration following steps and recommendations:

a) Recent urban development trends and city profile

Profile of the city (Question 1)

Q1: overall frequencies of selected adjectives, distribution of opinions, coherence of opinions…). It is an introductory question indicating how is city perceived in general.

Profile / Social environment (Question 3 + 4)

Q3: city image – the overall bipolar profile, prefered adjectives, coherence of opinions, controversially perceived adjectives…In which items the respondents are split apart in their opinions?

Q4: social climate – frequencies, the 3-4 most frequently selected adjectives, inner coherence of the most frequently preferred adjectives

Overall development over the last 5 years in different dimensions (Question 2)

Q2: brief description for each dimension (social, economic…), content analysis, which dimension was answered more frequently, which one was left unanswered or less frequently answered?

Negative and positive events / activities (Question 5a and 5b)

Q5: the most frequently selected events, type of argumentation (Why?), the locations (Where?), controversies (are there events/project which are being mentioned as both positive and negative examples?...), location.

b) Perspectives for future development

Strengths and weaknesses of the city (Question 6 and 7)

Q6,7: Comparison, in which fields are located the weaknesses and the strengths?, content analysis of given answers.

Most promising / most challenging projects or activities for future development (Question 8a, 8b and 9)

Q8: the most frequently selected projects, style of argumentation (Why?), the locations (Where?), controversies (are there events/projects which are being mentioned as both positive and negative examples?...)

c) Realisation of inclusive metropolitan development

Preconditions for cooperation –in general and in the examined city (Questions 10 and 11)

Q10,11: frequencies, comparison of profiles of answers in Q10 and Q11, What is considered to be most relevant and lacking in practice? What is considered irrelevant?

Which factors were frequently skipped/voided? Are there frequently mentioned any other issues which are not among the proposed alternatives?

Importance of cooperation for positioning of the city (Question 12)

Q12: content analysis of the given answers

Existing cooperation with other cities and potential future partners (Questions 13,14)

Q13, 14: content analysis of the given answers

Strategic recommendations for future metropolitan development (Question 15)

Q15: content analysis of the given answers, Which fields are the given strategic recommendations tackling? Overall level of satisfaction? Are the respondents prone to express their opinions or are rather indifferent? Any other comments/remarks?

Overall impressions of the processing the questionnaires:

What did we learn from the questionnaires about the city?

Which questionnaire results struck us?

Which items/fields were considered to be too diffuse and unintelligible?

What were the prevailing attitudes and motivations of respondents regarding the survey?

What new perspectives for future development of particular city emerged from the results of questionnaires?

9.2.2. Document analysis

Additional research based on the synthesis of data about spatial qualities provided from other WPs), in particular WP2.3 and analysis of documents, chronicles, books, mass-media regarding the prevailing planning approaches, recent spatial development models and visions and cooperative initiatives is meant to complement the information gained through the stakeholder survey.

This task will be completed in collaboration with WP2.1 and WP2.5.

9.2.3. Local city conferences

Local city conferences with the representatives and stakeholders of the cities will shed additional light on the above mentioned aspects and will help to relate the findings to the results obtained in other WPs. The main objective of the workshops is to get feedback from stakeholders on the (perceived) spatial quality of the five cities, to widen the perception of important assets and potentials among the stakeholders and to identify possible ways to utilize these assets and potentials for future development.

9.2.4. Outcomes of WP 2.4

- statements of the questionnaire participants
- statements of the conference participants
- data based on the desk research (plans, media, statistics..)

WP2.4. will make use of both the data collected within this WP, as well as the data received from other WPs. The outcome of this WP will consist of city profiles that deal

with the perceived spatial characteristics of the five cities and the identification of relevant assets and challenges. Outcomes will be coordinated with the outcomes from other WP, mainly WP2.3.

9.3. Results from stakeholder survey

The survey aimed at identifying and assessing the perceived spatial characteristics of the cities among a set of relevant stakeholders (10 – 15 per city). The respondents were sampled based on their function so as to get answers from stakeholders coming from different perspectives (see above). The central aim of the survey was therefore not to reveal an "objectified" truth by maximizing the number of respondents but rather to get an insight into the perception of spatial characteristics of leading personalities and opinion-makers with different backgrounds. In the interpretation, particular focus was put on the divergence or convergence in the responses in order to identify possible points of disagreement. Importantly, the questionnaire only allowed for a general identification of stakeholder perceptions, and it was not possible to further discuss the meaning of terms that were raised during the survey with the participants. Nevertheless, the questionnaires allowed for a first insight into the perception of urban development in the five cities. Relatedly, it has to be kept in mind that the meaning of terms is contextually defined, and similar terms will mean different things to stakeholders in different cities. Comparisons of the responses between cities should therefore only be made with caution.

The following section presents the first results from the survey conducted among stakeholders in the five POLYCE cities. Results are presented in alphabetical order of the cities.

WP2.4. QUESTIONNAIRE

EVALUATION of the results from the city of BRATISLAVA

Sample

The interpretation of the questionnaire is based upon the answers and data given by 14 respondents. People from the following categories were approached for participating:

1. politician
2. planner from capital city (public)
3. chamber of commerce
4. media (daily newspaper)
5. economic development agency
6. academic (regional planning)
7. project manager (city administration)
8. representative international enterprise (private)
9. representative international organization (public, semi-public)
10. representative of cultural institution (event management)
11. tourist agency
12. politican from city in MR
13. NGO
14. private planner

We did not succeed to include every position from the list (representatives of chamber of commerce and politicians refused to participate), but some other sectors (tourist agency, cities outside of metropolitan regions) were represented by 2 respondents.

Interpretation of the results

1. Recent urban development trends and city profile

Profile of the city (Question 1)

The results of the questionnaire indicate that Bratislava is predominantely considered as **centre of research and education (9), dynamic, growing city (9), historical city (7) and centre of finance and business (6).** The adjective „dynamic city" was mentioned by all respondents coming from municipal field (both from Bratislava as well as from Trnava). Adjectives **„city of tourism" (2) and „dormitory city" (3)** were mentioned less frequently. Despite high frequency of perception of Bratislava as centre of reserach and education, the city was **never mentioned as city of innovantion**. Similarly, despite an industrial past, the city was **never mentioned as industrial city**. Among the other adjectives, the following ones appeared: „gateway to West", „Danubian city", „conservative city" and „city of thieves". **The results indicate that the mainstream perception of the city is related to historical heritage and recent economic development (before crisis), tourism is considered as a minor characteristic**. Respondents preferred generally positive connotations. On the other hand, we should bear in mind, that respondents always tend to be rather careful/positive in first questions (social desirability), unleashing their criticism in later stages of questionnaire (e.g. question 4).

City image/Social environment (Question 3 + 4)

According to opinion of our respondents, Bratislava is predominately perceived as a **expensive** and **perspective** city. It is rather questionable, whether this was influenced by media discourse, displaying lately Bratislava as a **promising, high growing, perspective but on the other hand overpriced city.** In the second rank, Bratislava is also perceived as **attractive, friendly, hectic, safe and self-confident city.** Leans toward other adjectives (unique, dirty, progressive, spacious/dense, noisy, rational, simple) are not significant.
The opinions of respondents **are not extremely polarised**. Only with regard to the items tranquil/hectic, safe/dangerous and self-confident/without self-confidence, the opinions are little bit split apart. While respondents with background in architecture and spatial/urban planning tend to perceive the city as unique and perspective, respondents from other cities (Trnava) tend to percieve Bratislava particularly as hectic and noisy.

Social climate in Bratislava is considered to be **indifferent (9), competitive (8), split apart (8) and snobbish (6)**. Although the social climate was never perceived to be hostile/frightening, this clearly indicates critical and rather negative perception of this field. Especially by the adjective splilt-apart there is a concordance with the critical evaluation by respondents coming from both municipal as well as from commercial millieu. The positive connotations – **supportive (4), tolerant (4), friendly (3) and cooperative (3)** - were mentioned quite less frequently. **Such expressions indicate a lot of *conflict* potentials (attractive place with plethora of contradictory interests...) and low societal cohesion with individualistic and business driven climate.** Respondents are heavily polarised in their opinions – they either perceive social climate clearly negative (split apart, indifferent, snobbish) or clearly positive (supportive and friendly). Results are influenced with the fact, that respondents with negative perception of social climate opted for more alternatives than respondent with

predominantely positive assessment. Put into the context, the word **competitive** is here deemed **rather in negative connotations** (competitive without sensitivity to the needs of others).

Overall development over the last 5 years in different dimensions (Question 2)

Economic dimension was easily the best evaluated dimension. **Bratislava is** considered as **business location with high attractivity and high competitivness.** This is the consensus of the majority of respondents with the exception of former main architect of the city who perceives this field more critical. The only dimension with lower score is research and innovation. It seems that respondents lean toward the belief that **succesful economic development of Bratislava** in recent years is **not sufficiently backed by research, development, innovations etc. Societal dimension** is perceived more **sceptical:** especially social intergration and international orientation/open-mindness are rather mediocre. On the other hand, **social mobility is rather high**, it seems that respondents took into the consideration considerable share of employers from other Slovak regions employed in Bratislava business environment. **Environmental, infrastructural and institutional dimension were confronted with heavy criticism.** This is the consensus of majority of respondents, led by the representatives of media, NGO, research institutions etc. Almost all surveyed dimensions are assessed below average. Especially sustainability of land use structure, green mobility, quality of public services and e-governance are considered to be weak points of Bratislava. Quality of above mentioned services is conisdered to be poor. Opinions are heavily differing when assessing the environmental quality. While **societal, environmental and infrastructural dimensions** are evaluated with **high polarity of opinions** (environmental dimesion was evaluated very negatively by the representative of NGO), there is a consensus that **economic dimension** is the **strongest** part and **institutional dimension** is easily the **weakest** part of Bratislava´s development. Even the representatives of the city of Bratislava do consider institutional dimension to be heavily underdeveloped.

Negative and positive events / activities (Question 5a and 5b)

The positive project/events/activities might be summarised within the folowing groups of issues:

a) crossborder cooperation and common activities with neighbours

Almost **all activities within the crossborder cooperation were perceived positively**, with the focus on cooperation with Vienna and Bundesland NiederOesterreich. Intensification of train connection between Bratislava and Vienna, preparation activities for building a bridge for cyclists, public transport of Bratislava operating in Hainburg and Wolfstahl as well as regional cooperation with Hungary was mentioned as clearly positive examples of recent activities on the territrory of Bratislava metropolitan region. Cross-border cooperation and international relations have been entirely appreciated by the representatives of NGO.

b) transport issues

Respondents assessed **positively some building activities improving the connectivity and accessibility of Bratislava.** Especially **bridge Apollo, tunnel Sitina and some highway bypasses** were mentioned as positive examples. However, the transport infrastructure remain one of the critical issues of Bratislava.

c) project Eurovea and other shopping centres

Eurovea is one of the success stories of recent development in Bratislava. **This project has been positively reflected both by the professionals as well as the broad public**. Respondents (mainly representatives of media, city of Bratislava, business, NGO) appreciate especially the sensitive approach toward the river

Danube and public spaces. Eurovea offered several choices without compromising the different needs of public: contact with new national theatre, generous public spaces, contact with Danube as well as various retail shopping opportunities. This place was previously a derelict plot, cut off from the centre and was never a part of the collective memory of the city. Current state of art is offering new opportunities to reflect specific urbanity on the contact zone with the river.

d) international events

Various international events, especially **World Icehockey Championship, summit Bush-Putin, NATO conference** have been mentioned as a milestones making Bratislava European metropolis. This issues have been mentioned predominantely by the respondents of foriegn nationality, respondents with the Slovak nationality tend to focus on the intra-city development and externalised projects.

The negative projects/events/activities might be summarised within the folowing groups of issues:

a) River Park and PKO

Project River Park and plans of demolition of cultural centre PKO were mentioned several times as a primary example of new arrogant planning culture brought to Bratislava by the new wave of developers after millenium. Entire **River Park** project has been perceived controversially from the beginning; arguably **becoming a symbol of ruthless dominance of international capital over the local genius loci.** The place was a part of collective memory of inhabitants and despite problematic architectural value of the existing buildings from early modernism, it still symbolised cultural values for many generations of citizens in Bratislava. Project River Park, although backed by prominent Dutch architect Eric van Eckeraat and rather heavy public relations campaign, was an example of total failure of communication with public. Its arrogant superposition over the river Danube became symbol of ignorance and arrogance.

Negative evaluation is common for almost all respondents, having been expressed especially by the representatives of media. Even the respondents outside from Bratislava as well as respondents from the city of Bratislava are highly critical concerning this issue.

b) Public spaces

Public spaces in general are perceived to be **neglected, not systematically included in the spatial development of the city and to be permanently threaten**ed by new building activities. It has to be taken into consideration that with regard to positioning of Bratislava, public spaces are compared with other European metropolises and this comparison is not always favourable for Bratislava.

c) new flagship building projects after millenium

Many new building projects were reflected with criticism. Except of River Park, the most reluctant attitute of respondent are bound to the projects of **new National Theatre, Aupark Tower, new Ice-hockey stadium, hotel Kempinsky, Kollárovo square rebuilding** etc. These solitaire projects do symbolise for respondents (and probably also for broad public) new individualistic, ruthless and aesthetically problematic planning culture, which left inaffeble traces on the face of Bratislava.

d) other

Among other issues negativelly perceived, the following ones appeared: delay of new masterplan, airport Bratislava and its diffuse position on international market and poor services, high density in suburbs, evaporation of wineyards, atrocious condition of the main train station, dissolution of the historically precious architectural shapes of early modernism...

There is relatively **high degree of concordance** among the opinions of respondents regarding positive/negative projects/events/activities in Bratislava. That means that there only few exceptional issues which were being perceived both negatively as positively (e.g. new masterplan).

2. Perspectives for future development

Strengths and weaknesses of the city (Question 6 and 7)

Strengths: geographical position, international connection (Vienna, Budapest, Prague), culture and history, old city centre, qualified human resources and workforce, low unemployment rate...

Weaknesses: marketing, services, greenery, corruption, beaurocracy, passivity, lacking conception, lack of multiculturality...

Respondents from the academic and business background did see the most relevant strenght in the factors related to position of Bratislava, respondents from the architecture/culture/art background underlined some soft intagible factors („human scale“, „intimity of the city“, „almost Mediteranean flaire“).

However, strenghts are related more to **given characteristics**, **weaknesses** are related to **management of the city** (infrastructures, services) and decision making (bad decisions). There is strong feeling that extraordinary **potential of Bratislava is contiuously wasted and mismanaged**...

Most promising / most challenging projects or activities for future development (Question 8a, 8b and 9)

Promising/important projects: highway bypass, Eurovea, transit of transport, airport reconstruction (new terminal), new sporting facilities, train corridor TENT, tramway to Petržalka, 4th quadrant and renewal of Danube delta, reconstruction of Hurban´ s garrison, reconstruction of heating plant on Čulenová street, Bratislava festivals and cultural events, coordination of spatial development with neighbours (Austria, Hungary)

Controversial: River Park, oil pipeline (Žitný ostrov), new administrative developments in general, icehockey stadium, hospital Rázsochy, Dell building, suburb Dlhé diely, suburb Bory, running building activities within the slopes of Carpathian mountains, reconstruction of main train station.

There is **high degree of heterogenity** within the sample of answers. Respondent do see promising perspectives mainly in some transport and infrastructure projects. It is obvious, that attention is paid also for restoring architectural heritage and some cultural events. On the other hand, some buidling activities are considered controversial. This question was frequently omitted, maybe because of some similarity with question 6.

3. Realisation of inclusive metropolitan development

Preconditions for cooperation – in general and in the examined city (Questions 10 and 11)

Legal stability and **transparency in decision making** are the **most relevant preconditions** for cooperation in general. **Political stability** and **legitimacy of political administrative system** are considered to be important in second rank. Neither **social security** nor **environmental awareness** are the priorities with this regard.

If we analyse the importance of the selected fields with regard to situation in Bratislava, there is **slight decline in importance** practically in **all items**. The **most important** are considered **legal stability, political stability, transparency in decision making, proactive behaviour of citizens and open-mindness of society**. **Social security** and **participation tradition** were left behind.

Differences between the general importance and particular importance in Bratislava are **not significant**. We recorded considerable **inflation of rankings** (some respondents tend to consider important everything) inflicted probably by the phenomena of social desirability (tendency to answer in concordance with the supposed expectations of examiner). Maybe some of terms would require precise definition.

Importance of cooperation for positioning of the city (Question 12)

Cooperation on the level of metropolitan region should concentrate on the following groups of issues:

a) coordination of spatial development

Several responses tackled the need of more coordinated approach toward spatial development and development of settlement structures. This is reflected in the need for more intensive communication concerning the masterplans and various other planning documents.

This has been expressed mainly by respondents coming from architectural/spatial planning background as well as by the respondents employed by the city of Bratislava.

b) improving the infrastructure, especially transport

Infrastructural issues (TEN-T corridor, integrative metropolitan public transport, highway bypasses etc.) were also in the spotlight. This has been accented by the respondent from academic field, NGO, media, tourist agency etc.

c) tourism and services

Bratislava should more cooperate with its metropolitan region with regards to services and tourism activities.

d) other issues

Among other issues social security, reserach and development, human resources and education, environmental issues seem to be most essential. Especially representative of the academic sphere emphasised these issues.

Cooperation with other cities should be focused on transport issues and connectivity, social issues, tourism and environmental problems. The most important partners were mentioned Prague, Vienna and Budapest. Ocassionaly some distant cities were mentioned (Chinese cities) by the travel ageny respondent.

Existing cooperation with other cities and potential future partners (Questions 13,14)

There were few (almost none) answers regarding the cooperation initiatives within the metropolitan region. Eurocities, Euroregion of 2nd Category Wien-Bratislava-Gyor-Brno, Danubian strategy and projects CUPA and Donauregionen were mentioned

several times when mapping out the cooperation with other cities (including POLYCE cities).

Bratislava is clearly **considered to be attractive partner for cooperation**. The following arguments we found to be essential:
- Bratislava has good geographical position, attractive natural surrounding (river, mountains)
- Bratislava has good potential to interlink its settlement structure with the settlement structures of neighbouring countries (Hungary, Austria).
- Bratislava has considerable economic strength and pursue power – this may help to find prosperity for smaller cities in the metropolitan region
- Bratislava is one of the few former „Ost-block" cities which is performing better than many of „Western" cities.
- Bratislava is a gateway to Slovakia and Eastern Europe
- Bratislava is really „little big city" offering pleasant moderate scale

The only answer „No" was arguing with poor quality of services and was expressed by the respondent of tourist agency.

Potential future partners within metropolitan rergion were the cities of Malacky, Pezinok, Senec, Trnava, Nitra. Among the other cities (almost all abroad) Vienna was mentioned almost by every respondent. The other potential partners are Budapest, Brno, Prague, Salzburg, Žilina, all EU capitals, all Danubian cities and even some exotic cities (Beijing, Saigon).

Strategic recommendations for future metropolitan development (Question 15)

Many recommendations of the respondents might be summarised within the following essential scopes:

- More public investments (sport, greenery, leisure time..) (respondent with architectural/urban planning background, respondent from the research instiurtion, tourist agency)
- Better spatial planning and knowledge based management (respondents from the city of Bratislava and from the academic background, respondents from tourist agency, respondent from NGO)
- Services and culture (respondent from tourist agency)
- Transport issues (respondent from academic background and respondents from neighbouring city of Trnava)
- Greenery and public spaces (respondents with architectural/urban planning background)
- Sustainability and knowledge based city (respondent from academic background)
- Precision of positioning and improving the city imagen (respondent from the city of Bratislava)

Concluding remarks:

- the city of Bratislava is predominantely considered as centre of research and education, dynamic, growing city, historical city and centre of finance and business and is predominately perceived as an expensive and perspective city. Regarding overall development over the last 5 years, Bratislava is *predominantely considered as business location with high attractivity and high*

competitivness. Environmental, infrastructural and institutional dimensions were confronted with considerable criticism.

- strengths of the city of Bratislava lie in the field of geographical position, international connections (Vienna, Budapest, Prague), culture and history, qualified human resources and workforce and low unemployment rate. On the other hand, city marketing, city services, greenery, corruption, beaurocracy, passivity and lack of strategic conception and multiculturality are considered to be weak points.
- Bratislava is clearly considered to be attractive partner for cooperation, especially because of favourable geographic position, considerable economic strength and pursue power and chances to serve as a gateway to Slovakia and Eastern Europe. There is a lot of potential both for cooperation as well as for international competition. Though, this potential is sometimes wasted and mismanaged.

WP2.4. QUESTIONNAIRE

EVALUATION of the results from the city of BUDAPEST

Sampling

The interpretation of the questionnaire is based upon the answers and data given by 15 respondents. People from the following categories were approached for participating:

- academics
- chamber of commerce
- cultural institution
- economic development agency
- media
- NGOs
- politicians (of the core city and cities in the metropolitan region)
- planners (in the public administration of the core city and in a private planning bureau)
- real estate developer
- representatives of international enterprises
- tourism agency representatives

There is no respondent included from the chamber of commerce, despite of numerous request for participating in the survey.

Interpretation of the results

1. Recent urban development trends and city profile

Profile of the city (Question 1)

According to the experts Budapest is considered predominantly as a historical city (11), centre of research and education (10), centre of tourism (9), and centre of finance and businesses (9). Labels of „dormitory city“ (2) and „dynamic, growing city“ (4) were less frequently mentioned (only by a municipal planner/head official, by an expert of a commercial real estate adviser company, by the representative of an international organisation/ French Instiute and by a real estate developer). Five respondents considered the city as a centre of innovation – at the same time all of them mentioned Budapest as a centre of research and education. On the other hand, nobody described the city as an industrial centre. Among the other adjectives the following ones appeared: „administrative centre“ (2), centre of the FDI flows“, „the city of chances“, city of baths and spas“, „retail centre“, transportation hub“. Those who considered the city growing and dynamic usually marked at least five options – therefore, only the most optimistic respondents perceived Budapest as a dynamic city. According to the results the perception of Budapest is mostly related to its historical heritage and post-industrial (e.g. finance, research, education, tourism) economic profile.

Overall development over the last 5 years in different dimensions (Question 2)

None of the dimensions was very positively evaluated but there was not any extremely weak dimension either. **Economy** seems to be the strongest dimension with a rather high score, followed by a **solid research and innovation base**. Competitiveness reached medium score according to the responses. Societal dimension is characterised by high value of „International orientation / open-mindedness"– but it must be noted that **three respondents separated the two aspects of this question** (local politician, top executive at the international tourism office, academic), giving marks for open-mindedness separately, meanwhile the municipal planner/head official refused to answer the question. (All of them rated it lower than international orientation). **Social integration and social mobility was criticised** in some of the interviews. The environmental dimension was rated as average, too. Infrastructure got rather high scores with international connectivity rated as the best of all aspects in Question 2. In the institutional dimension the evaluation of **e-governance was the highest**. At the same time modernisation of administration got some critics, which is connected with the two tier administrative system. The level of consensus was the highest in the case of **economic dimension** while the **societal dimension seems to be a more controversial and debated issue**.

City image/Social environment (Questions 3 + 4)

None of the dimensions had "extreme" values, as there are no averages below 2 and above 4. According to the results, Budapest is perceived as an **attractive, unique, emotional, sophisticated city** which is also quite **hectic and dirty.** The assessment of the **self-confidence** of the city turned out to be a bit polarized (e.g. representative of the (public) developmet sector considered this aspect crucial, but weak in performance, meanwhile respondents from culture, media and tourism assesed this point more positively however, they also thought that this aspect was less important) – it was one of the two aspects which had a significant variance of answers. The other one was the spacious/dense dimension.In this case respondents of planning bakcground consider Budapest rather dense, meanwhile other interviewees described the city as quite spacious or find the dimension neutral According to the respondents Budapest is **safe and prospective** rather than dangerous and without prospective. **Respondents from other cities (Budaörs, Érd) tend to perceive Budapest as an expensive, dense and noisy city**. The assessment of progressive/old-fashioned dimension was neutral.

The social climate of Budapest is described as **split apart (12), competitive (6),** and **indifferent (4)**. The latter adjective was used mainly in negative connotations (i.e. competitive at the expense of others). The positive connotations – **supportive (2), inspiring (4), friendly (3), cooperative (2), tolerant (2)** - were mentioned with less frequency. The **respondents see a polarized society with a lot of potential conflicts and lack of trust.** Those **who had more positive perception of social climate opted for more alternatives** than respondents with predominantly negative assessment. At the same time, **respondents with negative assessment tended to use the "other" option** describing the society as "**conservative**" (head official for public develeopment projects)**, "clueless", "indecisive**" (academics), "**immature to establish a network society**" (representative of a local NGO) or "pessimistic" and "distrustful" (head offical of the regional development agency) .

Negative and positive events / activities (Question 5a and 5b)

Positive events/activities can be summarised around the following groups of issues:

- **Transport**: projects related to transportation were mentioned very positively by almost all of the respondents. They highlighted the importance of some recent transport infrastructure developments, such as the **M0 ring motorway** ("giving breath" to Budapest), the M6 motorway and other highway developments. The above mentioned roads enhance the international connectivity of Budapest and raise the quality of life and the transport opportunities as well. The new roads also made the surrounding areas attractive for investment. They also strengthen the position of city logistics (representatives of metropolitan towns). Integrated suburban traffic was also mentioned as an exemplary issue. Developments of tram network (e.g line 4-6) (mentioned predominently by representatives of cultural life and tourism), and the expansion of Budapest Airport (emphasized by the regional real estate developer and by the head official of the national tourism office) were also mentioned.
- **Other infrastructure:** the establishment the **Central Sewage Plant** was the second most frequently mentioned issue. It is „improving the water quality and the quality of the embankment zone's ecosystem".
- **Cultural life:** respondents **highly esteemed the cultural life of the city**, emphasizing the importance of some of the most recent developments, (e.g. MÜPA (Palace of Arts), National Theatre, CET Cultural Centre), the festivals which „give a unique image to Budapest that differentiates the city at the European cultural market". The "**youthful ardour**" ("Berlin in the South) and the role of foreign students attracted to Budapest were also positively mentioned (emphasized by the manager of a private culture provider of international importance and by the official of the French Institute).
- **Urban renewal/development programmes:in general, further extension of the downtown towards the former brownfield in the south** has been mentioned amongst the most promising ongoing development programmes ongoing. As part of that process, the Millennium City Centre project was considered a high quality urban deve lopment project with potential city branding values. The **Heart of Budapest Programme** was described as a project which contributes to establish a downtown promenade and a metropolitan milieu in the city centre.
- **Research and education:** the **Science Park** and the adjoining **new campus of Budapest University of Eötvös Loránd** were perceived positively by widening the spatial and functional spectrum for further investments and contributing to metropolitan competitiveness of Budapest, as well as widening the spectrum of urban/metropolitan functions in the FUA. The brand-new **private university of "Aquincum University of Technology"** was also assessed as a world class higher education institution of the future.

Negative aspects/events/activities might be summarised around the following groups of issues:

- **Transport:** the **Metro4 project was the most negatively assessed development,** due to its huge delay and financial burden. It also discourages the Municipality of Budapest for further large-scale public investment (head official for public development projects). It also takes away capital from other – metroplitan scale – projects that might concern a much wider spectrum of inhabitants (representative of the metroplitan town of Érd). Because of the growing importance of individual transportation (i.e. cars) the use of public transport is falling which leads to **decreasing quality of public transport services.**
- **Administration:** the **two tier administrative system of Budapest** was very much criticised making the decision making processes difficult, slow and

ineffective. Fragmented decision making resulted in a lack of “any meaningful cooperation amongst municipalities of the core city and the FUA” that “delays structural change in the urban fabric” (municipal planner/head official. The **inadequate political environment** was also mentioned as the stakeholders limit each other instead of „recognizing mechanisms of mutually interdependent interests of the players“ (manager of a private culture provider of international importance).

- **Transformation of the retail sector:** although one of the respondents mentioned that the construction of downtown shopping malls (by facilitating a ‘city that never stops’ where services could be consumed in 24 hours a day, as it was expressed by the official of the French Institue) was a positive issue, most of the respondents claimed exactly the opposite. They claimed that **the malls devastate downtown retailers** and destroy social values (expressly for youths) and there are too much malls in the downtown**.** The promotion of “American style” shopping and entertainment centres in the FUA favour urban sprawl as well (pointed out by the municipal politician).
- **Financial problems:** because of the **macro-economic conditions** large scale real estate projects were halted in Budapest. The economic situation of families and enterprises was also badly affected causing declining market demand. A decrease of the **local authorities’ financial resources** was also highlighted in the interviews.
- **Developmental problems:** the rapid privatization of the built environment makes planning impossible. A controversial point is assesing recent developments, e.g, **Millenium City Centre, that is admitted as required enlargment of the downtown but that is – functionally and aesthetically - not progressive at all** hence they do not help Budapest to become a modern metropolis (head official for public development projects). Amongst the inner and outer residential zone of the core city the quality of housing is not sufficient and recent developments are under suspicion of **corruption**. Delay in riverside developments along the Danube; bad quality of the international passenger terminal at the Danube was perceived negatively. **The river – as one of the most important endowment of the city – has not yet been integrated into urban development.**

2. Perspectives for future development

Strengths and weaknesses of the city (Question 6 and 7)

Strengths: the strategic location (bridge between Western and Eastern Europe), good infrastructure for all the four transport model, extended network and good accessibility of public transport, Danube and its potentials, rich natural environment (thermal water, green spaces near the city), rich cultural life and huge demand for culture, land/site reserves as potentials for further development within the city (i.e.brownfield sites), economic and a knowledge centre, touristic-historic city, high quality of education.

Weaknesses: corruption, high level of bureaucracy, competitions among municipalities, lack of cooperation in the field of planning, lack of long-term thinking, fragmented public administration, decreasing quality of public transportation services, congestion, decreasing environmental quality, non-honoured sectors like education and health care, increasing social inequalities.

While the strengths of Budapest are related more to its location, natural characteristics and cultural richness, its **weaknesses** are related to the unclear roles in the **management of the city** ("still needs to be clarified who has the responsibility to manage and develop Budapest", head official of the national tourism office)**,** the lack of cooperation among stakeholders ("unexploited business potentials in metroplitan cooperation", representative of the metropolitan town Érd), lack of strategic coordination (representative of the metropolitan town Budaörs) and the severe inequalities within the society.

Most promising/challenging projects or activities for future development (Questions 8a, 8b and 9)

Promising/important projects: Budapest Airport, developing public transportation services and improving urban linkages (including the completion of Metro4), developing public utilities (especially sewage treatment), completion of the M0 ring road, developing intermodal transportation hubs, integrated transport development in the metropolitan region, improving P+R systems, renewal of public spaces, cultural centres like (MÜPA, CET, RAM), new recreation facilities and services, improving conditions of health-care and medical tourism, potentials in Danube-related projects, and the Sziget Festival.

Controversial: tackling with heritage of extensive and uncontrolled land use in the past (e.g. greenfield development for shopping malls), UNESCO world heritage site in Pest downtown (due to megalomaniac real estate developments the title might be at risk), Metro4/high-scale municipal investments (debate focusing on political power struggle rather than on professional considerations of feasibility issues, lacking planning and management protocols), completing the M0 ringroad (delay and tension in land ownership – representative of the metropolitan town Érd and Budaörs), fixed-track public transportation to the Airport (as an "issue of reputation and image" as formulated by a regional real estate developer), sewage treatment (a tension of business interests as the Budapest Sewage Works has been privatized), the renewal of the brownfield sites, "Gateway city" projects at the borders of the core city and the FUA, (due to their high-scale and due to they overuse lands and provide much wider selection of urban functions that are needed by the market - head official of municipal public investment projects), majority of the EU funds has been spent for maintenance works instead of manufacturing investments (head official of the regional developmet agency).

3. Realisation of inclusive metropolitan development

Preconditions for cooperation – in general and in the examined city (Questions 10 and 11)

Leadership and decision-making qualities and transparency in decision making are the most relevant preconditions for cooperation in general. Legal stability, political stability and pro-active behaviour of citizens are considered to be important in second rank. Neither environmental awareness nor tradition of participation, social security, legitimacy of political administrative system are furthermore of high priority. The former experiences with cooperation and the open mindedness of society seemed to be less important.

If we analyse the importance of the selected fields with regard to the situation in Budapest, there is a **slight decline in importance** practically in **all items**. The **most**

important are considered **transparency in decision-making**, **leadership and decision-making qualities** and legitimacy **of political-administrative system**. **Environmental awareness** and **pro-active behaviour of citizens** and **open-mindedness of society** are regarded to be slightly less important. Former experiences with cooperation, tradition of participation, social security, legal stability and political stability were the least important.

Importance of cooperation for positioning of the city (Question 12)

Cooperation at the level of the metropolitan region should concentrate on the following groups of issues:

a) defining (and coordinating) spatial and regional development policies - integrated spatial and regional policies, defining functional zones for priority developments in the metropolitan region, administrative reform, improving cooperation (between districts and municipalities, professional organizations, citizens and civic organizations, international institutions).

b) development of transportation both in the city and in the FUA - finishing Metro4, developing suburban public transportation services, modernizing public transportation access to Budapest Airport, developing Danube embankments, improving parking opportunities.

c) Other issues - clarify long-term environmental issues. A decent strategy is needed to tackle environmental issues on a metropolitan scale: waste treatment, disposal, recycling or burning.

Cooperation with other cities

joint destination package for Central European cities for overseas markets (continuing V4 cooperation), modernizing river cruise fleet in order to establish a good quality of passenger traffic to Bratislava and Vienna, with cities of surrounding countries – joint infrastructure (e.g. high-speed rail), joint lobby in order to gain internationals tenders (e.g. huge sport events), joint cultural festivals amongst national capitals (e.g. POLYCE cities), strategic partnerships with Chinese, Russian, Serbian, Romanian, Ukrainian, Slovakian, Check and Polish cities

Existing cooperation with other cities and potential future partners (Questions 13,14)

Very few ***existing cooperations*** were mentioned:

- *in Hungary:* Budapest Sewage Works Ltd. – owned party by the Municipality of Budapest – operates also at the agglomeration settlements, providing waste water treatment
- *at international level:* Visegrad group initiative in the field of tourism, Quadra Lateranum, Danube Main Street, Metropoly, DunaLog, Romanet, EUROCITIES, METREX

Cities as potential partners:

- *in Hungary:* the middle sized cities of the wider metropolitan area (in a radius of 60-100 km); regional centres of Hungary (Debrecen, Szeged, Pécs, Győr) to decentralize administrative functions; the cities located along the M0 ringroad (Budaörs, Budakeszi, Biatorbágy, Törökbálint, Szentendre, Gödöllő, Vác) and the area embraced by them in the fields of transportation, urban planning, development policy, education and professional training, health care; smaller

towns with strong identity and profile (like Esztergom, Szentendre, Vác) to decentralize the national administrative/education/research institutions.

- *at international level:* Stockholm, Vienna, Amsterdam and other Dutch cities as model cities for integrated and sustainable urban development and urban management; Vienna – culture; all the cities next to the Danube; former Monarchy-cities (Ljubljana, Zagreb, Kosice, Oradea, etc) - international economic and business cooperation; cities of the V4; Central-European cities – joint cultural and tourism projects, joint destination marketing, joint infrastructure projects, integration of the Roma population into the urban society; all EU capitals; the Balkan cities (the Croatian and Serbian cities) - tourism cooperation projects; Chinese, Russian, Serbian, Romanian, Ukrainian, Slovakian, Check and Polish cities - strategic economic partners

By the majority of the interviewees (nearly 2/3 of them) regarded Budapest to be an **attractive partner for cooperation, as the city:** (1) is open-minded and offers a high variety of possibilities; (2) is a business location, (3) is accessible and well equipped for any kind of economic activity, (4) is a true Eastern European metropolis, (5) has a good European image, (6) provides high quality services and in most cases it is reliable.

Two experts (regional real estate developer, head official of municipal public investment projects) could not decide and 2 other respondents (municipal politician, manager of a cultural service provider of international importance) said that Budapest is not an attractive place for cooperation. According to them Budapest is bureaucratic, badly organized, non-transparent, unaccountable, slow, inflexible and unreliable and it has to redefine itself.

Strategic recommendations for future metropolitan development (Question 15)

All the respondents had a great number of recommendations for the future metropolitan development of Budapest. These are the following:

a) Marketing/branding: joint marketing in the metropolitan region (tourism and businesses), elaboration of a (new) Budapest brand, positioning Budapest at the European business market.

b) Transportation*:* further developments in integrated metropolitan transportation, tackling traffic crisis in the metropolitan region.

c) More clear roles in management and clear-cut coherent planning: in order to reach this goal a public administration reform is needed, to decrease the power of district governments, in addition a novel urban strategy for Budapest is required with new development regulation (zoning), and intensifying functional division of urban activities in the FUA.

d) Maintenance of public spaces: coordinated maintenance of public spaces is essential, the quality urban architecture should be preserved, the degree of build-up areas should be decreased (renewal of zoning regulation), and strategic management of public real estate assets is to be achieved.

e) Development of new relationships with other countries/regions/cities: strengthening inter-municipal cooperation in the metropolitan region, cooperation with Eastern and Central-European cities, strengthening partnership with the Balkan capitals; inspiring Russian and Chinese investments.

f) Other: establishing knowledge centres (innovation parks based on higher education, technology parks), improvement of the conditions for knowledge society in order to stop and turn back brain drain, development of public utilities (e.g. sewage treatment) to accommodate more manufacturing in the area.

Concluding remarks:

- on average the urban development trends and future potentials of Budapest was perceived positively by the interviewed experts, however, there are several threats (increasing social inequalities, bureaucracy, corruption) that hamper the development prospects;
- while the strengths of Budapest are related more to its location and natural characteristics, historical as well as cultural richness, its weaknesses are related to the unclear roles in the management of the city (i.e. mismanagement), lack of strategic coordination in devemopent and public management issues amongst the municipalities, lack of cooperation and the severe inequalities in the society,
- the majority of the interviewees regarded Budapest as an attractive partner for international cooperation, as the city is open-minded, well equipped for any kind of economic activity and provides high quality services.

WP2.4. QUESTIONNAIRE

EVALUATION of the results from the city of LJUBLJANA

Sampling

The interpretation of the questionnaire is based upon the answers given by 12 respondents. People from the following categories were approached for participating:

- academics
- chamber of commerce representatives
- cultural institution
- economic development agency representatives
- media representatives
- NGOs
- politicians (of the core city and two cities in the metropolitan region)
- planners (in the public administration of the core city and in a private planning bureau)
- real estate developer
- representatives of international enterprises
- tourism agency representatives

Representatives of chamber of commerce, politicians, tourism agency and NGOs refused to participate, but several cities outside of metropolitan region(s) of Ljubljana were represented.

Interpretation of the results

1. Recent urban development trends and city profile

Profile of the city (Question 1)

The results of the questionnaire indicate that Ljubljana is predominantly considered as historical city (9), centre of research and education (8), and city of tourism (7). Additionally, Ljubljana is considered as financial and business (5) and dynamic, growing city (4). Industrial city (1) was mentioned only once. Despite a frequent perception of Ljubljana as centre of research and education, the city was never mentioned as city of innovation neither as dormitory city. Apart from that, the city was described as: the capital city of Slovenia, administrative centre and city of transition. The results indicate that the mainstream perception of the city is related to historical heritage and recent economic development, as well as tourism.

Overall development over the last 5 years in different dimensions (Question 2)

Ljubljana is considered a business location with high attractiveness for businesses. Research and innovation were less well evaluated. It seems that the respondents from

different bacgrounds believe that while overall Ljubljana developed positively in economic terms some elements of economic development lag behind (e.g. competitiveness, research and innovations).

The societal development is evaluated more critically and social integration, open-mindedness and social mobility seem to have not been able to keep pace with the positive economic development.

Environmental, infrastructural and institutional dimension were confronted with the same evaluation, which can be considered as criticism. Especially environmental quality, sustainability of land use structure, green mobility, international connectivity, modernization of administration and public participation are considered to be weak elements of Ljubljana. Only the quality of public services and e-governance were assesed rather high. Most respondents had very similar opinions which points to a general agreement about the overall development of Ljubljana over the last five years.

City image/Social environment (Question 3 + 4)

According to the majority of respondents, Ljubljana is an expensive and attractive city (10 answers). Furthermore, the city is also perceived to be safe. While there is a general agreement on this image of the city the respondents are polarized whether or not Ljubljana is a safe place. This opinion depends on the bacground of the respondent and it is not the general view of the spatial and regional planning experts.

Social climate in Ljubljana is considered to be competitive (6), split apart (5) indifferent (4), and tolerant (4). Although the social climate was never perceived to be hostile / frightening, this clearly indicates a critical and rather negative perception of this field. Also the negative connotation – as being “snobbish” received 3 answers. The positive connotations – supportive (3), inspiring (2), friendly (1) and cooperative (1) were mentioned quite less frequently. Such expressions indicate a lot of *conflict* potentials and low societal cohesion.

Thus, respondents generally agree on their assessment of the image and social climate of Ljubljana. The negative assessements of these two dimensions seems to prevail over positive assessments which also depends on the respondends field of interests.

Negative and positive events / activities (Question 5a and 5b)

The positive project/events/activities might be summarized within the following groups of issues:

- Sports park Stožice which is of national importance
- CIVITAS project for traffic management as a whole (traffic arrangement, parking places, public transport, self-service rent-a-bike system, ect.)
- Expected renovation of bus and railway station in Ljubljana
- Technological park development project
- Renewal programs for brownfield areas (e.g. Metelkova mesto, Partnerstvo Šmartinska, Rog factory,ect.)

- Natural and landscape park Barje
- Regional waste collection and management site (RECERO)
- Adoption of the new spatial plan for the Ljubljana municipality (new housing and business zones, arrangement of existing and providing new public spaces, ect.)

The negative projects/events/activities might be summarized within the following groups of issues:

- The improvement of the public transport in too slow
- New shopping centers development (too many of them)
- New housing areas are not planned in accordance with existing settlement system
- Inadequate project for the Plečnik's stadium (national cultural heritage) renovation
- Hydro power plant on Sava river
- Sports park Stožice

There is a relatively high degree of concordance among the respondents regarding positive/negative projects/events/activities in Ljubljana. That means that there are only few exceptional issues which were being perceived both negatively and positively (e.g. Sports park Stožice).

2. Perspectives for future development

Strengths and weaknesses of the city (Question 6 and 7)

Strengths: good geographical position, culture and history, knowledge, administrative and economic center of Slovenia, residence and visitors friendly and attractive city, significant business, congress and market center, small city with four pointed star spatial organization, good connectivity with the public transport, highway ring/bypass around Ljubljana, sports park near the highway ring/bypass, good potential to developing a public transport, high quality living conditions, closeness of the green areas (parks, forest, landscape parks, etc.), high quality educational and research institutions, city of students, a lot of good quality agricultural land for self-sufficient food production, low housing density, etc.

Weaknesses: Ljubljana is not well recognized city in the world and even in Europe, public transport in the city (bus and railway) need to be improved, poor accessibility to the Ljubljana (Jože Pučnik) international airport, the obsolete main bus and railway station, roads and parking places are in bad conditions, university, administration and medical buildings in the city center, old and unrenewed houses, ineffective use of land and natural resources, bureaucracy, demographic ageing, weak business culture (to many people are employed in public sector), etc.

Both the strengths and weakness are related to given characteristics and to city management city (infrastructures, services) and decision making. The respondents are however strongly polarized in their opinions which came out from their bacgrounds: the same answers are found as strengths and weakness (e.g. public transport, living conditions in the city).

Most promising / most challenging projects or activities for future development (Question 8a, 8b and 9)

Promising/important projects: CIVITAS project which includes introduction of self-service rent-a-bike system in Ljubljana and overall traffic management, improvement of public transport (bus and railway) in whole metropolitan region, accessibility improvement to the Ljubljana (Jože Pučnik) airport, more inclusive spatial planning, new bus and railway station in Ljubljana, P+R system, landscape park Ljubljansko Barje, developing of the business zones in the wider metropolitan region, sport park Stožice project, environmental protection and renewal of brownfields activity (e.g. Rog factory, Partnerstvo Šmartinska),

Controversial: unsuitable construction of underground parking garages and office buildings in the city center, lack of public transport in some (new) residential areas in the core city and in less accessible areas in the metropolitan region, new shopping centers developments.

There is a high degree of heterogeneity within the sample of answers. Respondent do see promising perspectives mainly in some transport and infrastructure projects, especially in improvement of public transport. Some attention is paid also for restoring old buildings and renewal of brownfields areas.

3. Realization of inclusive metropolitan development

Preconditions for cooperation – in general and in the examined city (Questions 10 and 11)

Irrespective of the situation in Ljubljana - legal stability, transparency in decision making, leadership and decision-making qualities, pro-active behavior of citizens, social security and open mindedness of society are the most relevant preconditions for cooperation in general. Former experiences with cooperation, tradition of participation, legitimacy of political administrative system and environmental awareness are considered to be important in second rank. Only the political stability is seen very heterogeneously.

If we analyze the importance of the selected fields with regard to the situation in Ljubljana, the most important are considered legal stability, political stability, leadership and decision-making qualities transparency in decision making, proactive behavior of citizens and legitimacy of political administrative system. Also environmental awareness is very high ranked, but the open mindedness of society is placed lower than in question 10. In this question only social security caused disagreement among the respondents.

Differences between the general importance and particular importance in Ljubljana are significant, especially for the factors of political stability and legitimacy of political administrative system.

Importance of cooperation for positioning of the city (Question 12)

Cooperation on the level of metropolitan region should concentrate on:

- improving the infrastructure, especially improvement of public transport and cycling network
- tourism and services (included public services)
- improvement business environment and ensuring more working places
- R&D
- waste management
- spatial planning (especially for housing and business zone development)
- management of natural resources (e.g. energy supply) and cultural heritage
- natural disaster protection

Cooperation with other cities should focus on transport issues and connectivity, social issues, Erasmus program for students' exchange, cooperation in the field of cultural heritage, tourism, environmental problems and good practice exchanges. Institutional cooperation is frequently mentioned. No special cities as the important partners were mentioned.

Existing cooperation with other cities and potential future partners (Questions 13,14)

There were few (almost no) answers regarding the cooperation initiatives within the metropolitan region. UCUE, EUROCITIES, CIVITAS, INTERREG, URBACT, ESPON are the mentioned cooperation programs.

Ljubljana is clearly considered to be an attractive partner for cooperation. The following arguments we found to be essential:

- Ljubljana has good geographical position, attractive natural surrounding (river, mountains)
- Ljubljana has good potential to interlink with neighboring (Balkan) countries.

The responded gave also some negative answers from the following categories:

- Ljubljana has high national taxes,
- Ljubljana is very bureaucratic
- Ljubljana has very closed business environment

Potential future partners within metropolitan region were the cities which are participating in the Ljubljana metropolitan region development program (Kranj, Domžale, Kamnik,Bled, Radovljica, Jesenice, Trbovlje, Zagorje and Hrastnik) as well as cities in the coastal region (Koper, Izola and Piran).

Among the other cities Vienna and Bratislava were mentioned most frequently. Other potential partners are all other capital cities and medium sized cities in Europe as well as British and Scandinavian (north European) cities. The respondent specifically named the following cities: Rome, Trieste, Venice, Pasaro and Parma (Italy), Chemnitz, Wiesbaden and Leverkusen (Germany), Zagreb, Reka (Croatia), Klagenfurt, Graz (Austria), Sarajevo (Bosnia and Herzegovina) and Belgrade (Serbia).

Strategic recommendations for future metropolitan development (Question 15)

Most recommendations might be summarized within the following categories:

improving strategic planning for the future development of Ljubljana metropolitan region accroding to the EU 2020 strategy of smart, inclusive and competetive cities

Transport issues (public transport)

Services, culture and tourism

Improvement of international connectivity

Improving positioning and city image

Concluding remarks:

- Ljubljana is regarded as historical city and tourism destination that has recently experienced solid economic development. The city and urban region performed well economically, particularly as highly attractive business location but conversely struggles with low levels of social integration and social mobility.
- Strengths of Ljubljana are to be found in its geographical location, its cultural and historical heritage and the related high attractiveness for tourism and economic activities, while still not sufficiently organized public transport and less eficient use of land represent the city's greatest weaknesses.
- Ljubljana is seen as attractive partner for cooperation that has a great deal of potential, which is however sometimes threatened by administrative mismanagement.
-

WP2.4. QUESTIONNAIRE

EVALUATION of the results from the city of PRAGUE

Sample

The interpretation of the questionnaire is based upon the answers and data given by 11 respondents. People from the following categories were approached for participating:

no	**category**	**response**
1	politician	no response
2	planner from capital city (public)	responded
3	chamber of commerce	no response
4	media (daily newspaper)	responded
5	economic development agency	responded
6	academic (reg. planning) no.1	responded
7	academic (reg. Planning) no.2	responded
8	project manager (city council)	responded
9	representative international enterprise (private)	responded
10	representative international organization (public, semi-public)	no response
11	cultural (event organization) no.1	responded
12	cultural (event organization) no.2	no response
13	tourist agency	responded
14	representative / city in MR no.1	responded
15	representative / city in MR no.2	no response
16	NGO	responded

Representatives of chamber of commerce, international organisation and politicians refused to participate, but the academic sector and the cultural institution were represented by 2 respondents.

Interpretation of the results

1. Recent urban development trends and city profile

Profile of the city (Question 1)

The results of the questionnaire indicate that Prague is predominantly considered as historical city (10), centre of tourism (9) and centre of finance and business (8). Adjectives dynamic, growing city (3) and centre of research and education (2) were mentioned less frequently. The only additionally added adjective was “center of state administration”, which indicates that Prague is also strongly perceived as the national capital. The answers suggest that the perception of the city is related to its historical heritage, tourism and economic performance. At the same time Prague is not considered to be very dynamic or innovative.

Overall development over the last 5 years in different dimensions (Question 2)

The economic dimension was clearly the best evaluated dimension. **Prague is** considered as **business location with high competitiveness and attractiveness.** However, research and innovation received a low score. The representative of the private enterprise was by far the most critical. We can conclude that the respondents believe that the **successful economic development of Prague is rather a result of external influences and trends and is not supported and further fostered by research and innovation.**

Societal and infrastructural dimensions are perceived more **ambivalent:** while social integration is considered rather weak and international orientation/open-mindedness rather strong, social mobility is regarded mediocre. All the answers in this dimension oscillate around the middle quite steadily. Here, the media had the most critical assessment. In the infrastructural dimension green mobility is considered rather weak. It comes out from the following answers however, that the question is not well set for Prague. **While the public transport system is perceived as very developed and useful, the cycling facilities and environment are subject to heavy criticism.** This question is therefore influenced by the respondents preferred mode of “green” transportation. Quality of public services is perceived mediocre and International connectivity rather good. Again the private enterprise representative is the most critical one.

Environmental and mainly institutional dimension were criticised greatly. All surveyed dimensions are assessed below average. Especially participation of citizens, modernization of administration and e-governance are considered to be weak points of Prague. **The environmental dimension is not considered as poor but still not good.** Environmental quality scores low, yet some respondents consider it rather high. Quality of open space had almost equally positive and negative assessment. Sustainability of land use structure was a category that was not clear to some respondents (so they omitted it in the end).

It is obvious that institutional dimension is the weakest part of Prague´s development. All the other economic, societal, environmental and infrastructural dimensions are evaluated with high polarity of opinions, even though economic dimension is clearly the strongest link. If we look at opinions that don't fit the average, there is a clear tendency to criticism at the side of media and even more so from the representative of international enterprise. On the other side the city planner tends to be more positive than average.

City image/Social environment (Question 3 + 4)

According to opinion of our respondents, Prague is predominantly perceived as an **expensive (12), attractive (11), unique (11)** and **prospective (9)** city. Significantly less strongly is Prague perceived as **safe (6), dense (6) and old fashioned (5).** Less respondents consider the city to be friendly, hectic, clean, noisy, emotional, simple or self-confident.

The answers are generally quite consistent. In most cases they clearly tend towards one pole. Only with regard to the items tranquil/hectic and attractive/unattractive the responses are spread throughout the whole scale (surprisingly media was the most critical). It is also rather surprising, that the city is perceived as old fashioned.

Social environment in Prague is by multiple respondents considered to be **indifferent (7), split apart (6) and competitive (5)**. The second rank of answers includes **friendly (3), snobbish (3) and inspiring (2).** It is notable that the positive connotations supportive, tolerant and cooperative are mentioned very scarcely or not at all. Yet, at the same time, the social environment was never perceived to be hostile/frightening (in accordance with results of Question 3). The results may indicate that our respondents perceive Prague as **very individualistic, non-cooperating city**. In general, the vision of Prague is ambivalent. However very often the negative answers tend to dominate and there is only one clearly positive opinion (from the media).

Negative and positive events / activities (Question 5a and 5b)

The positive project/events/activities might be summarised within the following groups of issues:

transportation projects

New extensions of metro lines and new part of Prague's outer ring road are by far the most common answers of all the positive projects. Among other transportation projects the airport, integrated transportation system and introduction of resident parking zones was also mentioned.

new building projects and reconstructions

Development of new city centres, flood protection, building of the multifunctional O2 arena, reconstruction of the main train station and Holešovice brewery are all considered successful and/or important.

cultural and social events

Events like farmers' markets or Prague - European Capital of Culture 2000, that contributed to better cultural and social environment, were also mentioned.

The negative projects/events/activities might be summarised within the following groups of issues:

transportation projects

As well as getting the highest ranks among the positive answers, transportation also comes to be the most negative topic. The Prague inner ring road, insufficient development of the airport, underground parking and ineffective development of the metro lines were pointed out by the respondents as negative examples.

building and development policies

The city's housing policy, urban sprawl, conversion of several train stations for commercial purposes, new shopping centres at inconvenient localities are all considered failures.

PR and marketing of the city

Cancelling the new building of National Library by Jan Kaplicky was strongly criticised. The project was considered controversial from the very beginning, yet the respondents tend to emphasise mainly its flagship qualities. On the other hand Prague's candidacy for 2016 Summer Olympics was reflected as inappropriately ambitious. Also an absence of city's PR conception is believed to result in Prague losing its position as a Central European metropolis.

The opinions of the respondents were fairly uniform, with the exception of transportation issues. The projects of airport development, main train station reconstruction and surprisingly also metro development were perceived controversial (although the positive opinions dominate slightly). In the group of construction activities, mainly individual projects were assessed positive, while strategies, concepts and policies were given a negative rank.

2. Perspectives for future development

Strengths and weaknesses of the city (Question 6 and 7)

Strengths again can be sorted into several categories: **appearance and spatial qualities** (old city centre, greenery inside the city, geographical position, quality of life and city scale, enough development areas), **economic performance** (qualified human resources and workforce, low unemployment rate, good R&D potential, business centre, good economic performance and competitiveness), **transportation** (public transport, individual transport network, transport connection), **social environment** (social stability, social diversity, public services, strong connection between the city and its citizens).

Weaknesses are dividable into: **public administration and politics** (municipal politics not acting for the benefit of the city, corruption, lack of conception in building, housing and transportation policy, poor coordination with the metropolitan region, exaggerated heritage protection, low subsidies for culture, ineffective democratic policies, poor urban development strategy, absence of a unifying vision), **quality of space and infrastructure** (noise and pollution, neglected use of the river, obsolete infrastructure, lack of parking places, quality of services), **social environment** (level of civil society and citizen participation, decreasing quality of education, xenophobia, ageing society).

Strengths are related more to **current state and potentials**, **weaknesses** are related mainly to **management of the city** (politics, strategies).

Most promising / most challenging projects or activities for future development (Question 8a, 8b and 9)

Promising/important projects: regional rail network, outer ring road, better connection to airport, green mobility, wastewater treatment plant, reducing traffic in the centre, new parking lots in the centre, strategic and land use plans at the regional, municipal and borough scale, museums, libraries and other cultural projects and events, use of the R&D potential, building new university campus.

Challenging: inner ring road, transportation engineering in general, wastewater treatment plant, D-line of metro, conversion of train stations, urban development on greenfield and without conception, feasibility of bigger building projects, increasing prices in public transport, high-rise buildings, keeping citizens informed.

Answers in this topic more or less repeat what we could learn from questions 5 to 7. There is again a strong emphasis on the transportation and public administration issues. This includes the controversy between opinions (NGOs vs. tourism agencies) on the use of the city centre, especially the amount of traffic allowed. Several projects were mentioned in both categories by the same respondent, which means they are seen as important but hard to carry through at the same time. Also it is sometimes unclear whether "challenging" (question 8B) is taken in positive or negative meaning. Question 9 was omitted by half of the respondents, probably because the answers to 8A and B were already considered the most important.

3. Realisation of inclusive metropolitan development

Preconditions for cooperation – in general and in the examined city (Questions 10 and 11)

Transparency in decision making is considered the **most relevant precondition** for cooperation in general. **Legal stability, political stability** and **proactive behaviour of citizens** are considered to be important in second rank. The lowest priority was given to **former experience with cooperation** and **social security**.

The importance of the selected fields with regard to situation in Prague was assessed similarly. **Transparency in decision making** still leads the ranking, **legal stability and political stability** follow (with slight increase on the political stability, otherwise but **former experience with cooperation** and **social security** get the lowest rank.

Generally the difference between the general importance and particular importance in Prague is not significant. However, there is a notable rise in leadership and decision-making qualities and decrease in former experience with cooperation and namely in social security. This can be explained by Prague's specific conditions, where social security is high and therefore no issue, whereas leadership is considered weak link and therefore important. The change of ranking of experience with cooperation has no obvious reason.

Importance of cooperation for positioning of the city (Question 12)

Cooperation on the level of metropolitan region should concentrate on the following groups of issues:

a) **infrastructure, especially transport and energy security**

Further integration and development of the public transport and transportation issues in general is thought to be the field for cooperation. Also issues of energy security (handling heating and electricity) and other infrastructure (water, waste, wastewater) were considered important

b) **coordination of spatial development**

Coordinated approach towards regulation and planning of spatial development, specifically of urban sprawl and suburbanisation, location of functions was introduced. Environmental protection, conception of green areas and green belt was also mentioned.

c) tourism, security and other issues

Coordination and joint promotion of tourism throughout the Metropolitan Region was mentioned. Among other issues citizen security, flood protection, EU grants, labour market and education seem to be most essential.

Cooperation with other cities should be focused on know-how transfer in various areas such as promotion of cycling, citizen participation, legislation modifications, tourism and transport connectivity.

Existing cooperation with other cities and potential future partners (Questions 13,14)

There is no general knowledge about cooperation of Prague and other cities (at all levels) with the exception of the city planner respondent. The assumptions are that cooperation with Prague is scarce, if any. The Central Bohemia Region as a whole was mentioned as a potential partner for Prague, as well as individual towns for specific ongoing issues.

The only informed respondent mentioned exchange of experience and information and participation in joint projects with Vienna and Budapest (for the POLYCE cities) and Brno and Pilsen (for the other cities).

Prague is generally considered to be attractive partner for cooperation, but with many reservations.

The arguments pro were:

a) Prague is strong and attractive within Central Europe
b) Prague has economic power, large institutional capacity and therefore potential to show the right path
c) Prague is located in an ideal geographical position between East and West Europe
d) easily accessible by road and air
e) Prague is an ancient and globally acclaimed cultural centre of Central Europe
f) Prague is an attractive tourist destination and a thriving city of interest to entrepreneurs and immigrants
g) Prague has strong background and name
h) Prague can build on the former joint Czech-German-Jewish cultural environment

The arguments contra were:

i) Prague focuses on the superficial commercial business activities
j) Prague leaves no room for their citizens' initiative
k) Prague doesn't invest in non-profit events or structures related to culture and art.
l) Prague has a reputation of total lack of interest in real cooperation
m) Prague is politically illegible and the nation is seen as uncooperative and Eurosceptical

To summarize the previous answers. If Prague "wants, it certainly has something to offer". There are doubts, however, about its genuine interest to cooperate.

Potential future partners within the metropolitan region were the towns of Kladno, Beroun, Benešov, Brandýs nad Labem-Stará Boleslav, Kralupy nad Vltavou, Český Brod. Also all municipalities and cities within 10 to 15 km from the border of Prague, ideally unions of these municipalities as well as the whole Central Bohemia Region were proposed as partners.

As the other potential partners (almost all abroad) were mentioned Brno, Pilsen, Vienna, Salzburg, Budapest, Györ, Bratislava, Krakow, Wroclaw, Warsaw, Berlin, Hamburg, Freiburg im Breisgau, Munich, Nuremberg, Dresden, Leipzig, Passau, Regensburg, Lyon, Copenhagen, Amsterdam, Helsinki.

Strategic recommendations for future metropolitan development (Question 15)

The most crucial recommendations of the respondents might be summarised as follows:

n) urban-planning **vision** of the city, clear **development strategy** and high-quality **masterplan**

o) **participation of citizens** in planning and implementation of sustainable development

p) real cooperation with the Central Bohemia Region

q) maintain and develop the **social cohesion** of citizens

r) promote research and innovation

s) preference of the **public transport**

t) maintain high proportion of **green areas**

u) active role of the **public sector**

v) increase quality and competency of both political and administrative decisions

w) promote diversity, polycentricity and cohesion of the region

Concluding remarks:

x) Prague is seen as a city of tourism with a rich historical heritage and a flourishing urban economy, which is attractive and unique but also expensive. Prague performs well economically, environmentally, socially, and in terms of infrastructure provision but struggles with institutional aspects.

y) Strengths of the city lie in its geographical position, its economic performance, its social climate and the organization of transport. In contrast, public administration and unsustainable land use are the city's greatest weaknesses.

z) Prague is considered to be an attractive partner but there is doubt about the city's will to cooperate with other cities.

WP2.4. QUESTIONNAIRE

EVALUATION of the results from the city of VIENNA

Sampling

The evaluation is based on a sample of 12 questionnaires completed by selected stakeholders. Stakeholders from the following groups were targeted with the questionnaire (in alphabetical order):

- academics
- chamber of commerce representatives
- cultural institution
- economic development agency representatives
- media representatives
- NGOs
- politicians (of the core city and two cities in the metropolitan region)
- planners (in the public administration of the core city and in a private planning bureau)
- real estate developer
- representatives of international enterprise
- tourism agency representatives

We did not receive back the questionnaire from stakeholders from the following groups:

- cultural institution
- real estate developer

Recent urban development trends and city profile

Profile of the city (Question 1)

In the perception of the stakeholders Vienna is seen, not surprisingly, as a “historical city” and a “center of tourism”. In contrast, “center of research and education”, “dynamic, growing city”, “center of finance and business” or “center of innovation” appears to be a less adequate description of the city for the surveyed stakeholders, indicating that in their view the city’s profile is mainly related to its historical heritage and its role as a tourist destination, rather than to the presence of a strong service sector and innovative businesses. However, some respondents see this profile of the city changing, describing Vienna as a “city in transition”, a “gateway city”, a “2nd tier service center”, and a “center for international organizations”.

Overall development over the last 5 years in different dimensions (Question 2)

Comparing the dimensions of economy, environment, infrastructure and institutions, Vienna performs best in the provision of infrastructure, according to the respondents. In

particular the quality of public services (education, health care, etc.) was ranked high. Also well evaluated were the economic dimension, especially with regard to the attractiveness of the city as business location, and the environmental dimension, with particular regard to the environmental quality (air, soil). A slightly worse evaluation was given to the institutional dimension, mainly due to a low score on citizen participation. The worst performance was reached in the societal dimension. However, opinions of the respondents also diverge most on this point, with particular disagreement on the aspect of social integration and international-orientation / open-mindedness of the Viennese society. As regards social integration, the politican from the metropolitan region and the representative of the international entreprise consider Vienna to perform very weak on this point, while the politician from the core city, another politician from the metropolitan region, the two planners and the representative of the economic development agency accord Vienna an average performance on this point. Concerning open-mindedness and international orientation, the representative from the academic sphere grants Vienna a very weak performance while one politician from the metropolitan region sees Vienna to perform very well on this point. Further disagreement is evident with respect to the level of green mobility and the quality of e-governance.

City image and social climate (Question 3 + 4)

In the view of the respondents, Vienna is considered an attractive, unique and safe place. The city is furthermore regarded rather friendly, clean, silent and prospective. The interviewees show clear disagreement on whether Vienna is affordable or expensive and whether it is a place with or without self-confidence. As regards affordability, one politician from the metropolitan region, the representatives from the planning sphere (private and public) and the media representative regard Vienna as affordable, while another politician from the metropolitan region, the representative of the chamber of commerce, the representative of the international enterprise and the academic consider Vienna to be expensive. Concerning the self-confidence of the city, the representative of the chamber of commerce sees Vienna to be completely without self-confidence, while the private planner, the representative of the interntaional enterprise and the representative of the economic development agency regard Vienna to be very self-confident.

The general social climate in the city is considered to be supportive, friendly, and cooperative. Less respondents see Vienna to have a competitive, tolerant, inspiring, split apart or hostile / frigthening climate. A certain polarization in the answers is evident, however, with academics and representatives from NGOs leaning towards the selection of answers with rather negative connotations (split apart, hostile / frightening), while representatives from the economic sector and tourism show a tendency towards choosing rather positively connoted adjectives (inspiring, friendly, supportive).

Positive and negative events and activities within the last 10 years (Question 5)

Positive events and activities mentioned can be grouped in 7 categories:

1) **Extension of public transport, bike and road infrastructure** to improve connectivity and to increase the level of green mobility
2) **Preparation and start of Main Station Project** to improve local / regional and international connectivity, to modernize rail infrastructure, and to give impulse for urban development in surrounding districts

3) **Start of "Seestadt Aspern" project** to secure living space for growing city population
4) **Housing policy** to secure affordable and high-quality housing and avoid social and economic segregation
5) **Expansion of service sector** in general and R & D activities in particular through subsidies for innovation in service sector, start of BioCenter and IST Austria
6) **Cooperation** with surrounding municipalities and cities, e.g. through CENTROPE

Negative events and activities can be classified in 4 categories:

1) Failure to create high-quality **public space** and loss of existing spaces in the course of urban development projects
2) Failure of **large urban development projects** and low cost-benefit ratio of publicly financed projects (Rothneusiedl, Wienerberg City, Prater)
3) Lack of projects to **avoid spatial fragmentation** (reference made to growing segregation in social housing areas as well as in kindergartens and schools)
4) **Other:** dispersed center development, failure to cooperate with surrounding municipalities, growing xenophobic climate, lack of coordination between hospitals

Generally, the respondents showed a high level of agreement concerning positive and negative events and activities. However, cooperation with the surrounding municipalities as well as aspects of the local housing policy appear to be controversial, with some respondents stressing the positive developments in these two fields while others refer to negative influences on the city's development in recent years.

Perspectives for future development

Strengths and weaknesses of the city (Question 6 and 7),

The mentioned strengths of Vienna can largely be grouped in two categories:

- **Quality of life:** public transport, affordable housing, cultural amenities, security, green space, historical heritage
- **Economic development:** location in central Europe and hub function to Eastern Europe, highly-skilled workforce, high productivity, diversified economy, location of international headquarters and congress center

Weaknesses of the city are related to the following categories:

- **Integration:** lack of integration, growing social segregation, lack of open-mindedness and growing xenophobia
- **Economic development:** lack of innovation, low attractiveness for R&D activities, lack of highly skilled workforce
- **Environment and transport**: unsustainable resource consumption level, car traffic, lack of parking space
- **Other:** insufficient child care facilities, lack of cooperation with neighboring municipalities, corruption

Remarkably, the lack of integration and growing problems related to the increasing diversity of the city is perceived as a weakness by many respondents. Controversial are the opinions on economic factors, particularly regarding the availability of skilled

labor, with the respondent from the chamber of commerce seeing it as strength of the city and the representative from the academic sphere stressing the lack of highly-skilled labor.

Most promising and most challenging projects or activities for future development (Question 8 and 9)

By far mentioned most frequently as **promising project** were the Main Station project and Aspern Seestadt. Furthermore named were the following projects: Nordbahnhof, University of Economics Campus, MediaQuarter Marx, Vienna BioCenter, expansion of public transport network, fostering integration policies, improving education and research, upgrading city as site of knowledge-intensive services, increasing energy-efficiency and strengthening cooperation, in particular the axis Vienna-Bratislava.

The Main Station project, Seestadt Aspern and the integration of migrants were raised most often as **challenging projects**. Besides, the following projects appeared: Airport Skylink, Biosphärenpark, quality of education system.

Most promising for the positioning of the city are again the Main Station Project, Aspern, integration as well as the cooperation with CEE regions and Bratislava in particular.

Clearly, large urban development projects (Main Station, Aspern), integration and cooperation with surrounding regions are considered to exert most influence on the development of Vienna in the coming years in the interviewees' view. However, the respondents acknowledge both possible positive effects as well as potential challenges related to the realization of these projects and consider them to be promising but also most controversial.

Realization of inclusive metropolitan development

Preconditions for cooperation – in general and in Vienna in particular (Question 10 and 11)

Legal and political stability, social security and the legitimacy of the PAS are seen as most important preconditions for cooperation by the respondents. Former experiences with cooperation, tradition of participation, and pro-active behavior of citizens are regarded less important. Respondents disagree on the importance of leadership and decision-making qualities, transparency in decision-making, open-mindedness of society and environmental awareness, with certain respondents considering these aspects much more important than others.

With regard to the particular situation in Vienna, also legal and political stability are considered to be important. Furthermore, leadership and decision-making qualities, as well as open-mindedness of society received a high rank. Of lower importance are former experiences with cooperation and pro-active behavior of citizens.

In contrast to the preconditions for cooperation in general, there is more disagreement to what extent the pro-active behavior of citizens and social security are important preconditions for cooperation. Generally, however, there are no significant differences in the general assessment and the assessment for Vienna in particular.

Importance of cooperation for positioning of the city (Question 12)

The following fields were raised as important fields for cooperation of Vienna with cities in the metropolitan region:

- **Infrastructure development and transport**: major infrastructure projects as well as car traffic and public transport connections were frequently mentioned
- **Settlement structures and coordination of spatial development**: references was made to land use policies and housing provision, especially in the south of Vienna
- **Economic development:** labor market and locational policy with regard to industry and cluster networks were mentioned here
- **Environmental issues:** waste management and recycling, recreation and nature as well as energy production are considered important fields of cooperation
- **Others:** furthermore mentioned were food production, health care, higher education, R&D and cultural activities

Outside of the metropolitan region, coordination is considered necessary in the fields of R&D, energy, knowledge transfer, cluster networks, transport and infrastructure, locational policy, tourism and climate protection

Existing cooperation with other cities and potential future partners (Question 13 and 14)

Regarding **existing cooperative initiatives within the metropolitan region** the following projects were mentioned: Centrope, PGO, VOR, SUM, VIENNA REGION, TWIN CITIES and the cooperation of Tulln with the University of Natural Resources and Life Sciences Vienna. Centrope and the PGO were thereby mentioned most frequently, followed by the VOR and the Vienna Region.

With regard to **cooperative initiatives with other POLYCE cities** again CENTROPE appeared most often, next to the TWIN CITY PROJECT BRATISLAVA. Other mentioned projects included CENTRAL DANUBE AND CREATING THE FUTURE / AT-SK. Remarkably, there were no explicit initiatives mentioned with Prag, Budapest or Ljubljana.

Finally, regarding cooperative initiatives with other, non-POLYCE cities, EUROCITIES, METREX, OPENCITIES, UN-Habitat Best Practice Hub and INTERREG were named.

The City of Vienna is generally regarded as a **very attractive partner**, mainly due to existing experience with cooperation, the geopolitical location, the well-functioning administration, the reputation in international networks and the high quality of life. Only one respondent saw Vienna as a rather unattractive partner, referring to the lack of clearly defined common goals

Potential future partner cities within the metropolitan region in the respondents' view are Bratislava, Wr. Neustadt, Mödling, Vösendorf, Schwechat, Mödling, Vösendorf, Gerasdorf, Gänserndorf, Klosterneuburg, Korneuburg, Krems, Tulln, Linz, Graz, Brno, Sopron, Györ, and Lower Austria generally.

Additionally, outside the MR, the following cities were mentioned: Prague, Budapest, Ljubljana,

Berlin, Munich, Hamburg, Zurich, Milan, Barcelona, Paris, cities in the EUROCITIES group, cities in the Danube Region and European cities generally.

Strategic recommendations for future metropolitan development (Question 15)

The strategic recommendations for future development of Vienna given by the respondents can be summarized as follows:

- Foster strategic partnerships to weather increasing interurban competition
- Develop long-term vision
- Further improve life quality
- Improve energy efficiency and develop green technologies
- Strengthen existing strengths (life sciences, creative industries, tourism)
- Launch active education and integration initiatives
- Focus on knowledge and skill-intensive economic activities to foster growth
- Develop opportunities for local value creation

Concluding remarks

- Stakeholders from multiple backgrounds consider Vienna to be an attractive, unique and safe place that benefits from its historical heritage and its related role as a tourist destination. It is performing well in terms of infrastructural provision, economic development and environmental quality. This positive performance is however threatened by problems related to social integration in the view of the respondents.
- As stakeholders from multiple perspectives think, the strengths of the city are the high quality of life and the performance of the local economy. Conversely, weaknesses are the lack of integration, the low energy and resource efficiency as well as the lack of innovative economic activities.
- There is generally a high awareness of cooperative initiatives of Vienna with other cities among the stakeholders surveyed. Furthermore, the city is considered to be a very attractive partner for cooperation, mainly due to existing experience with cooperation, the geopolitical location and the well-functioning administration. Potential future partner cities are located in the city's metropolitan area but also in Germany, Hungary, the Czech Republic, Slovakia, Slovenia, Switzerland, Spain, Italy and France.

10. Literature

Ali, I. and H. Hwa Son. (20079: Measuring Inclusive Growth. *Asian Development Review* 24:11-31.

Ali, I. and J. Zhuang (2007): Inclusive Growth toward a Prosperous Asia: Policy Implications. Manila: Asian Development Bank (ADB).

Asian Development Bank (2007): Eminent Persons Group Report. Manila: Asian Development Bank (ADB).

Austrian Federal Railways (www.oebb.at)

Aydalot, P. (ed) (1986): "Milieux innovateur en Europe", Groupe de Recherche European sur les Milieux Innovateurs (GREMI), Paris

Bairoch, P. (1988): "Cities and economic development: from the dawn of history to the present", Chicago (IL): University of Chicago Press.

Basten, L. (Ed.) (2009): Metropolregionen – Restrukturierung und Governance. Dortmund: Verlag D. Rohn.

Bathelt, H., Malmberg, A: and Maskell, P. (2004): "Clusters and knowledge: local buzz, global pipelines and the process of knowledge creation", Progress in Human Geography, 28 (1): 31-56.

BBSR (2010): Metropolräume in Europa. Bundesinstitut für Bau-, Stadt- und Raumforschung (BBSR) im Bundesamt für Bauwesen und Raumordnung (BBR). Bonn: Selbstverlag.

Begg, I. (1999): Cities and Competitiveness, in Urban Studies, Vol. 36, Nos 5-6, pp. 795-810.

Black, D. and Henderson, J.V. (1999): "A theory of urban growth", Journal of Political Economy 107 (2): 252-284.

Cairncross, F. (1998): The Death of Distance. How the Communications Revolution Will Change Our Lives, London: Orion Business Books

Camagni, R. (1991), "Local milieu', uncertainty and innovation networks: towards a new dynamic theory of economic space", in R. Camagni (ed.), "Innovation networks: spatial perspectives", London: Belhaven Press.

Camagni, R. (1993): "Principi di economia urbana e territoriale", Rome (IT): Carocci.

Camagni, R. (1995), "The concept of innovative milieu and its relevance for public policies in European lagging regions", Papers in Regional Science 74 (4), 317–340.

Camagni, R. (2007): Towards a Concept of Territorial Capital, In: Joint Congress of the European Regional Science Association (47th Congress) and ASRDLF (Association de Science Regionale de Langue Francais, 44th Congress) Paris, August 29th – September 2nd, 2007

Camagni, R. (2009): Territorial capital and regional development. In R. Capello and P. Nijkamp (eds.) Handbook of Regional Growth and Development Theories. P. 118-132, Northampton, Mass.: Edward Elgar Publ.

Capello, R. and Camagni, R. (2000): "Beyond optimal city size: an evaluation of alternative urban growth patterns", Urban Studies, 37 (9): 1479-1496.

Camagni, R., Diappi, L., and Leonardi, G. (1986): "Urban growth and decline in a hierarchical system: a supply-oriented dynamic approach", Regional Science and Urban Economics, 16:

Camagni, R., Gibelli, M.C., and Rigamonti, P. (2002): "Urban mobility and urban form: the social and environmental costs of different patterns of urban expansion", Ecological Economics, Elsevier, 40 (2): 199-216.

Capello, R. (2009): "Indivisibilities, synergy and proximity: the need for an integrated approach to agglomeration economies", Tijdschrift voor Economische en Sociale Geografie, 100 (2): 145-159.

Capello, R. and Nijkamp, P. (eds.) (2004): "Urban dynamics and growth: advances in urban economics", Amsterdam (NL): Elsevier.

Caragliu, A. and Nijkamp, P. (2009)."Endogenous regional growth: the role of human and cognitive capital", Studia Regionalia, 23 (2), 9-23.

Carlino, J., and Saiz, A. (2008): "Beautiful city: leisure amenities and urban growth", Federal Reserve Bank of Philadelphia Working Paper SSRN-1280157.

CEC (1999): European Spatial Development Perspective (ESDP) – Towards Balanced and Sustainable Development of the Territory of the EU, Luxembourg: Office for official publications of the European Communities.

Christaller, W. (1933): "Die zentralen Orte in Suddeutschland", Jena (DE): Gustav Fischer.

Ciccone, A. and Hall, R.E. (1996): "Productivity and the density of economic activity", American Economic Review,86 (1): 54-70.

Clark, W. A. V. (2000): "*Monocentric to Policentric: New Urban Forms and Old Paradigms*", In: Bridge, G., Watson, S. (eds.), A Companion to the City. Oxford : Blackwell Publishers, pp. 141 – 154.

CORDIS online database (http://cordis.europa.eu)

Davoudi, S. (2003): "Polycentricity in European Spatial Planning: From an Analytical Tool to a Normative Agenda", in: European Planning Studies, 11 (8): pp. 979 – 999.

Deutsche Bahn (www.bahn.de)

Elissalde, B. (2004): "Metropolisation", Hypergeo (http://www.hypergeo.eu/article.php3?id _article=257)

ESPON www.espon.eu

ESPON (2005): Potentials for polycentric development in Europe. ESPON 1.1.1 Final report.http://www.espon.eu/mmp/online/website/content/projects/259/648/file_1174/fr-1.1.1_revised-full.pdf

ESPON (2010): New Evidence on Smart, Sustainable and Inclusive Territories. First ESPON 2013 Synthesis Report. Luxembourg.

ESPON 1.1.1 (2005): ESPON 1.1.1 – Potentials for polycentric development in Europe, co-financed by the European Community through the INTERREG IIIB ESPON, final report August 2004, revised March 2005, Stockholm, www.espon.eu

ESPON 2013 DB (2010): Draft Final Report

ESPON ATTREG (2010)**:** Attractiveness of European Regions and Cities for Residents and Visitors (2010-2012), Draft Interim Report

ESPON CAEE (2010): The Case for Agglomeration Economies in Europe, Final Report

ESPON CLIMATE (2010): Climate Change and Territorial Effects on Regions and Local Economies, Revised Interim Report

ESPON Coordination Unit (2010): First ESPON 2013 Synthesis Report. New Evidence on Smart, Sustainable and Inclusive Territories. Luxembourg.

European Council, (2007) Territorial Agenda of the European Union: Towards a more competitive Europe of diverse Regions. Informal Ministerial Meeting on Urban Development and Territorial Cohesion, Leipzig.

ESPON DEMIFER (2010): Demographic and migratory flows affecting European regions and cities, Final report

ESPON FOCI (2009) FOCI Future Orientations for Cities, http://www.espon.eu/main/Menu_ Projects/Menu_AppliedResearch/foci.html

ESPON FOCI (2010)**:** Future Orientations for Cities, Final Report

ESPON INTERCO (2011): Indicators of Territorial Cohesion, Interim Report

ESPON SURE (2010): Success for convergence Regions' Economies, Draft Final Report

ESPON Typology Compilation(2009): Interim Report

European Commission (2010): EUROPE 2020. A European strategy for smart, sustainable and inclusive growth. Brussels.

EUROSTAT: http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes

Faludi, A. (2004): Spatial Planning Traditions in Europe: Their Role in ESDP Process. In: International Planning Studies, 9, 2-3, pp. 155 – 172.

Faludi, A. (2007) The Territorial Dimension of European Integration. In GESIS – Gesellschaft Sozialwissensch. Infrastruktureinrichtungen e.V., Mannheim, http://www.gesis.org

Friedmann, J. (1986): The World City Hypothesis. In Development and Change, vol. 17, p. 69-83

Friedmann, J. (2002): The Prospect of Cities. Minneapolis: University of Minnesota Press

Fujita, M. (1989): "Urban economic theory: land use and city size", Cambridge (UK): Cambridge University Press.

GaWC, Global and World Cities Research Network (http://www.lboro.ac.uk/gawc)

Geyer, H.S. (2002): International Handbook of Urban Systems Cheltenham: E.Elgar Publ. Inc.

Giffinger, R., Haindlmaier, G. and Kramar, H. (2010) The role of rankings in growing city competition. In Urban Research & Practice, p. 299 – 312.

Giffinger, R. and Hamedinger, A. (2009): Metropolitan competitiveness reconsidered: the role of territorial capital and metropolitan governance.In Terra Spectra, Volume XX, 1/2009: 3-13.

Giffinger R. and Hamedinger A. (2010): Territorial Capital as a Key Element of Metropolitan Competitiveness. In Stojkov B. and Nedovic-Budic Zorica (ed.) Urban Nexus. London: Ashgate (forthcoming)

Giffinger, R., Fertner, C., Kramar, H., Kalasek, R., Pichler- Heinelt, H.and Kübler, D. (Eds.) (2005) Metropolitan governance. Capacity, democracy and the dynamics of place. London/New York: Routledge.

Glaeser, E. L. (2008): "Cities, agglomeration and spatial equilibrium", Oxford (UK): Oxford University Press.

Glaeser, E.L. and Kahn, M.E. (2004): "Sprawl and urban growth", in: J. Vernon Henderson and Jacques-Francois Thisse (Eds.), "Handbook of regional and urban economics", Vol. 4 "Cities and geography", pp. 2481-2527, Amsterdam (NL): Elsevier.

Glaeser, E. L., Kallal, H., Scheinkman, J. A.; and Shleifer, A. "Growth in cities", Journal of Political Economy, 100 (6): 1126-52.

Hall, P. and Pain, K. (2006): The Polycentric Metropolis. EARTHSCAN London, Sterling, VA.

Hayes, N. (2003): Základy sociální psychologie, vyd. Portál, Praha 2003.

Healey P. (1997): Collaborative Planning: Shaping Places in Fragmented Societies. London, Basingstoke: Macmillan

Ianchovichina, E. and S. Lundstrom (2009): What is Inclusive Growth? Washington: The Economic Policy and Debt Department (PRMED), World Bank.

Jacobs, J. (1961): "The death and life of great American cities" New York (NY): Random House.

Jacobs, J. (1969): "The economy of cities", New York (NY): Random House.

Keeling D. (1995): Transport and the World City Paradigm. In P.L. Knox and P.J. Taylor (eds.) World Cities in a World System. Cambridge: Cambridge University Press.

Kloosterman, R.C., MUSTERD, S. (2001): The Polycentric Urban Region: Towards a Research Agenda. In: Urban Studies, 38, 4, pp. 623 – 633.

Kooiman, J. (2003) Governing as Governance. London/Thousand Oaks/New Delhi.

Kragt, R. (2006): The Concept of Polycentricity. In: Proceedings of UNECE 10th Conference on Urban and Regional Research. Ministry of Housing, Spatial Planning and the Environment (VROM), The Netherlands.

Krätke S., Borst R. (2007): Metropolisierung und die Zukunft der Industrie im Stadtsystem Europas. Projektbericht; Otto Brenner Stiftung.

Kunzmann K. (1996): Europe-Megalopolis or Themepark Europe? Scenarios for European Spatial Development. International Planning Studies 1.2, p.143-163.

Le Galès, P. (2002) European Cities: social conflicts and governance. Oxford : Oxford University Press.

Leroy, S., (2000): "Sémantiques de la métropolisation", L'Espace géographique, 29 (1): 78-86.

Lösch, A. (1954): "The economics of location", Yale (CT): Yale University Press.

Maranell, G. (1974): Scaling – A sourcebook for Behavioural Scientists. New Brunswick, New Jersey.

Marlier, E.; A.B. Atkinson; B. Cantillon; and B. Nolan (2007) *The EU and Social Inclusion. Facing the Challenges*. Bristol: The Policy Press.

Marshall, A. (1920): "Principles of economics", London (UK): Macmillan. Retrieved on Oct. 12, 2009 on the website of the Library of Economics and Liberty: http://www.econlib.org/library/Marshall/marPCover.html

Mayntz, R. & Scharpf, F. (1995) Gesellschaftliche Selbstregelung und politische Steuerung. Frankfurt am Main: Campus.

Meijers, E. (2005). "Polycentric urban regions and the quest for synergy: is a network of cities more than the sum of the parts?", *Urban Studies*, 42 (4): 765-781.

Meijers, E., Waterhout, B. and Zonneveld, W. (2005a): Polycentric Development Policies in European Countries: An Introduction. In: Built Environment, 31, 2, pp. 97 – 102.

Meijers, E., Waterhout, B. and Zonneveld, W. (2005b): Polycentric Development Policies in Europe: Overview and Debate In: Built Environment, 31, 2, pp. 163 – 173.

Milanovic N. and Meijers E. (2007): http://www.smart-cities.eu/ (10.6.2010)

Nijkamp, P. and Mills, E.S. (eds.) (1986): "Handbook of regional and urban economics", Amsterdam (NL): North-Holland.

Otgaar A., Van den Berg L., Van der Meer J and Speller C. (2008): Empowering Metropolitan Regions through New Forms of Cooperation. Hampshire: Ashgate Pub.Lim.

OECD (2001): OECD Territorial Outlook. Paris.

Parkinson, M. (1997): The rise of the European entrepreneurial city. In: Financing of cities and regions: subsidiarity and finance potentials. East-West Conference, Munich, October 1996. (Conference proceedings, pp.125-136).

Parkinson, M., Hutchins M., Simmie J., Clark G. and Verdonk H. (Eds.) (2003): Competitive European Cities: Where Do The Core Cities Stand?.

Pierre, J. (ed.) 2000: Debating governance. Oxford: Oxford University Press.

Planning Commission of India (2006): Towards Faster and More Inclusive Growth: An Approach for the 11th Five Year Plan. New Delhi.

Polanyi, M. (1966): "The tacit dimension", New York (NY): Doubleday & Co.

Rhodes, R.A.W. (1997) Understanding governance. Policy Networks, governance, re-flexivity and accountability. Buckingham/Philadelphia: Open University Press.

Roback, J. (1982): "Wages, rents, and the quality of life", The Journal of Political Economy, 90 (6): 1257-1278.

Rodriguez-Pose, A. (2002): The European Union: Economy, Society, and Polity. Oxford: University Press

Roemer, J.E. (2006): Economic Development as Opportunity Equalization. New Haven, Conn.: Cowles Foundation Discussion Paper No. 1583, Yale University.

Rosen, S. (1979): "W'age-based indices of' urban quality of life", in Mieszkowski, P. and Straszheim, M. (eds), Current issue in urban economics, Baltimore (MD): Johns Hopkins University Press.

Rosenthal, S. S. and Strange, W. C. (2004): "Evidence on the nature and sources of agglomeration economies", in: J. Vernon Henderson and Jacques-Francois Thisse (Eds.), "Handbook of regional and urban economics", Vol. 4 "Cities and geography", pp. 2119-2171, Amsterdam (NL): Elsevier.

Salet, W; Thornley, A. & Kreukels, A. (eds.) (2003): Metropolitan governance and spatial planning. London: Spon Press.

Sassen, S. (1991): The global City. New York, London, Tokyo: Princeton University Press.

Sassen, S. (2001): "The global city: New York, London, Tokyo", (Princeton (NJ): Princeton University Press.

Sassen, S. (ed.) (2002): "Global networks, linked cities", New York (NY): Routledge.

State Council of China (2006): The 11th Five Year Plan of National Economy and Social Development of People's Republic of China 2006-2010. Beijing.

Storper M. (1997): The regional World. Territorial Development in a global Economy. New York und London: The Guilford Press.

Storper, M. and Venables, A. J. (2004). "Buzz: face-to-face contact and the urban economy", Journal of Economic Geography, 4 (4): 351-370.

Taylor P, Walker D. (2001): "World Cities: A First Multivariate Analysis of their Service Complexes" Urban Studies Vol 38: 23-47

Tatzberger, G. (2008): A global economic Integration Zone in Central Europe? Vienna – Bratislava – Györ as a laboratory for EU Territorial Cohesion Policy. Vienna: ÖIR

The Central Committee of the Communist Party of Viet Nam (2001): Strategy for Socio-Economic Development 2001-2010. Hanoi.

Thornley, A. (2000) Strategic Planning in the Face of Urban Competition. In: Salet W. and Faludi A. (eds.) The Revival of Strategic Spatial Planning. Proceedings of colloquium. Amsterdam: Royal Netherlands Academy of Arts and Sciences.

UNDP. What is Inclusive Growth? Brasilia: International Policy Centre for Inclusive Growth (IPC-IG); Poverty Practice, Bureau for Development Policy, UNDP.

UNDP (2007): Thailand National Human Development Report 2007. Bangkok: United Nations Development Progamme.

United Nations (2000): United Nations Millennium Declaration (55/2) New York.

United Nations (2005): The Millenium Development Goals Report 2005. New York: United Nations.

URBAN AUDIT:

http://epp.eurostat.ec.europa.eu/portal/page/portal/region_cities/city_urban

UTWENTE
http://www.utwente.nl/cw/theorieenoverzicht/Theory%20clusters/Health%20Communication/theory_planned_behavior.doc/

Uzawa, H. (1962): "Production functions with constant elasticities of substitution", Review of Economic Studies, 29 (4): 291-299.

ViaMichelin (www.viamichelin.at)

Waterhout, B. (2002): Polycentric Development – What is behind it? In: Faludi A. (ed.) European Spatial Planning, p. 39 – 58, Cambridge Mass.: Lincoln Institute of Land Policy

Werlen, B. (1995): Sozialgeographie alltäglicher Regionalisierungen. Band. 1, Stuttgart: Franz Steiner Verlag.

Zipf, G. K. (1949): "Human behavior and the principle of least effort", Boston (MA): Addison-Wesley.

11. Appendices

11.1. Appendix 1: Possible spatial concepts

Objectives of the document at hand:

Provision of some clarification on the *spatial concepts* that may be used, in order to define and delineate the *metropolitan regions* under scrutiny;

Preliminary selection of concepts for the European level as well as for the five cities to be analysed, which may be mobilised by partners within the POLYCE-project.

Thus, three spatial concepts will be evaluated in the following: 1) Functional Urban Areas (FUA)/ Morphological Urban Areas (MUA), 2) Larger Urban Zones (LUZ), and 3) Metropolräume (Metropolitan Areas).

Functional Urban Areas (FUA) / Morphological Urban Areas (MUA) according to ESPON

Objectives of the studies:

Provision of the background for a more informed discussion on polycentric development in Europe and an overview of the European urban system with regards to functional specialisations and current degrees of polycentricity (ESPON 2005, 2007);

Provision of a broad overview of current and future issues relevant to urban development in Europe, with cities being the core analytical objects of the study (ESPON 2010).

Key idea and spatial concept applied:

MUAs and FUAs are complementary approaches. Both might be useful and applicable with regard to the five case studies.

Morphological Urban Areas (MUAs) form the densely populated urban cores of metropolitan areas. They are calculated by combining contiguous NUTS-5 areas with population densities greater than 650 inhabitants/km^2 and with 10% or more of the workforce working within the core MUA. In case municipalities remain below that level but have a true urban character with a population of more than 20,000 people, they are also considered whenever they have a clear concentrated morphological core.

Functional Urban Areas (FUAs) are the building blocks of polycentricity. FUAs constitute the labour pool of the MUAs. They refer to agglomerations of municipalities that are grouped together according to their functional orientation, in order to reflect the actual daily operational conditions of people, enterprises, and community organisations. A FUA consists of the urban agglomeration/core and the area surrounding it, which is economically integrated into the centre.

The *qualitative* criteria of demarcation are determined by the labour market. However, due to lacking common national commuting data, it is measured in nationally specific travel-to-work-areas, commuter catchment areas, or urban poles.

In terms of *quantitative* criteria of demarcation, in countries with a population exceeding 10 million inhabitants a FUA is defined by at least 15,000 inhabitants and over 50,000 in total population. In regard to smaller countries, a FUA ought to have an urban core of at least 15,000 inhabitants constituting more than 0.5% of the national population, and endowed with functions of national or regional importance. FUAs are calculated by combining surrounding NUTS-5/LAU-2 areas, where 10% or more of the workforce works within the core MUA.

Seven functions provide an initial indication of a FUA's role in Europe: population, transport, (tourism), manufacturing, knowledge, decision-making in the private sector,

(and decision-making in the public sector). Indicators used to define a FUA are the *size index*, *location index*, and *connectivity index* (accessibility). The 76 FUAs with the highest index values are Metropolitan European Growth Areas (MEGAs).

Focus of FOCI study:

Data on cities within the ESPON space are still scarce (literature on urban economic development is generally based on approximations by NUTS-3- or even NUTS-2-regions), and most available information is similar to general analyses on regional economic development (p. 10). Hence, the aim is to tap new data sources and discuss how they can inform urban policies (p. 30).

Polycentric (network-based) cooperation is assumed to be an important driver for territorial competitiveness, while cities are assumed to be the engines of growth for their hinterlands, their countries and Europe. Hence, the study attempts to primarily focus on functional linkages and relations between the urban entities, based on the position of selected European cities as international gatekeepers, representatives, and platforms for (inter-)national headquarters and firms.

In a first step, FOCI proposed a number of European cities' typologies for each of the thematic fields: urbanity (based on Corine Land Cover and Urban Atlas data, p. 32), social cohesion (based on LUZ, pp. 35), economic development (based on sectoral structure, p. 39), city-hinterland relations/metropolitan macroregions (transport accessibility, p. 51), and inter-city-cooperation (based on measures of economic structure and relationships of firms, p. 57).

In a second step, the typology of each field was compared to the available *NUTS-3*-data (pp. 30) to allow an easier reading of the specific situation of cities and to focus on the differentiation between cities, ignoring rural regions (p. 39).

Conceptual strengths:

Concept of FUA transcends political-administrative boundaries (ESPON 2005, 2007);

Easier reading of the specific situation of cities; focus on differentiation between cities (ESPON 2010).

Practical strengths:

Data are available for each of our five case studies.

Conceptual drawbacks:

Only limited access is available to statistics on the level of FUAs (ESPON 2005, 2007);

Due to the use of national definitions, FUAs are not entirely comparable across Europe (ESPON 2005, 2007).

Data availability / Sources:

ESPON (2005): Potentials for Polycentric Development in Europe. Final Report. ESPON Project 1.1.1

ESPON (2007): Study on Urban Functions. Final Report. ESPON Project 1.4.3

ESPON (2010): FOCI – Future Orientations for Cities. Draft Final Report. Applied Research Project 2013/1/1, September 2010

(www.espon.eu/export/sites/default/Documents/Projects/AppliedResearch/FOCI/FOCI_RevisedDraftFinalReport_MainReport.pdf)

11.1.1. Metropolräume (Metropolitan Areas) according to the German Bundesinstitut für Bau-, Stadt- und Raumforschung (BBSR)

Objective of the study:

Redetermination of the function of metropolitan areas beyond the classical research approaches: How does an area become a metropolitan area?

Demarcation and typification of metropolitan areas, regardless of their administrative structures;

Representation of the spatial distribution of the metropolitan functions within the entirety of Europe: Which *functional zones* are strongly concentrated, which are rather dispersed?

Key idea and spatial concept applied:

Metropolitan areas (Metropolräume), defined as an analytical concept, refer to places, within which metropolitan functions in high density and diversity are spatially concentrated. Therefore, they constitute analytically deduced spatial entities instead of preselected spatial units of analysis (like urban agglomerations) (p. 6).

Metropolitan functions are considered the key to the analysis of Metropolitan areas (pp. 7-8). The concept of Metropolitan areas is predicated on the criticism that the classical distribution of Metropolitan functions (i.e. decision/control, innovation/competition, gateway and symbol functions) is insufficient (pp. 20ff.), since it is not comprehensive in its entirety and neglects inter-relations between functions.

Hence, the new theoretical approach is based on the systems theory as well as regional economic approaches and determines metropolitan functions via the following functional *systems*: policy, economy, science, transportation, and culture.

New methodological approach for empirical analyses (pp. 30ff.):

Database: use of non-official statistics (own empirical data of BBSR) and official data (but not NUTS 3 as they are too undifferentiated and too diverse on a national level): data are detailed for the level of municipalities.

Territorial reference of EU-wide data: aggregation on LAU-2-level.

Creation and delineation of Metropol*räume*: based on accessibility measures (BBSR-Erreichbarkeitsmodell (accessibility model), pp.75).

Typification of European Metropolräume (with specific regard to the five cases of POLYCE):

Type 1: Metropolräume with comprehensive functional variety/plurality: e.g. Budapest, Prague, Vienna-Bratislava

Type 2: Metropolräume with high functional variety/plurality

Type 3: Metropolräume with limited functional variety/plurality: e.g. Ljubljana

Type 4: Metropolräume with highly limited functional variety/plurality and high specialization

Conceptual strengths:

No pre-selection of the urban sub-spaces to be analysed: the index empirically mirrors the metropolitan functions in their *real* spatial allocation for the entirety of Europe.

National specifics do not distort the result anymore, hence, high comparability among European regions is possible.

Practical strengths:

It seems to be one of the most elaborated – and conceptually stringent – approaches for the development of the metropolitan functional urban areas.

Conceptual drawbacks:

Insufficient database; compromises with used data and statistics are inevitable, e.g. use of non-official data.

Different spatial drawing of the used analytical Metropolräume hampers comparison with results of other ESPON-studies, which are based on politically defined metropolitan regions.

Although based on cross-linking data, analyses concentrate on the *nodes* of the networks, whereas analysis of network *edges* (relations between nodes) is still due.

Practical drawbacks:

Although, each of the five regions/case studies is covered by data availability, Vienna and Bratislava are grouped together, thus data for both single regions are not available in the study at hand.

Data availability / Sources:

BBSR (2010): Metropolräume in Europa. Bundesinstitut für Bau-, Stadt- und Raumforschung (BBSR) im Bundesamt für Bauwesen und Raumordnung (BBR). Bonn: Selbstverlag. [ISBN978-3-87994-692-1] (so far only in German)

11.1.2. Larger Urban Zones (LUZ) according to the Urban Audit

Objective of the study:

Eurostat has created the concept of Larger Urban Zone (LUZ) in an effort to harmonise definitions of urbanisation in the European Union and in countries outside the European Union. These definitions were agreed upon by Eurostat and the National Statistics Offices of the different countries of the European Union at the occasion of the European Commission's Urban Audit of 2004.

Key idea and spatial concept applied:

The LUZ represents an attempt at establishing a harmonised definition of the metropolitan area. Eurostat's objective was to develop an area, from which a significant share of residents commute into the city, a concept known as the "functional urban region" (FUA). The Urban Audit works with three different spatial levels: the city, the Larger Urban Zone (LUZ) and the Sub-City District (SCD).

The City level is the most important. To ensure that this level is directly relevant to policy makers and politicians, political boundaries were used to define the city level. In many countries, these boundaries are clearly established and well-known. As a result, for most cities the boundary used in the Urban Audit corresponds to the general perception of that city.

The Larger Urban Zone (LUZ) allows a comparison between the city and its surroundings. The goal was to develop an area, from which a significant share of the resident commute into the city, a concept known as the "functional urban region" (FUA). To ensure a good data availability, the Urban Audit works with administrative boundaries that approximate the FUA.

To analyse the disparities within cities, the Urban Audit divided cities in Sub-City Districts. In order to ensure that these districts may be compared, they had to comply with strict population thresholds featuring a minimum of 5,000 inhabitants and a maximum 40,000 inhabitants. Almost all Sub-City Districts comply with these thresholds.

Conceptual strengths:

Creation of a strong momentum and awareness for (the necessity and access to) local data.

Practical strengths:

Data are available for each of the five case studies.

Conceptual drawbacks:

LUZs have been criticised for their insufficient harmonisation of data, which are still collected by national governments within local administrative units, making it sometimes difficult to compare LUZs from different countries. In 2006, about a third of the LUZ definitions were changed, significantly improving the comparability of LUZ definitions across different countries. The latest round of the Urban Audit also added cities from candidate countries and EFTA countries.

Data availability / Sources:

www.urbanaudit.org/help.aspx, accessed 02th December 2010

11.2. Appendix 2: Conceptual Review of “Inclusive Growth“

Christophe Sohn, Sabine Dörry

SUMMARY

Inclusive growth appears in the “First ESPON 2013 Synthesis Report: New Evidence on Smart, Sustainable and Inclusive Territories” (2010) as one of the very central buzz words and could therefore be assumed an innovative concept.

The concept of inclusive growth arose from the debate on the Millennium Development Goals (MDGs) (United Nations 2000, 2005) where academic scholars and policy researchers defined inclusive growth as an essential condition for poverty reduction. It directly links the macro (national structural transformation) with the micro (economic diversification and competition) determinants of economic growth (Ianchovichina and Lundstrom 2009). Important key phrases are ***equity*** (participation in & benefit-sharing of growth by all segments of society), ***equal access*** (to the opportunities for all segments of society), and ***protection*** (in market and employment transitions). Overall, inclusive growth is both an outcome and a process (UNDP website; Ali and Hwa Son 2007, p. 12).

The authors of the *First ESPON 2013 Synthesis Report* followed a central request of the ESPON programme when they prominently included the term ‘inclusive growth’ in their report. They were asked to connect or embed wherever possible and meaningful the results of the so far conducted ESPON projects (in)to the EU’s political vision expressed in the *EUROPE 2020* strategy (European Commission 2010). Hence, in the case at hand, inclusive growth formulates a (political) vision of the EU.

CONCEPTUAL FOUNDATIONS

Within the MDGs, the concept of inclusive growth depicts a new, enlarged perspective on development strategies in order to reduce poverty throughout the world. In their documents, analyses, and strategy formulations, a large number of aid agencies, internationally operating non-government organisations and other development partners but also academic and policy researchers have been sharing and contributing to the enhancement/advancement of the concept of poverty reduction towards a concept of inclusive growth (The Central Committee of the Communist Party of Viet Nam 2001; Asian Development Bank 2007; Planning Commission of India 2006; Roemer 2006; State Council of China 2006; UNDP 2007).

The literature on inclusive growth suggests a key interest in channelling policy resources to the deprived, poor people in a comprehensive effort to reduce poverty (Ali and Hwa Son 2007; Ali and Zhuang 2007). The most ample definition of inclusive growth we have found provide Ali and Zhuang (2007, pp. 10-11, see

Text box 1). According to them, inclusive growth…

Text box 1: definition of inclusive growth according to the global developmental policy discourse

> "...means growth with *equal opportunities*. Inclusive growth therefore focuses on both *creating* opportunities and making the opportunities *accessible* to all. Growth is inclusive when it allows all members of a society to participate in and contribute to the growth process on an equal basis regardless of their individual circumstances.
>
> The importance of equal opportunities for all lies in its intrinsic value as well as instrumental role. The *intrinsic value* is based on the belief that equal opportunity is a basic right of a human being and that it is unethical and immoral to treat individuals differently in access to opportunities. The *instrumental role* comes from the recognition that equal access to opportunities increases growth potential, while inequality in opportunities diminishes it and makes growth unsustainable, because it leads to inefficient utilization of human and physical resources, lowers the quality of institutions and policies, erodes social cohesion, and increases social conflict. [...]
>
> In sum, an inclusive growth strategy encompasses the key elements of an effective poverty reduction strategy and, more importantly, expands the development agenda. A poverty reduction strategy based on a single and absolute income criterion ignores the issue of inequalities and the risks associated with them. In contrast, an inclusive growth strategy addresses circumstance-related inequalities and their attendant risks. Inclusive growth is not based on a redistributive approach to addressing inequality. Rather, it focuses on creating opportunities and ensuring equal access to them. Equality of access to opportunities will hinge on larger investments in augmenting human capacities including those of the poor, whose main asset, labor, would then be productively employed."
>
> Ali and Zhuang, 2007, pp. 10-11, emphasis by Dörry/Sohn

Ali and Hwa Son (2007) go one step further and operationalise the definition of inclusive growth. They provide a statistical tool – the *social opportunity function* – to actually measure inclusive growth as an outcome of a national economy. Using the example of the Philippines, they claim 1) to have developed a dynamic tool, 2) to being able to influence the inclusiveness of growth for a country by adjusting different statistical parameters, and 3) hence to being able to advice national development strategies.

MEANING OF INCLUSIVE GROWTH ACCORDING TO 'EUROPE 2020'[15]

Very similar to the understanding of inclusive growth in the context of developing countries, the EU formulated its vision of Europe's social market economy in the aftermath of the global economic crisis. Besides *smart* and *sustainable* growth this vision is based on *inclusive* growth, too. The identified three specific priority strategies – smart, sustainable, and inclusive growth – ought to support and guide the EU's society towards a sustainable future.

Besides tackling the issues of the population's ageing and gender equality, inclusive growth in the EUROPE 2020 vision also addresses (European Commission 2010, p. 16) a particular spatial perspective (see

[15] Further information available at http://ec.europa.eu/europe2020/priorities/inclusive-growth/index_en.htm (accessed 04th May 2011)

Text box 2):

Text box 2: definition of inclusive growth according to EUROPE 2020

> "Inclusive growth means empowering people through high levels of employment, investing in skills, fighting poverty and modernising labour markets, training and social protection systems so as to help people anticipate and manage change, and build a *cohesive society*. It is also essential that the benefits of economic growth spread to all parts of the Union, including its *outermost regions*, thus strengthening *territorial cohesion*. It is about access and opportunities for all throughout the lifecycle."
>
> European Commission 2010, p. 16, emphasis by Dörry/Sohn

The overall goal of inclusive growth in the EUROPE 2020 vision is complemented by a number of so called flagship action programmes, comprising concrete projects which basically translate the goals on the EU level into tangible outcomes on a national level and bring them to life.

THE TERM INCLUSIVE GROWTH IN THE 'FIRST ESPON 2013 SYNTHESIS REPORT'16

- ESPON had requested the authors of the study to answer the question: To what extend are the ESPON project results able to contribute to the term 'inclusive growth' highlighted in the programmatic strategy/vision of EUROPE 2020?
- Thereupon, the report's authors geared to the core statements of 'inclusive growth' used in the EUROPE 2020 strategy and tried to conjoin its dimensions with the so far available ESPON project data, conclusions, and insights. With regard to the Synthesis Report this is why 'inclusive growth' is that strongly amalgamated with the various fields of social, political, energy, and spatial 'cohesion challenges'.
- Inclusive growth as it is applied in the report at hand is not primarily a scientific-based concept. Rather, it is vaguely defined and in fact understood as a political agenda/vision for the next – challenging – decade(s). Hence, inclusive growth is used to connect key socio-economic expectations on the EU level with empirically defined spatial/territorial findings of a number of past ESPON projects.

Referring to the EUROPE 2020 vision, the ESPON report's introduction states that 'cohesion' and 'inclusion' are key territorial aims. The report highlights that in order...

> "...to strengthen the competitiveness of Europe, the development potential of *all regions* needs to be utilized. It is not sufficient to rely on the strength of cities and regions that are successful already. … Consequently, development strategies for Europe need to be inclusive."
>
> ESPON 2010, p. 55, emphasis by Dörry/Sohn

Knitting the inclusive growth aspect of EUROPE 2020 and key results from ESPON projects together, the specific ESPON projects referred to in the report are the ones on territorial diversity (TEDI), demography (DEMIFER), cross-border regions (METROBORDER), energy (RE-RISK), agglomeration economies (CAEE), convergence regions (SURE), islands (EUROISLANDS), and rural areas (EDORA) (ESPON 2010, p. 81).

[16] Based on a telephone conversation with one of the ESPON report's authors (4th May 2011).

11.3. Appendix 3: Questionnaire

"Perceived strengths and weaknesses of the POLYCE capital cities and their metropolitan regions"

Dear participant,

the following questionnaire is part of the empirical research of the POLYCE “Metropolisation and Polycentric Development of Central Europe” project. Main focus of POLYCE lies on the interrelation between metropolitan development and polycentricity as a precondition for inclusive spatial development. The project investigates this interrelation in the Central Danube Region and in five cities that are located in this region: Bratislava, Budapest, Ljubljana, Prague, and Vienna. POLYCE is conducted by a consortium of universities and research institutes in seven European countries, and financed under the ESPON 2013 program (“European Observation Network for Territorial Development and Cohesion”).

The questionnaire concentrates on the perception of strengths and weaknesses of the five capital cities and the potentials for smart metropolitan development. Results will help identify perspectives for a successful positioning of the five capital cities in the European macro-region.

Your participation is fully deliberate. Your answers will be made anonymous and treated confidentially.

More information about the POLYCE project can be obtained from the website www.polyce.eu. There you can also sign up for a newsletter to receive the latest updates about the project. If you have not signed up yet, we would like to encourage you to do so. Also, please feel warmly invited to participate in the POLYCE conference to be held in fall 2011 in . The event is meant to bring together local stakeholders and experts, and to provide a forum for debate and discussion among them. We will inform you about the exact date and venue of the event in the coming weeks.

Should you have any questions or remarks please contact the person you received this questionnaire from or send an email to info@polyce.eu.

Many thanks for your participation.

POLYCE Project Team

How to use this questionnaire?

The following questionnaire is designed as an online questionnaire, to be filled in through a web interface. Should you feel more comfortable in filling it in on paper, you can use the paper version that you received by mail. If you rather prefer to answer the questions through a face-to-face conversation please contact the person you received this questionnaire from to set up an appointment.

The questionnaire is divided in three parts. Completing it will approximately take 30-40 minutes. Part one deals with recent urban development trends of and the current profile of the city. Part two is about the perspectives that you see for the future development of the city. The third part finally deals with the question how these perspectives can be realized, and what factors are of importance in this respect.

Throughout the questionnaire, a distinction will be made between the core city and the metropolitan region. The former refers to the city within its administrative boundaries, whereas the latter denotes the city with its surrounding region.

Part 1 – Recent urban development trends and city profile of

The first part of the questionnaire deals with the recent development of in economic, social, environmental and infrastructural terms, as well as with the overall profile that the city currently has.

1. Which of the following terms reflects the profile of ?
(Multiple answers possible)

industrial city □
centre of research and education □
centre of tourism □
centre of finance and business □
centre of innovation □
dynamic, growing city □
dormitory city □
historical city □
other… □
other… □
other… □

2. How would you assess the overall development of metropolitan the last five years in the dimensions below?

(Please rate them and add others that you consider significant)

Economic dimension	Low	Rather low	Rather high	High
Competitiveness	☐	☐	☐	☐
Attractiveness as business location	☐	☐	☐	☐
Research & Innovation	☐	☐	☐	☐
Other:	☐	☐	☐	☐
Other:	☐	☐	☐	☐
Other:	☐	☐	☐	☐

Societal dimension	Low	Rather low	Rather high	High
Social integration	☐	☐	☐	☐
Social mobility	☐	☐	☐	☐
International orientation / open-mindedness	☐	☐	☐	☐
Other:	☐	☐	☐	☐
Other:	☐	☐	☐	☐
Other:	☐	☐	☐	☐

Environmental dimension	Low	Rather low	Rather high	High
Environmental quality (air, soil, etc.)	☐	☐	☐	☐
Quality of open space	☐	☐	☐	☐
Sustainability of land use structures	☐	☐	☐	☐
Other:	☐	☐	☐	☐
Other:	☐	☐	☐	☐
Other:	☐	☐	☐	☐

Infrastructural dimension	Low	Rather low	Rather high	High
Green mobility (public transport, biking, etc.)	☐	☐	☐	☐
International connectivity	☐	☐	☐	☐
Quality of public services (education, health care, etc.)	☐	☐	☐	☐
Other:	☐	☐	☐	☐
Other:	☐	☐	☐	☐
Other:	☐	☐	☐	☐

Institutional dimension	Low	Rather low	Rather high	High
Modernization of administration	☐	☐	☐	☐
Participation of citizens	☐	☐	☐	☐
e-Governance	☐	☐	☐	☐
Other:	☐	☐	☐	☐
Other:	☐	☐	☐	☐
Other:	☐	☐	☐	☐

3. How would you describe the city with regard to the categories mentioned below?

	Very	Rather	Neutral	Rather	Very	
attractive	□	□	□	□	□	unattractive
ordinary □	□	□	□	□	unique	
friendly	□	□	□	□	□	hostile
tranquil □	□	□	□	□	hectic	
clean	□	□	□	□	□	dirty
progressive	□	□	□	□	□	old-fashioned
affordable	□	□	□	□	□	expensive
spacious	□	□	□	□	□	dense
prospective	□	□	□	□	□	with no prospects
safe	□	□	□	□	□	dangerous
silent	□	□	□	□	□	noisy
emotional	□	□	□	□	□	rational
sophisticated	□	□	□	□	□	simple
self-confident	□	□	□	□	□	without self confidence

4. What is your experience regarding the social environment in the city?

(Multiple answers possible)

supportive		□
inspiring	□	
friendly		□
cooperative		□
competitive		□
split apart		□
hostile/frightening		□
tolerant		□
indifferent		□
snobbish		□
other:		□
other:		□

5 A. According to your point of view, name the three most important POSITIVE projects or activities that influenced metropolitan development over the last ten years and explain why they were important.

Event	Why was it important?	Located where?
1.		
2.		
3.		

5 B. According to your point of view, name the three most important NEGATIVE projects or activities that influenced metropolitan development over the last ten years and explain why they were important.

Event	Why was it important?	Located where?
1.		
2.		
3.		

Part 2 – Perspectives for future development

The following, second part of the questionnaire deals with the perspectives for future development of as European metropolis. Referring to existing strengths and weaknesses of the city in economic, social and environmental terms, potentials for future development will be discussed. (Strengths and weaknesses describe those factors that are within the city's sphere of influence and that can be actively shaped and changed.)

6. Please name the most important strengths of the city.

Strength	
1.	
2.	
3.	
4.	
5.	

7. Please name the most important weaknesses of the city.

Weakness	
1.	
2.	
3.	
4.	
5.	

8 A. From your point of view, which projects or activities in the city or the metropolitan region do you consider to be important for future metropolitan development ?
(Please name them and if possible specify their location.)

8 B. Which projects or activities in the city or the metropolitan region do you consider to be most challenging or controversial and why?
(Please name them and if possible specify their location.)

---

9. Which of the projects or activities you mentioned in question 8 do you consider most promising for the positioning of the city?

Project / Activity	
1.	
2.	
3.	
4.	
5.	

Part 3 – Realization of inclusive metropolitan development

The third part of the questionnaire deals with the cooperative initiatives and factors that are important for achieving an inclusive metropolitan development of

in the future. In this context, inclusive refers to a cohesive and just development, both among social groups and different areas of the metropolitan region.

10. Irrespective of the situation in , which of the following factors do you generally consider to be important preconditions for cooperation?

Please rate the following factors according to their importance and add others you regard as important (1 = low importance, 5 = high importance). You may skip factors you do not consider to be important.

Legal stability	□□1□□2□□3□□4□□5
Political stability	□□1□□2□□3□□4□□5
Leadership and decision-making qualities	□□1□□2□□3□□4□□5
Former experiences with cooperation	□□1□□2□□3□□4□□5
Tradition of participation	□□1□□2□□3□□4□□5
Transparency in decision-making	□□1□□2□□3□□4□□5
Pro-active behavior of citizens□	□□1□□2□□3□□4□□5
Social security	□□1□□2□□3□□4□□5
Legitimacy of political-administrative system	□□1□□2□□3□□4□□5
Open-mindedness of society	□□1□□2□□3□□4□□5
Environmental awareness	□□1□□2□□3□□4□□5
Other:	□□1□□2□□3□□4□□5
Other:	□□1□□2□□3□□4□□5

11. In particular regarding the situation in , which of the following factors do you consider to be important preconditions for cooperation?

Please rate the following factors according to their importance and add others you regard as important (1 = low importance, 5 = high importance). You may skip factors you do not consider to be important.

Legal stability	□□1□□2□□3□□4□□5
Political stability	□□1□□2□□3□□4□□5
Leadership and decision-making qualities	□□1□□2□□3□□4□□5
Former experiences with cooperation	□□1□□2□□3□□4□□5
Participation culture	□□1□□2□□3□□4□□5
Transparency in decision-making	□□1□□2□□3□□4□□5
Pro-active behavior of citizens□	□□1□□2□□3□□4□□5
Social security	□□1□□2□□3□□4□□5
Legitimacy of political-administrative system	□□1□□2□□3□□4□□5
Open-mindedness of society	□□1□□2□□3□□4□□5
Environmental awareness	□□1□□2□□3□□4□□5
Other:	□□1□□2□□3□□4□□5
Other:	□□1□□2□□3□□4□□5

12. With regard to the positioning of , for which fields of metropolitan development do you consider cooperation to be important?

…on the level of the metropolitan region:

…with other cities:

13. Are you aware of existing cooperative initiatives of with other cities?

(Please name them)

… in the metropolitan region:

… with other POLYCE cities:

… with other cities:

From your professional point of view, is the city of an attractive partner for other cities?

If yes, why? If not, why not?

---

14. From your professional point of view, which cities can you imagine to be potential future partners for ? In which field of activity?

Cities / municipalities in the metropolitan region of :

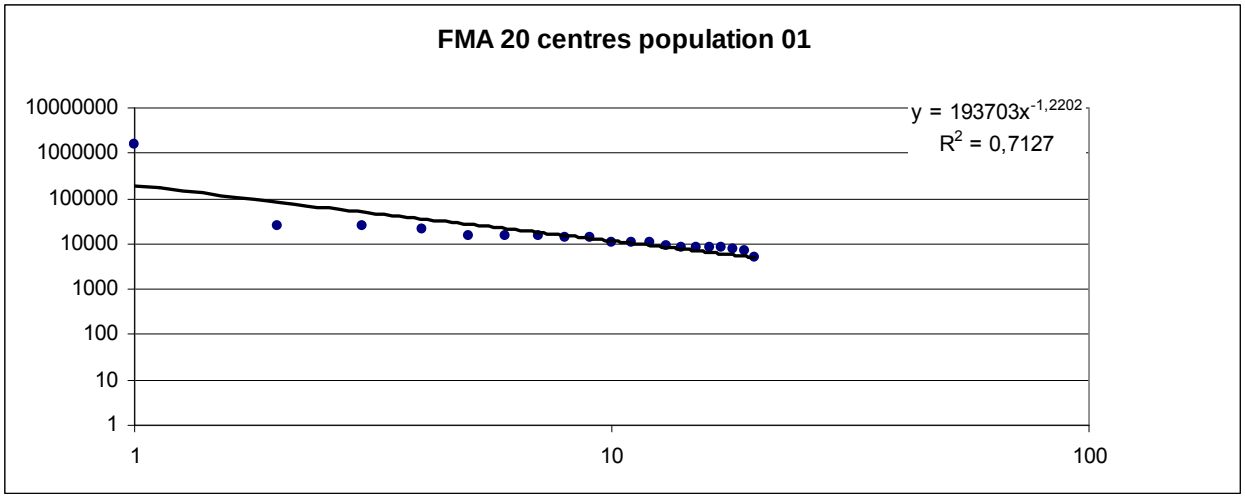
Other cities:

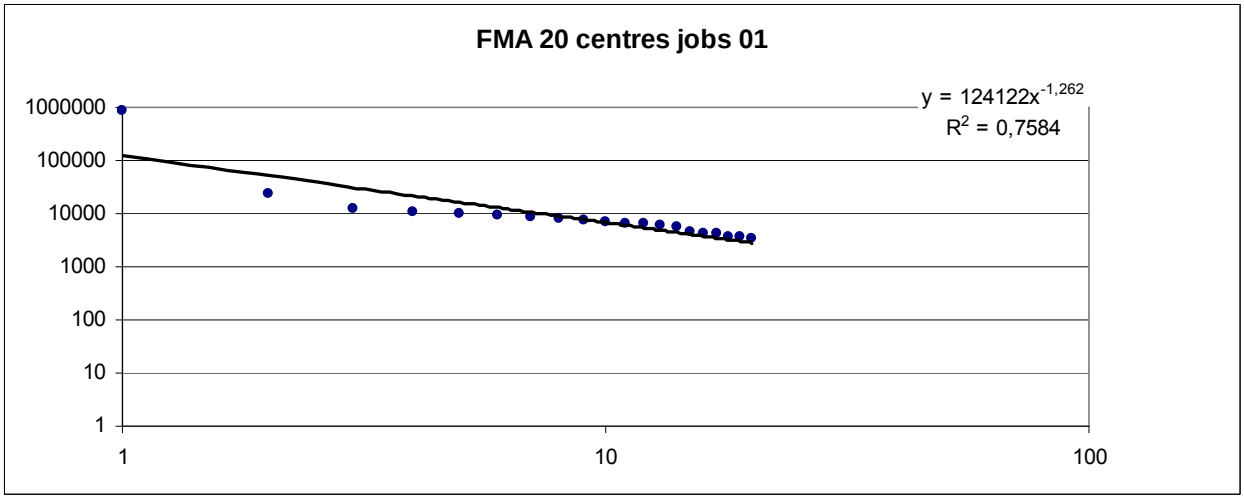
---

15. What are your strategic recommendations for future metropolitan development of ?

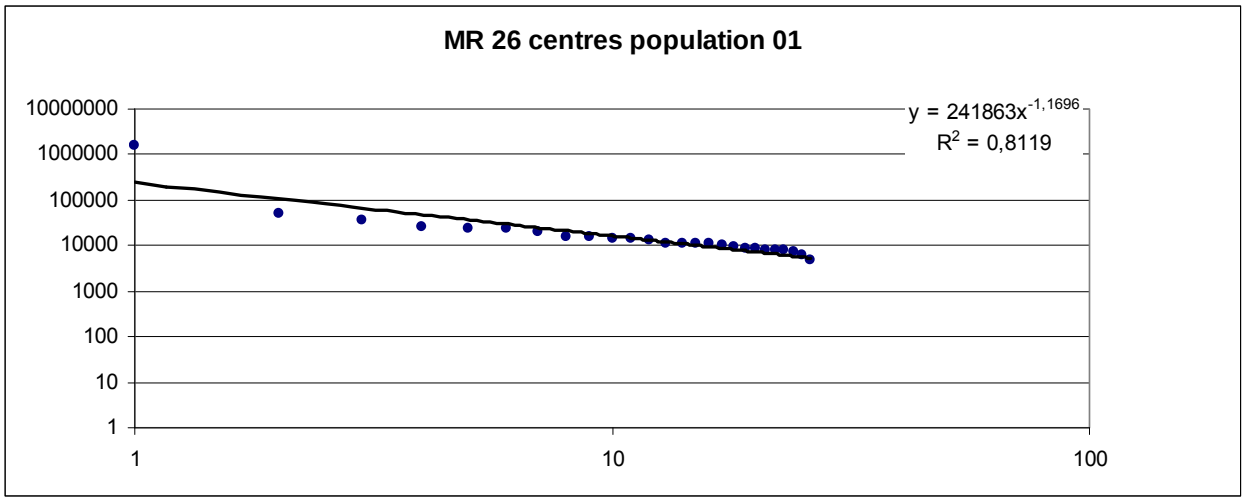
11.4. Appendix 4: Zipf regression function

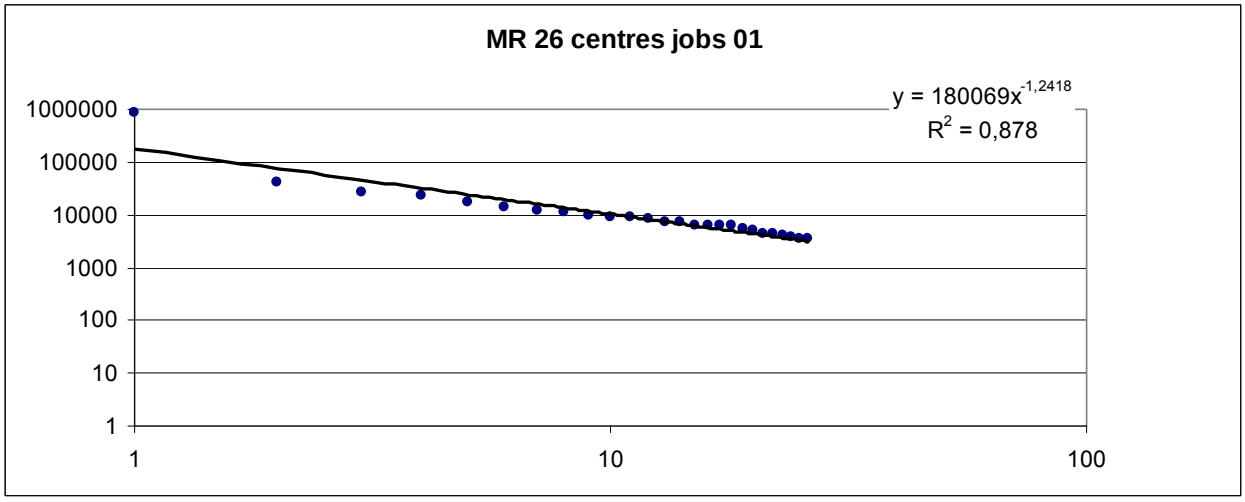
Vienna Functional Metropolitan Area: Zipf regression function



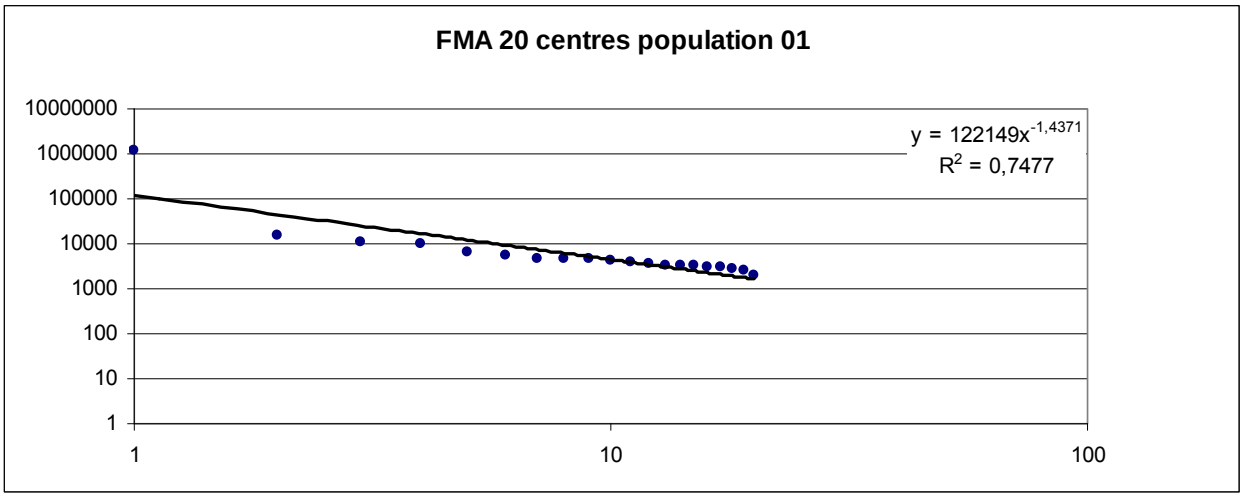


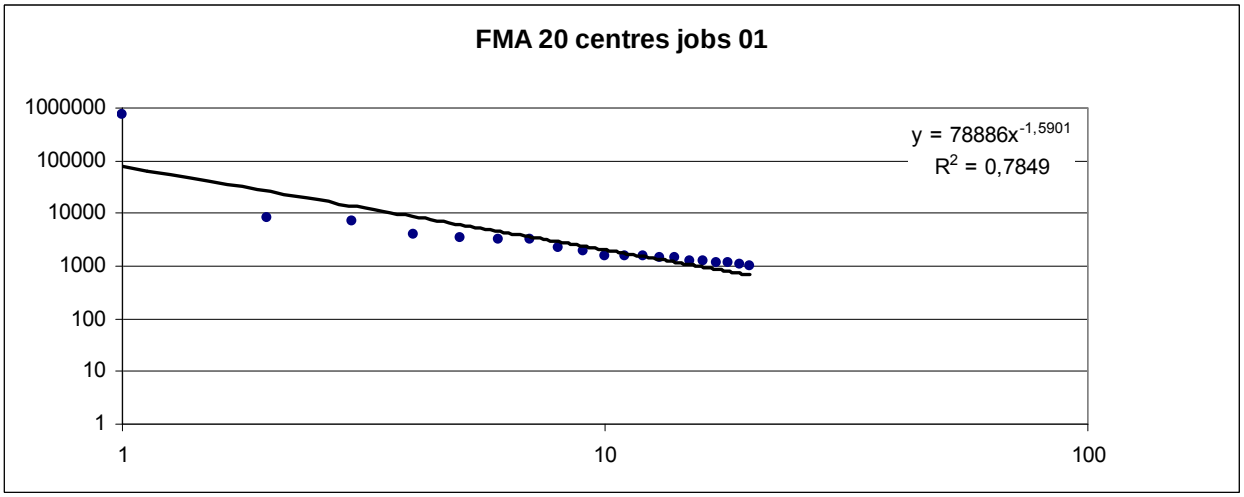
Vienna Metropolitan Region: Zipf regression function



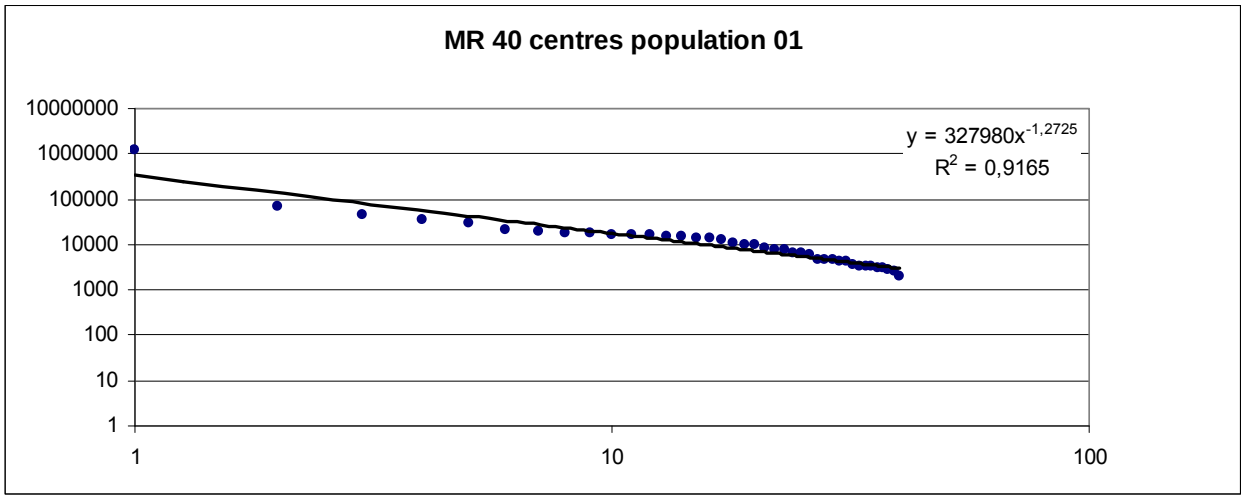


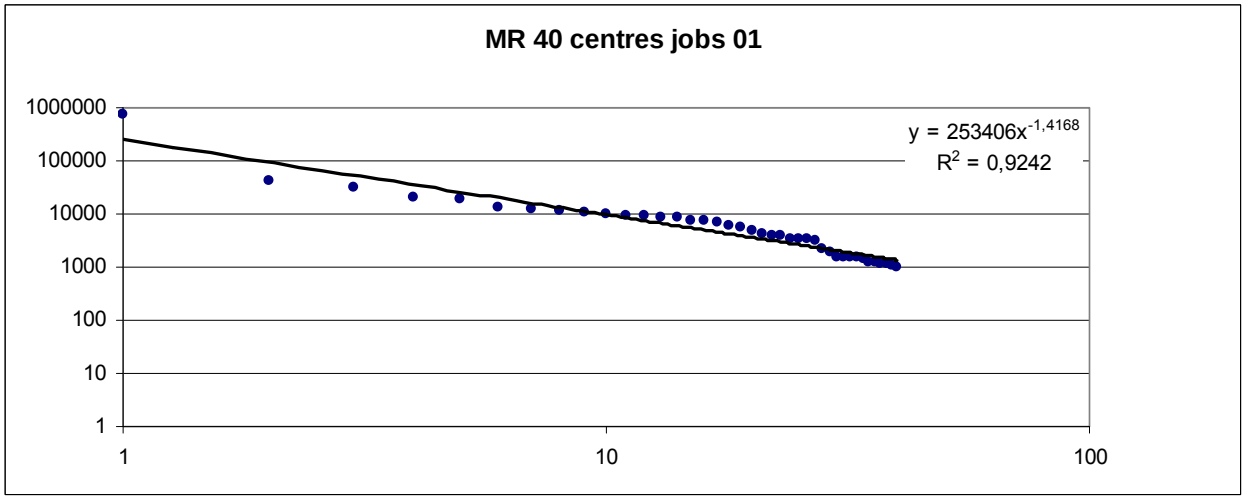
Prague Functional Metropolitan Area: Zipf regression function



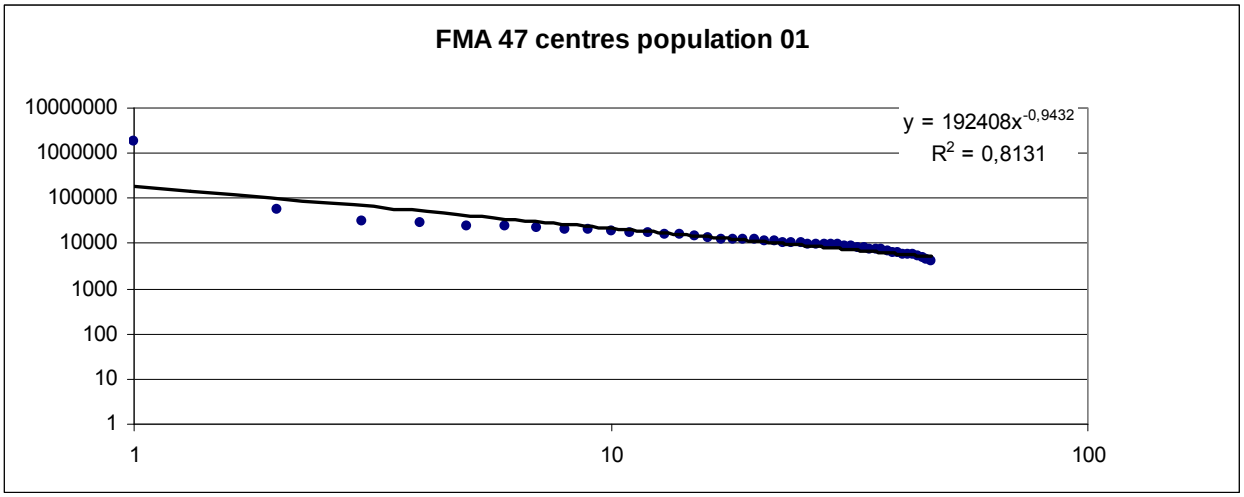


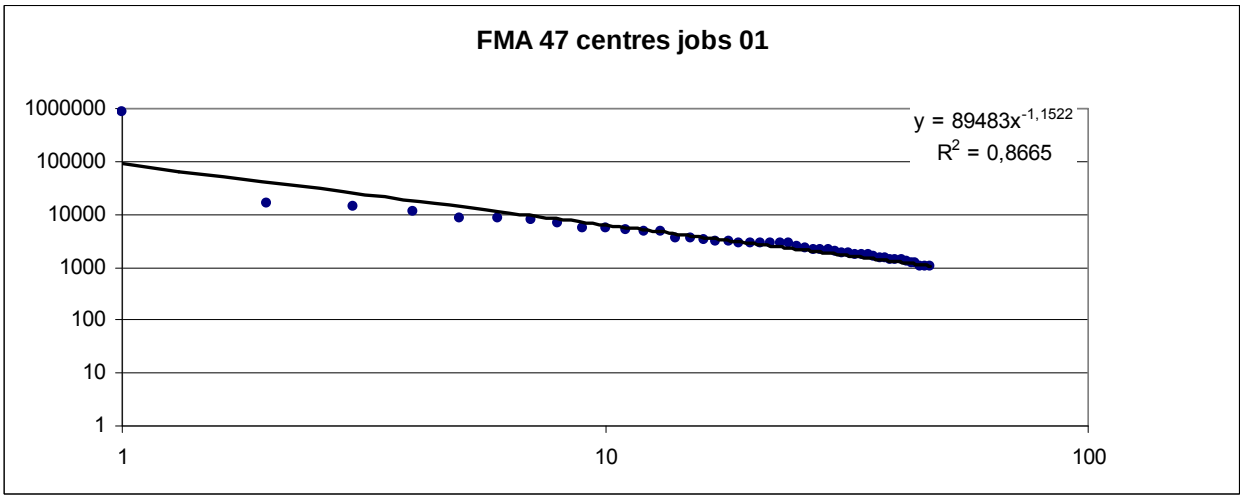
Prague Metropolitan Region: Zipf regression function



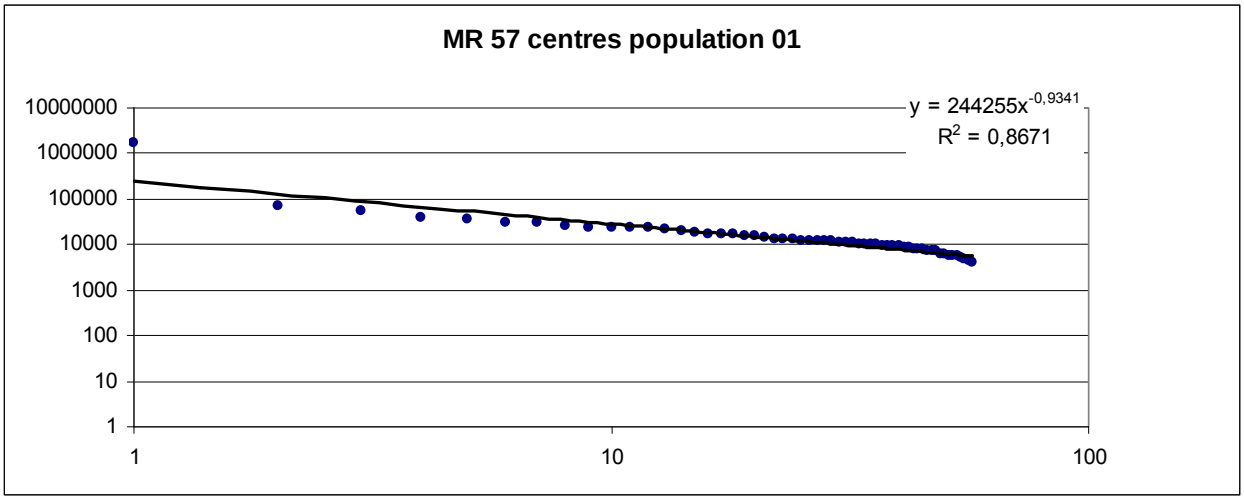


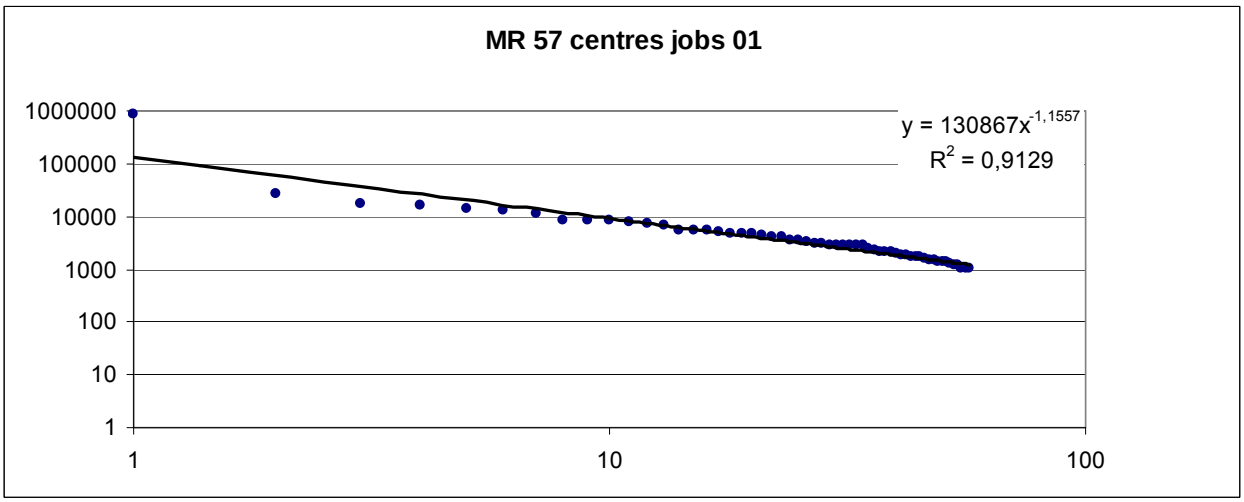
Budapest Functional Metropolitan Area: Zipf regression function



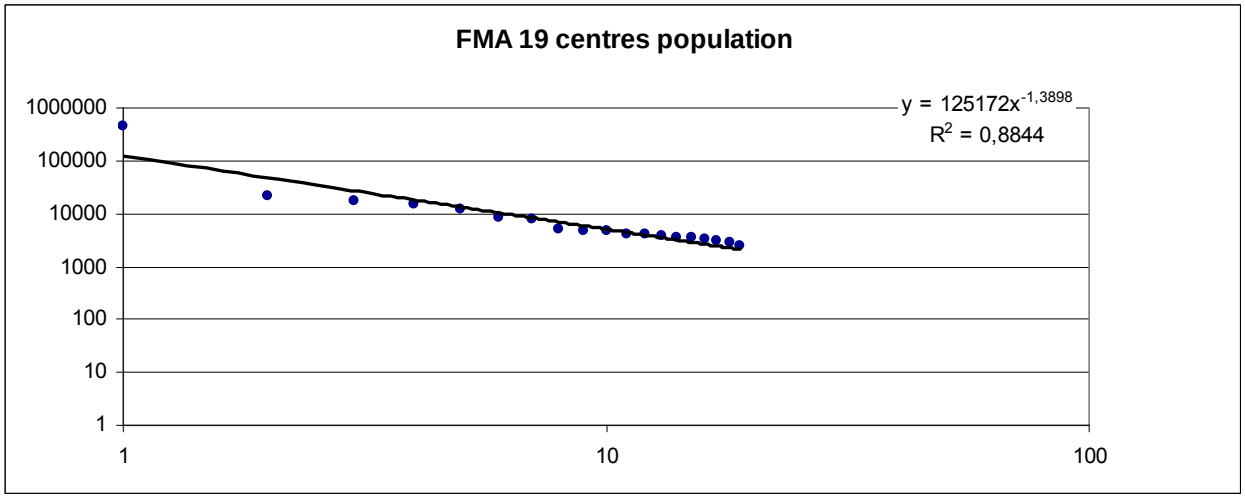


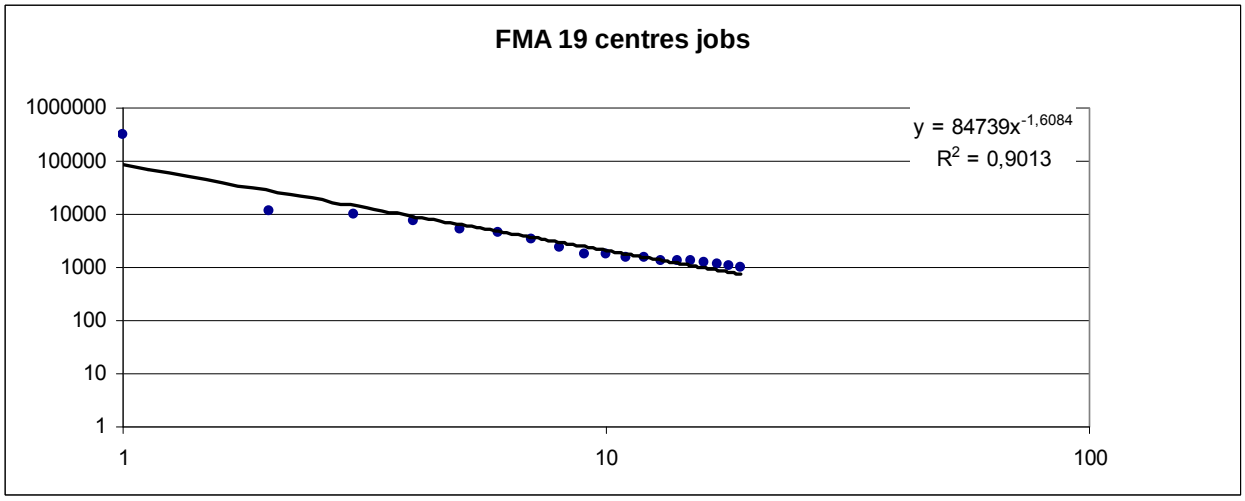
Budapest Metropolitan Region: Zipf regression function



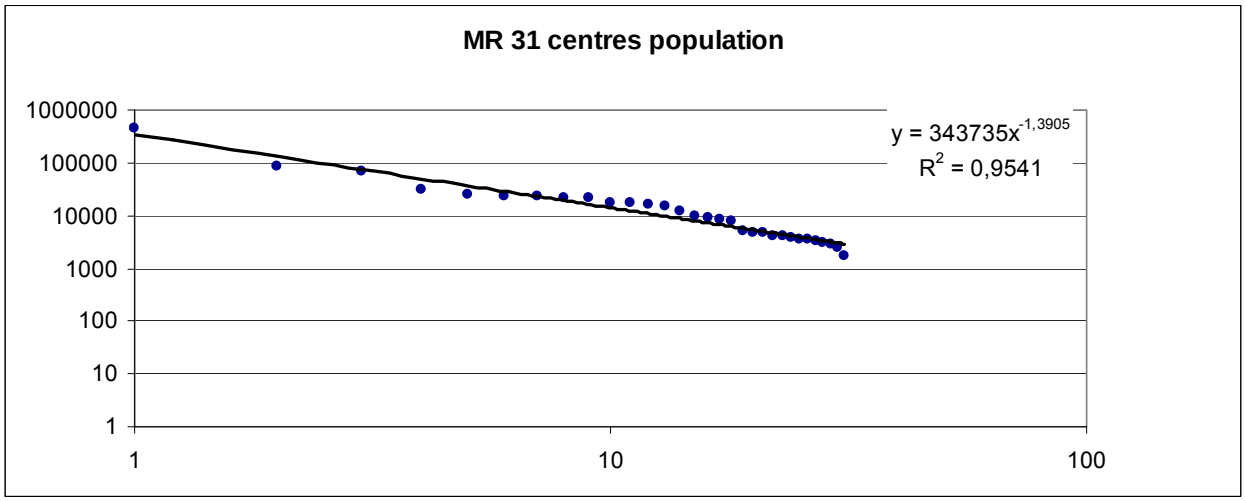


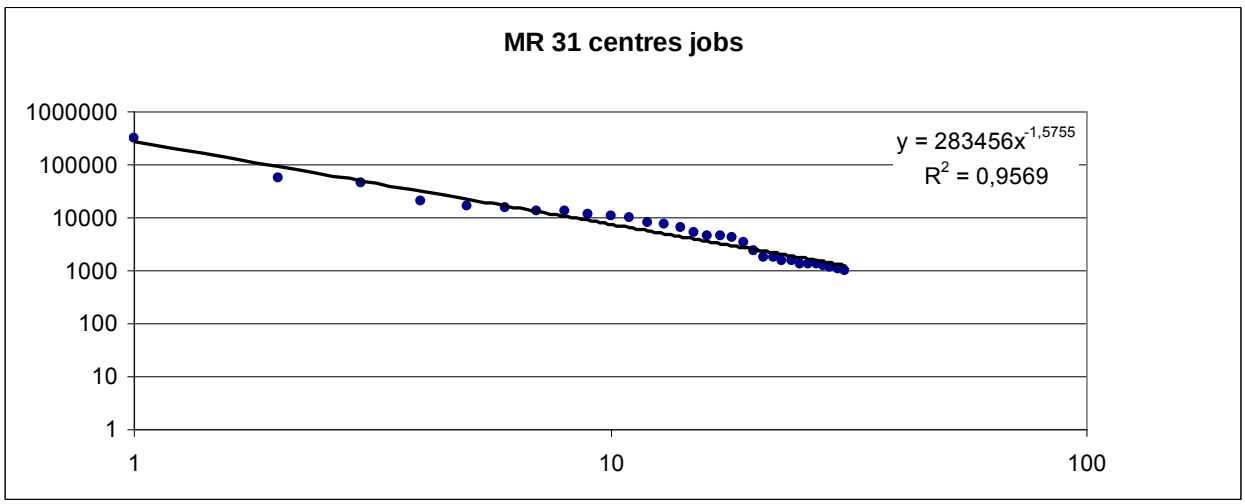
Bratislava Functional Metropolitan Area: Zipf regression function



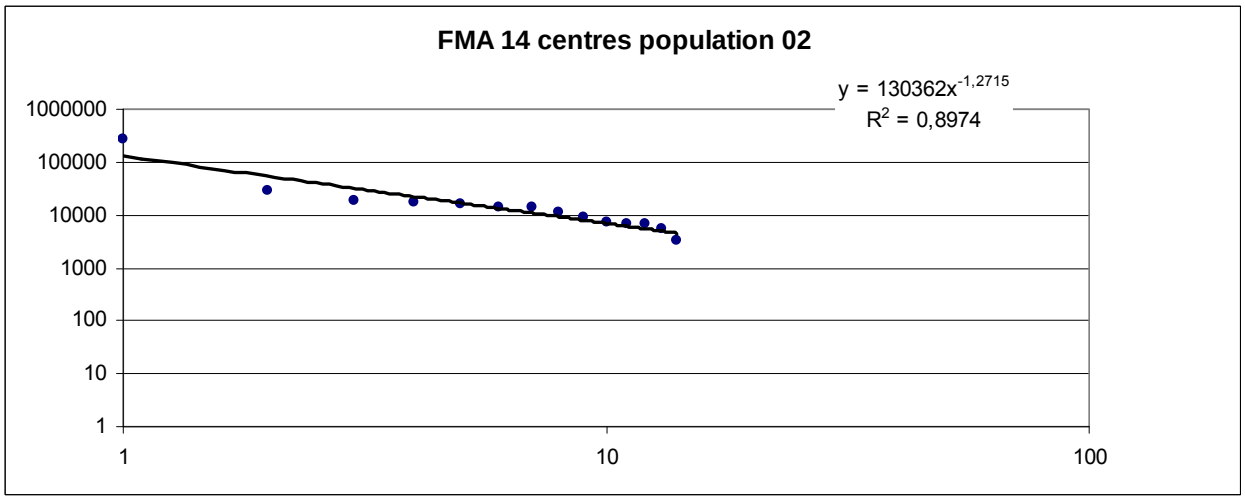


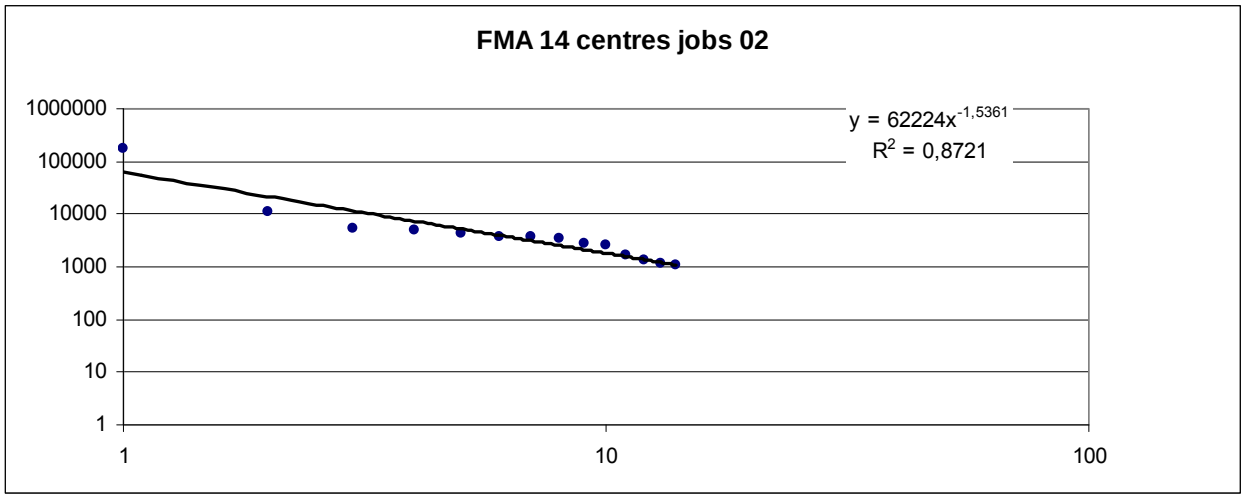
Bratislava Metropolitan Region: Zipf regression function



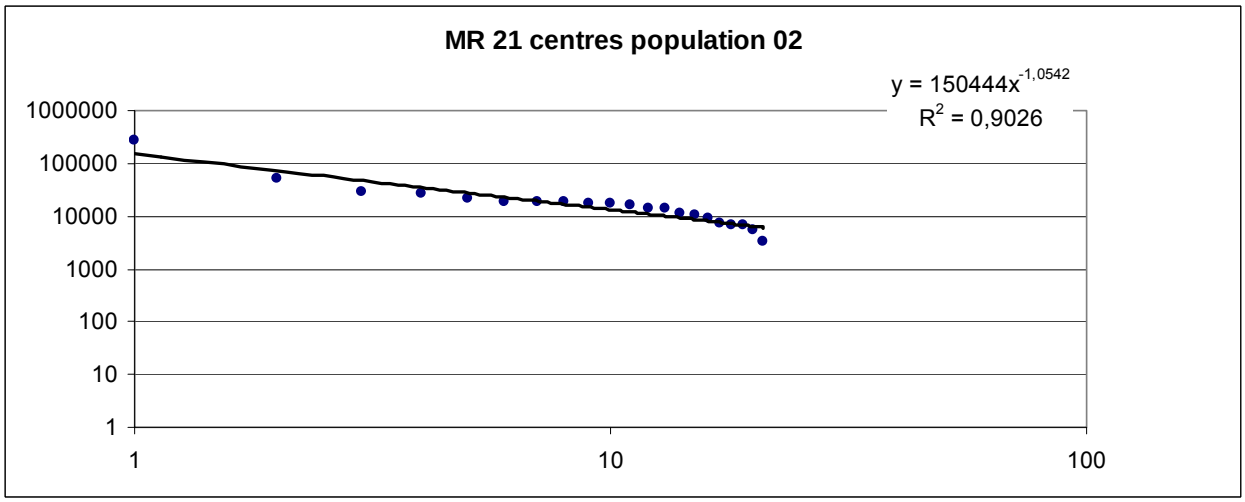


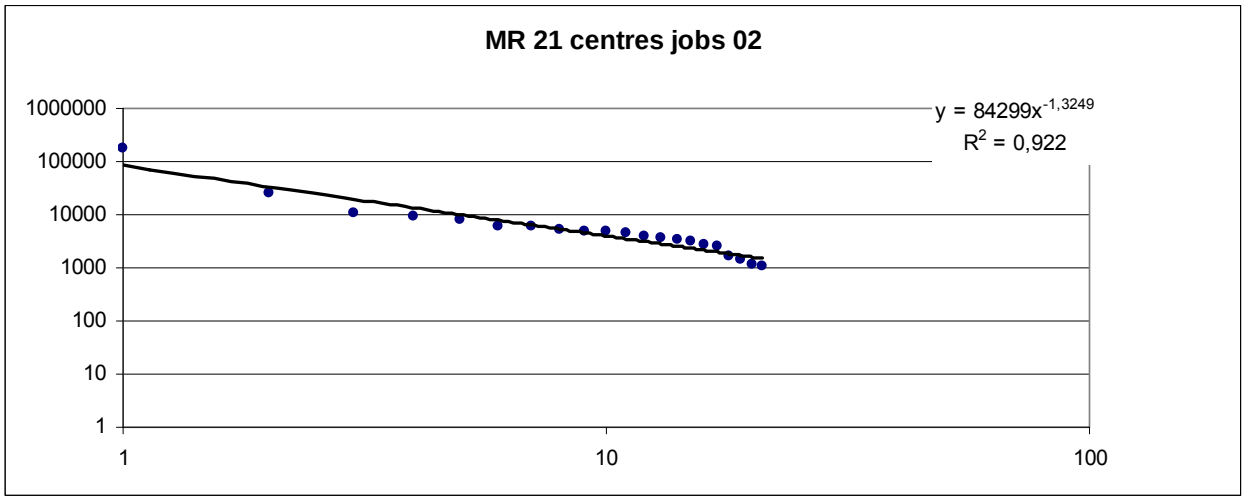
Ljubljana Functional Metropolitan Area: Zipf regression function



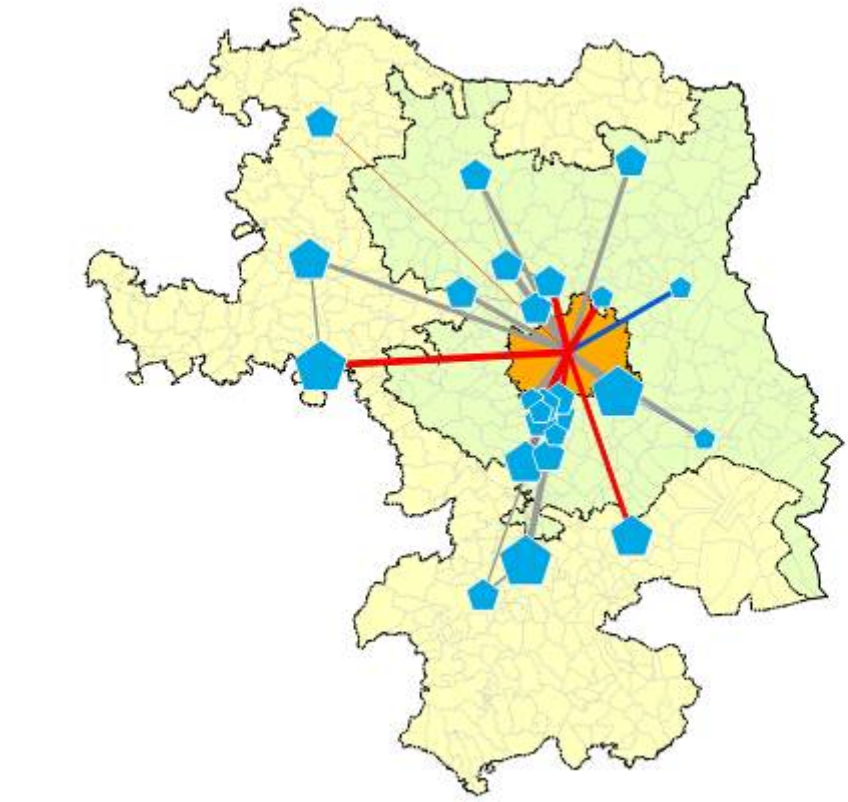


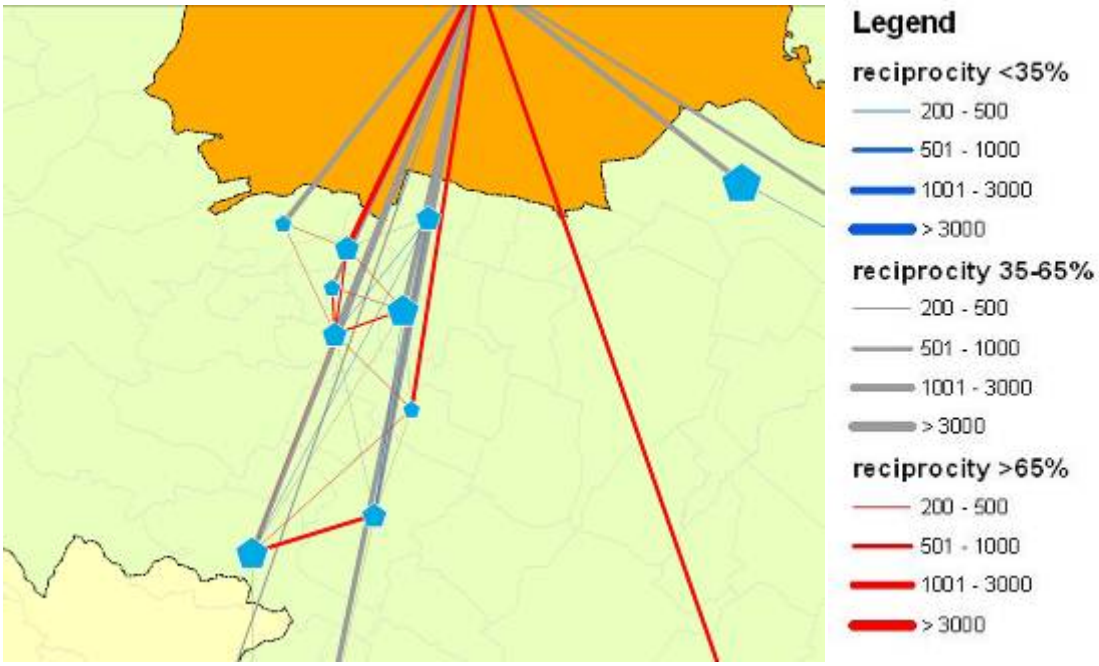
Ljubljana Metropolitan Region: Zipf regression function



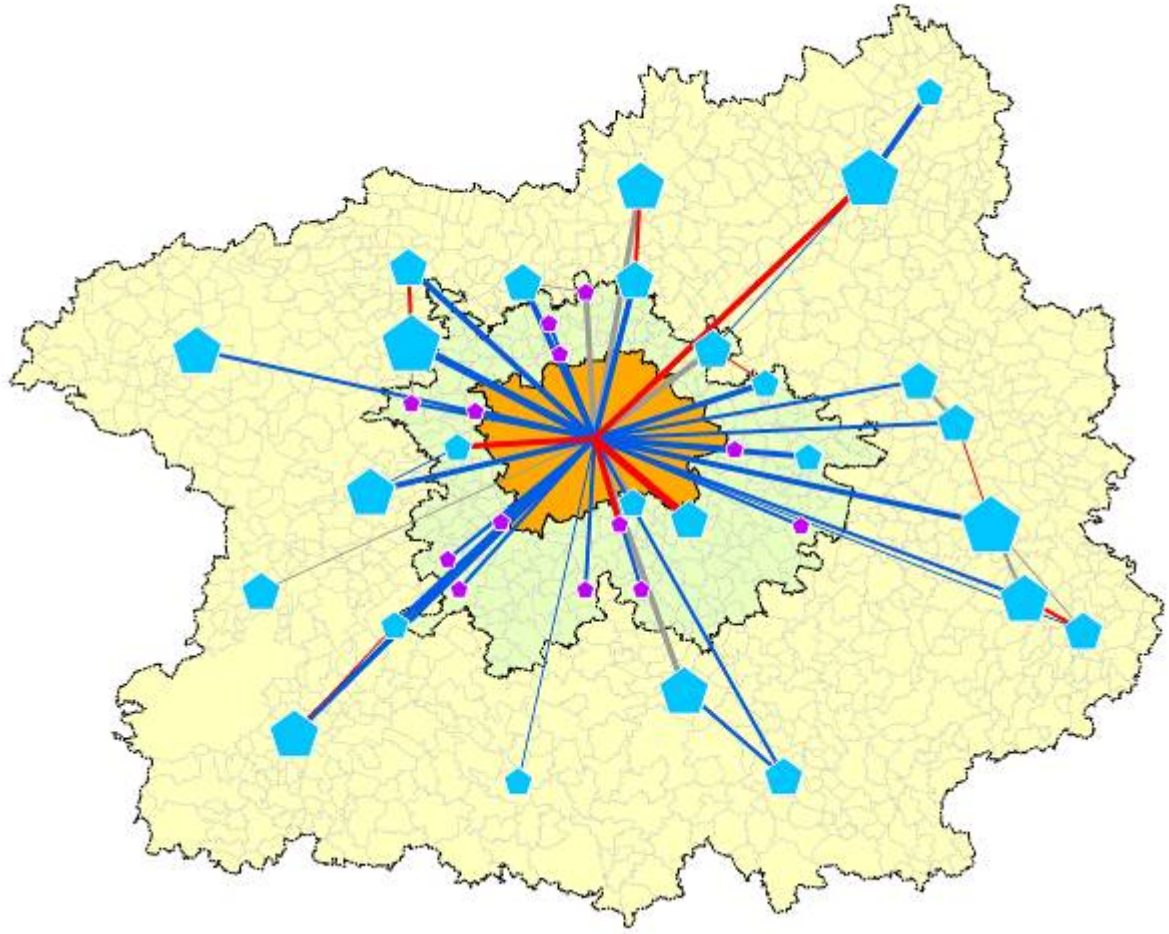


Vienna: Hierarchical and Reciprocal Commuting Relations in Functional Metropolitan Area and Metropolitan Region





Prague: Hierarchical and Reciprocal Commuting Relations in Functional Metropolitan Area and Metropolitan Region



Legend

reciprocity <35%

- 200 - 500
- 501 - 1000
- 1001 - 3000
- > 3000

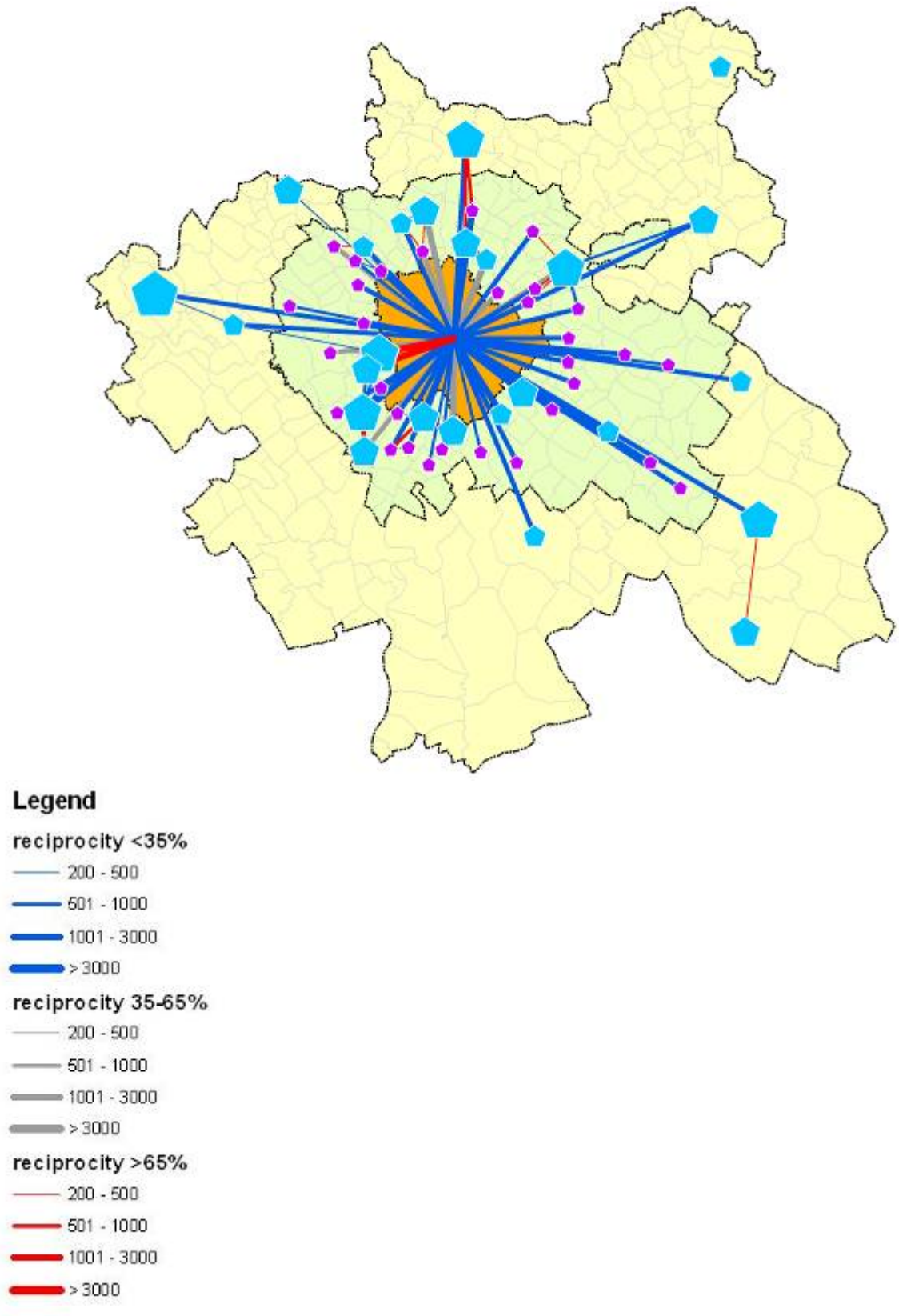
reciprocity 35-65%

- 200 - 500
- 501 - 1000
- 1001 - 3000
- > 3000

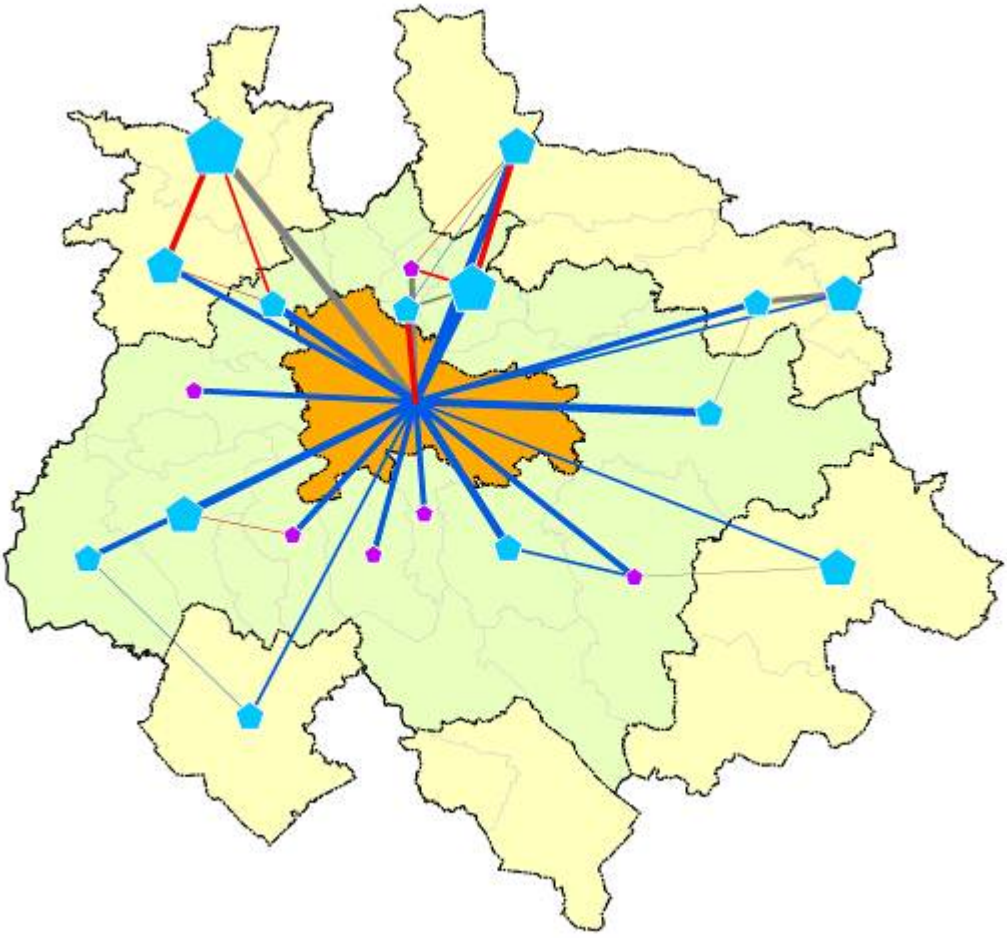
reciprocity >65%

- 200 - 500
- 501 - 1000
- 1001 - 3000
- > 3000

Budapest: Hierarchical and Reciprocal Commuting Relations in Functional Metropolitan Area and Metropolitan Region



Ljubljana: Hierarchical and Reciprocal Commuting Relations in Functional Metropolitan Area and Metropolitan Region



Legend

reciprocity <35%

200 - 500
501 - 1000
1001 - 3000
> 3000

reciprocity 35-65%

200 - 500
501 - 1000
1001 - 3000
> 3000

reciprocity >65%

200 - 500
501 - 1000
1001 - 3000
> 3000

11.5. Appendix 5

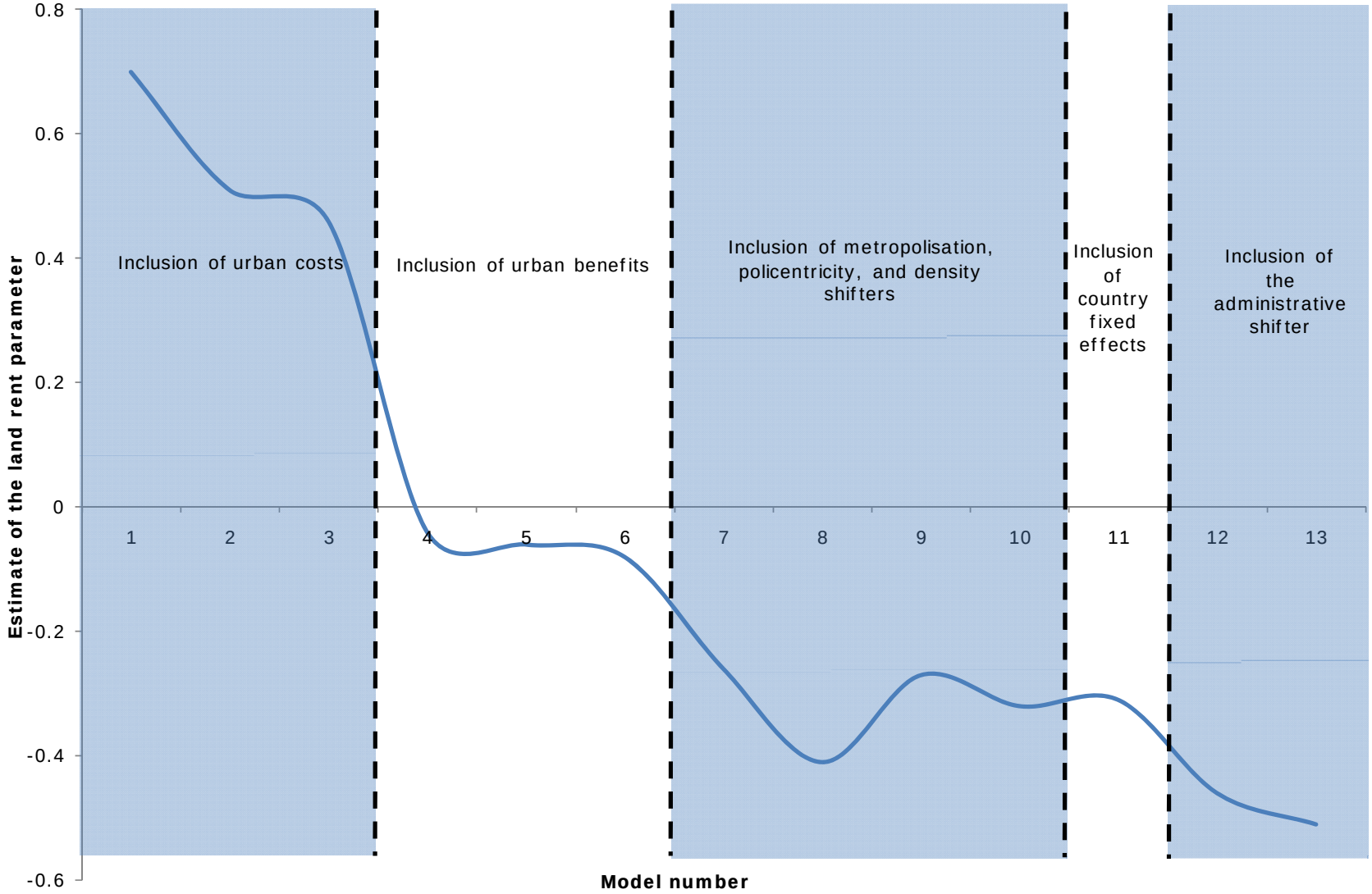
11.5.1. Land rent and city size

Traditional view on the notion of land rent from a macro perspective (i.e., abstracting from classical monocentric models *à la* Von Thunen and Alonso) foresee that rent and city size go hand in hand. This view is in particular true for simple urban growth models based on spatial equilibrium (see Rosen, 1979 and Roback, 1982 as the seminal contributions and, for a comprehensive review, Glaeser, 2008). And indeed, apparently our data confirm this prediction (Figure 2), with a slope equal to 0.70, significant at all conventional levels.

Figure 1 Log city population and log prices of apartments per square meter.

However, this prediction dramatically changes as the model is made more complex as to encompass determinants of urban costs (models 2-3), urban benefits (models 4-6), metropolisation, city network and policentricity controls (models 7-10) and country fixed effects (model 11). The value of the estimated parameter is represented in Figure 1.

Figure 2 Estimated land rent parameter.



Source: authors' calculation. Shaded areas indicate that the land rent parameter is significant at least at the 10% level.

Once variables determining simultaneously the value of land rent and city population are both taken into account, the estimates associated to the land rent parameter become negative and highly significant, highlighting the cost side of the notion of rent. The relationship between city size and land rent, after taking into account rent and size determinants, becomes therefore negative (Figure 2).

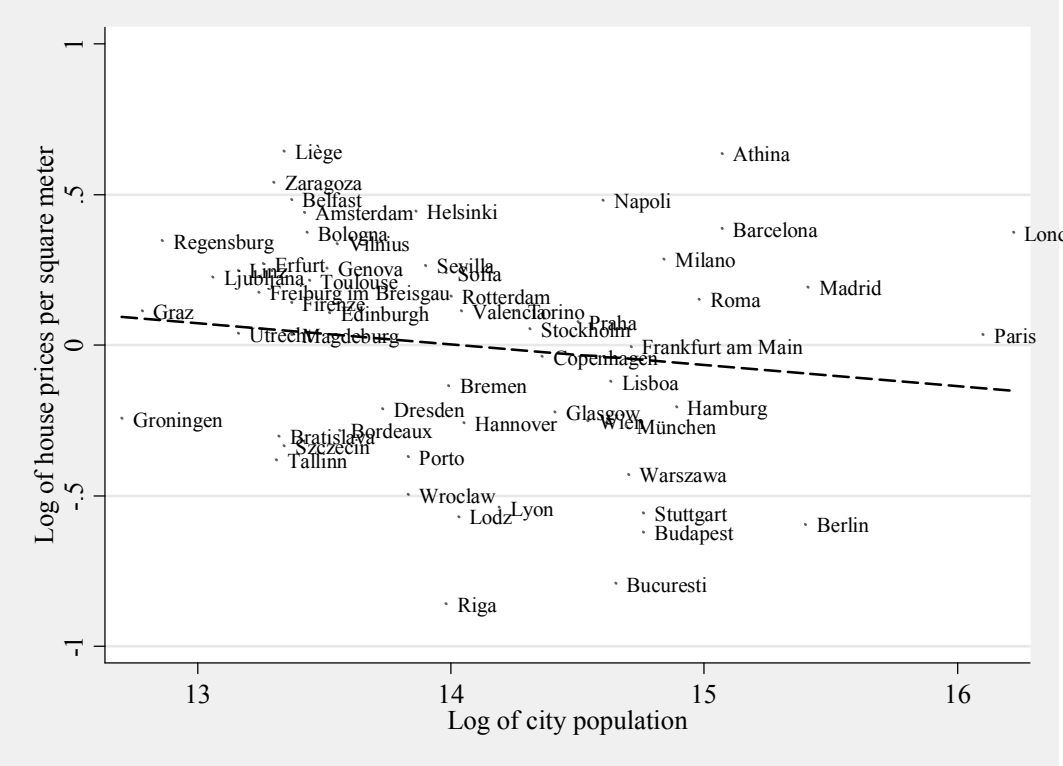


Figure 3 Log city population and log prices of apartments per square meter (predicted value).

11.5.2. Land rent data

Country	Source of house prices data	Year
Austria	Global Property Guide (www.globalpropertyguide.com)	2006
Belgium	Institut National de Statistique	2006
Bulgaria	National Statistical Institute	2006
Cyprus	Global Property Guide (www.globalpropertyguide.com)	2006
Czech Republic	European Property website (www.europeanproperty.com)	2006
Denmark	Urban Audit 2001-2004 data, inflated by 48% (price increase calculated with GPG data)	2006
Estonia	Urban Audit 2001-2004 data, inflated by 61% (price increase calculated with GPG data)	2006
Finland	Urban Audit 2001 data, inflated by 157% (price increase calculated with GPG data)	2006
France	FNAIM house prices statistics	2006

Germany	Urban Audit 2001-2004 data, inflated by price increase calculated with BulwienGesaAG data)	2006
Greece	Various international real estate agencies (e.g. http://www.mondinion.com/Real_Estate/country/Greece/)	2006
Hungary	Urban Audit 2001-2004 data, inflated by 20'% (price increase calculated with Departement du Logement data)	2006
Ireland	-	2006
Italy	Banca dati delle quotazioni immobiliari - Agenzia del territorio (http://www.agenziaterritorio.it)	2006
Latvia	Central Statistical Bureau of Latvia	2006
Lithuania	Inreal quarterly report	2006
Luxembourg	Urban Audit 2001-2004 data, inflated by 11% (price increase calculated with Departement du Logement data)	2006
Malta	Malta's property price index	2006
Netherlands	Urban Audit 2001 data, inflated by 66% (price increase calculated with GPG data)	2006
Poland	Urban Audit 2001 data, inflated by 66% (price increase calculated with GPG data)	2006
Portugal	http://www.portugalvirtual.pt/real-estate/prices-how-to-finance.php	2006
Romania	Urban Audit 2001-2004 data, inflated by 74% (price increase calculated with GPG data)	2006
Slovakia	Urban Audit 2001-2004 data, inflated by 41% (price increase from the house prices index of Central Bank of Slovakia)	2006
Slovenia	Urban Audit 2001-2004 data, inflated by 57% (price increase from the house prices index of Statistics Slovenia)	2006
Spain	Urban Audit 2001-2004 data, inflated by 35% (price increase calculated with GPG data)	2006
Sweden	Värderings Data SA	2006
United Kingdom	Urban Audit 2001-2004 data, inflated by regional housing price inflators as compiled by Nationwide Ltd.	2006

11.5.3. City sizes predicted by the model.

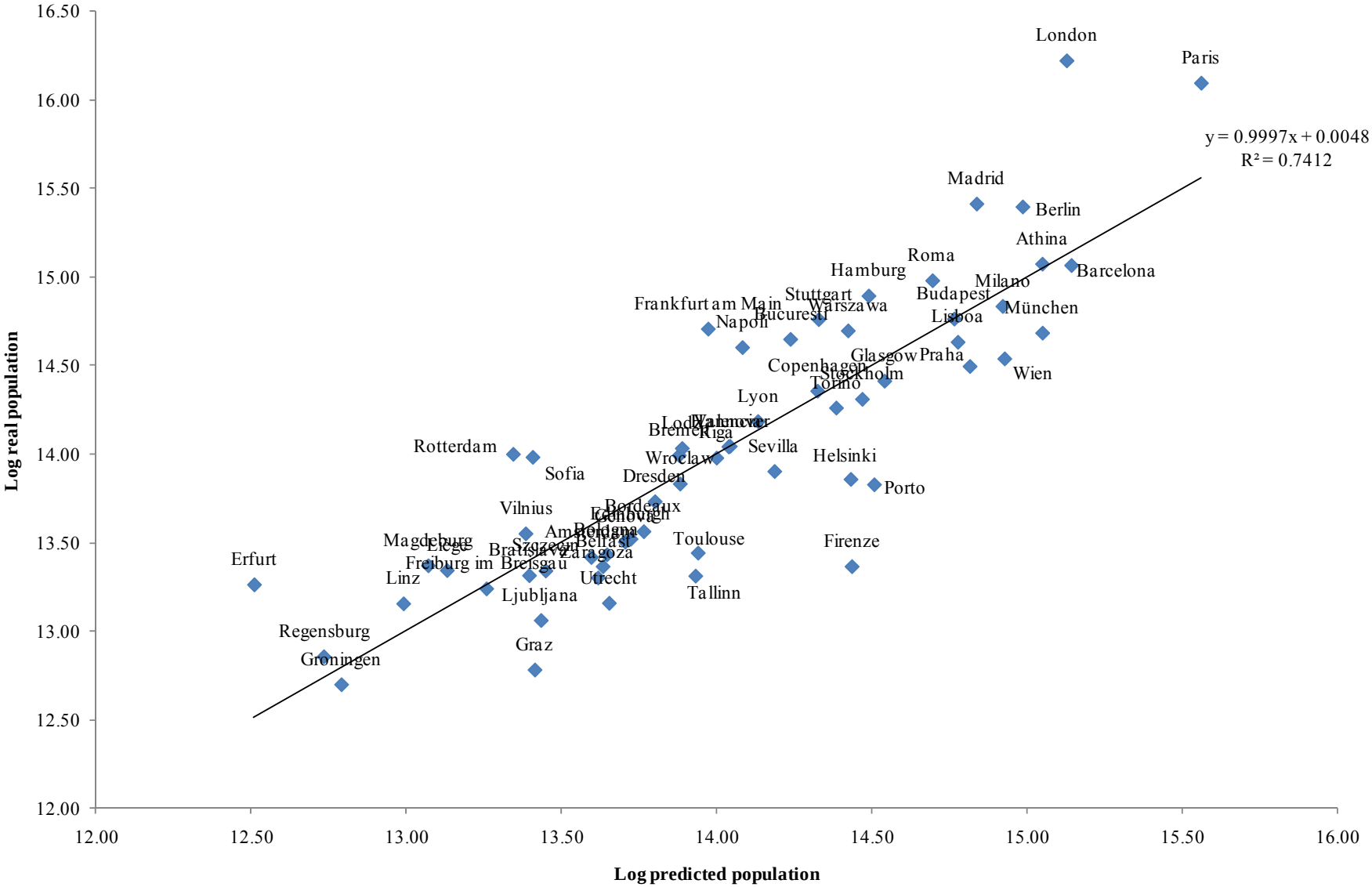


Figure 4 City size as predicted by model 8 vs. real city population.

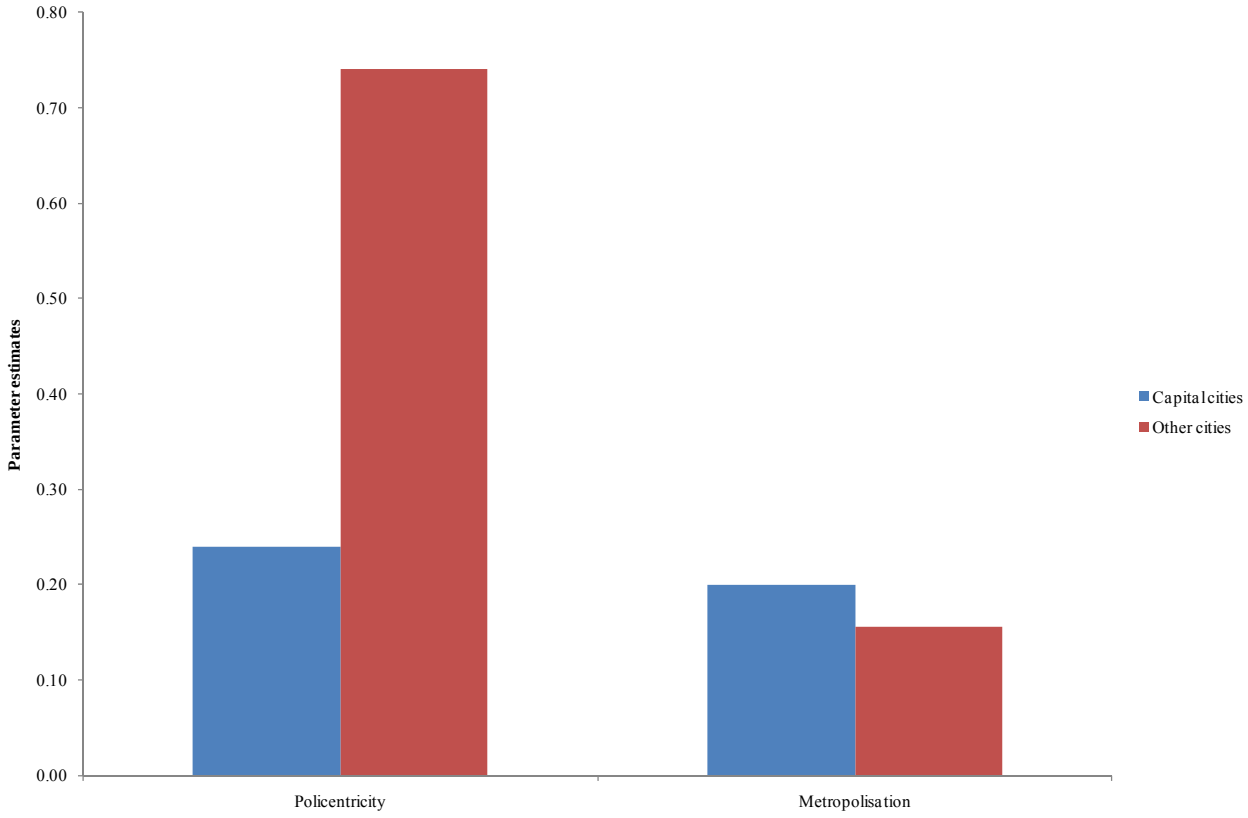
11.5.4. City sample.

City	Country	City	Country
Wien	Austria	Athina	Greece
Graz	Austria	Budapest	Hungary
Linz	Austria	Roma	Italy
Liège	Belgium	Milano	Italy
Sofia	Bulgaria	Napoli	Italy
Praha	Czech Republic	Torino	Italy
Berlin	Germany	Genova	Italy
Hamburg	Germany	Firenze	Italy
München	Germany	Bologna	Italy
Frankfurt am Main	Germany	Vilnius	Lithuania
Stuttgart	Germany	Riga	Latvia
Dresden	Germany	Amsterdam	Netherlands
Bremen	Germany	Rotterdam	Netherlands
Hannover	Germany	Utrecht	Netherlands
Magdeburg	Germany	Groningen	Netherlands
Freiburg im Breisgau	Germany	Warszawa	Poland
Regensburg	Germany	Lodz	Poland
Erfurt	Germany	Wroclaw	Poland
Copenhagen	Denmark	Szczecin	Poland
Tallinn	Estonia	Lisboa	Portugal
Madrid	Spain	Porto	Portugal
Barcelona	Spain	Bucuresti	Romania
Valencia	Spain	Stockholm	Sweden
Sevilla	Spain	Ljubljana	Slovenia
Zaragoza	Spain	Bratislava	Slovakia
Helsinki	Finland	London	UK
Paris	France	Glasgow	UK
Lyon	France	Edinburgh	UK
Toulouse	France	Belfast	UK
Bordeaux	France		

11.5.5. Descriptive statistics for the main variables.

Variable	Obs	Mean	Std. Dev.	Min	Max
Log city population	59	14.11	0.80	12.75	16.29
Log average tourist overnight accomodations	59	14.51	1.11	12.24	17.24
Log percentage of population with tertiary education	59	3.13	0.39	1.99	3.82
Score for a well-developed labour market	59	-0.04	0.96	-3.13	1.65
Log average price of apartments per sq. meter	59	7.64	0.52	6.30	8.65
Log percentage of non urbanized soil (sprawl)	59	-56.21	20.12	-99.00	-7.22
Log number of crimes recorded in city	59	4.22	4.73	4.00	19.00
Log number of FP5 projects in which city organizations took part	59	5.38	1.27	0.69	7.65
Log control/power functions in cities	59	6.47	1.54	3.66	11.23
Log population density	59	6.22	0.82	4.78	8.29

11.5.6. Metropolisation and policentricity in capital cities.



11.5.7. City sample for Work Package 2.2.

This work package is based on a set of 59 major metropolitan areas in Europe. Figure 4 shows the city sample drafted for this work package, showing a wide coverage of several aspects of economic activity in Europe:

- 22% of cities lie in NMS;
- 37% of total city sample is a capital city;
- Capital cities from the EU27 included are 22, with Brussels, Dublin, Valletta, Nicosia, and Luxembourg excluded because of missing values;
- As of 2010, our sample covers:
    - 26% of total EU27 population;
    - 36% of total EU27 *urban* population;
    - 33% of total GDP produced in the European Union;
    - 29% of total labour force;
    - 32% of total labour force employed in tertiary and advanced industries.

Figure 5 City sample.

11.6. Appendix 6: Factors and Indicators

List of indicators and data collection for 69 MEGAs including 5 POLYCE cities

Usage in ranking														*Distribution on spatial levels*					
code	factor code	ind code	cha	cha	FACTOR	INDICATOR	YEAR	spatial level	SPATIAL LEVEL	INDICATOR DESCRIPTION	VALUE	+/-	database	CORE	LUZ	FUA	NUTS3	NUTS2	NUTS1/0
Eco_1a	1	a	Eco	ECONOMY	Productivity	GDP (PPS) per capita	2006	regional	LUZ/NUTS3	GDP (PPS 1995) per capita	EUR per capita	+1	FOCI/Eurostat		x		1		
Eco_1b	1	b	Eco		Productivity	Difference between GDP (PPS) per capita according to EU average	2006	regional	LUZ/NUTS3	Difference between GDP (PPS 1995) per capita according to EU average	% difference	+1	FOCI/Eurostat		x		1		
Eco_1c	1	c	Eco		Productivity	Difference between GDP (PPS) per capita according to EU average 1995-2006	1995-2006	regional	LUZ/NUTS3	Difference between GDP per capita (PPS) according to EU average between 2006-1995	% difference	+1	FOCI/Eurostat		x		1		
Eco_1d	1	d	Eco		Productivity	Total GVA of LUZ	2006	regional	LUZ/NUTS3	Total value added of LUZ	GVA (bil. EUR)	+1	FOCI/Eurostat		x		1		
Eco_1e	1	e	Eco		Productivity	GVA of business and financial services NACE (J-K)	2006	regional	LUZ/NUTS3	Total GVA of business and financial services NACE (J-K)	GVA (bil. EUR)	+1	FOCI/Eurostat		x		1		
Eco_1f	1	f	Eco		Productivity	Disposable income	2006-2007	regional	NUTS2	Average disposable income per capita	EUR per capita	+1	ATTREG/Eurostat					1	
Eco_2a	2	a	Eco		Entrepreneurship	New businesses registered	2003-2010	local	CORE CITY (CC)	New businesses registered in reference years	number of registered companies	+1	UA	1					
Eco_2b	2	b	Eco		Entrepreneurship	Companies gone bankrupt	2003-2010	local	CC	Number of companies gone bankrupt in reference year	number	-1	UA	1					
Eco_2c	2	c	Eco		Entrepreneurship	Companies with HQ in the city quoted on stock market	2004-2010	local	CC	Companies with HQ in the city quoted on national stock exchange	number of firms in reference year	+1	UA	1					
Eco_2d	2	d	Eco		Entrepreneurship	Number of congresses held in region*	2009	regional	NUTS2	Number of congresses held in region	number of congresses	+1	ATTREG/ICCA					1	
Eco_2e	2	e	Eco		Entrepreneurship	Private sector employment	2007-2008	regional	NUTS2	Average % of private market service employment	% total employment	+1	ATTREG/Eurostat					1	
Eco_3a	3	a	Eco		Innovative spirit	R&D expenditure of GDP	2003	regional	LUZ/NUTS2	Share of R&D expenditure in GDP	% of GDP	+1	FOCI/Eurostat		x			1	
Eco_3b	3	b	Eco		Innovative spirit	Scientific and technical employment	2005	regional	LUZ/NUTS2	Share of scientific and technical employment in total employment	% of total employment	+1	FOCI/Eurostat		x			1	
Eco_3c	3	c	Eco		Innovative spirit	Creative class	2001-2004	regional	NUTS2	Average share of workforce defined as "creative/bohemian" occupation	% of total employment	+1	ATTREG/Labour Force Survey					1	
Eco_3d	3	d	Eco		Innovative spirit	Patent applications	2001-2003	regional	LUZ/NUTS2	Patent applications to the EPO per 100.000 inhabitants	number per 100.000 inhabitants	+1	EUROSTAT		x			1	
Eco_4a	4	a	Eco		Flexibility of labour market	Unemployment rate in CC	2004-2010	local	CC	Share of unemployed in active population in CC	% of active population	-1	UA	1					
Eco_4b	4	b	Eco		Flexibility of labour market	Unemployment rate in LUZ	2006	regional	LUZ/NUTS 3	Share of unemployed in active population in LUZ	% of active population	-1	FOCI/Eurostat		x		1		
Eco_4c	4	c	Eco		Flexibility of labour market	Unemployment rate LUZ/national	2006	regional	LUZ/NUTS 3	Ratio unemployment rate at LUZ level and unemployment rate at the national level *100	Ratio	-1	FOCI		x		1		
Eco_4d	4	d	Eco		Flexibility of labour market	Public sector employment	2007-2008	regional	NUTS 2	Average % of public sector employment	% total employment	+1	ATTREG/Eurostat					1	
Eco_4e	4	e	Eco		Flexibility of labour market	Perception to find a good job (synthetic index 0-100)	2006	local	LUZ	It is easy to find a good job here (synthetic index 0-100)	index 0-100	+1	FOCI/UA	1					
Eco_4f	4	f	Eco		Flexibility of labour market	Administrative services help efficiently (synthetic index 0-100)	2006	local	CC	Administrative services help efficiently (synthetic index 0-100)	index 0-100	+1	FOCI/UA	1					
Eco_4g	4	g	Eco		Flexibility of labour market	Ratio of first to fourth quantile earnings	1999-2002	local	LUZ	*Ratio of first to fourth quantile earnings*	Ratio	-1	FOCI/UA		1				
Eco_4h	4	h	Eco		Flexibility of labour market	Households relient upon social securiry	1999-2002	local	LUZ	*Households relient upon social security*	% households	-1	FOCI/UA		1				
Eco_5a	5	a	Eco		Investments	ERDF funding*	2000-2006	regional	NUTS2	Total ERDF funding 2000-2006	mil. EUR	+1	ATTREG/Eurostat					1	
Eco_5b	5	b	Eco		Investments	Regional policy funding	2000-2006	regional	NUTS2	Total funding for regional policy 2000-2006	mil.EUR	+1	ATTREG/Eurostat					1	
Eco_6a	6	a	Eco		Internationl embeddedness	Number of headquarters of transnational firms*	2006	regional	LUZ/NUTS3	Number of headquarters of transnational firms in the 2000 biggest world firms whose headquarters are in LUZ	number of firms	+1	FOCI/FORBES		1				
Eco_6b	6	b	Eco		Internationl embeddedness	Foreign subsidiaries owned by HQ located in MEGA*	2010	regional	MEGA	Foreign subsidiaries owned by headquarters located in FUA	number of subsidiaries	+1	FOCI/ORBIS			1			
Eco_6c	6	c	Eco		Internationl embeddedness	Foreign subsidiaries owned by HQ located in MEGA (%)*	2010	regional	MEGA	Share of foreign subsidiaries owned by headquarters located in FUA (without local ones)	% subsidiaries	+1	FOCI/ORBIS			1			
Eco_6d	6	d	Eco		Internationl embeddedness	Participation in 2-7 FP projects*	2010	regional	MEGA	**Participation of partners from MEGA in 2-7 FP projects**	Number of partners	+1	CORDIS						
Eco_7a	7	a	Eco		*Economic development /Structural disparities*	Disparities in the development level between the metropolis and its region	2004	regional	MEGA	Disparities in the GDP per capita level between the metropolitan area (MA) and its regional hinterland (RH)	%	-1	FOCI			1			
Eco_7b	7	b	Eco		*Economic development /Structural disparities*	Change of disparities in the development level between the metropolis and its regi	1995-2004	regional	MEGA	Change of disparities in the development level between the metropolis and its region	%	-1	FOCI			1			
Eco_7c	7	c	Eco		*Economic development /Structural disparities*	A synthetic view of the structural differences between the metropolis and the region	2005	regional	MEGA	A synthetic view of the structural differences between the metropolis and the region for the three principal sectors.	%	-1	FOCI			1			
Eco_7d	7	d	Eco		*Economic development /Structural disparities*	Structural similarity changes in metropolis-region context	1998-2005	regional	MEGA	Structural similarity changes in metropolis-region context	%	+1	FOCI			1			
Peo_1a	1	a	Peo	PEOPLE	Demography	Population of LUZ	2004-2006	local	LUZ	Total resident population of LUZ	number	+1	FOCI/UA		1				
Peo_1b	1	b	Peo		Demography	Population density of CC	2004-2010	local	CC	Population density - total resident population per sq.km in CC	pop/sq.km	+1	FOCI/UA	1					
Peo_1c	1	c	Peo		Demography	Population density of LUZ	2004-2010	local	LUZ	Population density - total resident population per sq.km in LUZ	pop/sq.km	+1	FOCI/UA		1				
Peo_1d	1	d	Peo		Demography	Average growth of core city	2000-2005	local	CC	Average population growth of CC	% population growth of CC	+1	FOCI/UA	1					
Peo_1e	1	e	Peo		Demography	Average growth of LUZ	1990-2007	local	LUZ	Average population growth of LUZ	% population growth of LUZ	+1	FOCI/UA		1				
Peo_1f	1	f	Peo		Demography	Difference between annual growth of population in the suburbs and the CC	2000-2005	local	CC/LUZ	Difference between annual growth of population in the suburbs (LUZ –CC) and the CC	% difference of growth	-1	FOCI/UA	1	1				
Peo_1g	1	g	Peo		Demography	Life expectancy	2006-2007	regional	NUTS2	Life expectancy of a child under 1 year	years	+1	ATTREG/Eurostat					1	
Peo_1h	1	h	Peo		Demography	Elderly population in LUZ	2003-2006	local	LUZ	Share of people more or equal 65 years	% of people aged >65	-1	FOCI		1				
Peo_1i	1	i	Peo		Demography	Young population in LUZ	2007-2010	local	LUZ	Population aged 0-19 years in LUZ	number	+1	UA		1				
Peo_1j	1	j	Peo		Demography	Middle age population in LUZ	2007-2010	local	LUZ	Population aged 20-64 years in LUZ	number	+1	UA		1				
Peo_1k	1	k	Peo		Demography	Elderly population in LUZ	2007-2010	local	LUZ	Population aged >65 years in LUZ	number	-1	UA		1				
Peo_1l	1	l	Peo		Demography	Young population in CC	2007-2010	local	CC	Population aged 0-19 in CC	number	+1	UA	1					
Peo_1m	1	m	Peo		Demography	Middle age population in CC	2007-2010	local	CC	Population aged 20-64 in CC	number	+1	UA	1					
Peo_1m	1	m	Peo		Demography	Elderly population in CC	2007-2010	local	CC	Population aged >65 in CC	number	-1	UA	1					
Peo_1o	1	o	Peo		Demography	Demographic dependency: (<20 + >65) / 20-64 years in CC	2007-2010	local	CC	Demographic dependency: (<20 + >65) / 20-64 years in CC	index	-1	FOCI/UA	1					
Peo_1p	1	p	Peo		Demography	Demographic dependency: (<20 + >65) / 20-64 years in LUZ	2007-2010	local	LUZ	Demographic dependency: (<20 + >65) / 20-64 years in LUZ	index	-1	FOCI/UA		1				
Peo_1q	1	q	Peo		Demography	One-person households in CC	2004-2006	local	CC	Proportion of households that are one-person households in CC	% households	-1	UA	1					
Peo_1r	1	r	Peo		Demography	One-person households in LUZ	2003-2010	local	LUZ	Proportion of households that are one-person households in LUZ	% households	-1	UA		1				
Peo_1s	1	s	Peo		Demography	Net in-migration rate*	2001-2006	regional	NUTS 2	Average annual internal inter-NUTS2 in-migration flow rate per 1000 residents	number per 1000 inh.	+1	ATTREG/DEMIFER					1	
Peo_1t	1	t	Peo		Demography	Net out-migration rate*	2001-2006	regional	NUTS 2	Average annual internal inter-NUTS2 out-migration flow rate per 1000 residents	number per 1000 inh.	-1	ATTREG/DEMIFER					1	
Peo_2a	2	a	Peo		Level of qualification	Active population with tertiary diploma	2005	regional	LUZ/NUTS2	Share of active population with tertiary diploma	% active population	+1	FOCI/EUROSTAT		x			1	
Peo_2b	2	b	Peo		Level of qualification	Population qualified at levels 5-6 ISCED in CC	2003-2006	local	CC	Proportion of population aged 15-64 qualified at levels 5-6 ISCED in CC	% population aged 15-64	+1	UA	1					
Peo_2c	2	c	Peo		Level of qualification	Population qualified at levels 5-6 ISCED in region	2007-2009	regional	NUTS2	Proportion of the resident population aged 15 and above qualified at levels 5-6 ISCED in region (000)s	% resident population	+1	ATTREG/Eurostat					1	
Peo_3a	3	a	Peo		Affinity to life long learning	Students at universities in CC	2004-2010	local	CC	Students in tertiary education (ISCED 5-6) - number of students per 1000 inhabitants in CC	number per 1000 inh.	+1	UA	1					
Peo_3b	3	b	Peo		Affinity to life long learning	Students at universities in region	2007	regional	NUTS 2	Number of students in universities and further education establishments in region	number	+1	ATTREG/Eurostat					1	
Peo_3c	3	c	Peo		Affinity to life long learning	Students at universities in region among 15-24 age groups	2007	regional	NUTS2	Ratio of the number of university students against people aged 15-24 years	% of students aged 15-24 years	+1	ATREG/Eurostat					1	
Peo_3d	3	d	Peo		Affinity to life long learning	Participation in life-long-learning	2008-2010	regional	NUTS2	Life-long learning - Participation of adults aged 25-64 in education and training	% of total population	+1	EUROSTAT					1	
Peo_4a	4	a	Peo		Ethnic plurality	EU nationals*	2004-2006	local	LUZ	EU nationals as a proportion of total population (without nationals)	% total population	+1	FOCI/UA		1				
Peo_4b	4	b	Peo		Ethnic plurality	Non-EU nationals*	2004-2006	local	LUZ	Non-EU nationals as a proportion of total population	% total population	+1	UA		1				
Peo_4c	4	c	Peo		Ethnic plurality	Erasmus students*	2008-2009	regional	NUTS2	Erasmus students per 1000 students enrolled at local universities	number per 1000 students	+1	ATTREG					1	
Peo_4d	4	d	Peo		Ethnic plurality	Foreigner here are well integrated*	2006	local	CC	Foreigner here are well integrated (synthetic index 0-100)	index 0-100	+1	FOCI/UA	1					
Peo_5a	5	a	Peo		Social cohesion	Average disposable annual household income	2004-2010	local	CC	*Average disposable annual household income*	value (EUR)	+1	UA	1					
Peo_5b	5	b	Peo		Social cohesion	Households receiving less than half of the national average household income	2004-2010	regional	LUZ	*Percentage of households receiving less than half of the national average household income*	% households	-1	FOCI/UA	1					
Peo_5c	5	c	Peo		Social cohesion	Difficulty paying the bills at the end of the month	2006	local	CC	Difficulty paying the bills at the end of the month (synthetic index 0-100)	index 0-100	-1	FOCI/UA	1					
Peo_5d	5	d	Peo		Social cohesion	Female city council representatives	2004-2010	local	CC	Percentage of elected city representatives who are women	%	+1	UA	1					

Mob_1a	1	a	Mob	MOBILITY	Public transport	Public transport network per inhabitant	2004-2010	local	CC	Length of public transport network per inhabitant	km per inhabitant	+1	UA	1							
Mob_1b	1	b	Mob		Public transport	Public transport ticket	2007-2010	local	CC	Cost of a monthly ticket for public transport (5-10 km)	EUR	-1	UA	1							
Mob_1c	1	c	Mob		Public transport	Journey to work by public transport	1999-2002	local	CC	Proportion of journey to work by public transport	% of journey to work	+1	FOCI/UA	1							
Mob_1d	1	d	Mob		Public transport	Park and ride parking spaces	2004-2010	local	CC	*Number of park and ride parking spaces (and parking spaces…)*	number	+1	UA	1							
Mob_1e	1	e	Mob		Public transport	Satisfaction with public transport	2006	local	CC	Satisfied with public transport (synthetic index 0-100)	% 0-100	+1	FOCI/UA	1							
Mob_2a	2	a	Mob		International accessibility	Potential ESPON accessibility*	2001	regional	NUTS3	Potential accessibility multimodal, ESPON space = 100	model output	+1	ESPON 1.2.1			1	1				
Mob_2b	2	b	Mob		International accessibility	Accessibility of MEGA*	2010	MEGA	FUA	Number of MEGA reachable by rail, air and intermodal return trips	model output	+1	FOCI/OAG			1					
Mob_2c	2	c	Mob		International accessibility	Air transport of passengers*	2006	regional	NUTS2	Number of air transport of passengers (emmbarcation and disembarcation)	number per 1000 passengers	+1	EUROSTAT						1		
Mob_2d	2	d	Mob		International accessibility	Air transport of freight*	2008-2010	regional	NUTS2	Air transport of freight at regional level	total, 1000 tons	+1	EUROSTAT						1		
Mob_3a	3	a	Mob		Commuting	Inbound/outbound commuters	2004-2010	local	CC	Inbound commuters - outbound commuters	number	-1	UA	1							
Mob_4b	4	b	Mob		Commuting	Journey to work by car in CC	2004-2010	local	CC	Proportion of journeys to work by car in CC	%	-1	UA	1							
Mob_4c	4	c	Mob		Commuting	Journey to work by car in LUZ	2004-2010	local	LUZ	Proportion of journeys to work by car in LUZ	%	-1	UA		1						
Mob_4d	4	d	Mob		Commuting	Register cars in CC	2004-2010	local	CC	Number of registered cars per 1000 inhabitants	number per 1000 population	+1	UA	1							
Mob_4e	4	e	Mob		Commuting	Register cars in LUZ	2004-2010	local	LUZ	Number of registered cars per 1000 inhabitants	number per 1000 population	+1	UA		1						
Mob_4f	4	f	Mob		Commuting	Time of journey to work in CC	2004-2010	local	CC	Average time of journey to work	min	+1	UA	1							
Mob_4g	4	g	Mob		Commuting	Road accidents	2004-2010	local	CC	Road accidents resulting in death or serious injury per 1000 population	number per 1000 population	-1	UA	1							
Mob_5a	5	a	Mob		Availability of ICT	Households with Internet access (at home)*	2004-2010	local	CC	Proportion of households with Internet access at home in CC	%	+1	UA	1							
Mob_5b	5	b	Mob		Availability of ICT	Households with Internet access (at home)*	2008-2010	regional	NUTS2/NUTS1	Proportion of households with Internet access at home in the region	%	+1	EUROSTAT						1	1	
Mob_5c	5	c	Mob		Availability of ICT	Households with broadband access*	2008-2010	regional	NUTS2/NUTS1	Proportion of households with broadband access	%	+1	EUROSTAT						1	1	
Mob_5d	5	d	Mob		Availability of ICT	Satisfaction with public internet access	2006	local	CC	Satisfied with public internet access (synthetic index 0-100)	% 0-100	+1	FOCI/UA	1							
Mob_5e	5	e	Mob		Availability of ICT	Satisfaction with internet access at home	2006	local	CC	Satisfied with internet access at home (synthetic index 0-100)	% 0-100	+1	FOCI/UA	1							
Env_1a	1	a	Env	ENVIRONMENT	Sustainable land use	Land area of CC	1989-1993	local	CC	Total land area of core city (CC)	sq.km	+1	FOCI/UA/EEA	1							
Env_1b	1	b	Env		Sustainable land use	Land area of LUZ	2004-2006	local	LUZ	Total land area of LUZ	sq.km	+1	FOCI/UA/EEA		1						
Env_1c	1	c	Env		Sustainable land use	Total area of CC divided by total area of LUZ	2004-2006	local	CC/LUZ	Total area of CC divided by total area of LUZ*100	index	+1	FOCI/UA/EEA	1	1						
Env_1d	1	d	Env		Sustainable land use	Share of built-up area of CC	2000	local	CC	Proportion of built-up area of the total area of CC	% of total area	-1	FOCI/UA/EEA	1							
Env_1e	1	e	Env		Sustainable land use	Share of built-up area of LUZ	2000	local	LUZ	Proportion of built-up area of the total area of LUZ	% of total area	-1	FOCI/UA/EEA		1						
Env_1f	1	f	Env		Sustainable land use	Increase of built-up areas in CC	1990-2000	local	CC	Increase of built-up areas in CC 1990-2000	% increase of build-up area	-1	FOCI/UA/EEA	1							
Env_1g	1	g	Env		Sustainable land use	Increase of built-up areas in CC	2000-2006	local	CC	Increase of built-up areas in CC 2000-2006	% increase of build-up area	-1	FOCI/UA/EEA	1							
Env_1h	1	h	Env		Sustainable land use	Increase of built-up areas in LUZ	1990-2000	local	LUZ	Increase of built-up areas per inhabitant in LUZ 1990-2000	% increase of build-up area per inhabitant	-1	FOCI/UA/EEA		1						
Env_1i	1	i	Env		Sustainable land use	Increase of built-up areas in LUZ	2000-2006	local	LUZ	Increase of built-up areas per inhabitant in LUZ 2000-2006	% increase of build-up area per inhabitant	-1	FOCI/UA/EEA		1						
Env_1j	1	j	Env		Sustainable land use	Growth rate of residential areas in CC	1990-2000	local	CC	Growth rate of residential areas in CC 1990-2000	% increase residential area	+1	FOCI/UA/EEA	1							
Env_1k	1	k	Env		Sustainable land use	Growth rate of residential areas in CC	2000-2006	local	CC	Growth rate of residential areas in CC 2000-2006	% increase residential area	+1	FOCI/UA/EEA	1							
Env_1l	1	l	Env		Sustainable land use	Growth rate of residential areas in the LUZ	1990-2000	local	LUZ	Growth rate of residential areas in the LUZ 1990-2000	% increase residential area	+1	FOCI/UA/EEA		1						
Env_1m	1	m	Env		Sustainable land use	Growth rate of residential areas in the LUZ	2000-2006	local	LUZ	Growth rate of residential areas in the LUZ 2000-2006	% increase residential area	+1	FOCI/UA/EEA		1						
Env_1n	1	n	Env		Sustainable land use	Share of new industrial, commercial and transport areas in new built-up areas in C	1990-2000	local	CC	Percentage of new industrial, commercial and transport areas over all new built-up areas in CC 1990-2000	% of build-up area	-1	FOCI/UA/EEA	1							
Env_1o	1	o	Env		Sustainable land use	Share of new industrial, commercial and transport areas in new built-up areas in C	2000-2006	local	CC	Percentage of new industrial, commercial and transport areas over all new built-up areas in CC 2000-2006	% of build-up area	-1	FOCI/UA/EEA	1							
Env_1p	1	p	Env		Sustainable land use	Share of new industrial, commercial and transport in new built-up areas in LUZ	1990-2000	local	LUZ	Percentage of new industrial, commercial and transport areas over all new built-up areas in LUZ 1990-2000	% of build-up area	-1	FOCI/UA/EEA		1						
Env_1q	1	q	Env		Sustainable land use	Share of new industrial, commercial and transport in new built-up areas in LUZ	2000-2006	local	LUZ	Percentage of new industrial, commercial and transport areas over all new built-up areas in LUZ 2000-2006	% of build-up area	-1	FOCI/UA/EEA		1						
Env_1r	1	r	Env		Sustainable land use	Sealed area per inhabitant in CC	2005-2006	local	CC	Sealed area per inhabitant in CC	sq.km per inhabitant in CC	-1	FOCI/UA/EEA	1							
Env_2a	2	a	Env		Attractivity of natural conditions	Sunshine	2004-2010	local	CC	Average number of hours of sunshine per day (averaged over a year)	number of sunshine hours per day	+1	UA	1							
Env_2b	2	b	Env		Attractivity of natural conditions	Rainy days	2004-2010	local	CC	Number of days of rain per year	number of days of rain	-1	UA	1							
Env_2c	2	c	Env		Attractivity of natural conditions	Cold temperature	2004-2010	local	CC	Average temperature of coldest month	average temperature	+1	UA	1							
Env_2d	2	d	Env		Attractivity of natural conditions	Warm temperature	2004-2010	local	CC	Average temperature of warmest month	average temperature	+1	UA	1							
Env_2e	2	e	Env		Attractivity of natural conditions	Tourism Climatic index in warm months	long-term	regional	NUTS2	April-September	composite index	+1	ATTREG						1		
Env_3a	3	a	Env		Pollution	Summer smog	2004-2010	local	CC	Summer Smog: number of days Ozone O3 exceeds 120Âg/m3	number of days with O3	-1	UA	1							
Env_3b	3	b	Env		Pollution	Particulate matter	2004-2010	local	CC	Number of days per year particulate matter PM10 concentrations exceed 50 Âg/m3	number of days per year	-1	UA	1							
Env_3c	3	c	Env		Pollution	Fatal chronic lower respiratory diseases	2005-2008	regional	NUTS2	Causes of death by region - Crude death rate (per 100,000 inhabitants)	standardised death rate by 100.000 inhabitants, 3 years average	-1	EUROSTAT						1		
Env_4a	4	a	Env		Sustainable resource management	Consumption of water	2004-2010	local	CC	Consumption of water (cubic metres per annum) per inhabitant	annual m3 per inhabitant	-1	UA	1							
Env_4b	4	b	Env		Sustainable resource management	Collected solid waste	2007-2010	local	CC	Amount of collected solid waste per capita per annum	annual tones per inhabitant	-1	UA	1							
Env_4c	4	c	Env		Sustainable resource management	Regional generation and treatment of municipal waste	2008-2009	regional	NUTS2	Regional generation of municipal waste (000t)	1000 tonnes	+1	EUROSTAT						1		
Env_5a	5	a	Env		Environmental protection	Green space	2004-2010	local	CC	Proportion of the green space in total land area of CC (…green space per inhabitant…)	% of land area (or ha per inhabitant)	+1	UA	1							
Env_5b	5	b	Env		Environmental protection	NATURA 2000*	2008	regional	NUTS2	Proportion of NATURA 2000 sites in total land area of the region	% of land area	+1	ATTREG/EEA						1		
Env_6a	6	a	Env		Individual assessments of urban environmental quality	Resources are spent in a responsible way (survey)	2006	local	CC	Resources are spent in a responsible way (synthetic index 0-100)	%	+1	FOCI/UA	1							
Env_6b	6	b	Env		Individual assessments of urban environmental quality	This is a clean city (survey)	2006	local	CC	This is a clean city (synthetic index 0-100)	%	+1	FOCI/UA	1							
Env_6c	6	c	Env		Individual assessments of urban environmental quality	Air pollution is a big problem here (survey)	2006	local	CC	Air pollution is a big problem here (synthetic index 0-100)	%	-1	FOCI/UA	1							
Env_6d	6	d	Env		Individual assessments of urban environmental quality	Noise is a big problem here (survey)	2006	local	CC	Noise is a big problem here (synthetic index 0-100)	%	-1	FOCI/UA	1							
Env_6e	6	e	Env		Individual assessments of urban environmental quality	Satisfied with green space (survey)	2006	local	CC	Satisfied with green space (synthetic index 0-100)	%	+1	FOCI/UA	1							
Liv_1a	1	a	Liv	LIVING	Cultural facilities	Cinema attendance	2004-2006	local	CC	Annual cinema attendance per resident	number per inhabitant	+1	UA	1							
Liv_1b	1	b	Liv		Cultural facilities	Cinema capacities	2004-2006	local	CC	Number of cinema seats per 1000 population	number per 1000 inhabitants	+1	UA	1							
Liv_1c	1	c	Liv		Cultural facilities	Museums	2004-2006	local	CC	Number of museums	number	+1	UA	1							
Liv_1d	1	d	Liv		Cultural facilities	Museums visits	2004-2006	local	CC	Annual visitors to museums per resident	number per inhabitant	+1	UA	1							
Liv_1e	1	e	Liv		Cultural facilities	Theatres	2004-2006	local	CC	Number of theatres	number	+1	UA	1							
Liv_1f	1	f	Liv		Cultural facilities	Theatre attendance	2004-2006	local	CC	Annual attendance of theatres per resident	number per inhabitant	+1	UA	1							
Liv_2a	2	a	Liv		Health facilities	Hospital beds	2004-2006	local	CC	Number of available hospital beds per 1000 inhabitants	number per 1000 inhabitants	+1	UA	1							
Liv_2b	2	b	Liv		Health facilities	Hospital beds	2006-2008	regional	NUTS2	Number of hospital beds per 100000 residents	number per 100.000 inhabitant	+1	ATTREG						1		
Liv_2c	2	c	Liv		Health facilities	Doctors	2006-2008	regional	NUTS2	Number of doctors per 100.000 inhabitants	number per 100.000 inhabitants	+1	ATTREG/Eurostat						1		
Liv_2d	2	d	Liv		Health facilities	Number of hospital discharges of in-patients	2004-2010	local	CC	Number of hospital discharges of in-patients	number	-1	UA	1							
Liv_3a	3	a	Liv		Housing quality	Average living area per person	2003-2010	local	CC	Average living area per person m2	sq.m per inhabitant	+1	UA	1							
Liv_3b	3	b	Liv		Housing quality	Average living area per person	2004-2010	local	LUZ	Average living area per person m2	sq.m per inhabitant	+1	UA		1						
Liv_3c	3	c	Liv		Housing quality	Owner-occupied dwellings	2004-2010	local	CC	Proportion of households living in owned dwellings	%households	+1	UA	1							
Liv_3d	3	d	Liv		Housing quality	Owner-occupied dwellings	2004-2010	local	LUZ	Proportion of households living in owned dwellings	%households	+1	UA		1						
Liv_3e	3	e	Liv		Housing quality	Dwellings lacking basic amenities	2004-2010	local	LUZ	Dwellings lacking basic amenities	% dwellings	-1	UA		1						
Liv_4a	4	a	Liv		Touristic attractivity	Tourist overnights	2006-2009	regional	NUTS2	Number of tourist arrivals (all origin) in all accommodation types per capita	number per inhabitant	+1	ATTREG/Eurostat						1		
Liv_4b	4	b	Liv		Touristic attractivity	Foreign overnights in hotels*	2006-2009	regional	NUTS2	Number of foreign arrivals in hotel accommodation per capita	number per inhabitant	+1	ATTREG/Eurostat						1		
Liv_4c	4	c	Liv		Touristic attractivity	Non-resident arrivals*	2006-2008	regional	NUTS2	Average proportion of non-resident arrivals in tourist accommodation establishments in total tourist arrivals	% total tourist arrivals	+1	ATTREG/Eurostat						1		
Liv_4d	4	d	Liv		Touristic attractivity	Tourist overnights in CC*	2004-2010	local	CC	Tourist overnights in registered accommodation	number of nights ('000) per inhabitant	+1	UA	1							
Liv_4e	4	e	Liv		Touristic attractivity	Monuments and tourist sights*	2001-2008	regional	NUTS2	Monuments and other tourist sights values 2* in TCI "green guidebooks series"	index number	+1	ATTREG/TCI						1		
Liv_5a	5	a	Liv		Individual safety	Crime rate	2004-2010	local	CC	Total number of recorded crimes per 1000 population	number per 1000 inhabitants	-1	UA	1							
Liv_5b	5	b	Liv		Individual safety	Car thefts in CC	2004-2010	local	CC	Number of car thefts per 1000 population	number per 1000 inhabitants	-1	UA	1							
Liv_5c	5	c	Liv		Individual safety	Car thefts in LUZ	2004-2010	local	LUZ	Number of car thefts per 1000 population	number per 1000 inhabitants	-1	UA		1						
Liv_5d	5	d	Liv		Individual safety	Homicides	1999-2002	local	LUZ	Number of homicides per 100000 (average) inhabitants	number per 100000 inhabitants	-1	FOCI/UA		1						
Liv_5e	5	e	Liv		Individual safety	Suicides	1999-2002	local	LUZ	Number of suicides per 100000 (average) population	number	-1	FOCI/UA		1						
Liv_6a	6	a	Liv		Individual assessments of the quality of urban services delivery	Satisfied with hospitals	2006	local	CC	Satisfied with hospitals (synthetic index 0-100)	%	+1	FOCI/UA		1						
Liv_6b	6	b	Liv		Individual assessments of the quality of urban services delivery	Satisfied with doctors	2006	local	CC	Satisfied with doctors (synthetic index 0-100)	%	+1	FOCI/UA		1						
Liv_6c	6	c	Liv		Individual assessments of the quality of urban services delivery	Satisfied with cinemas	2006	local	CC	Satisfied with cinemas (synthetic index 0-100)	%	+1	FOCI/UA		1						
Liv_6d	6	d	Liv		Individual assessments of the quality of urban services delivery	Satisfied with cultural facilities	2006	local	CC	Satisfied with cultural facilities (synthetic index 0-100)	%	+1	FOCI/UA		1						
Liv_6e	6	e	Liv		Individual assessments of the quality of urban services delivery	Easy to find good housing at reasonable price	2006	local	CC	Easy to find good housing at reasonable price (synthetic index 0-100)	%	+1	FOCI/UA		1						
Liv_6f	6	f	Liv		Individual assessments of the quality of urban services delivery	Satisfied with schools	2006	local	CC	Satisfied with schools (synthetic index 0-100)	%	+1	FOCI/UA		1						
Liv_6g	6	g	Liv		Individual assessments of the quality of urban services delivery	Feel safe in this city	2006	local	CC	Feel safe in this city (synthetic index 0-100)	%	+1	FOCI/UA		1						
Liv_6h	6	h	Liv		Individual assessments of the quality of urban services delivery	Satisfied with sport facilities	2006	local	CC	Satisfied with sport facilities (synthetic index 0-100)	%	+1	FOCI/UA		1						
Liv_6i	6	i	Liv		Individual assessments of the quality of urban services delivery	Satisfied to live in this city	2006	local	CC	Satisfied to live in this city (synthetic index 0-100)	%	+1	FOCI/UA		1						
Liv_6j	6	j	Liv		Individual assessments of the quality of urban services delivery	synthetic indicator of satisfaction	2006	local	CC	**synthetic indicator of satisfaction**	index	+1	FOCI/UA		1						

Descriptive statistics on selected indicators

List of factors			List of indicators		All MEGA cities (69)							All cities	POLYCE cities (5)							
FACTOR	YEAR	SPATIAL LEVEL	INDICATOR DESCRIPTION	VALUE	COUNT(value)	COUNT(missing value)	COUNT(other)	MIN	MAX	AVERAGE	STDEV		COUNT(value)	COUNT(missing	COUNT(other)	MIN	MAX	AVERAGE	STDEV
Productivity	2006	LUZ/NUTS3	GDP (PPS 1995) per capita	EUR per capita	64	5	0	13337,7	63109,2	28433,1	9892,4		5	0	0	24924,8	36276,6	30818,9	4811,7
Productivity	2006	LUZ/NUTS3	Difference between GDP (PPS 1995) per capita according to EU average	% difference	64	5	0	47,3	267,2	120,2	42,2		5	0	0	105,5	153,6	130,5	20,4
Productivity	1995-2006	LUZ/NUTS3	Difference between GDP per capita (PPS) according to EU average between 2006-1995	% difference	69	0	0	-38,9	57,8	3,1	23,1		5	0	0	-24,6	46,7	19,9	26,7
Productivity	2006	LUZ/NUTS3	Total value added of LUZ	GVA (bil. EUR)	64	5	0	3389,0	154899,9	45904,6	35462,6		5	0	0	9808,0	78429,0	34238,3	27920,7
Productivity	2006	LUZ/NUTS3	Total GVA of business and financial services NACE (J-K)	GVA (bil. EUR)	64	5	0	1027,5	48098,7	14539,7	12058,4		5	0	0	2614,1	23646,0	9763,1	8559,4
Productivity	2006-2007	NUTS2	Average disposable income per capita	EUR per capita	62	7	0	5018,2	22637,8	14073,4	4393,8		5	0	0	10686,8	19205,4	13400,7	3383,8
Entrepreneurship	2003-2010	CORE CITY (CC)	New businesses registered in reference years	number	68	1	0	216,0	41941,0	7019,3	6802,5		5	0	0	3531,0	21461,0	9376,8	7078,9
Entrepreneurship	2003-2010	CC	Number of companies gone bankrupt in reference year	number	53	16	0	1,0	18001,0	1987,2	3688,0		5	0	0	127,0	4331,0	2015,4	1822,3
Entrepreneurship	2004-2010	CC	Companies with HQ in the city quoted on national stock exchange	number	56	13	0	1,0	210,0	31,6	38,7		5	0	0	16,0	45,0	29,2	11,2
Entrepreneurship	2009	NUTS2	Number of congresses held in region	number of congresses	69	0	0	0,0	160,0	34,0	36,5		5	0	0	13,0	160,0	74,4	58,6
Entrepreneurship	2007-2008	NUTS2	Average % of private market service employment	% total employment	69	0	0	0,0	0,3	0,1	0,0		5	0	0	0,1	0,2	0,2	0,0
Innovative spirit	2003	LUZ/NUTS2	Share of R&D expenditure in GDP	% GDP	61	8	0	0,2	6,0	1,7	1,3		5	0	0	1,1	2,4	1,8	0,5
Innovative spirit	2005	LUZ/NUTS2	Share of scientific and technical employment in total employment	% total employment	61	8	0	12,1	50,0	31,0	7,5		5	0	0	33,2	41,3	36,8	3,6
Innovative spirit	2001-2004	NUTS2	Average share of workforce defined as "creative/bohemian" occupation	% total employment	69	0	0	0,0	0,1	0,1	0,0		5	0	0	0,0	0,1	0,1	0,0
Innovative spirit	2001-2003	LUZ/NUTS2	Patent applications to the EPO per 100.000 inhabitants	number per 100.000 inhabitants	61	8	0	0,4	619,0	111,3	137,0		5	0	0	17,0	138,4	55,3	49,4
Flexibility of labour market	2004-2010	CC	Share of unemployed in active population in CC	% of active population	64	5	0	1,1	31,8	9,4	5,4		5	0	0	3,6	8,9	5,6	2,1
Flexibility of labour market	2006	LUZ/NUTS 3	Share of unemployed in active population in LUZ	% of active population	64	5	0	2,4	14,9	6,4	2,6		5	0	0	2,9	7,0	4,4	1,7
Flexibility of labour market	2006	LUZ/NUTS 3	Ratio unemployment rate at LUZ level and unemployment rate at the national level *100	Ratio	64	5	0	38,6	185,9	93,7	34,0		5	0	0	38,6	158,7	75,2	47,7
Flexibility of labour market	2007-2008	NUTS 2	Average % of public sector employment	% total employment	69	0	0	0,2	0,4	0,3	0,1		5	0	0	0,2	0,3	0,3	0,0
Flexibility of labour market	2006	LUZ	It is easy to find a good job here (synthetic index 0-100)	index 0-100	38	31	0	12,0	74,8	43,7	15,4		5	0	0	23,7	74,8	49,1	19,5
Flexibility of labour market	2006	CC	Administrative services help efficiently (synthetic index 0-100)	index 0-100	38	31	0	29,0	76,9	57,0	11,2		5	0	0	41,6	70,9	53,5	10,9
Flexibility of labour market	1999-2002	LUZ	*Ratio of first to fourth quantile earnings*	Ratio	23	46	0	0,3	0,6	0,4	0,1		1	4	0	0,3	0,3	0,3	
Flexibility of labour market	1999-2002	LUZ	*Households relient upon social security*	% households	28	41	0	0,5	54,3	14,6	18,1		0	5	0	0,0	0,0		
Investments	2000-2006	NUTS2	Total ERDF funding 2000-2006	mil. EUR	58	11	0	0,0	7849,3	722,0	1429,1		4	1	0	36,2	272,3	170,3	98,2
Investments	2000-2006	NUTS2	Total funding for regional policy 2000-2006	mil.EUR	58	11	0	0,0	9148,4	1062,0	1727,7		4	1	0	177,4	1016,4	437,7	389,0
Internationl embeddedness	2006	LUZ/NUTS3	Number of headquarters of transnational firms in the 2000 biggest world firms whose headquarters are in LUZ	number of firms	69	0	0	0,0	55,0	4,4	8,0		5	0	0	0,0	7,0	2,2	2,9
Internationl embeddedness	2010	MEGA	Foreign subsidiaries owned by headquarters located in FUA	number of subsidiaries	67	2	0	1,0	12571,0	1372,5	2468,6		5	0	0	45,0	3651,0	814,8	1586,4
Internationl embeddedness	2010	MEGA	Share of foreign subsidiaries owned by headquarters located in FUA (without local ones)	% subsidiaries	67	2	0	5,6	93,9	47,0	25,2		5	0	0	46,5	75,8	60,2	11,4
Internationl embeddedness	2010	MEGA	**Participation of partners from MEGA in 2-7 FP projects**	Number of partners	0	0	69	0,0	0,0	#DIV/0!	#DIV/0!		0	0	5	0,0	0,0		
Structural disparities	2004	MEGA	Disparities in the GDP per capita level between the metropolitan area (MA) and its regional hinterland (RH)	%	56	13	0	-0,1	1,5	0,4	0,4		5	0	0	0,2	1,5	0,8	0,5
Structural disparities	1995-2004	MEGA	Change of disparities in the development level between the metropolis and its region	%	55	13	1	-0,2	0,6	0,1	0,2		5	0	0	-0,2	0,3	0,1	0,2
Structural disparities	2005	MEGA	A synthetic view of the structural differences between the metropolis and the region for the three principal sectors	%	53	16	0	0,9	39,7	12,2	7,9		5	0	0	19,1	26,1	22,4	2,6
Structural disparities	1998-2005	MEGA	Structural similarity changes in metropolis-region context	%	52	15	2	-8,6	9,6	0,5	3,3		5	0	0	-2,6	3,6	1,2	2,3
Demography	2004-2006	LUZ	Total resident population of LUZ	number	69	0	0	372,6	6120,9	1775,5	1180,5		5	0	0	506,3	2864,2	1722,0	1087,2
Demography	2004-2010	CC	Population density - total resident population per sq.km in CC	pop/sq.km	67	2	0	556,3	20466,6	3664,0	3287,4		5	0	0	980,8	3735,2	2321,8	1225,5
Demography	2004-2010	LUZ	Population density - total resident population per sq.km in LUZ	pop/sq.km	64	5	0	112,7	3963,4	793,6	726,6		5	0	0	199,7	966,6	449,8	306,3
Demography	2000-2005	CC	Average population growth of CC	% population growth of CC	64	5	0	-2,4	3,4	0,3	0,9		5	0	0	-1,6	0,6	-0,3	0,8
Demography	1990-2007	LUZ	Average population growth of LUZ	% population growth of LUZ	69	0	0	-1,2	2,6	0,4	0,6		5	0	0	-0,5	0,4	0,0	0,4
Demography	2000-2005	CC/LUZ	Difference between annual growth of population in the suburbs (LUZ –CC) and the CC	% difference of growth	63	6	0	-2,4	3,4	0,6	1,0		5	0	0	-0,2	2,7	1,3	1,0
Demography	2006-2007	NUTS2	Life expectancy of a child under 1 year	years	69	0	0	71,0	82,5	79,0	3,0		5	0	0	75,0	79,7	77,6	2,1
Demography	2003-2006	LUZ	Share of people more or equal 65 years	% of people aged >65	63	6	0	9,7	26,5	15,4	2,8		5	0	0	12,1	16,5	14,8	1,6
Demography	2007-2010	LUZ	Population aged 0-19 years in LUZ	number	66	3	0	57385,0	1221897,0	342425,3	222566,9		5	0	0	101930,0	516738,0	320512,0	198704,2
Demography	2007-2010	LUZ	Population aged 20-64 years in LUZ	number	66	3	0	217931,0	4154320,0	1047898,1	750777,1		5	0	0	325177,0	1587650,0	1034019,2	607264,0
Demography	2007-2010	LUZ	Population aged >65 years in LUZ	number	66	3	0	39355,0	978425,0	269518,4	207462,7		5	0	0	77592,0	412862,0	254110,6	163028,4
Demography	2007-2010	CC	Population aged 0-19 in CC	number	69	0	0	17000,0	563418,0	156525,4	116185,0		5	0	0	47899,0	370030,0	199338,2	138716,3
Demography	2007-2010	CC	Population aged 20-64 in CC	number	69	0	0	58294,0	2223584,0	526883,0	419916,4		5	0	0	172519,0	1095133,0	693058,6	432960,2
Demography	2007-2010	CC	Population aged >65 in CC	number	69	0	0	11687,0	644376,0	141251,9	127529,5		5	0	0	47342,0	312826,0	177455,6	122266,3
Demography	2007-2010	CC	Demographic dependency: (<20 + >65) / 20-64 years in CC	index	69	0	0	0,4	0,8	0,6	0,1		5	0	0	0,4	0,6	0,5	0,1
Demography	2007-2010	LUZ	Demographic dependency: (<20 + >65) / 20-64 years in LUZ	index	66	3	0	0,4	0,7	0,6	0,1		5	0	0	0,5	0,6	0,5	0,1
Demography	2004-2006	CC	Proportion of households that are one-person households in CC	% households	68	1	0	19,0	55,9	39,1	10,0		5	0	0	27,8	47,0	36,6	6,9
Demography	2003-2010	LUZ	Proportion of households that are one-person households in LUZ	% households	63	6	0	15,6	55,4	32,3	8,6		5	0	0	23,7	42,0	33,2	6,6
Demography	2001-2006	NUTS 2	Average annual internal inter-NUTS2 in-migration flow rate per 1000 residents	number per 1000 inh.	64	5	0	1,4	33,8	12,2	7,7		5	0	0	1,9	18,1	11,5	6,6
Demography	2001-2006	NUTS 2	Average annual internal inter-NUTS2 out-migration flow rate per 1000 residents	number per 1000 inh.	64	5	0	1,6	32,1	11,3	7,4		5	0	0	1,7	15,3	9,7	5,9
Level of qualification	2005	LUZ/NUTS2	Share of active population with tertiary diploma	% active population	61	8	0	10,6	46,9	27,1	7,4		5	0	0	20,9	30,3	24,7	4,6
Level of qualification	2003-2006	CC	Proportion of population aged 15-64 qualified at levels 5-6 ISCED in CC	% population aged 15-64	58	11	0	12,3	44,1	26,0	8,0		4	1	0	20,0	26,3	24,4	2,9
Level of qualification	2007-2009	NUTS2	Proportion of the resident population aged 15 and above qualified at levels 5-6 ISCED in region (000)s	% resident population	69	0	0	0,1	0,4	0,2	0,1		5	0	0	0,2	0,3	0,2	0,0
Affinity to life long learning	2004-2010	CC	Students in tertiary education (ISCED 5-6) - number of students per 1000 inhabitants in CC	number per 1000 inh.	68	1	0	8,1	280,5	114,1	66,9		5	0	0	59,5	178,8	109,6	44,0
Affinity to life long learning	2007	NUTS 2	Number of students in universities and further education establishments in region	number	68	1	0	1315,0	447571,0	121697,1	83999,6		5	0	0	71098,0	152051,0	118899,2	38583,1
Affinity to life long learning	2007	NUTS2	Ratio of the number of university students against people aged 15-24 years	% of students aged 15-24 years	68	1	0	0,0	1,2	0,3	0,2		5	0	0	0,2	0,8	0,5	0,3
Affinity to life long learning	2008-2010	NUTS2	Life-long learning - Participation of adults aged 25-64 in education and training	% of total population	69	0	0	1,4	34,4	11,3	8,4		5	0	0	3,4	18,0	10,8	6,0
Ethnic plurality	2004-2006	LUZ	EU nationals as a proportion of total population (without nationals)	% total population	61	8	0	0,0	33,8	3,0	5,8		5	0	0	0,1	3,3	1,0	1,3
Ethnic plurality	2004-2006	LUZ	Non-EU nationals as a proportion of total population	% total population	61	8	0	0,1	14,8	4,8	3,8		5	0	0	0,3	11,6	3,3	4,7
Ethnic plurality	2008-2009	NUTS2	Erasmus students per 1000 students enrolled at local universities	number per 1000 students	58	11	0	1,4	124,7	14,9	17,6		5	0	0	6,2	23,8	12,2	6,9
Ethnic plurality	2006	CC	Foreigner here are well integrated (synthetic index 0-100)	index 0-100	38	31	0	12,3	85,5	57,3	18,2		5	0	0	30,8	84,5	66,1	20,6
Social cohesion	2004-2010	CC	*Average disposable annual household income*	value (EUR)	34	35	0	6499,2	66100,6	27142,0	12050,1		3	2	0	14268,5	31504,6	21412,4	8988,3
Social cohesion	2004-2010	LUZ	*Percentage of households receiving less than half of the national average household income*	% households	26	43	0	6,9	84,7	22,6	14,5		4	1	0	18,0	21,1	19,1	1,5
Social cohesion	2006	CC	Difficulty paying the bills at the end of the month (synthetic index 0-100)	index 0-100	38	31	0	10,8	55,6	30,6	10,6		5	0	0	15,6	34,0	23,7	7,7
Social cohesion	2004-2010	CC	Percentage of elected city representatives who are women	%	67	2	0	2,0	58,0	33,8	12,0		5	0	0	18,0	43,0	28,8	10,0

Public transport	2004-2010	CC	Length of public transport network per inhabitant	km per inhabitant	59	10	0	0,5	12,0	2,0	2,1	5	0	0	0,6	1,4	0,9	0,3
Public transport	2007-2010	CC	Cost of a monthly ticket for public transport (5-10 km)	EUR	59	10	0	10,0	110,0	40,5	19,1	5	0	0	19,2	49,0	30,9	12,0
Public transport	1999-2002	CC	Proportion of journey to work by public transport	% of journey to work	18	51	0	19,0	72,2	36,5	13,7	1	4	0	**72,2**	**72,2**	**72,2**	
Public transport	2004-2010	CC	*Number of park and ride parking spaces (and parking spaces…)*	number	44	25	0	0,0	44810,0	3526,4	7595,9	4	1	0	1,0	44810,0	12179,5	21831,0
Public transport	2006	CC	Satisfied with public transport (synthetic index 0-100)	% 0-100	38	31	0	25,8	94,9	70,4	16,0	5	0	0	34,0	91,9	65,2	23,0
International accessibility	2001	NUTS3	Potential accessibility multimodal, ESPON space = 100	model output	63	6	0	71,0	190,0	118,5	28,8	5	0	0	102,0	145,0	128,0	16,5
International accessibility	2010	FUA	Number of MEGA reachable by rail, air and intermodal return trips	model output	56	12	1	0,0	40,0	13,9	11,7	5	0	0	2,0	34,0	14,2	12,6
International accessibility	2006	NUTS2	Number of air transport of passengers (emmbarcation and disembarcation)	number per 1000 passengers	57	12	0	0,0	51789,4	12053,6	11879,9	4	1	0	0,0	15802,4	8610,5	6603,0
International accessibility	2008-2010	NUTS2	Air transport of freight at regional level	total, 1000 tons	69	0	0	0,0	2270,0	128,6	332,0	5	0	0	6,0	198,0	62,4	78,4
Commuting	2004-2010	CC	Inbound commuters - outbound commuters	number	61	8	0	256,0	500929,0	106649,2	91650,6	5	0	0	54582,0	146058,0	113439,6	38905,2
Commuting	2004-2010	CC	Proportion of journeys to work by car in CC	%	54	15	0	10,3	79,5	49,4	14,9	4	1	0	10,3	62,9	35,3	22,3
Commuting	2004-2010	LUZ	Proportion of journeys to work by car in LUZ	%	44	25	0	15,0	80,6	58,2	13,0	3	2	0	15,0	70,8	39,3	28,6
Commuting	2004-2010	CC	Number of registered cars per 1000 inhabitants	number per 1000 population	64	4	1	173,8	707,5	419,3	108,7	5	0	0	288,6	547,4	418,5	109,4
Commuting	2004-2010	LUZ	Number of registered cars per 1000 inhabitants	number per 1000 population	51	18	0	196,3	699,9	446,9	101,9	5	0	0	231,8	543,0	383,4	130,8
Commuting	2004-2010	CC	Average time of journey to work	min	55	14	0	15,0	71,0	27,6	8,2	4	1	0	22,0	71,0	41,9	20,7
Commuting	2004-2010	CC	Road accidents resulting in death or serious injury per 1000 population	number per 1000 population	64	5	0	0,1	2,2	0,5	0,4	5	0	0	0,3	0,6	0,4	0,1
Availability of ICT	2004-2010	CC	Proportion of households with Internet access at home in CC	%	37	32	0	0,2	79,0	47,1	24,7	5	0	0	10,1	74,7	50,0	26,7
Availability of ICT	2008-2010	NUTS2/NUTS1	Proportion of households with Internet access at home in the region	%	63	6	0	44,0	94,0	70,5	11,6	5	0	0	65,9	75,0	70,2	3,4
Availability of ICT	2008-2010	NUTS2/NUTS1	Proportion of households with broadband access	%	63	6	0	22,0	87,0	63,2	13,0	5	0	0	57,0	64,9	60,9	3,2
Availability of ICT	2006	CC	Satisfied with public internet access (synthetic index 0-100)	% 0-100	38	31	0	66,4	91,8	82,0	6,6	5	0	0	77,2	88,7	81,8	4,4
Availability of ICT	2006	CC	Satisfied with internet access at home (synthetic index 0-100)	% 0-100	38	30	1	81,2	98,6	90,1	4,4	5	0	0	88,3	94,2	90,6	2,5
Sustainable land use	1980-1990	CC	Total land area of core city (CC)	sq.km	67	2	0	16,1	1283,9	290,3	217,5	5	0	0	275,0	525,3	415,3	101,2
Sustainable land use	2004-2006	LUZ	Total land area of LUZ	sq.km	64	5	0	237,7	17386,6	3295,6	2690,7	5	0	0	2053,0	6982,9	3746,5	2061,0
Sustainable land use	2004-2006	CC/LUZ	Total area of CC divided by total area of LUZ*100	index	66	3	0	1,3	54,7	11,3	9,1	5	0	0	7,1	20,8	13,1	5,9
Sustainable land use	2000	CC	Proportion of built-up area of the total area of CC	% of total area	65	4	0	22,0	100,0	56,6	21,1	5	0	0	25,0	67,0	47,2	18,9
Sustainable land use	2000	LUZ	Proportion of built-up area of the total area of LUZ	% of total area	64	5	0	4,0	53,0	17,4	12,0	5	0	0	5,0	29,0	14,2	9,0
Sustainable land use	1990-2000	CC	Increase of built-up areas in CC 1990-2000	% increase of build-up area	63	6	0	0,0	38,6	4,7	7,2	5	0	0	2,1	4,9	3,5	1,2
Sustainable land use	2000-2006	CC	Increase of built-up areas in CC 2000-2006	% increase of build-up area	63	6	0	0,0	22,9	3,0	3,9	5	0	0	0,6	3,1	1,9	1,2
Sustainable land use	1990-2000	LUZ	Increase of built-up areas per inhabitant in LUZ 1990-2000	% increase of build-up area per inhabitant	65	4	0	0,0	56,5	8,4	12,2	5	0	0	1,8	5,6	4,3	1,5
Sustainable land use	2000-2006	LUZ	Increase of built-up areas per inhabitant in LUZ 2000-2006	% increase of build-up area per inhabitant	65	4	0	0,0	27,2	4,9	5,5	5	0	0	1,2	8,4	4,2	2,7
Sustainable land use	1990-2000	CC	Growth rate of residential areas in CC 1990-2000	% increase residential area	55	14	0	0,0	100,0	26,1	22,4	5	0	0	5,2	32,9	15,1	11,6
Sustainable land use	2000-2006	CC	Growth rate of residential areas in CC 2000-2006	% increase residential area	36	33	0	0,0	100,0	25,3	30,4	2	3	0	21,9	47,0	34,5	17,7
Sustainable land use	1990-2000	LUZ	Growth rate of residential areas in the LUZ 1990-2000	% increase residential area	57	12	0	0,0	83,2	34,7	18,8	5	0	0	4,3	43,3	22,8	16,7
Sustainable land use	2000-2006	LUZ	Growth rate of residential areas in the LUZ 2000-2006	% increase residential area	59	10	0	0,0	83,7	23,4	17,0	5	0	0	3,5	25,8	13,2	10,1
Sustainable land use	1990-2000	CC	Percentage of new industrial, commercial and transport areas over all new built-up areas in CC 1990-2000	% of build-up area	55	14	0	0,0	100,0	46,7	29,9	5	0	0	18,6	62,0	46,7	18,4
Sustainable land use	2000-2006	CC	Percentage of new industrial, commercial and transport areas over all new built-up areas in CC 2000-2006	% of build-up area	57	12	0	0,0	100,0	49,7	23,8	5	0	0	38,6	100,0	64,5	23,6
Sustainable land use	1990-2000	LUZ	Percentage of new industrial, commercial and transport areas over all new built-up areas in LUZ 1990-2000	% of build-up area	57	12	0	8,8	100,0	51,2	19,2	5	0	0	36,0	80,0	57,8	19,4
Sustainable land use	2000-2006	LUZ	Percentage of new industrial, commercial and transport areas over all new built-up areas in LUZ 2000-2006	% of build-up area	59	10	0	11,4	100,0	57,8	17,1	5	0	0	66,7	93,7	76,2	11,0
Sustainable land use	2005-2006	CC	Sealed area per inhabitant in CC	sq.km per inhabitant in CC	57	12	0	12,8	71,8	34,5	13,1	5	0	0	13,9	45,9	26,0	13,7
Attractivity of natural conditions	2004-2010	CC	Average number of hours of sunshine per day (averaged over a year)	number of sunshine hours per day	63	6	0	3,0	8,2	5,3	1,4	5	0	0	4,5	6,0	5,3	0,6
Attractivity of natural conditions	2004-2010	CC	Number of days of rain per year	number of days of rain	60	9	0	51,0	262,0	153,2	47,1	5	0	0	89,0	155,0	133,4	26,9
Attractivity of natural conditions	2004-2010	CC	Average temperature of coldest month	average temperature	69	0	0	-3,0	13,0	3,0	3,9	5	0	0	-3,0	3,3	1,6	2,6
Attractivity of natural conditions	2004-2010	CC	Average temperature of warmest month	average temperature	69	0	0	15,8	32,0	21,2	4,0	5	0	0	20,4	23,0	21,5	1,1
Attractivity of natural conditions	long-term	NUTS2	April-September	composite index	69	0	0	52,8	75,3	68,8	4,8	5	0	0	61,6	74,0	70,5	5,1
Pollution	2004-2010	CC	Summer Smog: number of days Ozone O3 exceeds 120Âg/m3	number of days with O3	68	1	0	0,0	77,7	16,1	16,7	5	0	0	20,8	29,0	25,1	4,0
Pollution	2004-2010	CC	Number of days per year particulate matter PM10 concentrations exceed 50 Âg/m3	number of days per year	69	0	0	0,0	186,0	34,2	46,6	5	0	0	12,7	39,0	24,9	12,2
Pollution	2005-2008	NUTS2	Causes of death by region - Crude death rate (per 100,000 inhabitants)	death rate by 100.000 inhabitants (3 years aver	57	12	0	176,2	1045,7	619,1	163,6	4	1	0	599,5	877,8	754,3	119,1
Sustainable resource management	2004-2010	CC	Consumption of water (cubic metres per annum) per inhabitant	annual m3 per inhabitant	63	6	0	38,2	178,8	84,4	36,0	5	0	0	78,8	91,4	83,2	5,6
Sustainable resource management	2007-2010	CC	Amount of collected solid waste per capita per annum	annual tones per inhabitant	52	17	0	0,2	2,5	0,6	0,3	5	0	0	0,2	2,5	1,0	1,0
Sustainable resource management	2008-2009	NUTS2	Regional generation of municipal waste (000t)	1000 tonnes	55	14	0	268,4	5021,8	1706,0	1137,1	4	1	0	437,1	1946,7	1181,6	677,8
Environmental protection	2004-2010	CC	*Proportion of the green space in total land area of CC (…green space per inhabitant….)*	% of land area (or ha per inhabitant)	62	7	0	0,7	1585,0	102,5	208,5	5	0	0	22,7	272,0	159,0	101,3
Environmental protection	2008	NUTS2	Proportion of NATURA 2000 sites in total land area of the region	% of land area	67	1	1	0,0	62,9	20,7	16,2	5	0	0	0,0	54,7	25,8	24,2
Individual assessments of urban envi	2006	CC	Resources are spent in a responsible way (synthetic index 0-100)	%	38	31	0	19,9	72,4	47,1	15,7	5	0	0	27,6	68,6	40,8	16,5
Individual assessments of urban envi	2006	CC	This is a clean city (synthetic index 0-100)	%	37	32	0	10,2	86,3	47,0	18,0	5	0	0	18,2	76,9	44,7	26,2
Individual assessments of urban envi	2006	CC	Air pollution is a big problem here (synthetic index 0-100)	%	38	31	0	43,2	94,6	75,0	14,2	5	0	0	52,2	84,8	74,2	13,1
Individual assessments of urban envi	2006	CC	Noise is a big problem here (synthetic index 0-100)	%	38	31	0	34,4	92,4	65,7	13,8	5	0	0	56,2	82,8	71,1	11,0
Individual assessments of urban envi	2006	CC	Satisfied with green space (synthetic index 0-100)	%	38	31	0	25,6	95,6	71,6	17,0	5	0	0	36,6	83,6	60,6	18,0
Cultural facilities	2004-2006	CC	Annual cinema attendance per resident	number per inhabitant	63	6	0	0,6	11,9	4,2	2,0	4	1	0	3,0	4,6	3,8	0,7
Cultural facilities	2004-2006	CC	Number of cinema seats per 1000 population	number per 1000 inhabitants	68	1	0	5,9	51,2	19,4	9,6	5	0	0	14,4	26,8	19,3	5,0
Cultural facilities	2004-2006	CC	Number of museums	number	67	2	0	4,0	133,0	31,2	24,8	5	0	0	14,0	104,0	65,0	44,7
Cultural facilities	2004-2006	CC	Annual visitors to museums per resident	number per inhabitant	66	3	0	0,1	10,2	2,6	2,2	5	0	0	1,2	5,4	3,1	1,6
Cultural facilities	2004-2006	CC	Number of theatres	number	62	7	0	1,0	112,0	21,8	19,5	5	0	0	20,0	55,0	32,8	15,8
Cultural facilities	2004-2006	CC	Annual attendance of theatres per resident	number per inhabitant	52	17	0	0,2	2,6	1,1	0,5	5	0	0	1,2	2,6	1,7	0,5
Health facilities	2004-2006	CC	Number of available hospital beds per 1000 inhabitants	number per 1000 inhabitants	62	7	0	1,1	16,7	8,4	3,0	5	0	0	8,4	12,4	10,6	1,4
Health facilities	2006-2008	NUTS2	Number of hospital beds per 100000 residents	number per 100.000 inhabitant	62	7	0	250,9	1057,0	550,0	192,5	5	0	0	598,5	895,6	766,9	110,8
Health facilities	2006-2008	NUTS2	Number of doctors per 100.000 inhabitants	number per 100.000 inhabitants	61	8	0	144,2	696,2	365,9	114,0	5	0	0	298,1	646,4	471,0	127,1
Health facilities	2004-2010	CC	Number of hospital discharges of in-patients	number	58	11	0	47861,0	743022,0	207084,4	157977,9	5	0	0	109707,0	672991,0	306544,8	237127,5
Housing quality	2003-2010	CC	Average living area per person m2	sq.m per inhabitant	62	7	0	15,9	62,7	34,3	8,8	5	0	0	18,0	46,4	28,1	11,1
Housing quality	2004-2010	LUZ	Average living area per person m2	sq.m per inhabitant	51	18	0	16,4	51,8	35,2	9,5	4	1	0	19,0	30,0	24,5	5,8
Housing quality	2004-2010	CC	Proportion of households living in owned dwellings	%households	67	2	0	5,4	88,8	45,5	25,9	5	0	0	20,3	83,9	53,5	31,6
Housing quality	2004-2010	LUZ	Proportion of households living in owned dwellings	%households	59	10	0	9,5	88,9	53,0	24,0	4	1	0	33,1	86,4	65,1	25,3
Housing quality	2004-2010	LUZ	Dwellings lacking basic amenities	% dwellings	27	42	0	0,1	24,8	5,8	5,8	3	2	0	1,0	8,3	4,2	3,7
Touristic attractivity	2006-2009	NUTS2	Number of tourist arrivals (all origin) in all accommodation types per capita	number per inhabitant	63	6	0	0,3	9,2	1,5	1,2	5	0	0	1,0	2,1	1,7	0,5
Touristic attractivity	2006-2009	NUTS2	Number of foreign arrivals in hotel accommodation per capita	number per inhabitant	68	1	0	0,0	6,4	0,7	0,9	5	0	0	0,8	1,6	1,1	0,4
Touristic attractivity	2006-2008	NUTS2	Average proportion of non-resident arrivals in tourist accommodation establishments in total tourist arrivals	% total tourist arrivals	61	8	0	0,1	0,9	0,4	0,2	4	1	0	0,5	0,8	0,7	0,1
Touristic attractivity	2004-2010	CC	Tourist overnights in registered accommodation	number of nights ('000) per inhabitant	68	1	0	378,6	23727,2	4080,8	4319,0	5	0	0	740,6	12074,1	6015,3	5063,3
Touristic attractivity	2001-2008	NUTS2	Monuments and other tourist sights values 2* in TCI "green guidebooks series"	index number	65	4	0	0,1	11,0	2,1	2,4	5	0	0	0,7	2,7	1,4	0,7
Individual safety	2004-2010	CC	Total number of recorded crimes per 1000 population	number per 1000 inhabitants	65	4	0	8631,0	482765,0	75079,1	72159,5	5	0	0	19909,0	213201,0	90458,2	77736,8
Individual safety	2004-2010	CC	Number of car thefts per 1000 population	number per 1000 inhabitants	64	5	0	0,1	12,3	3,5	2,9	5	0	0	0,9	5,0	2,8	1,5
Individual safety	2004-2010	LUZ	Number of car thefts per 1000 population	number per 1000 inhabitants	33	36	0	0,5	14,8	3,8	2,9	3	2	0	1,2	3,6	2,5	1,2
Individual safety	1999-2002	LUZ	Number of homicides per 100000 (average) inhabitants	number per 100000 inhabitants	63	6	0	0,2	12,6	1,8	2,2	4	1	0	1,0	2,9	2,0	0,8
Individual safety	1999-2002	LUZ	Number of suicides per 100000 (average) population	number	62	6	1	2,4	43,6	13,5	6,9	4	1	0	13,2	24,3	17,5	4,8
Individual assessments of the quality	2006	CC	Satisfied with hospitals (synthetic index 0-100)	%	38	31	0	29,2	92,3	67,9	18,9	5	0	0	49,0	90,0	66,9	17,1
Individual assessments of the quality	2006	CC	Satisfied with doctors (synthetic index 0-100)	%	38	31	0	40,3	96,4	74,3	15,9	5	0	0	69,2	88,8	76,1	7,9
Individual assessments of the quality	2006	CC	Satisfied with cinemas (synthetic index 0-100)	%	38	31	0	64,7	95,8	88,8	5,8	5	0	0	81,6	93,7	87,6	4,5
Individual assessments of the quality	2006	CC	Satisfied with cultural facilities (synthetic index 0-100)	%	38	31	0	60,1	98,4	87,6	8,3	5	0	0	78,9	96,1	88,6	6,5
Individual assessments of the quality	2006	CC	Easy to find good housing at reasonable price (synthetic index 0-100)	%	38	31	0	5,0	56,7	19,1	11,0	5	0	0	8,2	26,1	18,3	7,3
Individual assessments of the quality	2006	CC	Satisfied with schools (synthetic index 0-100)	%	38	31	0	40,4	94,1	75,1	13,1	5	0	0	65,2	88,0	78,2	8,8
Individual assessments of the quality	2006	CC	Feel safe in this city (synthetic index 0-100)	%	38	31	0	56,7	97,2	81,7	9,9	5	0	0	69,6	92,4	80,3	9,6
Individual assessments of the quality	2006	CC	Satisfied with sport facilities (synthetic index 0-100)	%	38	31	0	31,9	93,9	68,1	16,7	5	0	0	38,2	78,5	58,0	17,2
Individual assessments of the quality	2006	CC	Satisfied to live in this city (synthetic index 0-100)	%	38	31	0	62,6	97,6	91,4	6,1	5	0	0	86,1	94,2	91,6	3,4
Individual assessments of the quality	2006	CC	**synthetic indicator of satisfaction**	index	38	31	0	-2,4	1,2	0,0	0,9	5	0	0	-1,0	1,1	-0,1	0,8

11.7. Appendix 7: Variables for POLYCE cities over time

Vienna

INDIC_UR_CC	INDIC_UR_LUZ	INDIC_UR(L)/TIME	1989_1993_CC	1989_1993_LUZ	1994_1998_CC	1994_1998_LUZ	1999_2002_CC	1999_2002_LUZ	2003_2006_CC	2003_2006_LUZ	2007_2010_CC	2007_2010_LUZ
DE1001V	DE1001V	Total Resident Population	1539848	2062969	1595402	2114054	1550123	2121704	1598626	2179769	1674909	2285988
DE1002V	DE1002V	Male Resident Population	714525	968008	752566	1008395	731344	1009481	759085	1041578	800361	1097831
DE1003V	DE1003V	Female Resident Population	825323	1094961	842836	1105659	818779	1112223	839541	1138191	874548	1188157
DE1067V	DE1067V	Total Resident Population 0-2	:	:	:	:	44717	:	47976	63815	49860	66565
DE1068V	DE1068V	Male Resident Population 0-2	:	:	:	:	22843	:	24605	32824	25385	33850
DE1069V	DE1069V	Female Resident Population 0-2	:	:	:	:	21874	:	23371	30991	24475	32715
DE1070V	DE1070V	Total Resident Population 3-4	:	:	:	:	29812	:	30206	41617	32580	44725
DE1071V	DE1071V	Male Resident Population 3-4	:	:	:	:	15242	:	15384	21180	16909	23167
DE1072V	DE1072V	Female Resident Population 3-4	:	:	:	:	14570	:	14822	20437	15671	21558
DE1040V	DE1040V	Total Resident Population 0-4	77017	105282	86723	:	74529	102635	78182	105432	124734	168307
DE1041V	DE1041V	Male Resident Population 0-4	:	:	:	:	38085	52466	39989	54004	82440	111290
DE1042V	DE1042V	Female Resident Population 0-4	:	:	:	:	36444	50169	38193	51428	42294	57017
DE1043V	DE1043V	Total Resident Population 5-14	137100	193610	152343	:	153050	220404	157137	225162	158366	224895
DE1044V	DE1044V	Male Resident Population 5-14	:	:	:	:	78509	113087	80591	115328	81047	115026
DE1045V	DE1045V	Female Resident Population 5-14	:	:	:	:	74541	107317	76546	109834	77319	109869
DE1046V	DE1046V	Total Resident Population 15-19	79225	110731	74317	:	75817	108090	81385	113968	86930	123536
DE1047V	DE1047V	Male Resident Population 15-19	:	:	:	:	38979	55552	41933	58782	44054	62869
DE1048V	DE1048V	Female Resident Population 15-19	:	:	:	:	36838	52538	39452	55186	42876	60667
DE1049V	DE1049V	Total Resident Population 20-24	126327	165641	100042	:	86544	114768	99961	130278	111888	143487
DE1050V	DE1050V	Male Resident Population 20-24	:	:	:	:	42705	57220	49321	64889	54676	70863
DE1051V	DE1051V	Female Resident Population 20-24	:	:	:	:	43839	57548	50640	65389	57212	72624
DE1052V	DE1052V	Total Resident Population 25-54	700019	933026	757635	:	720312	976532	726028	980859	765733	1033327
DE1053V	DE1053V	Male Resident Population 25-54	:	:	:	:	355200	482952	358995	485011	380049	512228
DE1054V	DE1054V	Female Resident Population 25-54	:	:	:	:	365112	493580	367033	495848	385684	521099
DE1058V	DE1058V	Total Resident Population 25-34	:	:	:	:	251734	:	242098	314429	251444	320565
DE1059V	DE1059V	Male Resident Population 25-34	:	:	:	:	123330	:	118947	153903	124159	157789
DE1060V	DE1060V	Female Resident Population 25-34	:	:	:	:	128404	:	123151	160526	127285	162776
DE1061V	DE1061V	Total Resident Population 35-44	:	:	:	:	260252	:	276807	380410	282006	389261
DE1062V	DE1062V	Male Resident Population 35-44	:	:	:	:	131073	:	139534	191251	141488	194157
DE1063V	DE1063V	Female Resident Population 35-44	:	:	:	:	129179	:	137273	189159	140518	195104
DE1064V	DE1064V	Total Resident Population 45-54	:	:	:	:	208326	:	207123	286020	232283	323501
DE1065V	DE1065V	Male Resident Population 45-54	:	:	:	:	100797	:	100514	139857	114402	160282
DE1066V	DE1066V	Female Resident Population 45-54	:	:	:	:	107529	:	106609	146163	117881	163219
DE1073V	DE1073V	Median population age	:	:	:	:	:	:	:	:	40	40
DE1025V	DE1025V	Total Resident Population 55-64	145333	199983	161187	:	191734	265158	212253	292252	194113	268248
DE1026V	DE1026V	Male Resident Population 55-64	:	:	:	:	90868	127605	100127	139898	91584	127907
DE1027V	DE1027V	Female Resident Population 55-64	:	:	:	:	100866	137553	112126	152354	102529	140341
DE1028V	DE1028V	Total Resident Population 65-74	139539	183142	141939	:	119859	166233	113899	160274	145736	205995
DE1029V	DE1029V	Male Resident Population 65-74	:	:	:	:	50111	71422	49161	70935	65229	94236
DE1030V	DE1030V	Female Resident Population 65-74	:	:	:	:	69748	94811	64738	89339	80507	111759
DE1055V	DE1055V	Total Resident Population 75 and over	135288	171554	121216	:	128278	167884	129781	171544	129703	175210
DE1056V	DE1056V	Male Resident Population 75 and over	:	:	:	:	36887	49177	38968	52731	41428	57685
DE1057V	DE1057V	Female Resident Population 75 and over	:	:	:	:	91391	118707	90813	118813	88275	117525
DE2001V	DE2001V	Residents who are Nationals	1343196	1832271	:	:	1301859	1826008	1321662	1853864	1351494	1910620
DE2002V	DE2002V	Residents who are Nationals of other EU Member State	16092	20699	:	:	24716	31772	57729	72054	100151	121228
DE2003V	DE2003V	Residents who are not EU Nationals	180560	209999	:	:	199298	233322	219235	253851	223264	254140
DE2005V	DE2005V	Residents who are not EU Nationals and citizens of a country with high HDI	:	:	:	:	26979	31714	29968	34534	175904	201974
DE2006V	DE2006V	Residents who are not EU Nationals and citizens of a country with a medium or low HDI	:	:	:	:	172319	201608	189267	219317	47360	52166
DE2004V	DE2004V	Nationals born abroad	:	:	:	:	152589	182403	201554	242975	206766	244047
DE2007V	DE2007V	Number of residents born abroad (not only nationals)	:	:	:	:	:	:	:	:	491342	572647
DE3001V	DE3001V	Total Number of Households	746760	955542	773222	:	788176	1030211	793784	:	831300	:
DE3017V	DE3017V	Total Resident Population living in households (excluding institutional households)	:	:	:	:	:	:	1589785	:	1653600	:
DE3002V	DE3002V	One person households (Total)	310556	368735	316081	:	356820	432659	359547	:	390700	:
DE3005V	DE3005V	Lone parent households (Total)	70571	92996	:	:	80186	107317	35667	:	32900	:
DE3008V	DE3008V	Lone pensioner (above retirement age) households Total	139995	170478	:	:	118045	:	136216	:	142300	:
DE3009V	DE3009V	Lone pensioner (above retirement age) households Male	18781	:	:	:	18815	:	24029	:	29800	:
DE3010V	DE3010V	Lone pensioner (above retirement age) households Female	121214	:	:	:	99230	:	112187	:	112500	:
DE3011V	DE3011V	Households with children aged 0 to under 18	141997	193425	:	:	146479	:	173371	:	173300	:
DE3012V		Nationals that have moved into the city during the last two years	:	:	:	:	47123	:	11922	:	35611	:

DE3013V		EU Nationals that have moved into the city during the last two years (stock)	:	:	:	:	7546		10414		30090	
DE3014V		Non-EU Nationals that have moved into the city during the last two years (stock)	:	:	:	:	36154		76529		33080	
DE3015V		Number of moves into the city during the last two years (flow)	:	:	:	:	:		:	:	135659	
DE3016V		Number of moves out of the city during the last two years (flow)	:	:	:	:	:		:	:	115806	
DE3018V	DE3018V	Households with 3 children or more under 18	:	:	:	:	:	:	:	:	23900	:
SA1001V	SA1001V	Number of dwellings	853091	1101873	:	:	910745	:	956110	1277779	:	:
SA1004V	SA1004V	Number of houses	153693	336555	:	:	:	:	83962	256488	:	:
SA1005V	SA1005V	Number of apartments	:	:	:	:	:	:	872148	1021291	:	:
SA1007V	SA1007V	Number of households living in houses	:	:	:	:	:	:	64511	:	66400	:
SA1008V	SA1008V	Number of households living in apartments	:	:	:	:	:	:	729274	:	764900	:
SA1011V	SA1011V	Households owning their own dwelling	171717	348388	:	:	183827	:	164677	:	168700	:
SA1012V	SA1012V	Households in social housing	:	:	:	:	:	:	:	:	:	:
SA1013V	SA1013V	Households in private rented housing	599751	647543	:	:	:	:	629108	:	313000	:
SA1027V		Number of roofless persons	:	:	:	:	:		:		:	
SA1029V		Number of people in accommodation for the homeless	:	:	:	:	:		2178		5470	
SA1031V		Number of people in Women's Shelter	:	:	:	:	:		:		1071	
SA1030V		Number of people in accommodation for immigrants	:	:	:	:	:		:		:	
SA1016V	SA1016V	Average price for an apartment per m2	:	:	:	:	1144,6	:	2316,8	:	1660,4	:
SA1023V	SA1023V	Average price for a house per m2	:	:	:	:	1170	:	1862,9	:	:	:
SA1049V	SA1049V	Average annual rent for housing per m2	:	:	:	:	:	:	85,1	:	:	:
SA1018V	SA1018V	Dwellings lacking basic amenities	236002	280072	:	:	94943	:	15537	:	49400	:
SA1019V	SA1019V	Average occupancy per occupied dwelling	2,04	2,14	:	:	:	:	2	:	1,99	:
SA1025V	SA1025V	Empty conventional dwellings	:	:	:	:	:	:	:	:	:	:
SA1026V	SA1026V	Non-conventional dwellings	:	:	:	:	:	:	:	:	:	:
SA1046V	SA1046V	Number of overcrowded households (>1 persons in 1 room)	:	:	:	:	:	:	:	:	69200	:
SA1022V	SA1022V	Average area of living accommodation (m2 per person)	33,2	:	:	:	:	:	45,86	:	46,44	:
SA2004V	SA2004V	Infant Mortality per year	:	:	:	:	:	:	:	:	:	:
SA2005V	SA2005V	Male Infant Mortality per year	:	:	:	:	:	:	:	:	:	:
SA2006V	SA2006V	Female Infant Mortality per year	:	:	:	:	:	:	:	:	:	:
SA2007V	SA2007V	Number of live births per year	:	:	:	:	15167	20001	16856	21971	:	:
SA2008V	SA2008V	Number of live births per year (Male)	:	:	:	:	7769	10277	8740	11395	:	:
SA2009V	SA2009V	Number of live births per year (Female)	:	:	:	:	7398	9724	8116	10576	:	:
SA2013V	SA2013V	Number of deaths per year under 65 due to heart diseases and respiratory illness	:	:	:	:	:	:	:	:	:	:
SA2014V	SA2014V	Number of deaths per year under 65 due to heart diseases and respiratory illness (Male)	:	:	:	:	:	:	:	:	:	:
SA2015V	SA2015V	Number of deaths per year under 65 due to heart diseases and respiratory illness (Female)	:	:	:	:	:	:	:	:	:	:
SA2016V	SA2016V	Total deaths under 65 per year	:	:	:	:	:	:	:	:	:	:
SA2017V	SA2017V	Total deaths under 65 per year (Male)	:	:	:	:	:	:	:	:	:	:
SA2018V	SA2018V	Total deaths under 65 per year (Female)	:	:	:	:	:	:	:	:	:	:
SA2019V	SA2019V	Total deaths per year	:	:	:	:	:	:	:	:	:	:
SA2020V	SA2020V	Total deaths per year (Male)	:	:	:	:	:	:	:	:	:	:
SA2021V	SA2021V	Total deaths per year (Female)	:	:	:	:	:	:	:	:	:	:
SA2022V	SA2022V	Number of hospital beds	20826	20826	21094	21094	17904	:	19093	:	14098	:
SA2026V	SA2026V	Number of hospital discharges of in-patients	:	:	:	:	:	:	:	:	414449	:
SA2027V	SA2027V	Number of practising physicians	:	:	:	:	:	:	4993	:	10507	12609
SA2028V	SA2028V	Number of practising dentists	:	:	:	:	:	:	963	:	955	:
SA2029V	SA2029V	Number of deaths per year due to suicide	:	:	:	:	:	:	:	:	:	:
SA2030V	SA2030V	Number of general practitioners	:	:	:	:	:	:	:	:	2648	3468
SA2031V	SA2031V	Number of specialist doctors	:	:	:	:	:	:	5611	6693	:	:
SA3001V	SA3001V	Total number of recorded crimes within city [country for national data]	50172	:	44551	:	45561	:	:	:	213201	:
SA3005V	SA3005V	Number of murders and violent deaths	38	:	35	:	22	:	:	:	35	:
SA3006V	SA3006V	Number of car thefts	1301	:	992	:	1141	:	:	:	3821	:
SA3007V	SA3007V	Number of domestic burglary	:	:	:	:	:	:	:	:	9995	:
EC1001V	EC1001V	Total Economically Active Population	:	:	:	1044981	817032	1106170	782030	1055314	:	:
EC1002V	EC1002V	Male Economically Active Population	:	:	432182	579780	434506	593841	420769	569119	421647	586647
EC1003V	EC1003V	Female Economically Active Population	:	:	359538	465201	382526	512329	361261	486195	383586	529020
EC1142V	EC1142V	Total Economically Active Population 15-24	:	:	:	:	94945	129171	89952	121979	102442	140883
EC1143V	EC1143V	Male Economically Active Population 15-24	:	:	:	:	50191	69101	48000	65986	53629	74670
EC1144V	EC1144V	Female Economically Active Population 15-24	:	:	:	:	44754	60070	41952	55993	48813	66213
EC1145V	EC1145V	Total Economically Active Population 55-64	:	:	:	:	66627	89272	64824	89309	77177	107814
EC1146V	EC1146V	Male Economically Active Population 55-64	:	:	:	:	45515	62060	42551	58997	45716	64921
EC1147V	EC1147V	Female Economically Active Population 55-64	:	:	:	:	21112	27212	22273	30312	31461	42893
EC1010V	EC1010V	Residents Unemployed	:	:	:	58660	87387	103076	69348	80332	:	:
EC1011V	EC1011V	Male Residents Unemployed	:	:	27202	33679	50762	59496	39136	45514	35970	42300
EC1012V	EC1012V	Female Residents Unemployed	:	:	20112	24981	36625	43580	30212	34818	28370	34078
EC1148V	EC1148V	Residents Unemployed 15-24	:	:	:	:	14251	17035	15086	17161	12063	14587
EC1149V	EC1149V	Male Residents Unemployed 15-24	:	:	:	:	8142	9654	8605	10048	6871	8220
EC1150V	EC1150V	Female Residents Unemployed 15-24	:	:	:	:	6109	7381	6481	7113	5192	6367
EC1151V	EC1151V	Residents Unemployed 55-64	:	:	:	:	10598	13079	5625	6166	6301	:
EC1152V	EC1152V	Male Residents Unemployed 55-64	:	:	:	:	8506	10522	4676	4838	4587	:
EC1153V	EC1153V	Female Residents Unemployed 55-64	:	:	:	:	2092	2557	:	:	1714	:

EC1154V	EC1154V	Mehr als sechs Monate ununterbrochen Erwerbslose im Alter von 15 - unter 25 Jahren, insgesamt	:		:		:		3017		7946	8651	233	:			
EC1155V	EC1155V	Male unemployed continuously for more than six months, 15-24	:		:		:		2384		4317	4918	135	:			
EC1156V	EC1156V	Female unemployed continuously for more than six months, 15-24	:		:		:		633		3629	3733	98	:			
EC1157V	EC1157V	Unemployed continuously for more than one year, 55-64	:		:		:		5707		3244	3541	298	:			
EC1158V	EC1158V	Male unemployed continuously for more than one year, 55-64	:		:		:		4033		:	:	226	:			
EC1159V	EC1159V	Female unemployed continuously for more than one year, 55-64	:		:		:		1675		:	:	72	:			
EC1025V		Residents in Self Employment	54290		:				71455		71075		68983				
EC1026V		Male residents in Self Employment	35098		:				45302		49716		45822				
EC1027V		Female residents in Self Employment	19192		:				26153		21359		23161				
EC1028V		Residents in Paid Employment	720180		:				745577		641788		652340				
EC1029V		Male residents in Paid Employment	385313		:				389204		332020		334603				
EC1030V		Female residents in Paid Employment	334867		:				356373		309768		317737				
EC1034V	EC1034V	Total Full-Time Employment	:		:		:		613275	:	582031	795350	:				
EC1035V	EC1035V	Male Full-Time Employment	:		:	380651	:		354226	:	351904	486001	277835		399709		
EC1036V	EC1036V	Female Full-Time Employment	:		:	237515	:		259049	:	230127	309349	203037		277216		
EC1088V	EC1088V	Total Part-Time Employment	:		:		:		116370	:	130833	179889	:				
EC1089V	EC1089V	Male Part-Time Employment	:		:	20741	:		29518	:	29833	37710	38890		48672		
EC1090V	EC1090V	Female Part-Time Employment	:		:	79068	:		86852	:	101000	142179	97370		140400		
EC1160V		Total Full-Time Employment 15-24	:				:		59380		56886		55309				
EC1161V		Full-Time Employment 15-24 Male	:				:		40380		32927		31336				
EC1162V		Full-Time Employment 15-24 Female	:				:		19000		23959		23973				
EC1163V		Total Full-Time Employment 55-64	:				:		45664		45923		45140				
EC1164V		Full-Time Employment 55-64 Male	:				:		33437		33754		28168				
EC1165V		Full-Time Employment 55-64 Female	:				:		12227		12169		16972				
EC1166V		Total Part-Time Employment 15-24	:				:		14869		18080		19878				
EC1167V		Part-Time Employment 15-24 Male	:				:		5602		6568		7417				
EC1168V		Part-Time Employment 15-24 Female	:				:		9267		11512		12461				
EC1169V		Total Part-Time Employment 55-64	:				:		10365		13276		12805				
EC1170V		Part-Time Employment 55-64 Male	:				:		3572		4121		4619				
EC1171V		Part-Time Employment 55-64 Female	:				:		6793		9155		8186				
EC1172V	EC1172V	Number of jobless households with children	:		:		:		:		:	:	13325	:			
EC1173V	EC1173V	Number of jobless households without children	:		:		:		:		:	:	:				
EC2001V	EC2001V	Gross Domestic Product of city / region / country	:		:	51560	:		58423	:	63020	:	72288	:			
EC2021V		All companies	:			87071			90484		:		70660				
EC2003V		Companies with headquarter within the city [country] quoted on national stock exchange	:				:		42		22		:				
EC2004V		New business registered in reference year	3438		4801				6145		:		:				
EC2014V		Companies gone bankrupt in reference year	:				:		945		:		1928				
EC2020V		Total employment / jobs (work place based)	:				:		674886		896200		927900				
EC2008V		Employment (jobs) in agriculture, fishery (NACE Rev. 1: A-B) & ESA95 A3	:				:		3957		:		4300				
EC2009V		Employment (jobs) in mining, manufacturing, energy (NACE Rev. 1: C-E)	:				:		86035		77575		84200				
EC2022V		Employment (jobs) inconstruction (NACE Rev. 1: F)	:				:		39736		46141		47700				
EC2010V		Employment (jobs) in trade, hotels, restaurants (NACE Rev. 1: G-H)	:				:		170407		179344		188000				
EC2023V		Employment (jobs) in transport, communication (NACE Rev. 1: I)	:				:		48807		65880		67100				
EC2011V		Employment (jobs) financial intermediation, business activities (NACE Rev. 1: J-K)	:				:		147184		171454		225900				
EC2012V		Employment (jobs) in public admin., health, education, other (NACE Rev. 1: L-P)	:				:		182717		:		310700				
EC2016V		Employment (jobs) in Nace Rev. 1 C-F (ESA95 A3)	:				:		125771		123716		131900				
EC2017V		Employment (jobs) in Nace Rev. 1 G-P (ESA95 A3)	:				:		549115		416678		791700				
EC2018V		Employment (jobs) - employees	:				:		614602		:		822700				
EC2019V		Employment (jobs) - self employed	:				:		60284		:		105200				
EC2024V		Enterprises with 1 to 250 employees	:				:		:		:		39100				
EC2025V		Enterprises with more than 250 employees	:				:		:		:		323				
EC2026V		Enterprises that had a turnover increase last year (size class 1-250 employees)	:				:		:		:		27696				
EC2027V		Enterprises that had a turnover increase last year (size class >250 employees)	:				:		:		:		144				
EC2028V		Employment growth last year (size class 1-250 employees)	:				:		:		:		10060				
EC2029V		Employment growth last year (size class >250 employees)	:				:		:		:		124				
EC2030V	EC2030V	Gross Domestic Product of NUTS 3 region in Euros	:		:	51559,7	:		58423,2	:	63020,2	:	72288,3	:			
EC2031V	EC2031V	Gross Domestic Product per inhabitant in PPS of NUTS 3 region	:		:	29800	:		35100	:	37700	:	40600	:			
EC3039V	EC3039V	Median disposable annual household income	:		:		:		26110	:	26544	:	:				
EC3040V		Average disposable annual household income	:				:		:		31504,6		:				
EC3045V	EC3045V	Household Income: Quintile 4 (income with 20% households above, 80% below)	:		:		:		:	:	41415	:	:				
EC3048V	EC3048V	Household Income: Quintile 3 (income with 40% households above, 60% below)	:		:		:		:	:	30372	:	:				
EC3051V	EC3051V	Household Income: Quintile 2 (income with 60% households above, 40% below)	:		:		:		:	:	23502	:	:				
EC3054V	EC3054V	Household Income: Quintile 1 (income with 80% households above, 20% below)	:		:		:		:	:	15649	:	:				
EC3056V	EC3056V	Total Number of Households (relating to the reported household income)	:		:		:		:	:	809015,6	:	:				
EC3055V	EC3055V	Total Number of Households with less than 60% of the national median disposable annual household	:		:		:		:	:	104970	:	:				
EC3057V	EC3057V	Total Number of Households with less than half of the national average income	:		:		:		:	:	170470	:	:				
EC3060V	EC3060V	Total Number of Households reliant on social security benefits (>50%)	:		:		:		:	:	59343	:	:				
EC3063V	EC3063V	Individuals reliant on social security benefits (>50%)	:		:		:		67425	:	111924	:	:				
CI1016V		Total number of elected city representatives	:				:		100		100		100				
CI1017V		Number of Male elected city representatives	:				:		64		58		56				

CI1018V		Number of Female elected city representatives	:		:		36		42		44	
TE1001V	TE1001V	Number of children 0-4 in day care	25155	25155	32947	45069	5832	47138	35419	46904	40400	54437
TE1006V	TE1006V	Number of children 0-2 in day care	:	:	:	:	530	12554	10662	12077	12805	15737
TE1007V	TE1007V	Number of children 3-4 in day care	:	:	:	:	5302	34584	24757	34827	27595	38700
TE1005V	TE1005V	Total students registered for final year of compulsory education	:	:	:	:	:	:	:	:	19185	24574
TE1030V	TE1030V	Students leaving compulsory education without having a diploma	:	:	:	:	:	:	:	:	:	:
TE1031V		Students in upper and further education (ISCED level 3-4)	:		:		:		84983		89566	
TE1032V		Male students in upper and further education (ISCED level 3-4)	:		:		:		42490		45181	
TE1033V		Female students in upper and further education (ISCED level 3-4)	:		:		:		42493		44385	
TE1026V		Students in higher education (ISCED level 5-6)	:		:		:		123703		158548	
TE1027V		Male students in higher education (ISCED level 5-6)	:		:		:		57282		72776	
TE1028V		Female students in higher education (ISCED level 5-6)	:		:		:		66421		85772	
TE1034V	TE1034V	Average number of pupils in a class (primary schools)	:	:	:	:	:	:	:	:	22,6	21,6
TE1035V	TE1035V	Average number of pupils in a class (secondary schools)	:	:	:	:	:	:	:	:	24,2	23,9
TE2025V	TE2025V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education	:	:	:	:	:	:	277380	:	311112	397792
TE2026V	TE2026V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education - male	:	:	:	:	:	:	116147	:	145409	182521
TE2027V	TE2027V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education - female	:	:	:	:	:	:	161233	:	165703	215271
TE2028V	TE2028V	Number of residents (aged 15-64) with ISCED level 3or 4 as the highest level of education	:	:	:	:	:	:	600119	:	616318	873908
TE2029V	TE2029V	Number of residents (aged 15-64) with ISCED level 3 or 4 as the highest level of education - male	:	:	:	:	:	:	300967	:	308258	438417
TE2030V	TE2030V	Number of residents (aged 15-64) with ISCED level 3 or 4 as the highest level of education - female	:	:	:	:	:	:	299152	:	308060	435491
TE2031V	TE2031V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education	:	:	:	:	:	:	237436	:	232009	300672
TE2032V	TE2032V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education - male	:	:	:	:	:	:	130359	:	116176	153627
TE2033V	TE2033V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education - female	:	:	:	:	:	:	107077	:	115833	147045
EN1001V		Number of days of rain per annum	:		:		:		168		144	
EN1002V		Total number of hours of sunshine per day	:		:		:		5,3		:	
EN1003V		Average temperature of warmest month	:		:		:		20,7		20,5	
EN1004V		Average temperature of coldest month	:		:		:		-1,5		3,3	
EN1005V		Rainfall (litre/m2)	:		:		:		665		669	
EN1006V		Median city centre altitude above sea level	:		:		:		204		:	
EN2002V		Summer Smog: Number of days ozone (O3) concentrations exceed 120 microgram/m3	42		32		36		23		27	
EN2003V		Number of hours per year that nitrogen dioxide NO2 concentrations exceed 200 microgram/m3	1		0		0		0		0	
EN2005V		Number of days particulate matter PM10concentrations exceed 50 microgram/m3	:		:		28		21		17	
EN2025V		Accumulated ozone concentration in excess 70 microgram/m3	6450,8		5412,3		5139,3		4941,5		5563,5	
EN2026V		Annual average concentration of NO2	26,5		26,2		19,9		20,1		21,7	
EN2027V		Annual average concentration of PM10	:		:		23,1		23		21,5	
EN2033V		Number of residents exposed to road traffic noise >65 dB(A) at day time	:		:		:		:		:	
EN2035V		Number of residents exposed to road traffic noise >55 dB(A) at night time	:		:		:		:		:	
EN2032V		Number of residents exposed to rail traffic (incl. tram) noise >65dB(A) at daytime	:		:		:		:		:	
EN2036V		Number of residents exposed to rail traffic (incl. tram) noise >55dB(A) at night-time	:		:		:		:		:	
EN2028V	EN2028V	Number of residents exposed to air traffic noise >65 dB(A) at day time	:	:	:	:	:	:	:	:	:	:
EN2029V	EN2029V	Number of residents exposed to air traffic noise >55 dB(A) at night time	:	:	:	:	:	:	:	:	:	:
EN3003V		Total consumption of water	140585000		135734000		129574000		125700000		132661000	
EN3004V		Number of dwellings connected to potable drinking water system	:		:		:		:		:	
EN3006V		Number of dwellings connected to sewerage treatment system	:		:		:		:		:	
EN3008V		Number of water rationing cases, days per year	:		:		:		:		0	
EN3009V		Number of scheduled water cuts, days per year	:		:		:		:		0	
EN3010V		Price of a m3 of domestic water (Euro)	:		:		1,3		1,3		1,3	
EN3011V		Percentage of the urban waste water load (in population equivalents) treated according to the applicat	:		:		:		:		100	
EN4001V		Annual amount of solid waste (domestic and commercial)	:		:		991001		921880		765882	
EN4002V		Annual amount of solid waste (domestic and commercial) processed by landfill.	:		:		109010		48866		64417	
EN4003V		Annual amount of solid waste (domestic and commercial) is processed by incinerator	:		:		445951		557097		587753	
EN4004V		Annual amount of solid waste (domestic and commercial) that is recycled	:		:		386490		283825		233488	
EN4006V		Annual amount of solid waste (domestic and commercial) given to other disposal	:		:		:		32092		:	
EN4007V		Annual amount of solid waste (domestic and commercial) that is composted	:		:		:		:		178129	
EN5003V	EN5003V	Total land area (km2) according to cadastral register	415	4610	415	4611	415	4610,93	:	4611,78	:	:
EN5015V	EN5015V	Water and wetland	:	:	:	:	19,4	106,25	19,09	106,25	:	:
EN5012V	EN5012V	Green space area	:	:	:	:	200,6	156,27	186,7	1452,1	:	:
EN5016V	EN5016V	Land used for agricultural purposes	:	:	:	:	65,4	2549,55	72,41	2587,22	:	:
EN5024V	EN5024V	Land used for commercial activities (industry, trade, offices)	:	:	:	:	:	:	:	:	:	:
EN5004V	EN5004V	Land area in housing/residential use	:	:	:	:	87,6	3351	:	:	:	:
EN5025V	EN5025V	Land used for transport (road, rail, air, ports)	:	:	:	:	:	:	55,3	226,7	:	:
EN5011V	EN5011V	Land area in recreational, sports and leisure use	:	:	:	:	12,8	:	:	:	:	:
EN5026V	EN5026V	other land use	:	:	:	:	:	:	:	:	:	:
EN5001V	EN5001V	Green space to which the public has access	:	:	:	:	1703,7	:	:	:	:	:
TT1003V	TT1003V	Percentage of journeys to work by car	41,44	:	:	:	41,05	:	:	:	:	:
TT1010V	TT1010V	Percentage of journeys to work by public transport (rail, metro, bus, tram)	:	:	:	:	:	:	:	:	:	:
TT1006V	TT1006V	Percentage of journeys to work by motor cycle	:	:	:	:	0,97	:	:	:	:	:
TT1007V	TT1007V	Percentage of journeys to work by bicycle	1,01	:	:	:	1,71	:	:	:	:	:
TT1008V	TT1008V	Percentage of journeys to work by foot	15,28	:	:	:	10,72	:	:	:	:	:
TT1012V	TT1012V	Percentage of journeys to work by car or motor cycle	:	:	:	:	:	:	:	:	:	:

TT1019V	TT1019V	Average time of journey to work (minutes)	:	:	:	:	:	:	:	:	:	:		
TT1020V	TT1020V	Average length of journey to work by private car (km)	:	:	:	:	:	:	:	:	:	:		
TT1064V		People commuting into the city	187991		:		:		:		:			
TT1065V		People commuting out of the city	48126		:		:		:		:			
TT1069V	TT1069V	Number of stops of public transport	:	:	:	:	:	:	4376	:	:	:		
TT1083V	TT1083V	Number of buses (or bus equivalents) operating in the public transport	:	:	:	:	:	:	483	:	2106	:		
TT1084V		Average age of the bus (only buses) fleet	:		:		:		:		:			
TT1085V		Proportion of buses running on alternative fuels	:		:		:		:		:			
TT1066V		Length of public transport network (km)	:		:		676		758		934			
TT1077V		Length of public transport network on fixed infrastructure	:		:		:		:		283,8			
TT1078V		Length of public transport network on flexible routes	:		:		:		:		641,4			
TT1082V		Length of restricted bus lanes	:		:		:		:		:			
TT1079V		Length of bicycle network (dedicated cycle paths and lanes)	:		:		867,6		955,2		:			
TT1080V		Cost of a combined monthly ticket (all modes of public transport) for 5-10 km in the central zone	:		:		:		45		49			
TT1081V		Cost of a taxi ride of 5 km to the centre at day time	:		:		:		8,7		:			
TT1057V	TT1057V	Number of private cars registered	461363	:	490131	490131	536814	:	635919	:	657192	:		
TT1013V		Number of motor cycles registered	:		:		:		44350		54487			
TT1070V	TT1070V	Number of park and ride parking spaces	:	:	:	:	:	:	8	:	:	:		
TT1075V		Maximum charge of on-street parking in the city centre per hour	:		:		:		0,8		:			
TT1060V	TT1060V	Number of deaths in road accidents	:	:	:	:	:	:	43	113	27	97		
TT1061V	TT1061V	Number of persons seriously injured in road accidents	:	:	:	:	:	:	621	1026	772	1198		
TT1071V	TT1071V	Accessiblity by air (EU27=100)	:	:	:	:	:	:	153	:	:	:		
TT1072V	TT1072V	Accessiblity by rail (EU27=100)	:	:	:	:	:	:	103	:	:	:		
TT1073V	TT1073V	Accessiblity by road (EU27=100)	:	:	:	:	:	:	111	:	:	:		
TT1074V	TT1074V	Multimodal accessibility (EU27=100)	:	:	:	:	:	:	145	:	:	:		
IT1005V		Percentage of households with Internet access at home	:		:		23		43,7		74,7			
IT3001V		Number of local units manufacturing ICT products	:		:		180		:		:			
IT3002V		Number of persons employed in manufacture of ICT products	:		:		17220		:		:			
IT3003V		Number of local units providing ICT services	:		:		4781		:		:			
IT3004V		Number of persons employed in provision of ICT services	:		:		49671		:		:			
IT3005V		Number of local units producing content for the Information Society	:		:		7950		:		:			
IT3006V		Number of persons employed in production of content for the Information Society	:		:		46639		:		:			
CR1003V		Number of cinema seats (total capacity)	:		:		36706		31171		:			
CR1005V		Cinema attendance (per year)	4262559		3910105		5612200		5347986		:			
CR1006V		Number of museums	:		:		91		104		:			
CR1007V		Number of museum visitors (per year)	9447881		:		6923286		8852634		8792783			
CR1008V		Number of theatres	:		:		41		44		33			
CR1013V		Number of theatre seats	:		:		20215		20036		10013			
CR1009V		Theatre attendance (per year)	:		:		2597765		2456497		:			
CR1010V		Number of public libraries (all distribution points)	:		:		83		154		116			
CR1011V		Number of books and other media loaned from public libraries (per year)	:		:		6583092		5447479		5710600			
CR1014V		Number of persons employed in the culture and entertainment industry	:		:		:		:		:			
CR1015V	CR1015V	Number of public swimmingpools	:	:	:	:	:	:	:	:	49	:		
CR2001V		Total annual tourist overnight stays in registered accommodation	6182090		6766271		7671583		8431542		10232472			
CR2009V		Number of available beds	35513		42541		45232		48061		55425			
CR2102V		Number of available beds at high season	:		:		45232		47953		:			
CR2103V		Number of available beds at low season	:		:		41466		44195		:			
CR2104V		Total tourist overnight stays in registered accommodation at high season	:		:		4607824		4983198		:			
CR2105V		Total tourist overnight stays in registered accommodation at low season	:		:		3093798		3458309		:			
CR2004V		Number of air passengers using nearest airport	:		9136349		11752175		14771865		:			
CR2005V		Number of air passengers using nearest airport: Total arrivals	:		:		5866342		7344288		:			
CR2006V		Number of air passengers using nearest airport: Domestic arrivals	:		:		264899		278073		342879			
CR2007V		Number of air passengers using nearest airport: Total departures	:		:		5885833		7367304		:			
CR2008V		Number of air passengers using nearest airport: Domestic departures	:		:		259632		272909		337962			
DE3019V	DE3019V	Number of jobless households with children	:	:	:	:	:	:	:	:	:	:		
DE3020V	DE3020V	Number of jobless households without children	:	:	:	:	:	:	:	:	:	:		
CI1019V		Participation rate at European elections	:		:		:		:		:			
CI1020V		Participation rate at national elections	:		:		:		:		:			
CI1021V		Participation rate at city elections	:		:		:		:		:			
TE1036V		Students in education of ISCED level 1-2	:		:		:		:		:			
TE1037V		Male students in education of ISCED level 1-2	:		:		:		:		:			
TE1038V		Female students in education of ISCED level 1-2	:		:		:		:		:			

Praha

INDIC_UR_CC	INDIC_UR_LUZ	INDIC_UR(L)/TIME	1989_1993_CC	1989_1993_LUZ	1994_1998_CC	1994_1998_LUZ	1999_2002_CC	1999_2002_LUZ	2003_2006_CC	2003_2006_LUZ	2007_2010_CC	2007_2010_LUZ
DE1001V	DE1001V	Total Resident Population	1214174	1976178	1204953	1958368	1169106	1941803	1170571	1964750	1233211	2099282
DE1002V	DE1002V	Male Resident Population	570247	940804	568962	936042	554382	932116	559108	947153	599038	1025752
DE1003V	DE1003V	Female Resident Population	643927	1035374	635991	1022326	614724	1009687	611463	1017597	634173	1073530
DE1067V	DE1067V	Total Resident Population 0-2	:	:	:	:	25940	:	30806	54484	39793	72521
DE1068V	DE1068V	Male Resident Population 0-2	:	:	:	:	13409	23778	15812	27985	20494	37354
DE1069V	DE1069V	Female Resident Population 0-2	:	:	:	:	12531	22343	14994	26499	19299	35167
DE1070V	DE1070V	Total Resident Population 3-4	:	:	:	:	16423	29954	18214	33018	22362	41804
DE1071V	DE1071V	Male Resident Population 3-4	:	:	:	:	8387	15368	9345	17027	11321	21383
DE1072V	DE1072V	Female Resident Population 3-4	:	:	:	:	8036	14586	8869	15991	11041	20421
DE1040V	DE1040V	Total Resident Population 0-4	64636	108856	51231	88700	42363	76075	49020	87502	62155	114325
DE1041V	DE1041V	Male Resident Population 0-4	:	:	:	:	21796	39146	25157	45012	31815	58737
DE1042V	DE1042V	Female Resident Population 0-4	:	:	:	:	20567	36929	23863	42490	30340	55588
DE1043V	DE1043V	Total Resident Population 5-14	159961	268894	131060	222429	114339	203318	97104	179225	87954	168576
DE1044V	DE1044V	Male Resident Population 5-14	:	:	:	:	58645	104255	49624	91663	45060	86578
DE1045V	DE1045V	Female Resident Population 5-14	:	:	:	:	55694	99063	47480	87562	42894	81998
DE1046V	DE1046V	Total Resident Population 15-19	89871	153314	87010	145484	69009	118600	64426	113048	60468	110995
DE1047V	DE1047V	Male Resident Population 15-19	:	:	:	:	35007	60390	33174	58139	30811	56658
DE1048V	DE1048V	Female Resident Population 15-19	:	:	:	:	34002	58210	31252	54909	29657	54337
DE1049V	DE1049V	Total Resident Population 20-24	70047	118909	95699	159564	93454	155447	77159	129633	82300	136664
DE1050V	DE1050V	Male Resident Population 20-24	:	:	:	:	47426	79007	39182	65929	43335	71546
DE1051V	DE1051V	Female Resident Population 20-24	:	:	:	:	46028	76440	37977	63704	38965	65118
DE1052V	DE1052V	Total Resident Population 25-54	509022	819128	527760	846816	520099	861999	528787	882636	565532	950492
DE1053V	DE1053V	Male Resident Population 25-54	:	:	:	:	253172	426795	261465	439917	286864	482523
DE1054V	DE1054V	Female Resident Population 25-54	:	:	:	:	266927	435204	267322	442719	278668	467969
DE1058V	DE1058V	Total Resident Population 25-34	:	:	:	:	173590	:	204050	339195	229105	376202
DE1059V	DE1059V	Male Resident Population 25-34	:	:	:	:	86323	146554	103205	171245	118314	192444
DE1060V	DE1060V	Female Resident Population 25-34	:	:	:	:	87267	144719	100845	167950	110791	183758
DE1061V	DE1061V	Total Resident Population 35-44	:	:	:	:	151959	252137	154164	258217	179168	307729
DE1062V	DE1062V	Male Resident Population 35-44	:	:	:	:	74348	125316	76680	129748	91748	158010
DE1063V	DE1063V	Female Resident Population 35-44	:	:	:	:	77611	126821	77484	128469	87420	149719
DE1064V	DE1064V	Total Resident Population 45-54	:	:	:	:	194550	318589	170573	285224	157259	266561
DE1065V	DE1065V	Male Resident Population 45-54	:	:	:	:	92501	154925	81580	138924	76802	132069
DE1066V	DE1066V	Female Resident Population 45-54	:	:	:	:	102049	163664	88993	146300	80457	134492
DE1073V	DE1073V	Median population age	:	:	:	:	:	:	:	:	40	39,2
DE1025V	DE1025V	Total Resident Population 55-64	134249	216873	117560	191750	139966	225521	170314	276911	179643	300836
DE1026V	DE1026V	Male Resident Population 55-64	:	:	:	:	65759	107025	79364	131373	83415	142497
DE1027V	DE1027V	Female Resident Population 55-64	:	:	:	:	74207	118496	90950	145538	96228	158339
DE1028V	DE1028V	Total Resident Population 65-74	108181	168359	121494	192007	105676	172160	95288	158158	101686	169981
DE1029V	DE1029V	Male Resident Population 65-74	:	:	:	:	44246	72360	40595	67819	44561	75123
DE1030V	DE1030V	Female Resident Population 65-74	:	:	:	:	61430	99800	54693	90339	57125	94858
DE1055V	DE1055V	Total Resident Population 75 and over	78207	121845	73139	111618	84200	128683	88473	137637	93473	147413
DE1056V	DE1056V	Male Resident Population 75 and over	:	:	:	:	28331	43138	30547	47301	33177	52090
DE1057V	DE1057V	Female Resident Population 75 and over	:	:	:	:	55869	85545	57926	90336	60296	95323
DE2001V	DE2001V	Residents who are Nationals	1186970	1937089	1173400	1914900	1134033	1897581	:	:	:	:
DE2002V	DE2002V	Residents who are Nationals of other EU Member State	:	:	:	:	10726	13686	:	30364	33165	44420
DE2003V	DE2003V	Residents who are not EU Nationals	:	:	:	:	24347	30536	:	70097	96252	119382
DE2005V	DE2005V	Residents who are not EU Nationals and citizens of a country with high HDI	:	:	:	:	:	:	:	21984	27827	33831
DE2006V	DE2006V	Residents who are not EU Nationals and citizens of a country with a medium or low HDI	:	:	:	:	:	:	:	48113	68425	85551
DE2004V	DE2004V	Nationals born abroad	32377	48238	:	:	64984	92263	:	:	:	:
DE2007V	DE2007V	Number of residents born abroad (not only nationals)	:	:	:	:	:	:	:	:	:	:
DE3001V	DE3001V	Total Number of Households	538331	837999	:	:	544577	860736	:	:	:	:
DE3017V	DE3017V	Total Resident Population living in households (excluding institutional households)	:	:	:	:	:	:	:	:	:	:
DE3002V	DE3002V	One person households (Total)	177841	258738	:	:	201335	294399	:	:	:	:
DE3005V	DE3005V	Lone parent households (Total)	53420	71056	:	:	52161	78137	:	:	:	:
DE3008V	DE3008V	Lone pensioner (above retirement age) households Total	63473	102683	:	:	64523	107887	:	:	:	:
DE3009V	DE3009V	Lone pensioner (above retirement age) households Male	:	:	:	:	14599	24661	:	:	:	:
DE3010V	DE3010V	Lone pensioner (above retirement age) households Female	:	:	:	:	49924	83226	:	:	:	:
DE3011V	DE3011V	Households with children aged 0 to under 18	194891	312681	:	:	152617	258031	:	:	:	:
DE3012V		Nationals that have moved into the city during the last two years	:		:		20569		:		:	

DE3013V		EU Nationals that have moved into the city during the last two years (stock)	:	:	:	:	7551	:	:	:	:	:
DE3014V		Non-EU Nationals that have moved into the city during the last two years (stock)	:	:	:	:	16634	:	:	:	:	:
DE3015V		Number of moves into the city during the last two years (flow)	:	:	:	:	:	:	:	:	:	:
DE3016V		Number of moves out of the city during the last two years (flow)	:	:	:	:	:	:	:	:	:	:
DE3018V	DE3018V	Households with 3 children or more under 18	:	:	:	:	:	:	:	:	:	:
SA1001V	SA1001V	Number of dwellings	:	:	:	:	543306	838466	:	:	:	:
SA1004V	SA1004V	Number of houses	:	:	:	:	63642	236625	:	:	:	:
SA1005V	SA1005V	Number of apartments	:	:	:	:	430234	538741	:	:	:	:
SA1007V	SA1007V	Number of households living in houses	:	:	:	:	72563	265751	:	:	:	:
SA1008V	SA1008V	Number of households living in apartments	:	:	:	:	465796	582710	:	:	:	:
SA1011V	SA1011V	Households owning their own dwelling	54546	203925	:	:	110689	284768	:	:	:	:
SA1012V	SA1012V	Households in social housing	0	0	:	:	:	:	:	:	:	:
SA1013V	SA1013V	Households in private rented housing	:	:	:	:	234599	284933	:	:	:	:
SA1027V		Number of roofless persons	:	:	:	:	:	:	:	:	:	:
SA1029V		Number of people in accommodation for the homeless	:	:	:	:	:	:	:	:	:	:
SA1031V		Number of people in Women's Shelter	:	:	:	:	:	:	:	:	:	:
SA1030V		Number of people in accommodation for immigrants	:	:	:	:	:	:	:	:	:	:
SA1016V	SA1016V	Average price for an apartment per m2	:	:	:	:	:	:	820,4	759,6	1756	:
SA1023V	SA1023V	Average price for a house per m2	:	:	:	:	:	:	:	1016,3	:	:
SA1049V	SA1049V	Average annual rent for housing per m2	:	:	:	:	:	:	4,9	:	:	:
SA1018V	SA1018V	Dwellings lacking basic amenities	12695	34704	:	:	1204	8202	:	:	:	:
SA1019V	SA1019V	Average occupancy per occupied dwelling	2,44	2,55	:	:	2	2	:	:	:	:
SA1025V	SA1025V	Empty conventional dwellings	20489	61490	:	:	26772	32978	:	:	:	:
SA1026V	SA1026V	Non-conventional dwellings	:	:	:	:	3064	6190	:	:	:	:
SA1046V	SA1046V	Number of overcrowded households (>1 persons in 1 room)	:	:	:	:	:	:	:	:	:	:
SA1022V	SA1022V	Average area of living accommodation (m2 per person)	16,1	16,8	:	:	18	19	:	:	:	:
SA2004V	SA2004V	Infant Mortality per year	:	:	:	:	30	54	34	65	21	51
SA2005V	SA2005V	Male Infant Mortality per year	:	:	:	:	21	35	17	36	9	23
SA2006V	SA2006V	Female Infant Mortality per year	:	:	:	:	9	19	17	29	12	28
SA2007V	SA2007V	Number of live births per year	:	:	:	:	9681	16688	11131	19146	14339	25464
SA2008V	SA2008V	Number of live births per year (Male)	:	:	:	:	5010	8700	5663	9813	7365	13010
SA2009V	SA2009V	Number of live births per year (Female)	:	:	:	:	4671	7988	5468	9333	6974	12454
SA2013V	SA2013V	Number of deaths per year under 65 due to heart diseases and respiratory illness	1331	2310	1037	1897	861	1522	1332	2303	1337	2251
SA2014V	SA2014V	Number of deaths per year under 65 due to heart diseases and respiratory illness (Male)	:	:	:	:	616	1095	859	1515	825	1448
SA2015V	SA2015V	Number of deaths per year under 65 due to heart diseases and respiratory illness (Female)	:	:	:	:	245	427	473	788	512	803
SA2016V	SA2016V	Total deaths under 65 per year	:	:	:	:	2814	4833	2764	4903	2733	4796
SA2017V	SA2017V	Total deaths under 65 per year (Male)	:	:	:	:	1830	3230	1828	3320	1734	3163
SA2018V	SA2018V	Total deaths under 65 per year (Female)	:	:	:	:	984	1603	936	1583	999	1633
SA2019V	SA2019V	Total deaths per year	:	:	:	:	13210	21987	12849	21647	12269	20779
SA2020V	SA2020V	Total deaths per year (Male)	:	:	:	:	6121	10428	6111	10509	5830	10120
SA2021V	SA2021V	Total deaths per year (Female)	:	:	:	:	7089	11559	6738	11138	6439	10659
SA2022V	SA2022V	Number of hospital beds	10304	15744	9590	14191	9755	13552	12845	18539	12883	18369
SA2026V	SA2026V	Number of hospital discharges of in-patients	:	:	:	:	:	:	233497	413161	197283	376710
SA2027V	SA2027V	Number of practising physicians	:	:	:	:	:	:	4297,3	6558,3	4994,8	7549,5
SA2028V	SA2028V	Number of practising dentists	:	:	:	:	:	:	866	1199	914	1239
SA2029V	SA2029V	Number of deaths per year due to suicide	:	:	:	:	:	:	155	264	168	276
SA2030V	SA2030V	Number of general practitioners	:	:	:	:	:	:	:	:	:	:
SA2031V	SA2031V	Number of specialist doctors	:	:	:	:	:	:	:	:	:	:
SA3001V	SA3001V	Total number of recorded crimes within city [country for national data]	:	:	99107	128704	99966	127691	97343	123845	82957	112746
SA3005V	SA3005V	Number of murders and violent deaths	:	:	45	73	58	79	48	71	32	49
SA3006V	SA3006V	Number of car thefts	:	:	:	:	10500	12279	9657	11340	6196	8378
SA3007V	SA3007V	Number of domestic burglary	:	:	:	:	:	:	3563	4946	2272	3661
EC1001V	EC1001V	Total Economically Active Population	624357	998894	634697	1016333	631892	1022093	:	:	:	:
EC1002V	EC1002V	Male Economically Active Population	334071	545807	338072	555459	334374	554388	:	:	:	:
EC1003V	EC1003V	Female Economically Active Population	290286	453087	296625	460874	297518	467705	:	:	:	:
EC1142V	EC1142V	Total Economically Active Population 15-24	:	:	:	:	57321	106433	:	:	:	:
EC1143V	EC1143V	Male Economically Active Population 15-24	:	:	:	:	28383	56884	:	:	:	:
EC1144V	EC1144V	Female Economically Active Population 15-24	:	:	:	:	28938	49549	:	:	:	:
EC1145V	EC1145V	Total Economically Active Population 55-64	:	:	:	:	87597	124542	:	:	:	:
EC1146V	EC1146V	Male Economically Active Population 55-64	:	:	:	:	51645	76016	:	:	:	:
EC1147V	EC1147V	Female Economically Active Population 55-64	:	:	:	:	35952	48526	:	:	:	:
EC1010V	EC1010V	Residents Unemployed	21544	39242	12473	25560	24374	53281	:	:	:	:
EC1011V	EC1011V	Male Residents Unemployed	10491	18121	7025	12788	11752	22929	:	:	:	:
EC1012V	EC1012V	Female Residents Unemployed	11053	21121	5448	12772	12622	30352	:	:	:	:
EC1148V	EC1148V	Residents Unemployed 15-24	:	:	:	:	4635	11710	:	:	:	:
EC1149V	EC1149V	Male Residents Unemployed 15-24	:	:	:	:	2548	6073	:	:	:	:
EC1150V	EC1150V	Female Residents Unemployed 15-24	:	:	:	:	2087	5637	:	:	:	:
EC1151V	EC1151V	Residents Unemployed 55-64	:	:	:	:	2608	4816	:	:	:	:
EC1152V	EC1152V	Male Residents Unemployed 55-64	:	:	:	:	1249	2101	:	:	:	:
EC1153V	EC1153V	Female Residents Unemployed 55-64	:	:	:	:	1359	2715	:	:	:	:

EC1154V	EC1154V	Mehr als sechs Monate ununterbrochen Erwerbslose im Alter von 15 - unter 25 Jahren, insgesamt	:	:	:	:	2130	5697	:	:	:	:
EC1155V	EC1155V	Male unemployed continuously for more than six months, 15-24	:	:	:	:	1208	2612	:	:	:	:
EC1156V	EC1156V	Female unemployed continuously for more than six months, 15-24	:	:	:	:	922	3085	:	:	:	:
EC1157V	EC1157V	Unemployed continuously for more than one year, 55-64	:	:	:	:	1204	2548	:	:	:	:
EC1158V	EC1158V	Male unemployed continuously for more than one year, 55-64	:	:	:	:	512	858	:	:	:	:
EC1159V	EC1159V	Female unemployed continuously for more than one year, 55-64	:	:	:	:	692	1690	:	:	:	:
EC1025V		Residents in Self Employment	90317		105483		121941		:		:	
EC1026V		Male residents in Self Employment	63246		75717		82709		:		:	
EC1027V		Female residents in Self Employment	27071		29766		39232		:		:	
EC1028V		Residents in Paid Employment	512496		516741		485577		:		:	
EC1029V		Male residents in Paid Employment	260334		255330		239913		:		:	
EC1030V		Female residents in Paid Employment	252162		261411		245664		:		:	
EC1034V	EC1034V	Total Full-Time Employment	562925	:	583706	:	571084	:	:	:	:	:
EC1035V	EC1035V	Male Full-Time Employment	310242	:	320832	:	311058	:	:	:	:	:
EC1036V	EC1036V	Female Full-Time Employment	252683	:	262874	:	260026	:	:	:	:	:
EC1088V	EC1088V	Total Part-Time Employment	39888	:	38518	:	36434	:	:	:	:	:
EC1089V	EC1089V	Male Part-Time Employment	13338	:	10215	:	11564	:	:	:	:	:
EC1090V	EC1090V	Female Part-Time Employment	26550	:	28303	:	24870	:	:	:	:	:
EC1160V		Total Full-Time Employment 15-24	:		:		49118		:		:	
EC1161V		Full-Time Employment 15-24 Male	:		:		24199		:		:	
EC1162V		Full-Time Employment 15-24 Female	:		:		24919		:		:	
EC1163V		Total Full-Time Employment 55-64	:		:		77343		:		:	
EC1164V		Full-Time Employment 55-64 Male	:		:		48820		:		:	
EC1165V		Full-Time Employment 55-64 Female	:		:		28523		:		:	
EC1166V		Total Part-Time Employment 15-24	:		:		3569		:		:	
EC1167V		Part-Time Employment 15-24 Male	:		:		1637		:		:	
EC1168V		Part-Time Employment 15-24 Female	:		:		1932		:		:	
EC1169V		Total Part-Time Employment 55-64	:		:		7647		:		:	
EC1170V		Part-Time Employment 55-64 Male	:		:		1560		:		:	
EC1171V		Part-Time Employment 55-64 Female	:		:		6087		:		:	
EC1172V	EC1172V	Number of jobless households with children	:	:	:	:	:	:	:	:	:	:
EC1173V	EC1173V	Number of jobless households without children	:	:	:	:	:	:	:	:	:	:
EC2001V	EC2001V	Gross Domestic Product of city / region / country	:	:	9745	:	16264	:	20758	:	31725	:
EC2021V		All companies	:		41853		76053		:		:	
EC2003V		Companies with headquarter within the city [country] quoted on national stock exchange	:		:		:		16		:	
EC2004V		New business registered in reference year	:		8485		6249		:		:	
EC2014V		Companies gone bankrupt in reference year	:		:		381		:		:	
EC2020V		Total employment / jobs (work place based)	:		:		697796		:		:	
EC2008V		Employment (jobs) in agriculture, fishery (NACE Rev. 1: A-B) & ESA95 A3	:		:		3506		:		:	
EC2009V		Employment (jobs) in mining, manufacturing, energy (NACE Rev. 1: C-E)	:		:		88323		:		:	
EC2022V		Employment (jobs) inconstruction (NACE Rev. 1: F)	:		:		68602		:		:	
EC2010V		Employment (jobs) in trade, hotels, restaurants (NACE Rev. 1: G-H)	:		:		139696		:		:	
EC2023V		Employment (jobs) in transport, communication (NACE Rev. 1: I)	:		:		69715		:		:	
EC2011V		Employment (jobs) financial intermediation, business activities (NACE Rev. 1: J-K)	:		:		124876		:		:	
EC2012V		Employment (jobs) in public admin., health, education, other (NACE Rev. 1: L-P)	:		:		203078		:		:	
EC2016V		Employment (jobs) in Nace Rev. 1 C-F (ESA95 A3)	:		:		156925		:		:	
EC2017V		Employment (jobs) in Nace Rev. 1 G-P (ESA95 A3)	:		:		537365		:		:	
EC2018V		Employment (jobs) - employees	:		:		571044		:		:	
EC2019V		Employment (jobs) - self employed	:		:		126752		:		:	
EC2024V		Enterprises with 1 to 250 employees	:		:		:		:		:	
EC2025V		Enterprises with more than 250 employees	:		:		:		:		:	
EC2026V		Enterprises that had a turnover increase last year (size class 1-250 employees)	:		:		:		:		:	
EC2027V		Enterprises that had a turnover increase last year (size class >250 employees)	:		:		:		:		:	
EC2028V		Employment growth last year (size class 1-250 employees)	:		:		:		:		:	
EC2029V		Employment growth last year (size class >250 employees)	:		:		:		:		:	
EC2030V	EC2030V	Gross Domestic Product of NUTS 3 region in Euros	:	:	9744,9	:	16264,4	:	20758,4	:	31724,5	:
EC2031V	EC2031V	Gross Domestic Product per inhabitant in PPS of NUTS 3 region	:	:	19700	:	28700	:	33400	:	42800	:
EC3039V	EC3039V	Median disposable annual household income	:	:	:	:	6963	6906	:	:	:	:
EC3040V		Average disposable annual household income	:		:		:		:		:	
EC3045V	EC3045V	Household Income: Quintile 4 (income with 20% households above, 80% below)	:	:	:	:	12613	11858	:	:	:	:
EC3048V	EC3048V	Household Income: Quintile 3 (income with 40% households above, 60% below)	:	:	:	:	8487	8332	:	:	:	:
EC3051V	EC3051V	Household Income: Quintile 2 (income with 60% households above, 40% below)	:	:	:	:	5764	5710	:	:	:	:
EC3054V	EC3054V	Household Income: Quintile 1 (income with 80% households above, 20% below)	:	:	:	:	3625	3618	:	:	:	:
EC3056V	EC3056V	Total Number of Households (relating to the reported household income)	:	:	:	:	:	:	:	:	:	:
EC3055V	EC3055V	Total Number of Households with less than 60% of the national median disposable annual household	:	:	:	:	:	:	:	:	:	:
EC3057V	EC3057V	Total Number of Households with less than half of the national average income	:	:	:	:	105644	166000	:	:	:	:
EC3060V	EC3060V	Total Number of Households reliant on social security benefits (>50%)	:	:	:	:	171655	:	:	:	:	:
EC3063V	EC3063V	Individuals reliant on social security benefits (>50%)	:	:	:	:	:	:	:	:	:	:
CI1016V		Total number of elected city representatives	:		:		70		70		:	
CI1017V		Number of Male elected city representatives	:		:		62		55		:	

CI1018V		Number of Female elected city representatives	:		:		8		15		:			
TE1001V	TE1001V	Number of children 0-4 in day care	19114	33178	17511	29794	16522	28934	:	:	:	:		
TE1006V	TE1006V	Number of children 0-2 in day care	:	:	:	:	:	:	:	:	:	:		
TE1007V	TE1007V	Number of children 3-4 in day care	:	:	:	:	:	:	:	:	:	:		
TE1005V	TE1005V	Total students registered for final year of compulsory education	:	:	:	:	13095	21766	12669	21223	10901	18903		
TE1030V	TE1030V	Students leaving compulsory education without having a diploma	:	:	769	1330	779	1369	:	:	:	:		
TE1031V		Students in upper and further education (ISCED level 3-4)	81577		62618		63105		:		:			
TE1032V		Male students in upper and further education (ISCED level 3-4)	:		:		31931		:		:			
TE1033V		Female students in upper and further education (ISCED level 3-4)	:		:		31174		:		:			
TE1026V		Students in higher education (ISCED level 5-6)	51807		65606		96985		119706		145801			
TE1027V		Male students in higher education (ISCED level 5-6)	:		:		53156		62341		67442			
TE1028V		Female students in higher education (ISCED level 5-6)	:		:		43829		57365		78359			
TE1034V	TE1034V	Average number of pupils in a class (primary schools)	:	:	:	:	:	:	21	:	20,4	:		
TE1035V	TE1035V	Average number of pupils in a class (secondary schools)	:	:	:	:	:	:	22,9	:	21,7	:		
TE2025V	TE2025V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education	:	:	:	:	:	:	:	:	:	:		
TE2026V	TE2026V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education - male	:	:	:	:	:	:	:	:	:	:		
TE2027V	TE2027V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education - female	:	:	:	:	:	:	:	:	:	:		
TE2028V	TE2028V	Number of residents (aged 15-64) with ISCED level 3or 4 as the highest level of education	:	:	:	:	:	:	:	:	:	:		
TE2029V	TE2029V	Number of residents (aged 15-64) with ISCED level 3 or 4 as the highest level of education - male	:	:	:	:	:	:	:	:	:	:		
TE2030V	TE2030V	Number of residents (aged 15-64) with ISCED level 3 or 4 as the highest level of education - female	:	:	:	:	:	:	:	:	:	:		
TE2031V	TE2031V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education	:	:	:	:	:	:	:	:	:	:		
TE2032V	TE2032V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education - male	:	:	:	:	:	:	:	:	:	:		
TE2033V	TE2033V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education - female	:	:	:	:	:	:	:	:	:	:		
EN1001V		Number of days of rain per annum	:		:		187		151		:			
EN1002V		Total number of hours of sunshine per day	:		:		4,5		4,8		4,5			
EN1003V		Average temperature of warmest month	:		:		20,3		20,8		20,4			
EN1004V		Average temperature of coldest month	:		:		-1		-1,8		2,7			
EN1005V		Rainfall (litre/m2)	:		:		538		399		408			
EN1006V		Median city centre altitude above sea level	:		:		:		211		:			
EN2002V		Summer Smog: Number of days ozone (O3) concentrations exceed 120 microgram/m3	35		17		12		19		21			
EN2003V		Number of hours per year that nitrogen dioxide NO2 concentrations exceed 200 microgram/m3	0		0		0		0		0			
EN2005V		Number of days particulate matter PM10concentrations exceed 50 microgram/m3	:		98		39		51		13			
EN2025V		Accumulated ozone concentration in excess 70 microgram/m3	5604		3667		2681,3		4201,7		4393,2			
EN2026V		Annual average concentration of NO2	24,8		31,9		30,3		28,4		25,3			
EN2027V		Annual average concentration of PM10	:		42,5		29,3		33,6		22,3			
EN2033V		Number of residents exposed to road traffic noise >65 dB(A) at day time	:		:		:		:		:			
EN2035V		Number of residents exposed to road traffic noise >55 dB(A) at night time	:		:		:		:		:			
EN2032V		Number of residents exposed to rail traffic (incl. tram) noise >65dB(A) at daytime	:		:		:		:		:			
EN2036V		Number of residents exposed to rail traffic (incl. tram) noise >55dB(A) at night-time	:		:		:		:		:			
EN2028V	EN2028V	Number of residents exposed to air traffic noise >65 dB(A) at day time	:	:	:	:	:	:	:	:	:	:		
EN2029V	EN2029V	Number of residents exposed to air traffic noise >55 dB(A) at night time	:	:	:	:	:	:	:	:	:	:		
EN3003V		Total consumption of water	147436000		107129000		92184000		:		:			
EN3004V		Number of dwellings connected to potable drinking water system	:		:		492659		:		:			
EN3006V		Number of dwellings connected to sewerage treatment system	:		:		481462		:		:			
EN3008V		Number of water rationing cases, days per year	:		:		0		:		:			
EN3009V		Number of scheduled water cuts, days per year	:		:		270		:		:			
EN3010V		Price of a m3 of domestic water (Euro)	:		:		:		:		:			
EN3011V		Percentage of the urban waste water load (in population equivalents) treated according to the applic	:		:		:		:		:			
EN4001V		Annual amount of solid waste (domestic and commercial)	:		:		264551		:		:			
EN4002V		Annual amount of solid waste (domestic and commercial) processed by landfill.	:		:		32000		:		:			
EN4003V		Annual amount of solid waste (domestic and commercial) is processed by incinerator	:		:		206000		:		:			
EN4004V		Annual amount of solid waste (domestic and commercial) that is recycled	:		:		27000		:		:			
EN4006V		Annual amount of solid waste (domestic and commercial) given to other disposal	:		:		0		:		:			
EN4007V		Annual amount of solid waste (domestic and commercial) that is composted	:		:		:		:		:			
EN5003V	EN5003V	Total land area (km2) according to cadastral register	496	6977	496	6977	496	6977	495,9	6982,9	496	6982,9		
EN5015V	EN5015V	Water and wetland	:	:	9,73	:	:	:	10,8	130,8	10,8	132		
EN5012V	EN5012V	Green space area	:	:	119,12	:	:	:	89,2	1768,7	90	1776,5		
EN5016V	EN5016V	Land used for agricultural purposes	:	:	157,58	:	:	:	209,8	4390	205,2	4380,4		
EN5024V	EN5024V	Land used for commercial activities (industry, trade, offices)	:	:	:	:	:	:	:	:	:	:		
EN5004V	EN5004V	Land area in housing/residential use	:	:	81,95	:	:	:	:	134,4	:	:		
EN5025V	EN5025V	Land used for transport (road, rail, air, ports)	:	:	:	:	:	:	:	:	67,7	312		
EN5011V	EN5011V	Land area in recreational, sports and leisure use	:	:	6,95	:	:	:	:	31,7	7,2	30,2		
EN5026V	EN5026V	other land use	:	:	:	:	:	:	:	:	:	:		
EN5001V	EN5001V	Green space to which the public has access	:	:	10025	:	:	:	:	:	:	:		
TT1003V	TT1003V	Percentage of journeys to work by car	:	:	:	:	27	32,2	:	:	:	:		
TT1010V	TT1010V	Percentage of journeys to work by public transport (rail, metro, bus, tram)	:	:	:	:	:	:	:	:	:	:		
TT1006V	TT1006V	Percentage of journeys to work by motor cycle	:	:	:	:	0	0,2	:	:	:	:		
TT1007V	TT1007V	Percentage of journeys to work by bicycle	:	:	:	:	0,3	2,6	:	:	:	:		
TT1008V	TT1008V	Percentage of journeys to work by foot	:	:	:	:	4,1	4,4	:	:	:	:		
TT1012V	TT1012V	Percentage of journeys to work by car or motor cycle	:	:	:	:	:	:	:	:	:	:		

TT1019V	TT1019V	Average time of journey to work (minutes)	59	52	:	:	37,4	33,8	:	:	:	:
TT1020V	TT1020V	Average length of journey to work by private car (km)	:	:	:	:	:	:	:	:	:	:
TT1064V		People commuting into the city	105006		:		163108		:		:	
TT1065V		People commuting out of the city	28718		:		29415		:		:	
TT1069V	TT1069V	Number of stops of public transport	:	:	:	:	:	:	:	:	2358	:
TT1083V	TT1083V	Number of buses (or bus equivalents) operating in the public transport	:	:	:	:	:	:	:	:	:	:
TT1084V		Average age of the bus (only buses) fleet	:		:		:		:		:	
TT1085V		Proportion of buses running on alternative fuels	:		:		:		:		0,2	
TT1066V		Length of public transport network (km)	:		:		857		:		1023	
TT1077V		Length of public transport network on fixed infrastructure	:		:		:		:		201	
TT1078V		Length of public transport network on flexible routes	:		:		:		:		822	
TT1082V		Length of restricted bus lanes	:		:		:		:		24,2	
TT1079V		Length of bicycle network (dedicated cycle paths and lanes)	:		:		:		:		170	
TT1080V		Cost of a combined monthly ticket (all modes of public transport) for 5-10 km in the central zone	:		:		:		13,8		20,5	
TT1081V		Cost of a taxi ride of 5 km to the centre at day time	:		:		:		5,3		6,5	
TT1057V	TT1057V	Number of private cars registered	:	:	:	:	547872	839643	580446	905861	633688	1025630
TT1013V		Number of motor cycles registered	:		:		:		57616		72037	
TT1070V	TT1070V	Number of park and ride parking spaces	:	:	:	:	:	:	:	:	:	:
TT1075V		Maximum charge of on-street parking in the city centre per hour	:		:		:		1,3		1,5	
TT1060V	TT1060V	Number of deaths in road accidents	:	:	:	:	:	:	56	197	38	151
TT1061V	TT1061V	Number of persons seriously injured in road accidents	:	:	:	:	:	:	428	1010	334	777
TT1071V	TT1071V	Accessiblity by air (EU27=100)	:	:	:	:	:	:	146	:	:	:
TT1072V	TT1072V	Accessiblity by rail (EU27=100)	:	:	:	:	:	:	98	:	:	:
TT1073V	TT1073V	Accessiblity by road (EU27=100)	:	:	:	:	:	:	117	:	:	:
TT1074V	TT1074V	Multimodal accessibility (EU27=100)	:	:	:	:	:	:	138	:	:	:
IT1005V		Percentage of households with Internet access at home	:		:		10,1		:		:	
IT3001V		Number of local units manufacturing ICT products	:		:		1991		:		:	
IT3002V		Number of persons employed in manufacture of ICT products	:		:		7426		:		:	
IT3003V		Number of local units providing ICT services	:		:		10757		:		:	
IT3004V		Number of persons employed in provision of ICT services	:		:		24153		:		:	
IT3005V		Number of local units producing content for the Information Society	:		:		39973		:		:	
IT3006V		Number of persons employed in production of content for the Information Society	:		:		62022		:		:	
CR1003V		Number of cinema seats (total capacity)	:		:		:		24050		:	
CR1005V		Cinema attendance (per year)	:		:		:		:		:	
CR1006V		Number of museums	:		:		88		:		:	
CR1007V		Number of museum visitors (per year)	3425799		3004671		2792706		:		:	
CR1008V		Number of theatres	:		:		55		:		:	
CR1013V		Number of theatre seats	:		:		17203		:		:	
CR1009V		Theatre attendance (per year)	:		:		3000000		:		:	
CR1010V		Number of public libraries (all distribution points)	:		:		97		:		:	
CR1011V		Number of books and other media loaned from public libraries (per year)	:		:		7493021		:		:	
CR1014V		Number of persons employed in the culture and entertainment industry	:		:		:		:		:	
CR1015V	CR1015V	Number of public swimmingpools	:	:	:	:	:	:	25	77	28	80
CR2001V		Total annual tourist overnight stays in registered accommodation	:		6939050		8149150		10495699		12074074	
CR2009V		Number of available beds	:		67965		70952		:		:	
CR2102V		Number of available beds at high season	:		:		:		:		:	
CR2103V		Number of available beds at low season	:		:		:		:		:	
CR2104V		Total tourist overnight stays in registered accommodation at high season	:		:		:		1199794		1360545	
CR2105V		Total tourist overnight stays in registered accommodation at low season	:		:		:		463927		663156	
CR2004V		Number of air passengers using nearest airport	:		:		7993146		9593633		12596051	
CR2005V		Number of air passengers using nearest airport: Total arrivals	:		:		:		4799316		6302047	
CR2006V		Number of air passengers using nearest airport: Domestic arrivals	:		:		:		46578		30689	
CR2007V		Number of air passengers using nearest airport: Total departures	:		:		:		4794317		6294004	
CR2008V		Number of air passengers using nearest airport: Domestic departures	:		:		:		39135		15109	
DE3019V	DE3019V	Number of jobless households with children	:	:	:	:	:	:	:	:	:	:
DE3020V	DE3020V	Number of jobless households without children	:	:	:	:	:	:	:	:	:	:
CI1019V		Participation rate at European elections	:		:		:		:		:	
CI1020V		Participation rate at national elections	:		:		:		:		:	
CI1021V		Participation rate at city elections	:		:		:		:		:	
TE1036V		Students in education of ISCED level 1-2	:		:		:		96939		82806	
TE1037V		Male students in education of ISCED level 1-2	:		:		:		:		:	
TE1038V		Female students in education of ISCED level 1-2	:		:		:		:		:	

Budapest

INDIC_UR_CC	INDIC_UR_LUZ	INDIC_UR(L)/TIME	1989_1993_CC	1989_1993_LUZ	1994_1998_CC	1994_1998_LUZ	1999_2002_CC	1999_2002_LUZ	2003_2006_CC	2003_2006_LUZ	2007_2010_CC	2007_2010_LUZ
DE1001V	DE1001V	Total Resident Population	2016458	2583635	1896403	2502069	1777921	2453315	1697343	2421831	1702297	2475737
DE1002V	DE1002V	Male Resident Population	938859	1216289	868715	1161156	815023	1140851	773120	1121264	776470	1148557
DE1003V	DE1003V	Female Resident Population	1077915	1367346	1027687	1340913	962898	1312464	924223	1300567	925827	1327180
DE1067V	DE1067V	Total Resident Population 0-2	:	:	:	:	41066	61997	45329	69306	50001	77848
DE1068V	DE1068V	Male Resident Population 0-2	:	:	:	:	20971	31606	23418	35054	25768	40007
DE1069V	DE1069V	Female Resident Population 0-2	:	:	:	:	20095	30391	21911	34252	24233	37841
DE1070V	DE1070V	Total Resident Population 3-4	:	:	:	:	26828	41698	24715	40505	29278	47652
DE1071V	DE1071V	Male Resident Population 3-4	:	:	:	:	13723	21414	12554	21156	15190	24611
DE1072V	DE1072V	Female Resident Population 3-4	:	:	:	:	13105	20284	12161	19349	14088	23041
DE1040V	DE1040V	Total Resident Population 0-4	96015	129725	87506	125251	67894	103695	70827	111082	79279	125500
DE1041V	DE1041V	Male Resident Population 0-4	:	:	:	:	34694	53020	35972	56210	40958	64618
DE1042V	DE1042V	Female Resident Population 0-4	:	:	:	:	33200	50675	34072	53601	38321	60882
DE1043V	DE1043V	Total Resident Population 5-14	255259	341401	192352	267219	159728	243117	140008	225379	133384	221023
DE1044V	DE1044V	Male Resident Population 5-14	:	:	:	:	81617	124249	71874	113659	68528	113369
DE1045V	DE1045V	Female Resident Population 5-14	:	:	:	:	78111	118868	67943	107178	64856	107654
DE1046V	DE1046V	Total Resident Population 15-19	142623	187248	150225	200643	101244	144054	85892	129356	81675	128702
DE1047V	DE1047V	Male Resident Population 15-19	:	:	:	:	51516	73675	43258	63737	41113	65249
DE1048V	DE1048V	Female Resident Population 15-19	:	:	:	:	49728	70379	43727	62739	40562	63453
DE1049V	DE1049V	Total Resident Population 20-24	139599	178507	148082	199219	158632	212415	111554	157807	101235	146908
DE1050V	DE1050V	Male Resident Population 20-24	:	:	:	:	79812	107403	55069	76584	49692	72883
DE1051V	DE1051V	Female Resident Population 20-24	:	:	:	:	78820	105012	54446	76625	51543	74025
DE1052V	DE1052V	Total Resident Population 25-54	831349	1072770	792155	1054390	759988	1062005	752963	1084390	764357	1115816
DE1053V	DE1053V	Male Resident Population 25-54	:	:	:	:	361387	510478	359002	517290	366474	540437
DE1054V	DE1054V	Female Resident Population 25-54	:	:	:	:	398601	551527	393743	555478	397883	575379
DE1058V	DE1058V	Total Resident Population 25-34	:	:	:	:	283427	390808	303954	427800	315512	446823
DE1059V	DE1059V	Male Resident Population 25-34	:	:	:	:	141489	195322	150259	213032	154078	219081
DE1060V	DE1060V	Female Resident Population 25-34	:	:	:	:	141938	195486	153695	214768	161434	227742
DE1061V	DE1061V	Total Resident Population 35-44	:	:	:	:	198371	286442	205146	300440	229343	347682
DE1062V	DE1062V	Male Resident Population 35-44	:	:	:	:	94568	138074	98645	145378	112576	172162
DE1063V	DE1063V	Female Resident Population 35-44	:	:	:	:	103803	148368	106501	155062	116767	175520
DE1064V	DE1064V	Total Resident Population 45-54	:	:	:	:	278190	384755	243645	344528	219502	321311
DE1065V	DE1065V	Male Resident Population 45-54	:	:	:	:	125330	177082	110098	158880	9982	149194
DE1066V	DE1066V	Female Resident Population 45-54	:	:	:	:	152860	207673	133547	185648	119682	172117
DE1073V	DE1073V	Median population age	:	:	:	:	:	:	:	:	39,5	38,3
DE1025V	DE1025V	Total Resident Population 55-64	235832	295050	205553	265239	216895	291698	229300	316712	229541	324926
DE1026V	DE1026V	Male Resident Population 55-64	:	:	:	:	93882	128719	97386	136914	97592	141737
DE1027V	DE1027V	Female Resident Population 55-64	:	:	:	:	123013	162979	133404	178754	131949	183189
DE1028V	DE1028V	Total Resident Population 65-74	177029	214437	194339	239741	174228	224875	160357	213785	162696	221853
DE1029V	DE1029V	Male Resident Population 65-74	:	:	:	:	67969	88784	63144	85154	63688	88528
DE1030V	DE1030V	Female Resident Population 65-74	:	:	:	:	106259	136091	97067	126936	99008	133325
DE1055V	DE1055V	Total Resident Population 75 and over	139068	164497	126191	150366	139312	171456	146442	183320	150130	191009
DE1056V	DE1056V	Male Resident Population 75 and over	:	:	:	:	44146	54523	46804	59001	48425	61736
DE1057V	DE1057V	Female Resident Population 75 and over	:	:	:	:	95166	116933	98903	123986	101705	129273
DE2001V	DE2001V	Residents who are Nationals	:	:	:	:	1743028	2411101	1642233	2351504	1626982	2382469
DE2002V	DE2002V	Residents who are Nationals of other EU Member State	:	:	:	:	4168	4999	3998	5090	39171	52564
DE2003V	DE2003V	Residents who are not EU Nationals	:	:	:	:	30725	37215	22384	25659	36144	40704
DE2005V	DE2005V	Residents who are not EU Nationals and citizens of a country with high HDI	:	:	:	:	:	:	:	:	:	:
DE2006V	DE2006V	Residents who are not EU Nationals and citizens of a country with a medium or low HDI	:	:	:	:	24504	30414	:	:	:	:
DE2004V	DE2004V	Nationals born abroad	:	:	:	:	60168	80962	:	:	:	:
DE2007V	DE2007V	Number of residents born abroad (not only nationals)	:	:	:	:	:	:	:	:	:	:
DE3001V	DE3001V	Total Number of Households	850069	1056975	795728	1024456	770083	1005328	:	:	:	:
DE3017V	DE3017V	Total Resident Population living in households (excluding institutional households)	:	:	:	:	:	:	:	:	:	:
DE3002V	DE3002V	One person households (Total)	276014	322633	252877	299059	266374	313534	:	:	:	:
DE3005V	DE3005V	Lone parent households (Total)	114797	142702	109928	136150	101099	131348	:	:	:	:
DE3008V	DE3008V	Lone pensioner (above retirement age) households Total	127505	149610	128822	154498	119018	142139	:	:	:	:
DE3009V	DE3009V	Lone pensioner (above retirement age) households Male	:	:	:	:	22707	27537	:	:	:	:
DE3010V	DE3010V	Lone pensioner (above retirement age) households Female	:	:	:	:	96311	114602	:	:	:	:
DE3011V	DE3011V	Households with children aged 0 to under 18	254200	338498	184181	262815	180071	265071	:	:	:	:
DE3012V		Nationals that have moved into the city during the last two years	:		:		88903		52921		53853	

DE3013V		EU Nationals that have moved into the city during the last two years (stock)	:		:		1865		:		:	
DE3014V		Non-EU Nationals that have moved into the city during the last two years (stock)	:		:		:		:		:	
DE3015V		Number of moves into the city during the last two years (flow)	:		:		:		:		:	
DE3016V		Number of moves out of the city during the last two years (flow)	:		:		:		:		:	
DE3018V	DE3018V	Households with 3 children or more under 18	:	:	:	:	:	:	:	:	:	:
SA1001V	SA1001V	Number of dwellings	:	:	:	:	820977	1061771	856181	1094656	881000	1162697
SA1004V	SA1004V	Number of houses	:	:	:	:	176366	374511	307987	:	:	:
SA1005V	SA1005V	Number of apartments	:	:	:	:	644611	687260	536502	100899	:	:
SA1007V	SA1007V	Number of households living in houses	:	:	:	:	:	:	:	515055	:	:
SA1008V	SA1008V	Number of households living in apartments	:	:	:	:	:	:	:	106848	:	:
SA1011V	SA1011V	Households owning their own dwelling	318215	474315	621270	848212	646142	868644	682860	918949	:	:
SA1012V	SA1012V	Households in social housing	:	:	:	:	67179	69986	11563	12820	:	:
SA1013V	SA1013V	Households in private rented housing	:	:	:	:	32270	36697	10147	13676	:	:
SA1027V		Number of roofless persons	:		:		:		:		:	
SA1029V		Number of people in accommodation for the homeless	:		:		2743		3522		3918	
SA1031V		Number of people in Women's Shelter	:		:		279		3213		430	
SA1030V		Number of people in accommodation for immigrants	:		:		0		0		:	
SA1016V	SA1016V	Average price for an apartment per m2	:	:	:	:	:	:	942	:	:	:
SA1023V	SA1023V	Average price for a house per m2	:	:	:	:	:	:	811	:	:	:
SA1049V	SA1049V	Average annual rent for housing per m2	:	:	:	:	:	:	:	:	:	:
SA1018V	SA1018V	Dwellings lacking basic amenities	64821	94281	51050	64461	21891	36191	13678	21136	:	:
SA1019V	SA1019V	Average occupancy per occupied dwelling	2,52	2,59	2	3	2,32	2,46	:	:	:	:
SA1025V	SA1025V	Empty conventional dwellings	18241	24159	38236	49311	73380	90185	63254	70257	:	:
SA1026V	SA1026V	Non-conventional dwellings	:	:	:	:	473	883	392	896	:	:
SA1046V	SA1046V	Number of overcrowded households (>1 persons in 1 room)	:	:	:	:	214872	295073	177417	247993	:	:
SA1022V	SA1022V	Average area of living accommodation (m2 per person)	:	:	26	26	21	20	:	:	:	:
SA2004V	SA2004V	Infant Mortality per year	:	:	:	:	129	181	87	129	81	129
SA2005V	SA2005V	Male Infant Mortality per year	:	:	:	:	73	100	43	66	52	82
SA2006V	SA2006V	Female Infant Mortality per year	:	:	:	:	56	81	44	63	29	47
SA2007V	SA2007V	Number of live births per year	:	:	:	:	14656	21529	15122	22835	17270	26383
SA2008V	SA2008V	Number of live births per year (Male)	:	:	:	:	7548	11084	7763	11755	8931	13640
SA2009V	SA2009V	Number of live births per year (Female)	:	:	:	:	7108	10445	7349	11080	8339	12743
SA2013V	SA2013V	Number of deaths per year under 65 due to heart diseases and respiratory illness	1964	2544	1605	2170	1218	1721	1754	:	1631	2453
SA2014V	SA2014V	Number of deaths per year under 65 due to heart diseases and respiratory illness (Male)	:	:	:	:	857	1214	1197	:	1121	1676
SA2015V	SA2015V	Number of deaths per year under 65 due to heart diseases and respiratory illness (Female)	:	:	:	:	361	507	557	:	510	777
SA2016V	SA2016V	Total deaths under 65 per year	:	:	:	:	5932	8405	5881	8346	5320	7876
SA2017V	SA2017V	Total deaths under 65 per year (Male)	:	:	:	:	3733	5355	3640	5303	3253	4901
SA2018V	SA2018V	Total deaths under 65 per year (Female)	:	:	:	:	2199	3050	2241	3043	2067	2975
SA2019V	SA2019V	Total deaths per year	:	:	:	:	23822	31360	23121	30712	21884	29999
SA2020V	SA2020V	Total deaths per year (Male)	:	:	:	:	11023	14887	10714	14636	10069	14130
SA2021V	SA2021V	Total deaths per year (Female)	:	:	:	:	12799	16473	12407	16076	11815	15869
SA2022V	SA2022V	Number of hospital beds	30051	33472	27895	31163	22782	25374	22568	25061	18408	20973
SA2026V	SA2026V	Number of hospital discharges of in-patients	:	:	:	:	:	:	764200	843929	672991	749529
SA2027V	SA2027V	Number of practising physicians	:	:	:	:	:	:	1309	:	12150	13809
SA2028V	SA2028V	Number of practising dentists	:	:	:	:	:	:	:	:	1446	1726
SA2029V	SA2029V	Number of deaths per year due to suicide	:	:	:	:	:	:	:	:	328	474
SA2030V	SA2030V	Number of general practitioners	:	:	:	:	:	:	:	:	1426	1868
SA2031V	SA2031V	Number of specialist doctors	:	:	:	:	:	:	9261	10198	:	:
SA3001V	SA3001V	Total number of recorded crimes within city [country for national data]	105720	:	146160	:	120189	157281	115506	:	107317	132904
SA3005V	SA3005V	Number of murders and violent deaths	31	49	41	62	46	:	32	:	26	31
SA3006V	SA3006V	Number of car thefts	:	:	2378	:	5698	6444	1629	5546	4323	4779
SA3007V	SA3007V	Number of domestic burglary	:	:	:	:	:	:	6615	:	4696	6415
EC1001V	EC1001V	Total Economically Active Population	939487	1209029	730721	951261	785875	1091760	:	1118324	:	:
EC1002V	EC1002V	Male Economically Active Population	496385	645965	381598	510547	409634	578984	:	581847	:	:
EC1003V	EC1003V	Female Economically Active Population	443102	563064	349123	440714	376241	512776	:	536477	:	:
EC1142V	EC1142V	Total Economically Active Population 15-24	:	:	:	:	97694	136615	:	83976	:	:
EC1143V	EC1143V	Male Economically Active Population 15-24	:	:	:	:	52043	73927	:	44340	:	:
EC1144V	EC1144V	Female Economically Active Population 15-24	:	:	:	:	45651	62688	:	39636	:	:
EC1145V	EC1145V	Total Economically Active Population 55-64	:	:	:	:	67599	85162	:	128317	:	:
EC1146V	EC1146V	Male Economically Active Population 55-64	:	:	:	:	43187	56091	:	67828	:	:
EC1147V	EC1147V	Female Economically Active Population 55-64	:	:	:	:	24412	29071	:	60489	:	:
EC1010V	EC1010V	Residents Unemployed	25352	32976	63527	90010	49709	70768	:	30370	24997	37894
EC1011V	EC1011V	Male Residents Unemployed	16038	21243	34796	51231	28022	40520	9315	13522	11541	17499
EC1012V	EC1012V	Female Residents Unemployed	9314	11733	28731	38780	21687	30248	11284	16848	13456	20395
EC1148V	EC1148V	Residents Unemployed 15-24	:	:	:	:	12979	18249	:	11594	:	:
EC1149V	EC1149V	Male Residents Unemployed 15-24	:	:	:	:	7573	10851	:	7072	:	:
EC1150V	EC1150V	Female Residents Unemployed 15-24	:	:	:	:	5406	7398	:	4522	:	:
EC1151V	EC1151V	Residents Unemployed 55-64	:	:	:	:	2913	3777	:	5296	:	:
EC1152V	EC1152V	Male Residents Unemployed 55-64	:	:	:	:	1928	2605	:	2959	:	:
EC1153V	EC1153V	Female Residents Unemployed 55-64	:	:	:	:	985	1172	:	2337	:	:

EC1154V	EC1154V	Mehr als sechs Monate ununterbrochen Erwerbslose im Alter von 15 - unter 25 Jahren, insgesamt	:		:		3682	5443	:	3912	:	:
EC1155V	EC1155V	Male unemployed continuously for more than six months, 15-24	:		:		2312	3505	:	2564	:	:
EC1156V	EC1156V	Female unemployed continuously for more than six months, 15-24	:		:		1370	1938	:	1348	:	:
EC1157V	EC1157V	Unemployed continuously for more than one year, 55-64	:		:		1089	1402	:	2452	:	:
EC1158V	EC1158V	Male unemployed continuously for more than one year, 55-64	:		:		758	1005	:	1178	:	:
EC1159V	EC1159V	Female unemployed continuously for more than one year, 55-64	:		:		331	397	:	1274	:	:
EC1025V		Residents in Self Employment	55034		76069		78528		:		:	
EC1026V		Male residents in Self Employment	36277		50575		51734		:		:	
EC1027V		Female residents in Self Employment	18757		25495		26794		:		:	
EC1028V		Residents in Paid Employment	862762		616802		608562		:		:	
EC1029V		Male residents in Paid Employment	446134		308592		298446		:		:	
EC1030V		Female residents in Paid Employment	416628		308210		310116		:		:	
EC1034V	EC1034V	Total Full-Time Employment	:		:		655131	935127	:	1006478	:	:
EC1035V	EC1035V	Male Full-Time Employment	:		:		346533	497746	:	530919	:	:
EC1036V	EC1036V	Female Full-Time Employment	:		:		308598	437381	:	475559	:	:
EC1088V	EC1088V	Total Part-Time Employment	:		:		26311	34424	:	46738	:	:
EC1089V	EC1089V	Male Part-Time Employment	:		:		8174	10404	:	15764	:	:
EC1090V	EC1090V	Female Part-Time Employment	:		:		18137	24020	:	30974	:	:
EC1160V		Total Full-Time Employment 15-24	:		:		72061		:		:	
EC1161V		Full-Time Employment 15-24 Male	:		:		37303		:		:	
EC1162V		Full-Time Employment 15-24 Female	:		:		34758		:		:	
EC1163V		Total Full-Time Employment 55-64	:		:		55275		:		:	
EC1164V		Full-Time Employment 55-64 Male	:		:		37345		:		:	
EC1165V		Full-Time Employment 55-64 Female	:		:		17930		:		:	
EC1166V		Total Part-Time Employment 15-24	:		:		3268		:		:	
EC1167V		Part-Time Employment 15-24 Male	:		:		1254		:		:	
EC1168V		Part-Time Employment 15-24 Female	:		:		2014		:		:	
EC1169V		Total Part-Time Employment 55-64	:		:		4153		:		:	
EC1170V		Part-Time Employment 55-64 Male	:		:		1287		:		:	
EC1171V		Part-Time Employment 55-64 Female	:		:		2866		:		:	
EC1172V	EC1172V	Number of jobless households with children	:		:		:	:	:	:	:	:
EC1173V	EC1173V	Number of jobless households without children	:		:		:	:	:	:	:	:
EC2001V	EC2001V	Gross Domestic Product of city / region / country	:		12372		20775	:	28732	:	37134	:
EC2021V		All companies	178448		345262		363748		190562		190948	
EC2003V		Companies with headquarter within the city [country] quoted on national stock exchange	:		:		32		29		:	
EC2004V		New business registered in reference year	:		:		31045		21029		21461	
EC2014V		Companies gone bankrupt in reference year	:		:		29		3002		3310	
EC2020V		Total employment / jobs (work place based)	:		:		856193		900741		:	
EC2008V		Employment (jobs) in agriculture, fishery (NACE Rev. 1: A-B) & ESA95 A3	:		:		3970		3860		4929	
EC2009V		Employment (jobs) in mining, manufacturing, energy (NACE Rev. 1: C-E)	:		:		137519		119239		126011	
EC2022V		Employment (jobs) inconstruction (NACE Rev. 1: F)	:		:		39113		53479		48264	
EC2010V		Employment (jobs) in trade, hotels, restaurants (NACE Rev. 1: G-H)	:		:		182286		186880		209211	
EC2023V		Employment (jobs) in transport, communication (NACE Rev. 1: I)	:		:		82725		82570		82278	
EC2011V		Employment (jobs) financial intermediation, business activities (NACE Rev. 1: J-K)	:		:		155026		175989		259604	
EC2012V		Employment (jobs) in public admin., health, education, other (NACE Rev. 1: L-P)	:		:		255554		278724		269374	
EC2016V		Employment (jobs) in Nace Rev. 1 C-F (ESA95 A3)	:		:		176632		172718		174275	
EC2017V		Employment (jobs) in Nace Rev. 1 G-P (ESA95 A3)	:		:		675591		724163		820467	
EC2018V		Employment (jobs) - employees	:		:		728421		767917		999671	
EC2019V		Employment (jobs) - self employed	:		:		73052		74689		:	
EC2024V		Enterprises with 1 to 250 employees	:		:		:		:		190504	
EC2025V		Enterprises with more than 250 employees	:		:		:		:		444	
EC2026V		Enterprises that had a turnover increase last year (size class 1-250 employees)	:		:		:		:		91333	
EC2027V		Enterprises that had a turnover increase last year (size class >250 employees)	:		:		:		:		259	
EC2028V		Employment growth last year (size class 1-250 employees)	:		:		:		:		:	
EC2029V		Employment growth last year (size class >250 employees)	:		:		:		:		:	
EC2030V	EC2030V	Gross Domestic Product of NUTS 3 region in Euros	:		12372,4		20774,7	:	28731,7	:	37133,7	:
EC2031V	EC2031V	Gross Domestic Product per inhabitant in PPS of NUTS 3 region	:		14500		23600	:	28400	:	33900	:
EC3039V	EC3039V	Median disposable annual household income	:		2624		4639	:	:	:	:	:
EC3040V		Average disposable annual household income	:		:		:		:		:	
EC3045V	EC3045V	Household Income: Quintile 4 (income with 20% households above, 80% below)	:		:		:	:	:	:	:	:
EC3048V	EC3048V	Household Income: Quintile 3 (income with 40% households above, 60% below)	:		:		:	:	:	:	:	:
EC3051V	EC3051V	Household Income: Quintile 2 (income with 60% households above, 40% below)	:		:		:	:	:	:	:	:
EC3054V	EC3054V	Household Income: Quintile 1 (income with 80% households above, 20% below)	:		:		:	:	:	:	:	:
EC3056V	EC3056V	Total Number of Households (relating to the reported household income)	:		:		:	:	:	738510	:	:
EC3055V	EC3055V	Total Number of Households with less than 60% of the national median disposable annual house	:		:		:	:	:	47631	:	:
EC3057V	EC3057V	Total Number of Households with less than half of the national average income	:		148721		:	:	:	26912	:	:
EC3060V	EC3060V	Total Number of Households reliant on social security benefits (>50%)	:		:		:	:	:	:	:	:
EC3063V	EC3063V	Individuals reliant on social security benefits (>50%)	:		:		:	:	:	:	:	:
CI1016V		Total number of elected city representatives	:		:		67		:		:	
CI1017V		Number of Male elected city representatives	:		:		55		:		:	

CI1018V		Number of Female elected city representatives	:			:		12		:			:	
TE1001V	TE1001V	Number of children 0-4 in day care	42158	:		38951	:	58273	84428	57525		84311	60504	91573
TE1006V	TE1006V	Number of children 0-2 in day care	:	:		:	:	8937	10716	9712		11454	10264	12437
TE1007V	TE1007V	Number of children 3-4 in day care	:	:		:	:	49336	73712	47813		72857	50240	79136
TE1005V	TE1005V	Total students registered for final year of compulsory education	:	:		:	:	22231	26315	:		:	30111	:
TE1030V	TE1030V	Students leaving compulsory education without having a diploma	:	:		:	:	1151	1329	:		:	:	:
TE1031V		Students in upper and further education (ISCED level 3-4)	143826			138488		222168		137288			122847	
TE1032V		Male students in upper and further education (ISCED level 3-4)	:			:		112195		68412			57705	
TE1033V		Female students in upper and further education (ISCED level 3-4)	:			:		109975		68876			65142	
TE1026V		Students in higher education (ISCED level 5-6)	49806			84089		141705		167593			165183	
TE1027V		Male students in higher education (ISCED level 5-6)	:			:		73144		78790			76218	
TE1028V		Female students in higher education (ISCED level 5-6)	:			:		68561		88803			88965	
TE1034V	TE1034V	Average number of pupils in a class (primary schools)	:	:		:	:	:	:	:		:	20,3	20,9
TE1035V	TE1035V	Average number of pupils in a class (secondary schools)	:	:		:	:	:	:	:		:	26,4	26,7
TE2025V	TE2025V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education	:	:		:	:	311281	466287	221752		338822	:	:
TE2026V	TE2026V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education - mal	:	:		:	:	143793	215034	102786		154762	:	:
TE2027V	TE2027V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education - fema	:	:		:	:	167488	251253	118966		184060	:	:
TE2028V	TE2028V	Number of residents (aged 15-64) with ISCED level 3or 4 as the highest level of education	:	:		:	:	656323	910055	647922		934363	:	:
TE2029V	TE2029V	Number of residents (aged 15-64) with ISCED level 3 or 4 as the highest level of education - male	:	:		:	:	313279	444488	310098		457518	:	:
TE2030V	TE2030V	Number of residents (aged 15-64) with ISCED level 3 or 4 as the highest level of education - femal	:	:		:	:	343044	465567	337824		476845	:	:
TE2031V	TE2031V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education	:	:		:	:	269155	333830	310361		394936	:	:
TE2032V	TE2032V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education - male	:	:		:	:	129525	160753	141831		182245	:	:
TE2033V	TE2033V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education - femal	:	:		:	:	139630	173077	168530		212691	:	:
EN1001V		Number of days of rain per annum	:			:		107		124			128	
EN1002V		Total number of hours of sunshine per day	:			:		5		5,2			5,9	
EN1003V		Average temperature of warmest month	:			:		23,2		21,8			22,3	
EN1004V		Average temperature of coldest month	:			:		-2,8		-1,4			2,7	
EN1005V		Rainfall (litre/m2)	:			:		550		534			615	
EN1006V		Median city centre altitude above sea level	:			:		:		113			:	
EN2002V		Summer Smog: Number of days ozone (O3) concentrations exceed 120 microgram/m3	:			8		1		11			28	
EN2003V		Number of hours per year that nitrogen dioxide NO2 concentrations exceed 200 microgram/m3	:			2		:		0			0	
EN2005V		Number of days particulate matter PM10concentrations exceed 50 microgram/m3	:			:		166		33			39	
EN2025V		Accumulated ozone concentration in excess 70 microgram/m3	:			4484		:		3305			5736,7	
EN2026V		Annual average concentration of NO2	:			53,2		:		26,5			27,3	
EN2027V		Annual average concentration of PM10	:			:		:		22,4			30	
EN2033V		Number of residents exposed to road traffic noise >65 dB(A) at day time	:			:		:		:			:	
EN2035V		Number of residents exposed to road traffic noise >55 dB(A) at night time	:			:		:		:			:	
EN2032V		Number of residents exposed to rail traffic (incl. tram) noise >65dB(A) at daytime	:			:		:		:			:	
EN2036V		Number of residents exposed to rail traffic (incl. tram) noise >55dB(A) at night-time	:			:		:		:			:	
EN2028V	EN2028V	Number of residents exposed to air traffic noise >65 dB(A) at day time	:	:		:	:	:	:	:		:	:	:
EN2029V	EN2029V	Number of residents exposed to air traffic noise >55 dB(A) at night time	:	:		:	:	:	:	:		:	:	:
EN3003V		Total consumption of water	306347000			198930000		162589500		:			:	
EN3004V		Number of dwellings connected to potable drinking water system	:			:		815994		831613			872162	
EN3006V		Number of dwellings connected to sewerage treatment system	:			:		750579		802629			864184	
EN3008V		Number of water rationing cases, days per year	:			:		:		0			:	
EN3009V		Number of scheduled water cuts, days per year	:			:		:		0			:	
EN3010V		Price of a m3 of domestic water (Euro)	:			:		0,4		0,5			0,7	
EN3011V		Percentage of the urban waste water load (in population equivalents) treated according to the app	:			:		:		31,2			34,4	
EN4001V		Annual amount of solid waste (domestic and commercial)	870256			860664		884870		:			794478	
EN4002V		Annual amount of solid waste (domestic and commercial) processed by landfill.	:			:		:		646			317185	
EN4003V		Annual amount of solid waste (domestic and commercial) is processed by incinerator	:			:		350130		244			402253	
EN4004V		Annual amount of solid waste (domestic and commercial) that is recycled	:			:		4420		20			75040	
EN4006V		Annual amount of solid waste (domestic and commercial) given to other disposal	:			:		530320		5			0	
EN4007V		Annual amount of solid waste (domestic and commercial) that is composted	:			:		:		:			14991,3	
EN5003V	EN5003V	Total land area (km2) according to cadastral register	525,17	2549,64		525,16	2549,62	525,16	2538	525,1	:		525,13	:
EN5015V	EN5015V	Water and wetland	:	:		0	7	:	:	:	:		:	:
EN5012V	EN5012V	Green space area	:	:		58	573	:	:	:	:		22,7	:
EN5016V	EN5016V	Land used for agricultural purposes	:	:		113	1220	:	:	:	:		:	:
EN5024V	EN5024V	Land used for commercial activities (industry, trade, offices)	:	:		:	:	:	:	:	:		:	:
EN5004V	EN5004V	Land area in housing/residential use	:	:		261	510	:	:	:	:		:	:
EN5025V	EN5025V	Land used for transport (road, rail, air, ports)	:	:		:	:	:	:	:	:		29,4	:
EN5011V	EN5011V	Land area in recreational, sports and leisure use	:	:		6	46	:	:	:	:		:	:
EN5026V	EN5026V	other land use	:	:		:	:	:	:	:	:		:	:
EN5001V	EN5001V	Green space to which the public has access	:	:		:	:	7621,4	9725,7	:	:		:	:
TT1003V	TT1003V	Percentage of journeys to work by car	:	:		:	:	:	:	:	:		:	:
TT1010V	TT1010V	Percentage of journeys to work by public transport (rail, metro, bus, tram)	:	:		:	:	:	:	:	:		:	:
TT1006V	TT1006V	Percentage of journeys to work by motor cycle	:	:		:	:	:	:	:	:		:	:
TT1007V	TT1007V	Percentage of journeys to work by bicycle	:	:		:	:	:	:	:	:		:	:
TT1008V	TT1008V	Percentage of journeys to work by foot	:	:		:	:	:	:	:	:		:	:
TT1012V	TT1012V	Percentage of journeys to work by car or motor cycle	:	:		:	:	:	:	:	:		:	:

TT1019V	TT1019V	Average time of journey to work (minutes)	:	:	:	:	71	72	:	:	:	:		
TT1020V	TT1020V	Average length of journey to work by private car (km)	:	:	:	:	:	:	:	:	:	:		
TT1064V		People commuting into the city	196431		155231		175528		209347		:			
TT1065V		People commuting out of the city	26814		43208		64976		63289		:			
TT1069V	TT1069V	Number of stops of public transport	:	:	:	:	4387	7027	4426	7085	4990	:		
TT1083V	TT1083V	Number of buses (or bus equivalents) operating in the public transport	:	:	:	:	3048	3786	3017	3755	607	:		
TT1084V		Average age of the bus (only buses) fleet	:		:		9,9		12,4		14,3			
TT1085V		Proportion of buses running on alternative fuels	:		:		0		0		:			
TT1066V		Length of public transport network (km)	:		:		1112		1143		1177			
TT1077V		Length of public transport network on fixed infrastructure	:		:		294,7		291,8		357,7			
TT1078V		Length of public transport network on flexible routes	:		:		817,4		850,8		819			
TT1082V		Length of restricted bus lanes	:		:		15		33		:			
TT1079V		Length of bicycle network (dedicated cycle paths and lanes)	:		:		99		108		:			
TT1080V		Cost of a combined monthly ticket (all modes of public transport) for 5-10 km in the central zone	:		:		14		21		32,8			
TT1081V		Cost of a taxi ride of 5 km to the centre at day time	:		:		6		6		:			
TT1057V	TT1057V	Number of private cars registered	471799	:	568371	722742	578960	785274	602114	860815	596481	897259		
TT1013V		Number of motor cycles registered	:		:		12318		17535		22438			
TT1070V	TT1070V	Number of park and ride parking spaces	:	:	:	:	3152	:	3293	:	3899	:		
TT1075V		Maximum charge of on-street parking in the city centre per hour	:		:		1,6		1,7		1,8			
TT1060V	TT1060V	Number of deaths in road accidents	:	:	:	:	111	214	93	192	87	154		
TT1061V	TT1061V	Number of persons seriously injured in road accidents	:	:	:	:	1078	1753	1079	1682	1005	1489		
TT1071V	TT1071V	Accessiblity by air (EU27=100)	:	:	:	:	:	:	139	:	:	:		
TT1072V	TT1072V	Accessiblity by rail (EU27=100)	:	:	:	:	:	:	81	:	:	:		
TT1073V	TT1073V	Accessiblity by road (EU27=100)	:	:	:	:	:	:	88	:	:	:		
TT1074V	TT1074V	Multimodal accessibility (EU27=100)	:	:	:	:	:	:	131	:	:	:		
IT1005V		Percentage of households with Internet access at home	:		:		:		35,8		:			
IT3001V		Number of local units manufacturing ICT products	:		:		1494		1434		1134			
IT3002V		Number of persons employed in manufacture of ICT products	:		:		10176		8617		6279			
IT3003V		Number of local units providing ICT services	:		:		9381		12012		11361			
IT3004V		Number of persons employed in provision of ICT services	:		:		:		30615		26534			
IT3005V		Number of local units producing content for the Information Society	:		:		23465		28946		5697			
IT3006V		Number of persons employed in production of content for the Information Society	:		:		:		41797		10568			
CR1003V		Number of cinema seats (total capacity)	:		:		22702		24450		:			
CR1005V		Cinema attendance (per year)	9697000		5271000		8459361		7793000		:			
CR1006V		Number of museums	:		:		98		100		:			
CR1007V		Number of museum visitors (per year)	3346000		2766000		2342000		4033000		:			
CR1008V		Number of theatres	:		:		22		23		:			
CR1013V		Number of theatre seats	:		:		14480		15067		:			
CR1009V		Theatre attendance (per year)	:		:		2158000		2457000		:			
CR1010V		Number of public libraries (all distribution points)	:		:		112		6		:			
CR1011V		Number of books and other media loaned from public libraries (per year)	:		:		6583800		5707500		:			
CR1014V		Number of persons employed in the culture and entertainment industry	:		:		21756		21932		:			
CR1015V	CR1015V	Number of public swimmingpools	:	:	:	:	:	:	:	:	:	:		
CR2001V		Total annual tourist overnight stays in registered accommodation	6585883		4640048		5267611		6024664		5480403			
CR2009V		Number of available beds	49132		37867		38276		40148		:			
CR2102V		Number of available beds at high season	:		:		38276		40148		:			
CR2103V		Number of available beds at low season	:		:		33408		36042		:			
CR2104V		Total tourist overnight stays in registered accommodation at high season	:		:		621876		599973		:			
CR2105V		Total tourist overnight stays in registered accommodation at low season	:		:		216326		251191		:			
CR2004V		Number of air passengers using nearest airport	1517000		1857000		4594875		6456983		:			
CR2005V		Number of air passengers using nearest airport: Total arrivals	:		:		2268199		3196146		:			
CR2006V		Number of air passengers using nearest airport: Domestic arrivals	:		:		0		:		:			
CR2007V		Number of air passengers using nearest airport: Total departures	:		:		2326676		3260837		:			
CR2008V		Number of air passengers using nearest airport: Domestic departures	:		:		0		:		:			
DE3019V	DE3019V	Number of jobless households with children	:	:	:	:	:	:	:	:	:	:		
DE3020V	DE3020V	Number of jobless households without children	:	:	:	:	:	:	:	:	:	:		
CI1019V		Participation rate at European elections	:		:		:		:		:			
CI1020V		Participation rate at national elections	:		:		:		:		:			
CI1021V		Participation rate at city elections	:		:		:		:		:			
TE1036V		Students in education of ISCED level 1-2	:		:		:		:		:			
TE1037V		Male students in education of ISCED level 1-2	:		:		:		:		:			
TE1038V		Female students in education of ISCED level 1-2	:		:		:		:		:			

Bratislava

INDIC_UR_CC	INDIC_UR_LUZ	INDIC_UR(L)/TIME	1989_1993_CC	1989_1993_LUZ	1994_1998_CC	1994_1998_LUZ	1999_2002_CC	1999_2002_LUZ	2003_2006_CC	2003_2006_LUZ	2007_2010_CC	2007_2010_LUZ
DE1001V	DE1001V	Total Resident Population	442197	606351	452288	618904	428672	599015	425155	601132	428791	616578
DE1002V	DE1002V	Male Resident Population	208608	288819	212787	293933	200541	283383	198756	284398	201318	292757
DE1003V	DE1003V	Female Resident Population	233589	317532	239501	324971	228131	315632	226399	316734	227473	323821
DE1067V	DE1067V	Total Resident Population 0-2	:	:	:	:	8746	13234	10182	15095	12989	19280
DE1068V	DE1068V	Male Resident Population 0-2	:	:	:	:	4412	6750	5182	7685	6705	9934
DE1069V	DE1069V	Female Resident Population 0-2	:	:	:	:	4334	6484	5000	7410	6284	9346
DE1070V	DE1070V	Total Resident Population 3-4	:	:	:	:	5769	9100	6039	9189	7314	11413
DE1071V	DE1071V	Male Resident Population 3-4	:	:	:	:	3016	4743	3042	4691	3739	5807
DE1072V	DE1072V	Female Resident Population 3-4	:	:	:	:	2753	4357	2997	4498	3575	5606
DE1040V	DE1040V	Total Resident Population 0-4	28733	40205	20461	29805	14515	22334	16221	24284	20303	30693
DE1041V	DE1041V	Male Resident Population 0-4	:	:	:	:	7428	11493	8224	12376	10444	15741
DE1042V	DE1042V	Female Resident Population 0-4	:	:	:	:	7087	10841	7997	11908	9859	14952
DE1043V	DE1043V	Total Resident Population 5-14	74051	102106	62117	86447	45351	66888	36761	56905	30627	48748
DE1044V	DE1044V	Male Resident Population 5-14	:	:	:	:	23119	34127	18694	29024	15541	24855
DE1045V	DE1045V	Female Resident Population 5-14	:	:	:	:	22232	32761	18067	27881	15086	23893
DE1046V	DE1046V	Total Resident Population 15-19	32652	46665	38234	53018	32498	45898	29221	42154	22917	35330
DE1047V	DE1047V	Male Resident Population 15-19	:	:	:	:	16611	23474	14781	21423	11659	18031
DE1048V	DE1048V	Female Resident Population 15-19	:	:	:	:	15887	22424	14440	20731	11258	17299
DE1049V	DE1049V	Total Resident Population 20-24	25293	36997	34720	49211	35969	50774	34928	49519	30713	44534
DE1050V	DE1050V	Male Resident Population 20-24	:	:	:	:	18267	25927	17844	25250	15452	22513
DE1051V	DE1051V	Female Resident Population 20-24	:	:	:	:	17702	24847	17084	24269	15261	22021
DE1052V	DE1052V	Total Resident Population 25-54	194493	260654	205330	275834	190826	266231	204808	287143	207384	296688
DE1053V	DE1053V	Male Resident Population 25-54	:	:	:	:	89040	126708	96849	138147	99841	144635
DE1054V	DE1054V	Female Resident Population 25-54	:	:	:	:	101786	139523	107959	148996	107543	152053
DE1058V	DE1058V	Total Resident Population 25-34	:	:	:	:	57135	83317	72178	103153	81870	116292
DE1059V	DE1059V	Male Resident Population 25-34	:	:	:	:	27840	40960	35665	51336	40812	58110
DE1060V	DE1060V	Female Resident Population 25-34	:	:	:	:	29295	42357	36513	51817	41058	58182
DE1061V	DE1061V	Total Resident Population 35-44	:	:	:	:	62029	86319	58197	83019	58962	87337
DE1062V	DE1062V	Male Resident Population 35-44	:	:	:	:	28363	40613	27177	39598	28629	42930
DE1063V	DE1063V	Female Resident Population 35-44	:	:	:	:	33666	45706	31020	43421	30333	44407
DE1064V	DE1064V	Total Resident Population 45-54	:	:	:	:	71662	96595	74433	100971	66552	93059
DE1065V	DE1065V	Male Resident Population 45-54	:	:	:	:	32837	45135	34007	47213	30400	43595
DE1066V	DE1066V	Female Resident Population 45-54	:	:	:	:	38825	51460	40426	53758	36152	49464
DE1073V	DE1073V	Median population age	:	:	:	:	38,4	37,4	39,3	38,2	39,4	38,4
DE1025V	DE1025V	Total Resident Population 55-64	40395	55599	38491	52580	40758	55971	49843	68129	60335	82993
DE1026V	DE1026V	Male Resident Population 55-64	:	:	:	:	18039	25152	22022	30668	26853	37587
DE1027V	DE1027V	Female Resident Population 55-64	:	:	:	:	22719	30819	27821	37461	33482	45406
DE1028V	DE1028V	Total Resident Population 65-74	29846	40690	35065	47500	30984	42683	29194	40475	30870	42957
DE1029V	DE1029V	Male Resident Population 65-74	:	:	:	:	12428	16962	11944	16473	12748	17849
DE1030V	DE1030V	Female Resident Population 65-74	:	:	:	:	18556	25721	17250	24002	18122	25108
DE1055V	DE1055V	Total Resident Population 75 and over	16734	23435	17870	24509	37771	48236	24179	32523	25642	34635
DE1056V	DE1056V	Male Resident Population 75 and over	:	:	:	:	15609	19540	8398	11037	8780	11546
DE1057V	DE1057V	Female Resident Population 75 and over	:	:	:	:	22162	28696	15781	21486	16862	23089
DE2001V	DE2001V	Residents who are Nationals	427307	589316	420409	584714	413046	582101	:	:	415687	600818
DE2002V	DE2002V	Residents who are Nationals of other EU Member State	:	:	:	:	2010	2386	4208	4981	7182	8632
DE2003V	DE2003V	Residents who are not EU Nationals	:	:	:	:	13616	14528	1349	1633	5922	7128
DE2005V	DE2005V	Residents who are not EU Nationals and citizens of a country with high HDI	:	:	:	:	740	874	445	496	:	:
DE2006V	DE2006V	Residents who are not EU Nationals and citizens of a country with a medium or low HDI	:	:	:	:	12876	13654	904	1137	:	:
DE2004V	DE2004V	Nationals born abroad	14890	17035	31879	34190	15161	18903	:	:	:	:
DE2007V	DE2007V	Number of residents born abroad (not only nationals)	:	:	:	:	16127	20268	:	:	:	:
DE3001V	DE3001V	Total Number of Households	177853	235403	183469	245182	189085	254962	194988	290947	:	:
DE3017V	DE3017V	Total Resident Population living in households (excluding institutional households)	:	:	:	:	425906	598265	:	:	:	:
DE3002V	DE3002V	One person households (Total)	52873	65816	61139	77483	69405	89150	:	:	:	:
DE3005V	DE3005V	Lone parent households (Total)	23679	29940	20105	25487	16530	21034	:	:	:	:
DE3008V	DE3008V	Lone pensioner (above retirement age) households Total	23315	31429	25196	33949	27076	36469	:	:	:	:
DE3009V	DE3009V	Lone pensioner (above retirement age) households Male	:	:	:	:	5046	6775	:	:	:	:
DE3010V	DE3010V	Lone pensioner (above retirement age) households Female	:	:	:	:	22030	29694	:	:	:	:
DE3011V	DE3011V	Households with children aged 0 to under 18	78247	104783	69277	94378	60307	83974	:	:	:	:
DE3012V		Nationals that have moved into the city during the last two years	:		:		7607		7472		9818	

DE3013V		EU Nationals that have moved into the city during the last two years (stock)	:		:		29		:		:	
DE3014V		Non-EU Nationals that have moved into the city during the last two years (stock)	:		:		210		:		:	
DE3015V		Number of moves into the city during the last two years (flow)	:		:		7607		:		13071	
DE3016V		Number of moves out of the city during the last two years (flow)	:		:		7943		:		11204	
DE3018V	DE3018V	Households with 3 children or more under 18	:	:	:	:	4070	6676	:	:	:	:
SA1001V	SA1001V	Number of dwellings	:	:	:	:	181021	242452	186823	251644	199205	271177
SA1004V	SA1004V	Number of houses	:	:	:	:	19456	61587	21445	66551	43825	105759
SA1005V	SA1005V	Number of apartments	:	:	:	:	158364	176950	162202	181067	155380	165418
SA1007V	SA1007V	Number of households living in houses	:	:	:	:	19030	35452	20973	67283	:	:
SA1008V	SA1008V	Number of households living in apartments	:	:	:	:	161486	181802	165446	185956	:	:
SA1011V	SA1011V	Households owning their own dwelling	81710	130323	98790	187267	115870	158570	119680	164504	:	:
SA1012V	SA1012V	Households in social housing	65324	786	33646	35993	1968	2404	2084	2497	:	:
SA1013V	SA1013V	Households in private rented housing	91213	99051	17977	20819	16222	18465	16461	18841	:	:
SA1027V		Number of roofless persons	:		:		2000		2000		700	
SA1029V		Number of people in accommodation for the homeless	:		:		300		310		350	
SA1031V		Number of people in Women's Shelter	:		:		37		59		:	
SA1030V		Number of people in accommodation for immigrants	:		:		0		0		:	
SA1016V	SA1016V	Average price for an apartment per m2	:	:	385	312	514,2	475,4	1237	1018	2043,5	2008
SA1023V	SA1023V	Average price for a house per m2	:	:	369	328	1171	1082,6	1289	1212	1920,1	1539,7
SA1049V	SA1049V	Average annual rent for housing per m2	:	:	:	:	90	81	99,3	89,3	1,5	1,7
SA1018V	SA1018V	Dwellings lacking basic amenities	4276	9554	6658	14822	9040	20089	:	:	:	:
SA1019V	SA1019V	Average occupancy per occupied dwelling	2,72	2,84	2,63	2,77	2,53	2,61	2,49	2,64	:	:
SA1025V	SA1025V	Empty conventional dwellings	13317	21096	12745	17328	12172	13560	15936	24737	:	:
SA1026V	SA1026V	Non-conventional dwellings	:	:	:	:	388	555	400	579	:	:
SA1046V	SA1046V	Number of overcrowded households (>1 persons in 1 room)	:	:	:	:	43830	61296	45642	63555	:	:
SA1022V	SA1022V	Average area of living accommodation (m2 per person)	14,99	15,2	16,85	17,1	18,7	19	19,8	20,2	29	29
SA2004V	SA2004V	Infant Mortality per year	:	:	:	:	13	20	15	26	7	13
SA2005V	SA2005V	Male Infant Mortality per year	:	:	:	:	4	9	11	14	5	7
SA2006V	SA2006V	Female Infant Mortality per year	:	:	:	:	9	11	4	12	2	6
SA2007V	SA2007V	Number of live births per year	:	:	:	:	3139	4614	3672	5436	4688	6840
SA2008V	SA2008V	Number of live births per year (Male)	:	:	:	:	1623	2398	1851	2750	2421	3532
SA2009V	SA2009V	Number of live births per year (Female)	:	:	:	:	1516	2216	1821	2686	2267	3308
SA2013V	SA2013V	Number of deaths per year under 65 due to heart diseases and respiratory illness	:	:	354	528	322	481	330	487	313	455
SA2014V	SA2014V	Number of deaths per year under 65 due to heart diseases and respiratory illness (Male)	:	:	:	:	230	348	251	372	226	340
SA2015V	SA2015V	Number of deaths per year under 65 due to heart diseases and respiratory illness (Female)	:	:	:	:	92	133	79	115	87	115
SA2016V	SA2016V	Total deaths under 65 per year	:	:	:	:	1083	1594	1113	1618	1113	1606
SA2017V	SA2017V	Total deaths under 65 per year (Male)	:	:	:	:	692	1037	736	1099	718	1078
SA2018V	SA2018V	Total deaths under 65 per year (Female)	:	:	:	:	391	557	377	519	395	528
SA2019V	SA2019V	Total deaths per year	:	:	:	:	3863	5553	3974	5663	4110	5792
SA2020V	SA2020V	Total deaths per year (Male)	:	:	:	:	1933	2828	1996	2879	2036	2911
SA2021V	SA2021V	Total deaths per year (Female)	:	:	:	:	1930	2725	1978	2784	2074	2881
SA2022V	SA2022V	Number of hospital beds	3013	3636	5292	6328	5601	6503	4827	5768	4617	5361
SA2026V	SA2026V	Number of hospital discharges of in-patients	:	:	:	:	:	:	137027	147909	138294	149480
SA2027V	SA2027V	Number of practising physicians	:	:	:	:	:	:	2862	3519	3429	3702
SA2028V	SA2028V	Number of practising dentists	:	:	:	:	:	:	466	578	485	569
SA2029V	SA2029V	Number of deaths per year due to suicide	:	:	:	:	57	85	47	77	43	67
SA2030V	SA2030V	Number of general practitioners	:	:	:	:	322	384	339	395	458	546
SA2031V	SA2031V	Number of specialist doctors	:	:	:	:	:	:	:	:	:	:
SA3001V	SA3001V	Total number of recorded crimes within city [country for national data]	14530	:	20294	22378	15760	18628	20553	24763	19909	24441
SA3005V	SA3005V	Number of murders and violent deaths	24	:	13	19	17	20	18	24	10	13
SA3006V	SA3006V	Number of car thefts	755	:	2408	2636	1942	2136	1877	2171	1318	1648
SA3007V	SA3007V	Number of domestic burglary	:	:	:	:	612	762	385	515	2045	2993
EC1001V	EC1001V	Total Economically Active Population	235682	319459	236941	325407	238199	331354	244788	330053	248147	346435
EC1002V	EC1002V	Male Economically Active Population	116147	160554	115952	162181	115756	163807	121243	169875	126743	178421
EC1003V	EC1003V	Female Economically Active Population	119535	158905	120989	163226	122443	167547	123545	160178	121404	168014
EC1142V	EC1142V	Total Economically Active Population 15-24	:	:	:	:	27180	41570	27347	40476	22913	30823
EC1143V	EC1143V	Male Economically Active Population 15-24	:	:	:	:	13682	21048	14261	21786	10915	14563
EC1144V	EC1144V	Female Economically Active Population 15-24	:	:	:	:	13498	20522	13085	18691	11998	16260
EC1145V	EC1145V	Total Economically Active Population 55-64	:	:	:	:	20214	26315	21137	29065	34233	47599
EC1146V	EC1146V	Male Economically Active Population 55-64	:	:	:	:	11909	15984	11946	17419	18659	27910
EC1147V	EC1147V	Female Economically Active Population 55-64	:	:	:	:	8305	10331	9190	11646	15574	19689
EC1010V	EC1010V	Residents Unemployed	9845	13041	15447	22771	21048	32401	21251	29398	9057	13537
EC1011V	EC1011V	Male Residents Unemployed	5249	7342	8282	12503	11314	17664	9028	12814	4468	6447
EC1012V	EC1012V	Female Residents Unemployed	4596	5799	7165	10268	9734	14737	12223	16584	4589	7090
EC1148V	EC1148V	Residents Unemployed 15-24	:	:	:	:	6671	10483	5450	7699	765	1475
EC1149V	EC1149V	Male Residents Unemployed 15-24	:	:	:	:	3897	6098	2919	4097	244	453
EC1150V	EC1150V	Female Residents Unemployed 15-24	:	:	:	:	2774	4385	2530	3602	521	1022
EC1151V	EC1151V	Residents Unemployed 55-64	:	:	:	:	756	1137	2315	3397	1015	1329
EC1152V	EC1152V	Male Residents Unemployed 55-64	:	:	:	:	611	940	1013	1961	174	488
EC1153V	EC1153V	Female Residents Unemployed 55-64	:	:	:	:	145	197	1302	1436	841	841

EC1154V	EC1154V	Mehr als sechs Monate ununterbrochen Erwerbslose im Alter von 15 - unter 25 Jahren, insgesamt	:	:	:	:	3479	6398	2978	4462	285	762
EC1155V	EC1155V	Male unemployed continuously for more than six months, 15-24	:	:	:	:	1559	3657	1599	2217	0	227
EC1156V	EC1156V	Female unemployed continuously for more than six months, 15-24	:	:	:	:	1920	2741	1379	2245	285	535
EC1157V	EC1157V	Unemployed continuously for more than one year, 55-64	:	:	:	:	:	120	1340	2058	840	1002
EC1158V	EC1158V	Male unemployed continuously for more than one year, 55-64	:	:	:	:	:	120	405	981	0	162
EC1159V	EC1159V	Female unemployed continuously for more than one year, 55-64	:	:	:	:	:	0	935	1077	840	840
EC1025V		Residents in Self Employment	5749		12129		28288		32671		33268	
EC1026V		Male residents in Self Employment	4312		8428		18958		21762		22695	
EC1027V		Female residents in Self Employment	1437		3701		9330		10909		10573	
EC1028V		Residents in Paid Employment	220088		209365		188863		190866		204768	
EC1029V		Male residents in Paid Employment	106586		99242		85484		90494		99091	
EC1030V		Female residents in Paid Employment	113502		110123		103379		100372		105677	
EC1034V	EC1034V	Total Full-Time Employment	219288	:	211447	:	208574	289024	215426	289120	232494	322237
EC1035V	EC1035V	Male Full-Time Employment	109831	:	104501	:	102975	144530	109520	153469	119948	168519
EC1036V	EC1036V	Female Full-Time Employment	109457	:	106946	:	105599	144494	105906	135651	112546	153718
EC1088V	EC1088V	Total Part-Time Employment	6549	:	10047	:	8577	9929	8111	11535	6596	10660
EC1089V	EC1089V	Male Part-Time Employment	1067	:	3169	:	1467	1613	2737	3592	2326	3455
EC1090V	EC1090V	Female Part-Time Employment	5482	:	6878	:	7110	8316	5374	7943	4270	7205
EC1160V		Total Full-Time Employment 15-24	:		:		21774		20313		19649	
EC1161V		Full-Time Employment 15-24 Male	:		:		12713		10924		9312	
EC1162V		Full-Time Employment 15-24 Female	:		:		9064		9389		10337	
EC1163V		Total Full-Time Employment 55-64	:		:		15121		17077		32387	
EC1164V		Full-Time Employment 55-64 Male	:		:		8771		10532		18485	
EC1165V		Full-Time Employment 55-64 Female	:		:		6352		6545		13902	
EC1166V		Total Part-Time Employment 15-24	:		:		693		1584		2499	
EC1167V		Part-Time Employment 15-24 Male	:		:		365		418		1359	
EC1168V		Part-Time Employment 15-24 Female	:		:		328		1166		1140	
EC1169V		Total Part-Time Employment 55-64	:		:		2003		1745		831	
EC1170V		Part-Time Employment 55-64 Male	:		:		339		401		0	
EC1171V		Part-Time Employment 55-64 Female	:		:		1664		1343		831	
EC1172V	EC1172V	Number of jobless households with children	:	:	:	:	:	:	:	:	:	:
EC1173V	EC1173V	Number of jobless households without children	:	:	:	:	:	:	:	:	:	:
EC2001V	EC2001V	Gross Domestic Product of city / region / country	:	:	:	:	:	:	13418015000	13418015000	17535978000	17535978000
EC2021V		All companies	4010		16107		66410		72552		22134	
EC2003V		Companies with headquarter within the city [country] quoted on national stock exchange	:		:		:		73		45	
EC2004V		New business registered in reference year	:		:		8043		4562		9498	
EC2014V		Companies gone bankrupt in reference year	:		:		6648		1751		4331	
EC2020V		Total employment / jobs (work place based)	:		:		309921		314057		358097	
EC2008V		Employment (jobs) in agriculture, fishery (NACE Rev. 1: A-B) & ESA95 A3	:		:		1779		1375		927	
EC2009V		Employment (jobs) in mining, manufacturing, energy (NACE Rev. 1: C-E)	:		:		49971		45636		37164	
EC2022V		Employment (jobs) inconstruction (NACE Rev. 1: F)	:		:		17844		17452		19295	
EC2010V		Employment (jobs) in trade, hotels, restaurants (NACE Rev. 1: G-H)	:		:		71858		65806		94649	
EC2023V		Employment (jobs) in transport, communication (NACE Rev. 1: I)	:		:		29699		30110		57877	
EC2011V		Employment (jobs) financial intermediation, business activities (NACE Rev. 1: J-K)	:		:		63682		75125		94333	
EC2012V		Employment (jobs) in public admin., health, education, other (NACE Rev. 1: L-P)	:		:		75088		78553		88709	
EC2016V		Employment (jobs) in Nace Rev. 1 C-F (ESA95 A3)	:		:		67815		63088		56459	
EC2017V		Employment (jobs) in Nace Rev. 1 G-P (ESA95 A3)	:		:		240327		249594		335568	
EC2018V		Employment (jobs) - employees	:		:		267849		269143		338035	
EC2019V		Employment (jobs) - self employed	:		:		42072		44914		54919	
EC2024V		Enterprises with 1 to 250 employees	:		:		:		12878		21967	
EC2025V		Enterprises with more than 250 employees	:		:		115		137		167	
EC2026V		Enterprises that had a turnover increase last year (size class 1-250 employees)	:		:		:		5656		12243	
EC2027V		Enterprises that had a turnover increase last year (size class >250 employees)	:		:		30		66		55	
EC2028V		Employment growth last year (size class 1-250 employees)	:		:		-1,6		-3,7		3,9	
EC2029V		Employment growth last year (size class >250 employees)	:		:		2,2		-1,9		13,7	
EC2030V	EC2030V	Gross Domestic Product of NUTS 3 region in Euros	:	:	4022,5	4022,5	5782,6	5782,6	8559,9	8559,9	14667,6	14667,6
EC2031V	EC2031V	Gross Domestic Product per inhabitant in PPS of NUTS 3 region	:	:	16100	16100	22800	22800	27900	27900	39900	39900
EC3039V	EC3039V	Median disposable annual household income	:	:	:	:	:	:	3339	3191	12212	12212
EC3040V		Average disposable annual household income	:		:		:		4219		14268,5	
EC3045V	EC3045V	Household Income: Quintile 4 (income with 20% households above, 80% below)	:	:	:	:	:	:	5409	5146	20983	20983
EC3048V	EC3048V	Household Income: Quintile 3 (income with 40% households above, 60% below)	:	:	:	:	:	:	3885	3747	14368	14368
EC3051V	EC3051V	Household Income: Quintile 2 (income with 60% households above, 40% below)	:	:	:	:	:	:	2974	2872	9611	9611
EC3054V	EC3054V	Household Income: Quintile 1 (income with 80% households above, 20% below)	:	:	:	:	:	:	2192	2173	6056	6056
EC3056V	EC3056V	Total Number of Households (relating to the reported household income)	:	:	:	:	:	:	169437	233364	235239	235239
EC3055V	EC3055V	Total Number of Households with less than 60% of the national median disposable annual househ	:	:	:	:	:	:	11674	16634	43759,6	43759,6
EC3057V	EC3057V	Total Number of Households with less than half of the national average income	:	:	:	:	:	:	10687	14930	42425	:
EC3060V	EC3060V	Total Number of Households reliant on social security benefits (>50%)	:	:	:	:	:	:	:	7879	65606	:
EC3063V	EC3063V	Individuals reliant on social security benefits (>50%)	:	:	:	:	:	:	:	4482	109622	:
CI1016V		Total number of elected city representatives	:		:		80		80		45	
CI1017V		Number of Male elected city representatives	:		:		62		58		32	

CI1018V		Number of Female elected city representatives	:			:		18		22		13		
TE1001V	TE1001V	Number of children 0-4 in day care	:	:		:	:	10918	16331	11063	16605	7173	10790	
TE1006V	TE1006V	Number of children 0-2 in day care	:	:		:	:	310	310	215	215	902	1203	
TE1007V	TE1007V	Number of children 3-4 in day care	:	:		:	:	10608	16021	10848	16390	6271	9587	
TE1005V	TE1005V	Total students registered for final year of compulsory education	:	:		:	:	5379	7630	4984	7098	:	:	
TE1030V	TE1030V	Students leaving compulsory education without having a diploma	:	:		:	:	200	375	33	66	:	:	
TE1031V		Students in upper and further education (ISCED level 3-4)	:			:		33772		35177		34381		
TE1032V		Male students in upper and further education (ISCED level 3-4)	:			:		16842		17494		17108		
TE1033V		Female students in upper and further education (ISCED level 3-4)	:			:		16930		17683		17273		
TE1026V		Students in higher education (ISCED level 5-6)	:			:		36968		37572		76657		
TE1027V		Male students in higher education (ISCED level 5-6)	:			:		19527		18090		31337		
TE1028V		Female students in higher education (ISCED level 5-6)	:			:		17441		19482		45320		
TE1034V	TE1034V	Average number of pupils in a class (primary schools)	:	:		:	:	23,1	22,7	23	22,6	20,4	20,3	
TE1035V	TE1035V	Average number of pupils in a class (secondary schools)	:	:		:	:	27,8	27,7	26,9	26,8	24,9	24,9	
TE2025V	TE2025V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education	:	:		:	:	47579	76159	:	:	:	:	
TE2026V	TE2026V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education - male	:	:		:	:	22021	34612	:	:	:	:	
TE2027V	TE2027V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education - fema	:	:		:	:	25558	41547	:	:	:	:	
TE2028V	TE2028V	Number of residents (aged 15-64) with ISCED level 3or 4 as the highest level of education	:	:		:	:	173619	253306	:	:	:	:	
TE2029V	TE2029V	Number of residents (aged 15-64) with ISCED level 3 or 4 as the highest level of education - male	:	:		:	:	80618	121776	:	:	:	:	
TE2030V	TE2030V	Number of residents (aged 15-64) with ISCED level 3 or 4 as the highest level of education - female	:	:		:	:	93001	131530	:	:	:	:	
TE2031V	TE2031V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education	:	:		:	:	77400	89409	:	:	:	:	
TE2032V	TE2032V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education - male	:	:		:	:	38627	44873	:	:	:	:	
TE2033V	TE2033V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education - female	:	:		:	:	38773	44536	:	:	:	:	
EN1001V		Number of days of rain per annum	:			:		194		119		89		
EN1002V		Total number of hours of sunshine per day	:			:		5,9		5,4		6		
EN1003V		Average temperature of warmest month	:			:		22,4		21		23		
EN1004V		Average temperature of coldest month	:			:		-1,6		-1		-3		
EN1005V		Rainfall (litre/m2)	:			:		529		676		606		
EN1006V		Median city centre altitude above sea level	:			:		:		150		:		
EN2002V		Summer Smog: Number of days ozone (O3) concentrations exceed 120 microgram/m3	:		0			20		22		29		
EN2003V		Number of hours per year that nitrogen dioxide NO2 concentrations exceed 200 microgram/m3	:		0			3		0		0		
EN2005V		Number of days particulate matter PM10concentrations exceed 50 microgram/m3	:		:			18		40		19		
EN2025V		Accumulated ozone concentration in excess 70 microgram/m3	:		265,8			3948,5		5428,5		5444		
EN2026V		Annual average concentration of NO2	:		24,1			40,5		30,9		20,8		
EN2027V		Annual average concentration of PM10	:		:			25,3		31,5		21,4		
EN2033V		Number of residents exposed to road traffic noise >65 dB(A) at day time	:		:			:		:		:		
EN2035V		Number of residents exposed to road traffic noise >55 dB(A) at night time	:		:			:		:		:		
EN2032V		Number of residents exposed to rail traffic (incl. tram) noise >65dB(A) at daytime	:		:			:		:		:		
EN2036V		Number of residents exposed to rail traffic (incl. tram) noise >55dB(A) at night-time	:		:			:		:		:		
EN2028V	EN2028V	Number of residents exposed to air traffic noise >65 dB(A) at day time	:	:	:	:	:	:	:	:	:	:	:	
EN2029V	EN2029V	Number of residents exposed to air traffic noise >55 dB(A) at night time	:	:	:	:	:	:	:	:	:	:	:	
EN3003V		Total consumption of water	71951000		55205000			45662314		:		33979553		
EN3004V		Number of dwellings connected to potable drinking water system	:		:			159749		176500		195430		
EN3006V		Number of dwellings connected to sewerage treatment system	:		:			157458		163260		190843		
EN3008V		Number of water rationing cases, days per year	:		:			12		0		:		
EN3009V		Number of scheduled water cuts, days per year	:		:			0		0		:		
EN3010V		Price of a m3 of domestic water (Euro)	:		:			0,3		0,6		0,9		
EN3011V		Percentage of the urban waste water load (in population equivalents) treated according to the appl	:		:			:		:		:		
EN4001V		Annual amount of solid waste (domestic and commercial)	175199		194980			:		:		1078203		
EN4002V		Annual amount of solid waste (domestic and commercial) processed by landfill.	:		:			190704		1308188		450072		
EN4003V		Annual amount of solid waste (domestic and commercial) is processed by incinerator	:		:			279437		19767		123194		
EN4004V		Annual amount of solid waste (domestic and commercial) that is recycled	:		:			84118		360512		191551		
EN4006V		Annual amount of solid waste (domestic and commercial) given to other disposal	:		:			181856		36617		230249		
EN4007V		Annual amount of solid waste (domestic and commercial) that is composted	:		:			:		41023		83119,8		
EN5003V	EN5003V	Total land area (km2) according to cadastral register	367,6	:	367,6	2053,2		367,6	2052,56	367,6	2052,6	368	2053	
EN5015V	EN5015V	Water and wetland	:	:	:	:		14,76	55,87	14,7	:	17	58	
EN5012V	EN5012V	Green space area	:	:	:	:		236,4	1725,5	228,2	1676	223	1687	
EN5016V	EN5016V	Land used for agricultural purposes	:	:	:	:		148	960,62	146,4	956,4	142	935	
EN5024V	EN5024V	Land used for commercial activities (industry, trade, offices)	:	:	:	:		:	:	14	:	:	:	
EN5004V	EN5004V	Land area in housing/residential use	:	:	:	:		25,16	142,3	25,2	:	:	:	
EN5025V	EN5025V	Land used for transport (road, rail, air, ports)	:	:	:	:		:	:	22,1	24,8	:	:	
EN5011V	EN5011V	Land area in recreational, sports and leisure use	:	:	:	:		3,11	17,38	15,9	:	:	:	
EN5026V	EN5026V	other land use	:	:	:	:		:	:	129,4	:	:	:	
EN5001V	EN5001V	Green space to which the public has access	:	:	:	:		9307,25	:	9680,7	:	9673	86404	
TT1003V	TT1003V	Percentage of journeys to work by car	15	:	17	10,9		24,3	21,8	26	23	10,3	15	
TT1010V	TT1010V	Percentage of journeys to work by public transport (rail, metro, bus, tram)	:	:	:	:		72,2	73,1	70,1	71,6	86,8	82,5	
TT1006V	TT1006V	Percentage of journeys to work by motor cycle	:	:	:	:		0,1	0,3	0,1	0,4	0	0	
TT1007V	TT1007V	Percentage of journeys to work by bicycle	:	:	:	:		0,2	0,5	0,3	0,5	0	0	
TT1008V	TT1008V	Percentage of journeys to work by foot	:	:	:	:		3,2	4,3	3,5	4,5	2,9	2,5	
TT1012V	TT1012V	Percentage of journeys to work by car or motor cycle	:	:	:	:		24,4	22,1	26,1	23,4	10,3	15	

TT1019V	TT1019V	Average time of journey to work (minutes)	34	32	38,5	36,5	43	41	38	50	37	40
TT1020V	TT1020V	Average length of journey to work by private car (km)	:	:	:	:	12	20	12	20	14	21,6
TT1064V		People commuting into the city	74895		82160		89424		100000		:	
TT1065V		People commuting out of the city	7157		7343		7528		7000		:	
TT1069V	TT1069V	Number of stops of public transport	:	:	:	:	1362	1623	1235	1496	1263	:
TT1083V	TT1083V	Number of buses (or bus equivalents) operating in the public transport	:	:	:	:	1011	1162	975	1120	807	:
TT1084V		Average age of the bus (only buses) fleet	:		:		8,2		10,1		7	
TT1085V		Proportion of buses running on alternative fuels	:		:		2,6		19,1		38,3	
TT1066V		Length of public transport network (km)	:		:		614		620		580	
TT1077V		Length of public transport network on fixed infrastructure	:		:		185,3		185,3		81	
TT1078V		Length of public transport network on flexible routes	:		:		428,5		434,8		417,7	
TT1082V		Length of restricted bus lanes	:		:		:		:		20	
TT1079V		Length of bicycle network (dedicated cycle paths and lanes)	:		:		73		85,2		101,9	
TT1080V		Cost of a combined monthly ticket (all modes of public transport) for 5-10 km in the central zone	:		:		10,6		15		19,2	
TT1081V		Cost of a taxi ride of 5 km to the centre at day time	:		:		2,4		2,4		4,2	
TT1057V	TT1057V	Number of private cars registered	104295	398092	144852	204235	182002	232996	200424	216508	123760	179464
TT1013V		Number of motor cycles registered	:		:		2879		4276		6085	
TT1070V	TT1070V	Number of park and ride parking spaces	:	:	:	:	41902	41902	43538	43538	44810	:
TT1075V		Maximum charge of on-street parking in the city centre per hour	:		:		0,5		1,2		1,3	
TT1060V	TT1060V	Number of deaths in road accidents	:	:	:	:	32	57	32	74	21	51
TT1061V	TT1061V	Number of persons seriously injured in road accidents	:	:	:	:	163	235	152	247	104	176
TT1071V	TT1071V	Accessiblity by air (EU27=100)	:	:	:	:	:	:	130	:	:	:
TT1072V	TT1072V	Accessiblity by rail (EU27=100)	:	:	:	:	:	:	93	:	:	:
TT1073V	TT1073V	Accessiblity by road (EU27=100)	:	:	:	:	:	:	101	:	:	:
TT1074V	TT1074V	Multimodal accessibility (EU27=100)	:	:	:	:	:	:	124	:	:	:
IT1005V		Percentage of households with Internet access at home	:		:		:		:		62,5	
IT3001V		Number of local units manufacturing ICT products	:		:		336		307		65	
IT3002V		Number of persons employed in manufacture of ICT products	:		:		3848		3689		1564	
IT3003V		Number of local units providing ICT services	:		:		2952		2945		1709	
IT3004V		Number of persons employed in provision of ICT services	:		:		25314		24284		25418	
IT3005V		Number of local units producing content for the Information Society	:		:		7813		8411		194	
IT3006V		Number of persons employed in production of content for the Information Society	:		:		32978		34405		1335	
CR1003V		Number of cinema seats (total capacity)	:		:		8596		9762		6420	
CR1005V		Cinema attendance (per year)	1669000		707000		1144010		1309531		1301993	
CR1006V		Number of museums	:		:		8		15		19	
CR1007V		Number of museum visitors (per year)	458000		424000		339547		469064		526939	
CR1008V		Number of theatres	:		:		18		20		22	
CR1013V		Number of theatre seats	:		:		4020		3684		816389	
CR1009V		Theatre attendance (per year)	:		:		646296		451871		519993	
CR1010V		Number of public libraries (all distribution points)	:		:		45		18		39	
CR1011V		Number of books and other media loaned from public libraries (per year)	:		:		2396860		2410206		1878769	
CR1014V		Number of persons employed in the culture and entertainment industry	:		:		10686		11154		11901	
CR1015V	CR1015V	Number of public swimmingpools	:	:	:	:	35	64	35	64	:	:
CR2001V		Total annual tourist overnight stays in registered accommodation	496496		917629		951918		1338497		1549094	
CR2009V		Number of available beds	5102		8464		5588		11361		:	
CR2102V		Number of available beds at high season	:		:		5588		11361		:	
CR2103V		Number of available beds at low season	:		:		5588		11361		10777	
CR2104V		Total tourist overnight stays in registered accommodation at high season	:		:		:		581901		293342	
CR2105V		Total tourist overnight stays in registered accommodation at low season	:		:		:		:		78609	
CR2004V		Number of air passengers using nearest airport	:		19144		303159		893614		2218545	
CR2005V		Number of air passengers using nearest airport: Total arrivals	:		:		145692		429453		1066187	
CR2006V		Number of air passengers using nearest airport: Domestic arrivals	:		:		4703		10179		34417	
CR2007V		Number of air passengers using nearest airport: Total departures	:		:		157467		464161		1152358	
CR2008V		Number of air passengers using nearest airport: Domestic departures	:		:		11618		25146		85022	
DE3019V	DE3019V	Number of jobless households with children	:	:	:	:	:	:	:	:	:	:
DE3020V	DE3020V	Number of jobless households without children	:	:	:	:	:	:	:	:	:	:
CI1019V		Participation rate at European elections	:		:		:		21,9		24,8	
CI1020V		Participation rate at national elections	:		:		72		:		63,9	
CI1021V		Participation rate at city elections	:		:		27,4		:		33,6	
TE1036V		Students in education of ISCED level 1-2	:		:		:		:		:	
TE1037V		Male students in education of ISCED level 1-2	:		:		:		:		:	
TE1038V		Female students in education of ISCED level 1-2	:		:		:		:		:	

Ljubljana

INDIC_UR_CC	INDIC_UR_LUZ	INDIC_UR(L)/TIME	1989_1993_CC	1989_1993_LUZ	1994_1998_CC	1994_1998_LUZ	1999_2002_CC	1999_2002_LUZ	2003_2006_CC	2003_2006_LUZ	2007_2010_CC	2007_2010_LUZ
DE1001V	DE1001V	Total Resident Population	272650	470641	265901	486029	270506	490148	267563	495101	267760	508607
DE1002V	DE1002V	Male Resident Population	127712	224296	123612	233530	126237	235640	127747	240041	128869	248593
DE1003V	DE1003V	Female Resident Population	144938	246345	142289	252499	139644	252724	139816	255060	138891	260014
DE1067V	DE1067V	Total Resident Population 0-2	:	:	:	:	:	:	:	:	7771	15949
DE1068V	DE1068V	Male Resident Population 0-2	:	:	:	:	:	:	:	:	4015	8276
DE1069V	DE1069V	Female Resident Population 0-2	:	:	:	:	:	:	:	:	3756	7673
DE1070V	DE1070V	Total Resident Population 3-4	:	:	:	:	:	:	:	:	4569	9595
DE1071V	DE1071V	Male Resident Population 3-4	:	:	:	:	:	:	:	:	2377	4982
DE1072V	DE1072V	Female Resident Population 3-4	:	:	:	:	:	:	:	:	2192	4613
DE1040V	DE1040V	Total Resident Population 0-4	15372	29164	12241	24897	11052	22902	11106	23053	12340	25544
DE1041V	DE1041V	Male Resident Population 0-4	:	:	:	:	5770	11921	5755	11894	6392	13258
DE1042V	DE1042V	Female Resident Population 0-4	:	:	:	:	5282	10981	5351	11159	5948	12286
DE1043V	DE1043V	Total Resident Population 5-14	37922	68535	32218	62816	25343	52680	24110	50555	22092	48012
DE1044V	DE1044V	Male Resident Population 5-14	:	:	:	:	12878	27027	12272	26021	11370	24786
DE1045V	DE1045V	Female Resident Population 5-14	:	:	:	:	12465	25653	11838	24534	10722	23226
DE1046V	DE1046V	Total Resident Population 15-19	19007	34547	19713	36870	15860	31116	15524	30979	13467	28374
DE1047V	DE1047V	Male Resident Population 15-19	:	:	:	:	8004	15820	7882	15821	6925	14673
DE1048V	DE1048V	Female Resident Population 15-19	:	:	:	:	7856	15296	7642	15158	6542	13701
DE1049V	DE1049V	Total Resident Population 20-24	18682	34244	18339	35221	19377	36273	18638	35552	16482	32680
DE1050V	DE1050V	Male Resident Population 20-24	:	:	:	:	10034	18748	9621	18389	8568	17034
DE1051V	DE1051V	Female Resident Population 20-24	:	:	:	:	9343	17525	9017	17163	7914	15646
DE1052V	DE1052V	Total Resident Population 25-54	121467	204936	118005	214871	122982	223048	123552	227108	121525	231772
DE1053V	DE1053V	Male Resident Population 25-54	:	:	:	:	60538	111039	61556	113988	61336	117575
DE1054V	DE1054V	Female Resident Population 25-54	:	:	:	:	62444	112009	61996	113120	60189	114197
DE1058V	DE1058V	Total Resident Population 25-34	:	:	:	:	39297	73362	39217	74243	40476	78003
DE1059V	DE1059V	Male Resident Population 25-34	:	:	:	:	20030	37178	20138	37892	21146	40461
DE1060V	DE1060V	Female Resident Population 25-34	:	:	:	:	19267	36184	19079	36351	19330	37542
DE1061V	DE1061V	Total Resident Population 35-44	:	:	:	:	42029	76279	40950	76851	40269	78173
DE1062V	DE1062V	Male Resident Population 35-44	:	:	:	:	20692	38045	20262	38362	20146	39397
DE1063V	DE1063V	Female Resident Population 35-44	:	:	:	:	21337	38234	20688	38489	20123	38794
DE1064V	DE1064V	Total Resident Population 45-54	:	:	:	:	43768	73736	43385	76014	40780	75596
DE1065V	DE1065V	Male Resident Population 45-54	:	:	:	:	21349	36573	21156	37734	20044	37735
DE1066V	DE1066V	Female Resident Population 45-54	:	:	:	:	22419	37163	22229	38280	20736	37861
DE1073V	DE1073V	Median population age	:	:	:	:	:	:	:	:	42,3	40,5
DE1025V	DE1025V	Total Resident Population 55-64	29952	50801	29939	53187	29953	52488	31095	54321	34512	60725
DE1026V	DE1026V	Male Resident Population 55-64	:	:	:	:	13721	24814	14357	25864	16227	29251
DE1027V	DE1027V	Female Resident Population 55-64	:	:	:	:	16232	27674	16738	28457	18285	31474
DE1028V	DE1028V	Total Resident Population 65-74	17819	27676	23020	38035	24500	43170	25068	44163	25640	45698
DE1029V	DE1029V	Male Resident Population 65-74	:	:	:	:	10162	18503	10610	19169	11062	20296
DE1030V	DE1030V	Female Resident Population 65-74	:	:	:	:	14338	24667	14458	24994	14578	25402
DE1055V	DE1055V	Total Resident Population 75 and over	12245	20524	12426	20132	16814	26687	18470	29370	21702	35802
DE1056V	DE1056V	Male Resident Population 75 and over	:	:	:	:	5130	7768	5694	8895	6989	11720
DE1057V	DE1057V	Female Resident Population 75 and over	:	:	:	:	11684	18919	12776	20475	14713	24082
DE2001V	DE2001V	Residents who are Nationals	:	:	265901	470503	255298	474544	255518	479149	252273	487238
DE2002V	DE2002V	Residents who are Nationals of other EU Member State	:	:	:	:	284	382	:	:	664	1054
DE2003V	DE2003V	Residents who are not EU Nationals	:	:	:	:	9807	12696	:	:	14823	20315
DE2005V	DE2005V	Residents who are not EU Nationals and citizens of a country with high HDI	:	:	:	:	:	:	:	:	14354	19584
DE2006V	DE2006V	Residents who are not EU Nationals and citizens of a country with a medium or low HDI	:	:	:	:	:	:	:	:	399	647
DE2004V	DE2004V	Nationals born abroad	:	:	40522	52659	32714	43535	38983	53211	38935	54285
DE2007V	DE2007V	Number of residents born abroad (not only nationals)	:	:	:	:	:	:	:	:	53807	74802
DE3001V	DE3001V	Total Number of Households	100227	160579	81714	:	102646	174746	104570	177875	:	:
DE3017V	DE3017V	Total Resident Population living in households (excluding institutional households)	:	:	:	:	:	:	261829	480183	:	:
DE3002V	DE3002V	One person households (Total)	22448	31630	10205	:	28554	41367	:	:	:	:
DE3005V	DE3005V	Lone parent households (Total)	:	:	:	:	:	:	299	707	:	:
DE3008V	DE3008V	Lone pensioner (above retirement age) households Total	:	:	:	:	15531	23626	:	:	:	:
DE3009V	DE3009V	Lone pensioner (above retirement age) households Male	:	:	:	:	2830	4533	:	:	:	:
DE3010V	DE3010V	Lone pensioner (above retirement age) households Female	:	:	:	:	12701	19093	:	:	:	:
DE3011V	DE3011V	Households with children aged 0 to under 18	:	:	:	:	30107	58617	27771	53038	:	:
DE3012V		Nationals that have moved into the city during the last two years	:	:	:	:	6653		4434		19231	

DE3013V		EU Nationals that have moved into the city during the last two years (stock)	:	:	:	:	44	:	:	:	:	:
DE3014V		Non-EU Nationals that have moved into the city during the last two years (stock)	:	:	:	:	751	:	:	:	:	:
DE3015V		Number of moves into the city during the last two years (flow)	:	:	:	:	7143	:	8094	:	31895	:
DE3016V		Number of moves out of the city during the last two years (flow)	:	:	:	:	8566	:	9197	:	23316	:
DE3018V	DE3018V	Households with 3 children or more under 18	:	:	:	:	:	:	:	:	:	:
SA1001V	SA1001V	Number of dwellings	:	:	:	:	112541	193453	115786	199287	119687	208671
SA1004V	SA1004V	Number of houses	:	:	:	:	18441	62284	:	:	:	:
SA1005V	SA1005V	Number of apartments	:	:	:	:	94100	131169	:	:	:	:
SA1007V	SA1007V	Number of households living in houses	:	:	:	:	17397	54711	:	:	:	:
SA1008V	SA1008V	Number of households living in apartments	:	:	:	:	82707	117128	:	:	:	:
SA1011V	SA1011V	Households owning their own dwelling	48459	94844	:	:	80092	142443	85492	149847	:	:
SA1012V	SA1012V	Households in social housing	:	:	:	:	5967	8215	5959	6554	:	:
SA1013V	SA1013V	Households in private rented housing	:	:	:	:	2699	3334	:	:	:	:
SA1027V		Number of roofless persons	:	:	:	:	:	:	:	:	:	
SA1029V		Number of people in accommodation for the homeless	:	:	:	:	:	:	51	:	:	
SA1031V		Number of people in Women's Shelter	:	:	:	:	:	:	:	:	:	
SA1030V		Number of people in accommodation for immigrants	:	:	:	:	:	:	:	:	:	
SA1016V	SA1016V	Average price for an apartment per m2	:	:	:	:	950	:	1850	:	2630	:
SA1023V	SA1023V	Average price for a house per m2	:	:	:	:	:	:	1400	:	3089	:
SA1049V	SA1049V	Average annual rent for housing per m2	:	:	:	:	:	:	250	:	:	:
SA1018V	SA1018V	Dwellings lacking basic amenities	5280	11666	:	11666	:	:	:	:	:	:
SA1019V	SA1019V	Average occupancy per occupied dwelling	2,8	3	:	:	2,7	2,9	:	:	:	:
SA1025V	SA1025V	Empty conventional dwellings	3392	6009	:	:	13480	20135	:	:	:	:
SA1026V	SA1026V	Non-conventional dwellings	:	:	:	:	113	254	:	:	:	:
SA1046V	SA1046V	Number of overcrowded households (>1 persons in 1 room)	:	:	:	:	:	:	28077	46113	:	:
SA1022V	SA1022V	Average area of living accommodation (m2 per person)	22,9	22,4	24	23,9	26,2	26,4	:	30,01	:	:
SA2004V	SA2004V	Infant Mortality per year	:	:	:	:	9	16	5	15	2	8
SA2005V	SA2005V	Male Infant Mortality per year	:	:	:	:	4	9	2	8	1	2
SA2006V	SA2006V	Female Infant Mortality per year	:	:	:	:	5	7	3	7	1	6
SA2007V	SA2007V	Number of live births per year	:	:	:	:	2132	4380	2343	4749	2950	6234
SA2008V	SA2008V	Number of live births per year (Male)	:	:	:	:	1089	2243	1240	2468	1471	3161
SA2009V	SA2009V	Number of live births per year (Female)	:	:	:	:	1043	2137	1103	2281	1479	3073
SA2013V	SA2013V	Number of deaths per year under 65 due to heart diseases and respiratory illness	177	308	143	285	183	261	:	:	113	177
SA2014V	SA2014V	Number of deaths per year under 65 due to heart diseases and respiratory illness (Male)	:	:	:	:	132	195	:	:	81	131
SA2015V	SA2015V	Number of deaths per year under 65 due to heart diseases and respiratory illness (Female)	:	:	:	:	51	66	:	:	32	46
SA2016V	SA2016V	Total deaths under 65 per year	:	:	:	:	548	1048	568	1030	460	916
SA2017V	SA2017V	Total deaths under 65 per year (Male)	:	:	:	:	371	751	372	699	295	627
SA2018V	SA2018V	Total deaths under 65 per year (Female)	:	:	:	:	177	297	196	331	165	289
SA2019V	SA2019V	Total deaths per year	:	:	:	:	2284	3963	2346	4051	2119	3983
SA2020V	SA2020V	Total deaths per year (Male)	:	:	:	:	1128	2037	1175	2087	1009	1975
SA2021V	SA2021V	Total deaths per year (Female)	:	:	:	:	1156	1926	1171	1964	1110	2008
SA2022V	SA2022V	Number of hospital beds	4078	:	3885	:	3543	3618	3427	3497	3328	3393
SA2026V	SA2026V	Number of hospital discharges of in-patients	:	:	:	:	99534	100076	100941	101425	109707	110358
SA2027V	SA2027V	Number of practising physicians	:	:	:	:	1491	1942	1646	1949	1889	2040
SA2028V	SA2028V	Number of practising dentists	:	:	:	:	273	454	275	407	276	390
SA2029V	SA2029V	Number of deaths per year due to suicide	:	:	:	:	:	:	:	:	46	91
SA2030V	SA2030V	Number of general practitioners	:	:	:	:	:	:	:	:	201	:
SA2031V	SA2031V	Number of specialist doctors	:	:	:	:	:	:	:	:	:	:
SA3001V	SA3001V	Total number of recorded crimes within city [country for national data]	1218	1761	407	619	25164	33487	35654	42105	28907	37868
SA3005V	SA3005V	Number of murders and violent deaths	7	12	5	5	4	4	7	9	0	5
SA3006V	SA3006V	Number of car thefts	:	:	:	:	398	587	452	484	252	294
SA3007V	SA3007V	Number of domestic burglary	:	:	:	:	1028	1384	1247	1637	261	572
EC1001V	EC1001V	Total Economically Active Population	:	182300	101443	174066	129000	229000	133000	250000	:	:
EC1002V	EC1002V	Male Economically Active Population	:	92907	50459	87018	68000	122000	69000	133000	:	:
EC1003V	EC1003V	Female Economically Active Population	:	89393	50984	87049	61000	108000	65000	118000	:	:
EC1142V	EC1142V	Total Economically Active Population 15-24	:	:	:	:	12000	22000	12000	26000	:	:
EC1143V	EC1143V	Male Economically Active Population 15-24	:	:	:	:	7000	13000	6000	14000	:	:
EC1144V	EC1144V	Female Economically Active Population 15-24	:	:	:	:	5000	9000	6000	12000	:	:
EC1145V	EC1145V	Total Economically Active Population 55-64	:	:	:	:	8000	14000	11000	19000	:	:
EC1146V	EC1146V	Male Economically Active Population 55-64	:	:	:	:	6000	10000	8000	14000	:	:
EC1147V	EC1147V	Female Economically Active Population 55-64	:	:	:	:	2000	4000	3000	5000	:	:
EC1010V	EC1010V	Residents Unemployed	:	21050	12527	20879	6000	11000	7000	13000	:	:
EC1011V	EC1011V	Male Residents Unemployed	:	:	6654	11084	3000	6000	4000	7000	:	:
EC1012V	EC1012V	Female Residents Unemployed	:	:	5873	9795	3000	5000	3000	6000	:	:
EC1148V	EC1148V	Residents Unemployed 15-24	:	:	:	:	2000	3000	2000	3000	:	:
EC1149V	EC1149V	Male Residents Unemployed 15-24	:	:	:	:	1000	2000	1000	2000	:	:
EC1150V	EC1150V	Female Residents Unemployed 15-24	:	:	:	:	1000	1000	1000	1000	:	:
EC1151V	EC1151V	Residents Unemployed 55-64	:	:	:	:	:	:	:	1000	:	:
EC1152V	EC1152V	Male Residents Unemployed 55-64	:	:	:	:	:	:	:	1000	:	:
EC1153V	EC1153V	Female Residents Unemployed 55-64	:	:	:	:	:	:	:	:	:	:

EC1154V	EC1154V	Mehr als sechs Monate ununterbrochen Erwerbslose im Alter von 15 - unter 25 Jahren, insgesamt	:	:	:	:	1000	2000	1000	2000	:	:
EC1155V	EC1155V	Male unemployed continuously for more than six months, 15-24	:	:	:	:	:	1000	1000	1000	:	:
EC1156V	EC1156V	Female unemployed continuously for more than six months, 15-24	:	:	:	:	:	:	:	1000	:	:
EC1157V	EC1157V	Unemployed continuously for more than one year, 55-64	:	:	:	:	:	:	:	1000	:	:
EC1158V	EC1158V	Male unemployed continuously for more than one year, 55-64	:	:	:	:	:	:	:	:	:	:
EC1159V	EC1159V	Female unemployed continuously for more than one year, 55-64	:	:	:	:	:	:	:	:	:	:
EC1025V		Residents in Self Employment	:		:		12000		12000		:	
EC1026V		Male residents in Self Employment	:		:		9000		8000		:	
EC1027V		Female residents in Self Employment	:		:		3000		4000		:	
EC1028V		Residents in Paid Employment	:		94120		108000		114000		:	
EC1029V		Male residents in Paid Employment	:		44270		53000		56000		:	
EC1030V		Female residents in Paid Employment	:		49850		55000		58000		:	
EC1034V	EC1034V	Total Full-Time Employment	:	:	:	:	122000	:	114000	215000	:	:
EC1035V	EC1035V	Male Full-Time Employment	:	:	:	:	65000	:	59000	115000	:	:
EC1036V	EC1036V	Female Full-Time Employment	:	:	:	:	57000	:	55000	100000	:	:
EC1088V	EC1088V	Total Part-Time Employment	:	:	:	:	7000	:	12000	22000	:	:
EC1089V	EC1089V	Male Part-Time Employment	:	:	:	:	3000	:	5000	10000	:	:
EC1090V	EC1090V	Female Part-Time Employment	:	:	:	:	4000	:	7000	12000	:	:
EC1160V		Total Full-Time Employment 15-24	:		:		10000		6000		:	
EC1161V		Full-Time Employment 15-24 Male	:		:		4000		3000		:	
EC1162V		Full-Time Employment 15-24 Female	:		:		6000		3000		:	
EC1163V		Total Full-Time Employment 55-64	:		:		6000		9000		:	
EC1164V		Full-Time Employment 55-64 Male	:		:		5000		7000		:	
EC1165V		Full-Time Employment 55-64 Female	:		:		1000		2000		:	
EC1166V		Total Part-Time Employment 15-24	:		:		2000		4000		:	
EC1167V		Part-Time Employment 15-24 Male	:		:		1000		2000		:	
EC1168V		Part-Time Employment 15-24 Female	:		:		1000		3000		:	
EC1169V		Total Part-Time Employment 55-64	:		:		1000		1000		:	
EC1170V		Part-Time Employment 55-64 Male	:		:		1000		1000		:	
EC1171V		Part-Time Employment 55-64 Female	:		:		1000		1000		:	
EC1172V	EC1172V	Number of jobless households with children	:	:	:	:	:	:	:	:	:	:
EC1173V	EC1173V	Number of jobless households without children	:	:	:	:	:	:	:	:	:	:
EC2001V	EC2001V	Gross Domestic Product of city / region / country	:	:	:	:	:	:	:	:	:	13478970437
EC2021V		All companies	7371		15423		17698		18954		31469	
EC2003V		Companies with headquarter within the city [country] quoted on national stock exchange	:		:		379		:		34	
EC2004V		New business registered in reference year	2980		1190		1277		1692		3531	
EC2014V		Companies gone bankrupt in reference year	:		:		2		108		127	
EC2020V		Total employment / jobs (work place based)	:		:		176502		181725		209992	
EC2008V		Employment (jobs) in agriculture, fishery (NACE Rev. 1: A-B) & ESA95 A3	:		:		856		794		925	
EC2009V		Employment (jobs) in mining, manufacturing, energy (NACE Rev. 1: C-E)	:		:		28272		25811		25380	
EC2022V		Employment (jobs) inconstruction (NACE Rev. 1: F)	:		:		15236		13953		19972	
EC2010V		Employment (jobs) in trade, hotels, restaurants (NACE Rev. 1: G-H)	:		:		34401		34379		38295	
EC2023V		Employment (jobs) in transport, communication (NACE Rev. 1: I)	:		:		12505		12728		14772	
EC2011V		Employment (jobs) financial intermediation, business activities (NACE Rev. 1: J-K)	:		:		30507		34934		44949	
EC2012V		Employment (jobs) in public admin., health, education, other (NACE Rev. 1: L-P)	:		:		54725		59126		65699	
EC2016V		Employment (jobs) in Nace Rev. 1 C-F (ESA95 A3)	:		:		43508		39764		45352	
EC2017V		Employment (jobs) in Nace Rev. 1 G-P (ESA95 A3)	:		:		132138		141167		163715	
EC2018V		Employment (jobs) - employees	:		:		168330		173658		200537	
EC2019V		Employment (jobs) - self employed	:		:		8172		8067		9455	
EC2024V		Enterprises with 1 to 250 employees	:		:		:		:		16838	
EC2025V		Enterprises with more than 250 employees	:		:		:		:		129	
EC2026V		Enterprises that had a turnover increase last year (size class 1-250 employees)	:		:		:		:		9083	
EC2027V		Enterprises that had a turnover increase last year (size class >250 employees)	:		:		:		:		87	
EC2028V		Employment growth last year (size class 1-250 employees)	:		:		:		:		5,5	
EC2029V		Employment growth last year (size class >250 employees)	:		:		:		:		1,9	
EC2030V	EC2030V	Gross Domestic Product of NUTS 3 region in Euros	:	:	5584,5	5584,5	7832,1	7832,1	9659,3	9659,3	12464,7	12464,7
EC2031V	EC2031V	Gross Domestic Product per inhabitant in PPS of NUTS 3 region	:	:	16100	16100	22000	22000	26800	26800	31700	31700
EC3039V	EC3039V	Median disposable annual household income	:	:	:	:	:	:	16129	17069	:	:
EC3040V		Average disposable annual household income	:		:		:		18464		:	
EC3045V	EC3045V	Household Income: Quintile 4 (income with 20% households above, 80% below)	:	:	:	:	:	:	:	:	:	:
EC3048V	EC3048V	Household Income: Quintile 3 (income with 40% households above, 60% below)	:	:	:	:	:	:	:	:	:	:
EC3051V	EC3051V	Household Income: Quintile 2 (income with 60% households above, 40% below)	:	:	:	:	:	:	:	:	:	:
EC3054V	EC3054V	Household Income: Quintile 1 (income with 80% households above, 20% below)	:	:	:	:	:	:	:	:	:	:
EC3056V	EC3056V	Total Number of Households (relating to the reported household income)	:	:	:	:	:	:	104570	177875	:	:
EC3055V	EC3055V	Total Number of Households with less than 60% of the national median disposable annual househo	:	:	:	:	:	:	21905	36530	:	:
EC3057V	EC3057V	Total Number of Households with less than half of the national average income	:	:	:	:	:	:	20003	33163	:	:
EC3060V	EC3060V	Total Number of Households reliant on social security benefits (>50%)	:	:	:	:	:	:	:	:	:	:
EC3063V	EC3063V	Individuals reliant on social security benefits (>50%)	:	:	:	:	:	:	:	:	:	:
CI1016V		Total number of elected city representatives	:		:		45		45		:	
CI1017V		Number of Male elected city representatives	:		:		31		30		:	

CI1018V		Number of Female elected city representatives	:		:		14		15		:			
TE1001V	TE1001V	Number of children 0-4 in day care	14516	20773	12814	18768	6707	10799	7570	12354	9088	15423		
TE1006V	TE1006V	Number of children 0-2 in day care	:	:	:	:	2280	3558	2933	4605	3963	6575		
TE1007V	TE1007V	Number of children 3-4 in day care	:	:	:	:	4427	7241	4637	7749	5125	8848		
TE1005V	TE1005V	Total students registered for final year of compulsory education	:	:	:	:	3169	6021	2646	5476	2333	4843		
TE1030V	TE1030V	Students leaving compulsory education without having a diploma	:	:	:	:	:	:	44	85	28	49		
TE1031V		Students in upper and further education (ISCED level 3-4)	16160		15861		16650		12457		10947			
TE1032V		Male students in upper and further education (ISCED level 3-4)	:		:		8484		:		:			
TE1033V		Female students in upper and further education (ISCED level 3-4)	:		:		8166		:		:			
TE1026V		Students in higher education (ISCED level 5-6)	8093		3334		16669		17457		15943			
TE1027V		Male students in higher education (ISCED level 5-6)	:		:		7389		:		6857			
TE1028V		Female students in higher education (ISCED level 5-6)	:		:		9280		:		9086			
TE1034V	TE1034V	Average number of pupils in a class (primary schools)	:	:	:	:	:	:	:	:	20,8	20,1		
TE1035V	TE1035V	Average number of pupils in a class (secondary schools)	:	:	:	:	:	:	:	:	20,6	20,9		
TE2025V	TE2025V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education	:	:	:	:	38617	79441	32000	69000	:	:		
TE2026V	TE2026V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education - male	:	:	:	:	17828	36602	14000	32000	:	:		
TE2027V	TE2027V	Number of residents (aged 15-64) with ISCED level 0, 1or 2 as the highest level of education - female	:	:	:	:	20789	42839	18000	37000	:	:		
TE2028V	TE2028V	Number of residents (aged 15-64) with ISCED level 3or 4 as the highest level of education	:	:	:	:	103623	196844	109000	207000	:	:		
TE2029V	TE2029V	Number of residents (aged 15-64) with ISCED level 3 or 4 as the highest level of education - male	:	:	:	:	53757	104101	55000	109000	:	:		
TE2030V	TE2030V	Number of residents (aged 15-64) with ISCED level 3 or 4 as the highest level of education - female	:	:	:	:	49866	92743	54000	98000	:	:		
TE2031V	TE2031V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education	:	:	:	:	45932	66640	48000	72000	:	:		
TE2032V	TE2032V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education - male	:	:	:	:	20712	29718	22000	33000	:	:		
TE2033V	TE2033V	Number of residents (aged 15-64) with ISCED level 5 or 6 as the highest level of education - female	:	:	:	:	25220	36922	26000	39000	:	:		
EN1001V		Number of days of rain per annum	:		:		150		151		155			
EN1002V		Total number of hours of sunshine per day	:		:		5,5		4,9		5			
EN1003V		Average temperature of warmest month	:		:		21,9		20,9		21,4			
EN1004V		Average temperature of coldest month	:		:		3,4		-0,3		2,5			
EN1005V		Rainfall (litre/m2)	:		:		1330		1696		1490			
EN1006V		Median city centre altitude above sea level	:		:		:		301		:			
EN2002V		Summer Smog: Number of days ozone (O3) concentrations exceed 120 microgram/m3	:		24		37		31		21			
EN2003V		Number of hours per year that nitrogen dioxide NO2 concentrations exceed 200 microgram/m3	:		:		0		0		0			
EN2005V		Number of days particulate matter PM10concentrations exceed 50 microgram/m3	:		:		35		88		37			
EN2025V		Accumulated ozone concentration in excess 70 microgram/m3	:		5885		5919		5530		5838			
EN2026V		Annual average concentration of NO2	:		:		31,6		28,3		29,3			
EN2027V		Annual average concentration of PM10	:		:		30,9		40,6		29,9			
EN2033V		Number of residents exposed to road traffic noise >65 dB(A) at day time	:		:		:		:		:			
EN2035V		Number of residents exposed to road traffic noise >55 dB(A) at night time	:		:		:		:		:			
EN2032V		Number of residents exposed to rail traffic (incl. tram) noise >65dB(A) at daytime	:		:		:		:		:			
EN2036V		Number of residents exposed to rail traffic (incl. tram) noise >55dB(A) at night-time	:		:		:		:		:			
EN2028V	EN2028V	Number of residents exposed to air traffic noise >65 dB(A) at day time	:	:	:	:	:	:	:	:	:	:		
EN2029V	EN2029V	Number of residents exposed to air traffic noise >55 dB(A) at night time	:	:	:	:	:	:	:	:	:	:		
EN3003V		Total consumption of water	32232000		26029000		23452000		:		:			
EN3004V		Number of dwellings connected to potable drinking water system	:		:		111523		:		34578			
EN3006V		Number of dwellings connected to sewerage treatment system	:		:		100025		:		:			
EN3008V		Number of water rationing cases, days per year	:		:		13		0		0			
EN3009V		Number of scheduled water cuts, days per year	:		:		309		0		0			
EN3010V		Price of a m3 of domestic water (Euro)	:		:		0,7		0,9		0,4			
EN3011V		Percentage of the urban waste water load (in population equivalents) treated according to the applic	:		:		:		:		:			
EN4001V		Annual amount of solid waste (domestic and commercial)	:		:		214244		:		121985			
EN4002V		Annual amount of solid waste (domestic and commercial) processed by landfill.	:		:		205572		:		:			
EN4003V		Annual amount of solid waste (domestic and commercial) is processed by incinerator	:		:		0		:		:			
EN4004V		Annual amount of solid waste (domestic and commercial) that is recycled	:		:		8672		:		:			
EN4006V		Annual amount of solid waste (domestic and commercial) given to other disposal	:		:		0		:		:			
EN4007V		Annual amount of solid waste (domestic and commercial) that is composted	:		:		:		:		:			
EN5003V	EN5003V	Total land area (km2) according to cadastral register	:	:	:	:	272,1	2534,75	273	2547	273	2547		
EN5015V	EN5015V	Water and wetland	:	:	:	:	3,11	14,72	13	75	13	75		
EN5012V	EN5012V	Green space area	:	:	:	:	206,55	2322,89	206	2333	272	:		
EN5016V	EN5016V	Land used for agricultural purposes	:	:	:	:	91,85	795,27	80	763	80	:		
EN5024V	EN5024V	Land used for commercial activities (industry, trade, offices)	:	:	:	:	:	:	:	:	:	:		
EN5004V	EN5004V	Land area in housing/residential use	:	:	:	:	10,2	:	49	115	:	:		
EN5025V	EN5025V	Land used for transport (road, rail, air, ports)	:	:	:	:	:	:	6	34	:	:		
EN5011V	EN5011V	Land area in recreational, sports and leisure use	:	:	:	:	:	:	12	:	14	:		
EN5026V	EN5026V	other land use	:	:	:	:	:	:	:	:	:	:		
EN5001V	EN5001V	Green space to which the public has access	:	:	:	:	209	:	209	:	:	:		
TT1003V	TT1003V	Percentage of journeys to work by car	44,3	45,3	:	:	62,9	70,8	:	:	:	:		
TT1010V	TT1010V	Percentage of journeys to work by public transport (rail, metro, bus, tram)	:	:	:	:	:	:	:	:	:	:		
TT1006V	TT1006V	Percentage of journeys to work by motor cycle	:	:	:	:	0,2	0,2	:	:	:	:		
TT1007V	TT1007V	Percentage of journeys to work by bicycle	:	:	:	:	:	:	:	:	:	:		
TT1008V	TT1008V	Percentage of journeys to work by foot	:	:	:	:	:	:	:	:	:	:		
TT1012V	TT1012V	Percentage of journeys to work by car or motor cycle	:	:	:	:	:	:	:	:	:	:		

TT1019V	TT1019V	Average time of journey to work (minutes)	19	28,5	:	:	22	24	:	:	:	:
TT1020V	TT1020V	Average length of journey to work by private car (km)	:	:	:	:	:	:	:	:	:	:
TT1064V		People commuting into the city	93222		:		65057		:		:	
TT1065V		People commuting out of the city	87981		:		10475		:		:	
TT1069V	TT1069V	Number of stops of public transport	:	:	:	:	474	:	474	:	536	:
TT1083V	TT1083V	Number of buses (or bus equivalents) operating in the public transport	:	:	:	:	201	:	204	:	205	:
TT1084V		Average age of the bus (only buses) fleet	:		:		11,5		10,8		11,6	
TT1085V		Proportion of buses running on alternative fuels	:		:		0		0		9,8	
TT1066V		Length of public transport network (km)	:		:		233		233		267	
TT1077V		Length of public transport network on fixed infrastructure	:		:		233		233		267	
TT1078V		Length of public transport network on flexible routes	:		:		0		0		0	
TT1082V		Length of restricted bus lanes	:		:		0		0		0	
TT1079V		Length of bicycle network (dedicated cycle paths and lanes)	:		:		121,4		157,5		130	
TT1080V		Cost of a combined monthly ticket (all modes of public transport) for 5-10 km in the central zone	:		:		26		31,3		33	
TT1081V		Cost of a taxi ride of 5 km to the centre at day time	:		:		4,2		4,8		4,2	
TT1057V	TT1057V	Number of private cars registered	:	:	:	202366	130949	233896	134834	247545	146576	276167
TT1013V		Number of motor cycles registered	:		:		1263		1261		3971	
TT1070V	TT1070V	Number of park and ride parking spaces	:	:	:	:	1	:	1	:	1	:
TT1075V		Maximum charge of on-street parking in the city centre per hour	:		:		0,8		0,9		0,6	
TT1060V	TT1060V	Number of deaths in road accidents	:	:	:	:	16	48	16	55	17	41
TT1061V	TT1061V	Number of persons seriously injured in road accidents	:	:	:	:	316	680	164	310	139	278
TT1071V	TT1071V	Accessiblity by air (EU27=100)	:	:	:	:	:	:	106	:	:	:
TT1072V	TT1072V	Accessiblity by rail (EU27=100)	:	:	:	:	:	:	76	:	:	:
TT1073V	TT1073V	Accessiblity by road (EU27=100)	:	:	:	:	:	:	92	:	:	:
TT1074V	TT1074V	Multimodal accessibility (EU27=100)	:	:	:	:	:	:	102	:	:	:
IT1005V		Percentage of households with Internet access at home	:		:		:		51		67	
IT3001V		Number of local units manufacturing ICT products	:		:		238		145		136	
IT3002V		Number of persons employed in manufacture of ICT products	:		:		1871		1205		1141	
IT3003V		Number of local units providing ICT services	:		:		874		934		1133	
IT3004V		Number of persons employed in provision of ICT services	:		:		5812		8110		8898	
IT3005V		Number of local units producing content for the Information Society	:		:		4867		4343		565	
IT3006V		Number of persons employed in production of content for the Information Society	:		:		16090		16626		4916	
CR1003V		Number of cinema seats (total capacity)	:		:		6448		5185		7188	
CR1005V		Cinema attendance (per year)	882725		1187633		684360		370300		1127866	
CR1006V		Number of museums	:		:		13		11		14	
CR1007V		Number of museum visitors (per year)	:		345261		:		922253		1033981	
CR1008V		Number of theatres	:		:		6		24		20	
CR1013V		Number of theatre seats	:		:		1940		6559		17418	
CR1009V		Theatre attendance (per year)	:		:		242320		390549		448175	
CR1010V		Number of public libraries (all distribution points)	:		:		38		34		37	
CR1011V		Number of books and other media loaned from public libraries (per year)	:		:		5798330		4847582		5823260	
CR1014V		Number of persons employed in the culture and entertainment industry	:		:		:		8299		9278	
CR1015V	CR1015V	Number of public swimmingpools	:	:	:	:	:	:	:	:	8	:
CR2001V		Total annual tourist overnight stays in registered accommodation	348133		330441		411323		514626		740602	
CR2009V		Number of available beds	3987		3538		4003		4922		7290	
CR2102V		Number of available beds at high season	:		:		:		:		:	
CR2103V		Number of available beds at low season	:		:		:		:		:	
CR2104V		Total tourist overnight stays in registered accommodation at high season	:		:		:		:		:	
CR2105V		Total tourist overnight stays in registered accommodation at low season	:		:		:		:		:	
CR2004V		Number of air passengers using nearest airport	:		:		891200		1046169		1648977	
CR2005V		Number of air passengers using nearest airport: Total arrivals	:		:		444400		524756		826451	
CR2006V		Number of air passengers using nearest airport: Domestic arrivals	:		:		0		54		0	
CR2007V		Number of air passengers using nearest airport: Total departures	:		:		446800		521413		822526	
CR2008V		Number of air passengers using nearest airport: Domestic departures	:		:		0		87		0	
DE3019V	DE3019V	Number of jobless households with children	:	:	:	:	:	:	:	:	:	:
DE3020V	DE3020V	Number of jobless households without children	:	:	:	:	:	:	:	:	:	:
CI1019V		Participation rate at European elections	:		:		:		:		31	
CI1020V		Participation rate at national elections	:		:		:		:		68,7	
CI1021V		Participation rate at city elections	:		:		:		58,9		:	
TE1036V		Students in education of ISCED level 1-2	:		:		:		:		20086	
TE1037V		Male students in education of ISCED level 1-2	:		:		:		:		10279	
TE1038V		Female students in education of ISCED level 1-2	:		:		:		:		9807	

www.espon.eu

The ESPON 2013 Programme is part-financed by the European Regional Development Fund, the EU Member States and the Partner States Iceland, Liechtenstein, Norway and Switzerland. It shall support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory.

ISBN