



THE METROPOLISATION PROCESS ON DIFFERENT TERRITORIAL SCALES: FOCUS ON CAPITAL CITY REGIONS IN CENTRAL AND EASTERN EUROPEAN COUNTRIES

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The metropolisation process on different territorial scales: focus on capital city regions in Central and Eastern European countries

Abstract

The aim of the paper is to discuss the metropolisation process in the Central and Eastern European countries (CEECs) on different spatial scales, exemplified by the capital city regions. In its first part, the paper summarises the development of the capital cities across different countries, and describes the changes taking place within their metropolitan areas in terms of the population size and concentration of the economic activity. In the second, it shows the influence of the metropolis on the outer part of its regional surroundings. In this approach, a summary of six case studies investigating the development factors of the constituent parts of the metropolitan regions and mutual linkages between them is provided, in addition to an analysis of changes in the scale of intraregional disparities.

Introduction

Metropolisation is a territorial expression of globalisation processes. It originates by the large cities taking over the key functions of contemporary economy (i.e. management and control) as well as metropolises being transformed into major innovation centres (**Sassen 1991, Lo and Yeung 1998, Simmie 2003**). The proposed idea of the world being 'flat' as a result of the development of information and communication technologies (**Friedman 2005**) is at variance with the observable changes in the spatial arrangements, particularly in the global and continental dimensions. These concept compete with a vision of an increasingly 'spiky' world (**Castells 2001, Florida 2005**), a process triggered by the growing space of flows, comprising (**Castells 1998**): flows of information, nodes supporting such flows and the metropolitan class managing them. In effect, the traditional territorial organisation of space is being superseded by network organisation (**Batten 1995, Jałowiecki 1999**). Put simply, the latter is characterised by the presence of varied-size nodes, interconnected by a network of decentralised linkages which practically do not depend on the physical distance, and which are capable to adapt to the changing external conditions.

To sum up, the observable metropolisation processes are associated with:

- transition from the traditional industrial economy, with capital and labour as its main production factors, to information service economy, in which innovation is the main factor of development;
- segmentation of the global economy, where the competitive advantage in the high-technology segment is based on the capacity to create and adapt innovations, whilst the low-technology segment it is governed by the price competition. The former segment is usually located in metropolitan areas, while the latter – in non-metropolitan areas,
- changes in the spatial linkages within the economy, which involve the development of a network of global cities that attract firms providing advanced business services, largest international corporations headquarters and knowledge-intensive industries which organise global information flows.

The changes that are taking place can be observed in different spatial dimensions, or scales. The first is the global scale, on which, as many analyses indicate, a network of global cities is developing

(Friedman 1986, Sassen 1991). The characteristic features of such cities include, amongst others, location of advanced business services (Taylor 2007), handling capital flows, also in the form of branch offices of multinational corporations (ESPON FOCI 2010), servicing air traffic (Smith and Timberlake 2001), in addition to their major role as cultural centres (e.g. Degen and Garcia 2012). All this is clearly transposed onto the continental scale, also European, where, in addition to the visible concentration of the economic potential in the metropolises situated within the core area, the so-called Pentagon (ESPON 1.1.1, 2004), major urban centres located in the adjoining zones are also developing. It is because these metropolises are places where especially knowledge-based services and knowledge-intensive industrial sectors are located (cf. Krätke 2007).

In consequence, spatial polarisation is growing in most countries, a phenomenon which is associated with a faster development of metropolitan centres, capital cities in particular, but also of secondary cities performing significant economic functions (ESPON SGPTD 2012). This is also very well visible on the regional scale where backwash processes, including a concentration of the economic potential and movement of qualified workforce from the periphery to the centre, seems to prevail over spread processes (Smętkowski, Gorzelak 2008). At the same time, on the local scale of the metropolitan area, business activity is deconcentrated and so-called edge cities develop. The metropolitan area itself is becoming more and more polycentric (cf. Hall and Pain 2007), both in terms of commuting to work (Aguillera 2005) and location of major business areas (Hall 1999).

The relations between metropolis and its region and their mutual interdependence could be derived also from different theoretical concepts (Tab.1). The classical models of spatial interactions (Ullman 1957) use to distinguish the following three components: complementarity, intervening opportunity and transferability, all of which determine the ties existing between regions. This means that exchange of goods between the metropolis and the region is dependent on the differences in their economic structure, their mutual attractiveness as sales and supply markets, and the role of distance in such an exchange. In the light of urbanisation theory, individual stages of urbanisation processes and the attendant changes in the distribution of population in cities and their surrounding areas represent important phenomena for the city-region relationships. As a consequence of such cycles, and depending on whether concentration or deconcentration processes prevail, the city and its region either represent, vis-à-vis each other, a source or a target area for the migration of the population, which in turn affects both the spatial extent of the city and the forms of possible uses of the city space. According to the economic base theory, urban development depends on two factors: basic and non-basic activities. While the former refers to functions provided for the local economy, the latter, also referred to as city-forming functions, are provided for the external world. The latter type of functions can include exchange between the city and the region or its further external environment. In such a perspective, the region surrounding the city is only one of many potential markets for supplies or sales of goods and services. On the other hand, the central place theory (Christaller 1933) is the first of the theories discussed here which directly deals with the mutual relationships between the city and the region. According to this theory, the city is a centre that offers central goods to its regional hinterland. This concept also implies that the role of the city, that is its regional nodality, results from the degree of centrality for the regional hinterland. On the other hand, however, the region is not self-sufficient and is dependent on the city as its functional centre. The theories of growth poles, initiated by F. Perroux (1950), underline the role of motor units, from which specific centrifugal forces emanate and towards which specific centripetal forces are directed. In territorial dimension A.O. Hirschman (1958) distinguished positive *trickling-down effects* and

negative *polarisation effects*. Beneficial trickling-down effects result from the complementarity of activities undertaken between two poles (the developed one and the underdeveloped one), from purchases and investments coming in from the developed pole to the underdeveloped one, and from the absorption of hidden unemployment in the underdeveloped pole. Polarisation effects are generated by the existence of a competitive advantage in the developed pole and the draining of qualified personnel from the underdeveloped region. Similarly to the theory of polarised growth, there is no comprehensive network theory (e.g. **Glückler 2007**). The main tenet underpinning this group of theoretical approaches to the settlement system is that hierarchical relations between cities as shown in the central place theory give way to a new generation of systems – city networks. Such networks develop when two or more cities that have been independent before but have complementary functions are trying to cooperate, and on the whole manage to merge their economies, a process which is enhanced by fast and reliable transport corridors and telecommunication infrastructure (**Batten 1995**). As a result of accelerating such linkages, the relationships between cities lose their hierarchical character and become horizontal network ties.

Tabel.1. City-region relations derived from selected theoretical concepts

Theory / theories	Types of relations between city and region	The role of region in city development	The role of city in regional development
Spatial interaction theories	Complementarity Intervening opportunities Transferability	Provides resources and serves as a market for goods and services	Provides resources and serves as a market for goods and services
Urbanisation theories	Evolution of regional settlement systems as result of agglomeration or deconcentration processes	Area of origin or destination for migrations depending on current tendencies	Area of origin or destination for migrations depending on current tendencies
Economic base theory	Basic and non-basic local activities of city	There is no distinction between regional hinterland and other export markets	Not applicable. Region is one of possible markets for goods and services.
Central place theory	Good and services provided by city for the region	The importance of city depends not only on local, but also regional demand. The city is central place for its hinterland.	Region depends on city.
Growth pole theories	Positive spread effects and negative backwashing effects	Region provides simple resources and labour	Capital investments, diffusion of innovations, but backwashing of human resources
Network theories	Network linkages a-hierarchical and not depending on distance between nodes.	Region does not play important role in city development unless there are nodes of regional network.	City as a centre of nodal region.

Source: Smętkowski (2011).

The generalisation of the spatial structures and dynamics in metropolitan regions (**Nowosielska 2012**) comprise of hierarchical settlement system with clear dominance of metropolis upon its regional hinterland including also main subregional cities in spatial term and specialisation of metropolis in high-ordered services, intensive migration flows and interdependence of functions between metropolis and region in structural term. The dynamics of such metropolis-region relationship depends on changes of spatial structure and range of specific relations as well as on attendant stages of concentration and deconcentration of population and business activity assisted by spatial self-organisation process.

The above mentioned processes are easily visible in the Central and Eastern European countries (CEECs), which did not join the global information economy until the 1990s (**Gorzalak 1996**). In consequence, this part of Europe represents a propitious ground for examining metropolisation processes taking place on different spatial scales. This topic is tackled in the empirical part of the paper, which analyses metropolitan areas of the capital cities (proxy of NUTS3 regions) of 10 new Member States of the European Union. The analysis covers the period 2000-2010/2011, the choice of which was based on the availability of comparable statistical data. It should also be noted that the period in question comprises various phases of the business cycle, starting from the economic downturn at the beginning of the century, through a period of robust growth, to the credit crunch and economic crisis post 2008.

1. CEEC metropolises in the global arena

In general, metropolises in the Central and Eastern European countries occupy quite distant positions in various global city rankings. For instance, on the basis of the GaWC (Global and World Cities) study (**Taylor 2007**), it can be concluded that, of a pool of 315 surveyed global cities, only Prague, Warsaw and Budapest were ranked among the first 50 cities in terms of connectivity of global service firms, at a level of ca. 40% of London's potential in that regard, whilst the respective values in case of Bucharest, Bratislava and Sofia were between 20% and 25%, and for the capital cities of the Baltic states and Slovenia – only 15%. (**Tab. 2**). However, this situation gradually changed in the following years. In 2011, based on another analysis examining the branch structure of 350 transnational corporations providing business services (**CBRE 2011**), it could be seen that the cities in question visibly went up in the ranking (although compared against a smaller number of cities). For the three cities occupying top positions in the ranking, i.e. Warsaw, Budapest and Prague, this could be observed particularly well in case of the former two cities. In the next group of cities, the change of the rank was even more pronounced, particularly in the case of Bucharest and Bratislava, and to a lesser extent – Sofia. On the other hand, the remaining CEEC capital cities continued to occupy distant positions in the ranking, probably due to the small size of their national economies.

Table 2. Rank of CEEC capital cities

City	CB Richard Ellis (2011)		GAWC (P. Taylor) (2000)	
	Rank (197 cities)	Number of global APS companies (max: 350)	Rank (315 cities)	Connectivity index for 100 global APS companies (max. 1,00 - London)
Warsaw	12	150	39	0,42
Budapest	20	128	45	0,41
Prague	21	126	29	0,43
Bucharest	29	110	83	0,25
Bratislava	35	93	113	0,21
Sofia	53	80	121	0,20
Riga	76	59	154	0,16
Vilnius	86	51	179	0,14
Tallinn	89	49	176	0,14
Ljubljana	93	45	185	0,14

Source: prepared by the author on the basis of data from: (CBRE, 2011, Taylor 2000).

It should be noted, however, that the high position in any of the above rankings does not mean that these metropolises play any significant control or management functions in the global economy but rather that they:

- provide convenient locations for branch offices of global service companies (the significant role of international airports), which offer services mostly to local enterprises,
- employ well-qualified and cheap workforce, largely performing ancillary functions in relation to those performed by the head offices of such companies,
- some of the branch offices may be small in size when compared to the scale of operations in their home countries and/or globally.

These observations are corroborated by the low position of these CEEC cities in the location rankings of major transnational corporations (including not only service firms), particularly when location of company head offices is taken into account (cf. **ESPON FOCI 2010**). At the same time, cities in this part of the Europe lag behind the major city centres of the EU also in relation to the location of branch offices of such corporations.

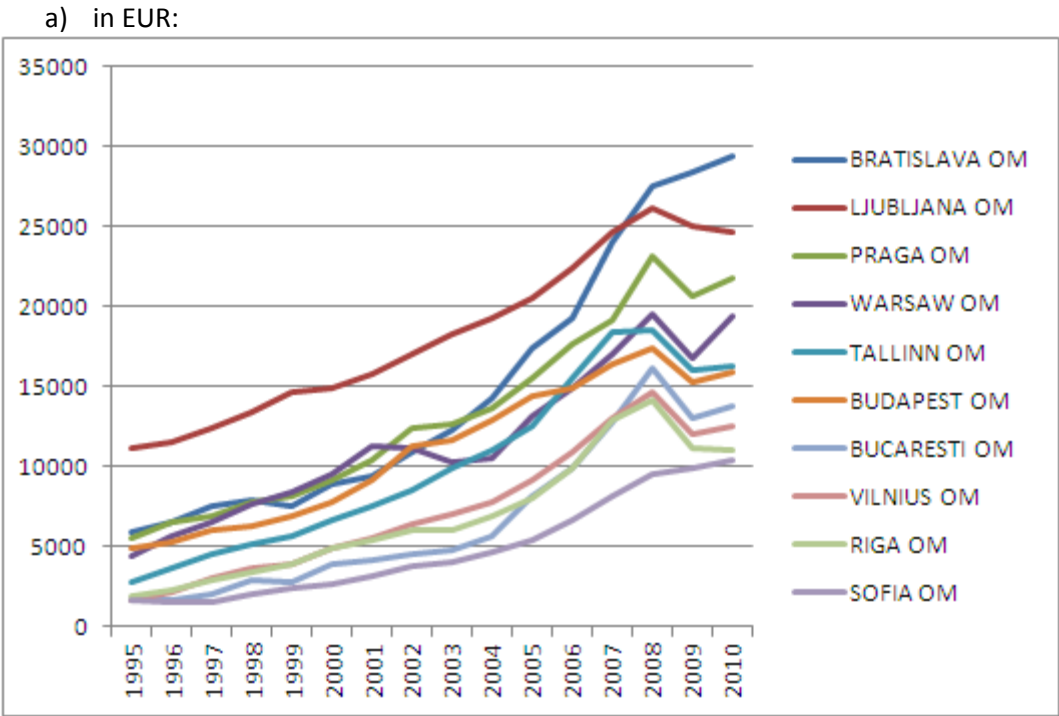
2. The growth dynamics of capital city regions

The analysed period 2000-2010 was a time of robust economic growth of the capital city regions (in this study, comprising the capital cities together with the surrounding NUTS3 subregion) in the Central and Eastern European countries, which was accompanied by an appreciation of the national currencies (**Fig. 1a**). As a result, in comparison with the 2000 values, GDP per capita measured in EUR increased threefold in the case of Sofia, Bratislava and Bucharest, and between 2 and 2.6 times in the remaining urban regions, with an over 60% increase recorded in the best-developed Ljubljana. In the case of Sofia and Bucharest, this dynamic pace was a consequence of a very low development level in 2000 (the base effect), whereas the success of Bratislava could result from Slovakia's accession to the eurozone on the one hand, and on the other could be explained by the advantages created by the

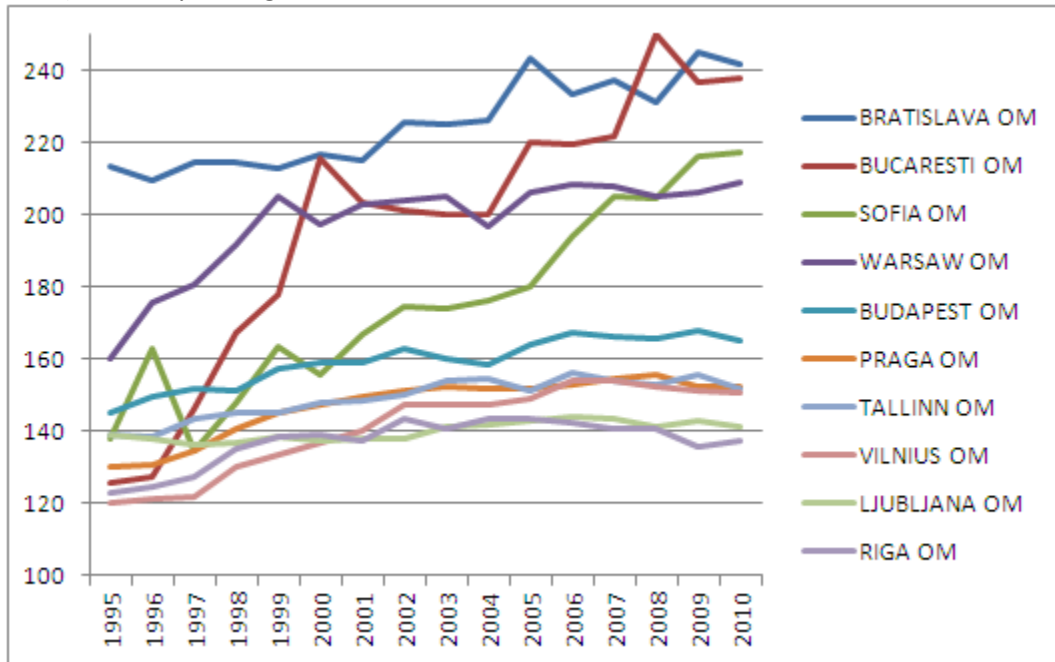
city's location in the proximity of Vienna. The most notable changes in the hierarchy included the relative fall in Ljubljana's rank and the improved position of Prague, Warsaw and Tallinn. In the first two cases, this could come as a consequence of their high rank in the global service networks, and in case of Tallinn – similarly to Bratislava – could also be attributed to the close distance from Helsinki. By contrast, the remaining Baltic metropolises did not cope as well, which could be caused by the severe economic crisis of 2008, and to some extent by the small size of their national economies.

The following features could be observed regarding the position of the capital cities, set against the average GDP per capita level of their respective countries (**Fig. 1b**). On the one hand the widest disparities and fastest growth being observed in the least-developed countries, i.e. Romania and Bulgaria, but disparities were also very high in Poland and Slovakia. On the other hand the disparities were moderate in Hungary, Czech Republic and small in Ljubljana while in Baltic states are different in that regard, as their capital city regions accumulate the bulk of the national economic potential and therefore play a key role in the changing of average values.

Fig. 1. Dynamics of economic development of the capital city regions (GDP per capita)



b) country average =100



* MA – metropolitan area (NUTS3 proxy)

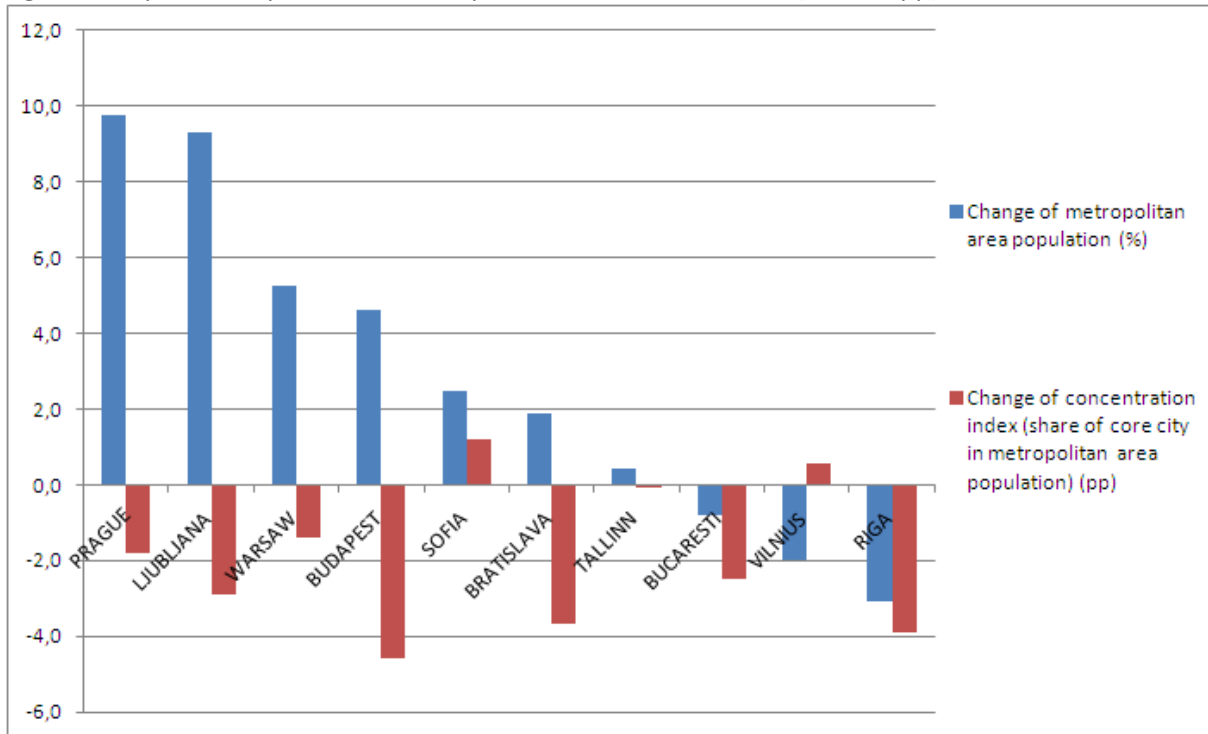
Source: prepared by the author on the basis of Eurostat data.

To sum up, polarisation processes associated with the development of the capital city regions were clearly visible in the Central and Eastern European countries (with the exception of Warsaw), which can largely be explained by metropolisation processes currently taking place. The relative weakening of the position of the Warsaw metropolitan area (MA) could result from the greatest polycentricity of Poland's settlement system in which, outside of the capital city, five to eight potential MAs can be identified (cf. e.g. ESPON 1.1.1, 2004).

Demographic changes within capital city regions

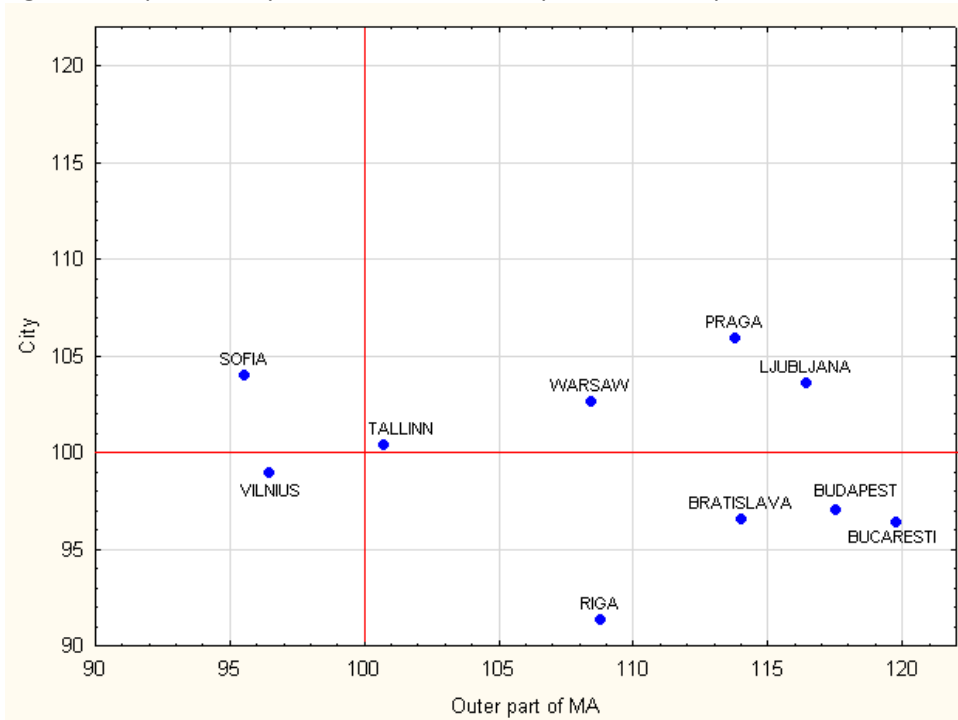
Changes in the number of the population within the metropolitan areas of the capital cities were much more diverse, so as the level of concentration of residents within the administrative boundaries of the major city (Fig. 2), than the polarisation processes discussed above. There was a certain correlation between the relatively higher increase in the number of the population in those metropolitan areas which were characterised by the highest development level. This was especially true for Prague and Ljubljana and, to a lesser extent, Bratislava. That said, the case of Sofia can be viewed as rather surprising since this city, despite a low level of development, visibly increased the number of its population and, unlike in the remaining capital cities, the concentration of the population in the core city had increased. Cases when the number of the population in the metropolitan areas had decreased were few and far between; such a situation could be observed mainly in Riga and Vilnius, most likely due to the ageing of the local population, a process which was not sufficiently offset by migratory inflows from other regions. In the majority of cases, a process of population deconcentration could be observed within the metropolitan areas, the scale of which was the greatest in the case of Budapest, Bratislava and Riga, and the smallest - in the case of Prague and Warsaw.

Figure 2. Population dynamics in metropolitan areas in 2000-2011 (in % or pp)



Source: prepared by the author on the basis of Eurostat and national statistics offices data.

Figure 3. Population dynamics in constituent parts of metropolitan areas in 2000-2011 (2000=100)



Source: prepared by the author.

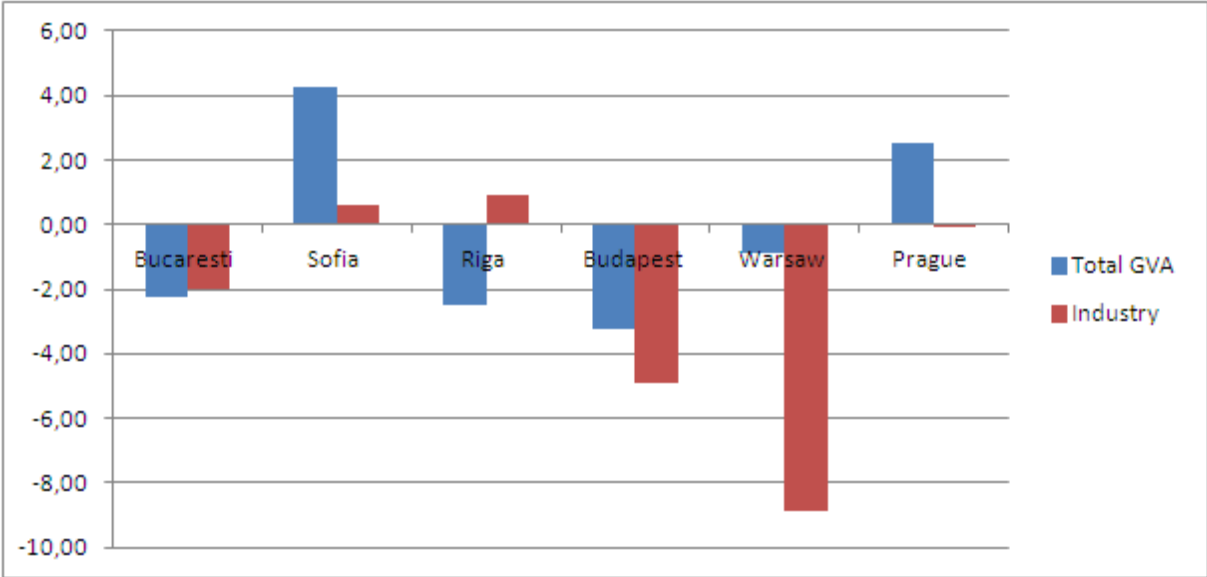
In terms of the population dynamics in the core city and its surroundings, each of the metropolitan centres manifested some unique features (**Fig. 3**). Positive dynamics regarding the number of the population could be observed in Ljubljana, Prague and Warsaw, with a simultaneous increase in the population figures to be observed outside of the core city. In all probability, this means that the cities

in question were so attractive for external migration that the influx of new residents counterbalanced the suburbanisation processes taking place in their surroundings. At the same time, another group of cities recorded a fall in the number of the population in the core city, usually accompanied by a rapid population increase at the outskirts. Such a situation was typical of the metropolitan areas of Bucharest, Budapest, Bratislava and Riga, and these are the cities where the scale of suburbanisation processes was probably the greatest. In comparison, the situation was different in Sofia, which had lost population in its surroundings; in Vilnius, where population ageing processes were probably not sufficiently compensated by the influx of new residents, leading to a fall in the number of the population in the metropolitan area, and in Tallinn, where the number of the population remained stable.

Economic potential concentration within metropolitan area

The dispersion of the population within metropolitan areas has not always been accompanied by a deconcentration of the economic potential of the metropolis (Fig. 4). The relevant statistics are available for six of the analysed capital city regions where the cities were isolated subregions at the NUTS3/NUTS2 level. On this basis, a certain concentration of the regional GDP could be observed in the case of Sofia and Prague, and of GVA in industry – also in Riga. At the same time, the deconcentration of the economic activity was the greatest in the case of Budapest, but also Bucharest, which was largely due to the deconcentration of the industrial potential of these two cities. In this respect, however, Warsaw was an unquestionable leader, with the deindustrialisation process being accompanied by a fast development of this sector in its immediate surroundings.

Fig. 4. Economic potential deconcentration within selected metropolitan areas in 2000-2011 [pp]



Source: prepared by the author.

To sum up, two major development models of metropolitan areas in the CEECs can be identified using the spatial approach. The first is represented by **Budapest**, where the processes of the core city being weakened in relation to its surroundings are occurring at the fastest pace. To a lesser degree, such a phenomenon can be visible in Bucharest, Bratislava and to some extent in Riga. The second model is represented by **Sofia**, with an ongoing concentration of the population and economic

potential in the core city, a process which is also visible in Prague (economic potential) and Vilnius (population). The remaining analysed cases are rather unique in this regard, although mostly similar to the first of the above models.

3. The metropolis – the region relationship

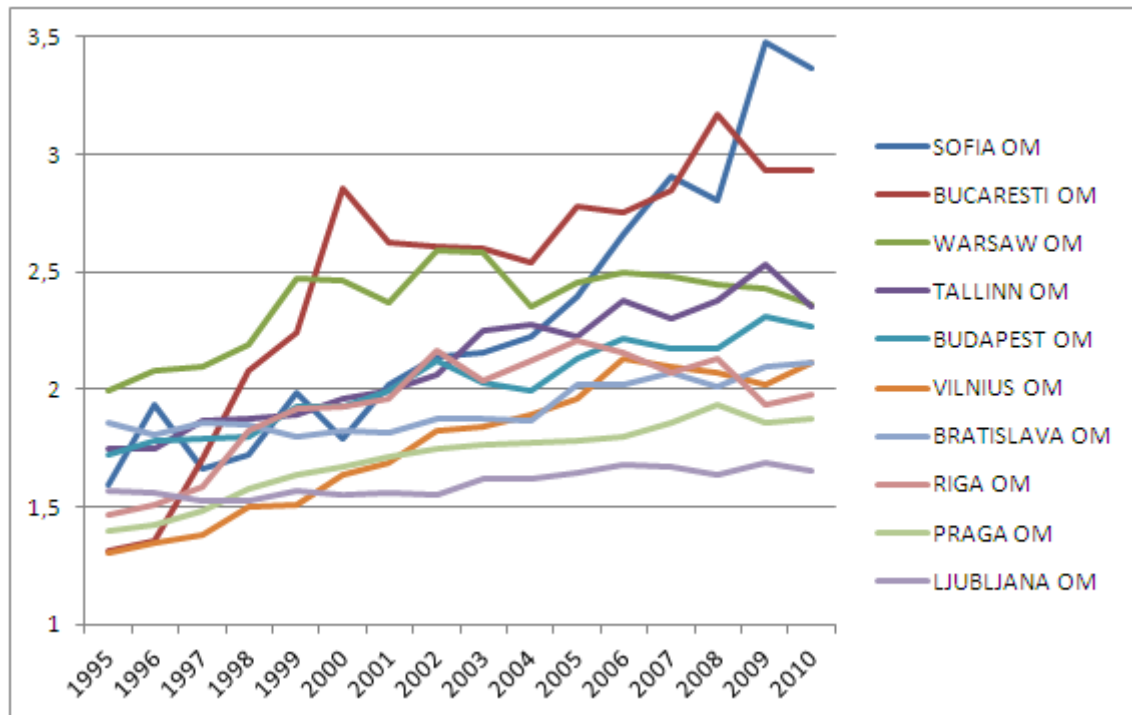
Scale of divergence

In comparison to the national average, an even greater dominance of the metropolises over their regional hinterlands (the NUTS2 region surrounding the capital city or aggregation of the neighbouring NUTS3 regions) (see **Smętkowski et al. 2011**) could be observed in terms of GDP per capita figures. The disparities were particularly marked in the case of the metropolitan macroregion of Bucharest and Sofia, in addition to a speedy pace of development in the latter case (**Fig.5**). At the other extreme, there was Ljubljana, where the scale of the metropolis' dominance over the region was much smaller, although increasing in the analysed period. In the remaining cases (except Warsaw), the dominance of the metropolitan areas over their regions steadily increased; it was particularly well visible in the case of Tallinn, Budapest and Bratislava (and could be viewed as proof of the absence of large urban centres in their metropolitan regions). On the other hand, the Warsaw macroregion was an interesting example of convergence, which could indicate that there was a diffusion of growth to the non-metropolitan areas of the region that could be linked to reindustrialisation of outer part of its metropolitan area promoting commuting from regional hinterland.

The primary sources of divergence within the metropolitan regions were the following (**Smętkowski, et al., 2011**):

- differences in the economic structures of the constituent parts of the metropolitan macroregion, with a fast tertiarisation of the metropolitan areas on the one hand, while on the other the regional hinterland still remained strongly rooted in the industrial and agrarian development model;
- wide labour market disparities, which involved the dominance of the metropolitan area in terms of the number of jobs and a large share of post-productive age population in the demographic structure, whereas, in the remaining parts of the region, the unemployment rate was higher, so as the share of post-productive age population, which led to migration and movement of human capital from the region to the metropolis;
- differences in labour productivity in industry, which indicated that capital- and knowledge-intensive sectors had developed in the metropolitan area and that traditional, labour-intensive sectors still prevailed in the regional surroundings.

Fig. 5. The gap in GDP per capita between metropolis (MA) and its outer regional hinterland (RH) (MA/RH ratio)



Source: prepared by the author on the basis of Eurostat data.

Structural development path

As the next step, we analysed whether, and how, the development dynamics of the metropolitan area was transposed into the development of its regional surroundings. To do this, we used three complementary approaches relating to the dynamics of gross added value (GVA), viz. a) GVA change in EUR, b) real percentage change in the national currency, and c) GVA relativised to the development dynamics of a given country. We also decided to take into account the delay between the relevant changes taking place in the metropolis and its regional surroundings (ranging from one to five years). The panel data analysis was conducted for the years 1995-2011.

On this basis, we can see that the development dynamics of the metropolis and its regions is closely correlated for GVA measured in EUR and, to a smaller yet still considerable degree, in terms of real growth dynamics (**Tab. 1**). This means that the success of a given country, achieved largely owing to a rapid development of its metropolitan areas, is also directly translated into an improved position of its regional surroundings. These areas are also developing faster in the conditions of a faster growth of the metropolis, even if we do not take the appreciation of the national currency into account. Moreover, the improved situation of the metropolitan area relative to the national average has no bearing on its regional surroundings (even though its situation would be expected to deteriorate, also due to the fact that these areas represent a substantial part of the national economy and, in this approach, the improved situation of the metropolis is bound to mean a relative regression in the national economy). Interestingly, the changes taking place in the metropolis and its surroundings are concurrent, which means that growth stimuli are conveyed quickly, and the effects of metropolitan development wane fast: in the subsequent year, their impact is very weak, on the verge of statistical

significance. In effect, it can be observed that the developmental contradiction visible in the first year of the transformation, which involved the metropolis being ‘severed’ from its regional surroundings, clearly came to a halt, but with a petrified level of the intraregional disparities. Most likely, this was a result of the increasingly positive impact of metropolitan development on the development processes occurring in its regional surroundings, even though the scale of the diffusion still remains limited.

Tab.1. Correlation between the development of the metropolis and its regional hinterland in years 1995-2011*

Aspects:	Delay in time	Concurrent	Development of regional hinterland in subsequent year				
			T0	T+1	T+2	T+3	T+4
in EUR		0.82	0.18	-0.07	-0.07	-0.13	0.04
in %		0.59	0.23	0.01	-0.11	-0.04	-0.06
Country average = 100		-0.04	0.00	0.03	-0.03	0.14	-0.03

* r Pearson correlation coefficient

Source: prepared by the author.

The disaggregation of growth into six main sectors of the economy indirectly defines a given metropolitan development model in the structural approach and indicates potential channels for the diffusion of the economic growth of the metropolis (**Tab. 2**).

Tab. 2. Selected (strongest) correlations between dynamics of metropolitan area and regional hinterland by sector, 2000-2010 panel analysis (YOY change)*

Dynamics of metropolitan area, YOY	Dynamics of other sectors in metropolitan area	Dynamics sectors in regional hinterland
GVA –Total	Simple services (0.83) Advanced services (0.81)	Public services (0.71) Simple services (0.69)
Agriculture	Industry (0.41)	Agriculture (0.77) Industry (0.35)
Industry	Services (0.45)	Simple services (0.63) Services (0.56)
Construction	Simple services (0.63) Advanced services (0.55)	Advanced services (0.58) Construction (0.51)
Simple services	Construction (0.63) Other services (0.49)	Simple services (0.62) Advanced services. industry (0.54)
Advanced services	Public services (0.62) Construction (0.55)	Public services (0.63) Construction (0.57)
Public services	Advanced services (0.62)	Public service (0.91) Construction (0.71)

* selected highest values of the Pearson correlation coefficient (all result in Appendix 1)

Source: prepared by the author based on Eurostat data.

Based on this analysis, it can be concluded that the development of the metropolitan area is predominantly a consequence of the expansion of the service sector, involving both simple and advanced services. This means that tertiarisation has a major impact on the development dynamics

of the CEECs' capital cities. An increase in this sector brings an increase in the value of construction and assembly works, mainly due to the expansion of new office and retail facilities. On the other hand, this could be a consequence of the economic boom also in the housing market, in response to increased employment and higher salaries of the employees of the service sector. In the case of business services, their correlation with the development of public services can also be observed. This, in turn, could be a result of the development of the metropolitan class, which generates demand for many services traditionally offered by the public sphere such as schooling (private and non-public schools), health care (non-public health care facilities), but which can also boost the development of culture, the entertainment sphere and the media.

As regards the impact of the metropolis on its regional hinterland, two types of impact can hypothetically be identified.

The first type of impact is direct in character and refers to the development of the manufacturing sector in the metropolitan area, predominantly in its outer part. The strong role of industry in the metropolitan area fosters the development of simple services in the regional hinterland, which can suggest an expansion of the zone of the city's services (e.g. transport services) on the one hand, and on the other – the enlargement of the work commuting zone, which, with the growing salaries of the region's residents, may in turn boost the development of the consumer services sector. The dynamics of manufacturing activity within the metropolis is also to some extent correlated with the industrial dynamics in the regional hinterland, which can either point to a similar structure and specialisation of this sector, resulting in similar responses to changes in the economic outlook, or to the increasing cooperation and capital links between the metropolis and the region.

In contrast, the second type of impact can be somewhat superficial, resulting from changes in the economic situation nationally or in the state policies, that affect similar changes in analysed sectors (e.g. agriculture) both in metropolis and its regional hinterland. On the other hand, this could demonstrate a growing demand for agricultural produce in the metropolis and an increasing expansion of the city's alimentation zone. An increase in the GVA for public services in the metropolis and those in the region is also strongly correlated, which should not be found surprising since the situation of this sector significantly depends on the decisions of, and transfers from, the central authorities.

Last but not least, it should be noted that the above picture is somewhat hypothetical, based on the interpretation of the strongest correlation links, and was further verified using the qualitative research conducted in six metropolitan regions, discussed below.

Comparison of selected metropolitan regions in qualitative terms

The regions of Budapest, Bucharest, Prague, Tallinn, Warsaw and Vilnius, for which the case study reports were prepared using a similar methodology, were arbitrarily selected for the qualitative research. Below is a summary of selected findings concerning the development factors of these metropolises, development processes taking place in their regional hinterland, key linkages observable between these territorial systems and policies of the public authorities having a bearing on such linkages and, finally, an evaluation of the mutual relationships between the constituent parts of the metropolitan regions is proposed.

Delimitation of metropolitan regions

The delimitation of the analysed metropolitan regions was a rather complex process since it was not always easy to demarcate the functional macroregion of the capital city. While its delineation was relatively easy (although also to some extent arbitrary) in the case of Warsaw and Bucharest, including also their metropolitan areas, in the remaining cases it encountered a number of difficulties. This was due to the fact that the impact of these capital city regions largely extends to the whole country, which in turn implies that delineating the boundaries of such impact has to be arbitrary if these boundaries are not limited by the zone of influence of another city. All this stems from the monocentric nature of their settlement systems (except Lithuania – where the impact of the neighbouring Kaunas allowed distinguishing the macroregion of Eastern Lithuania), visible particularly well in Hungary and Estonia. In consequence, the analyses of these countries either focused on extended metropolitan areas, i.e. Středočeský kraj in the case of Prague or Budapest (Central Hungary), or were related to all the regions of a given country, i.e. Estonia.

Factors of metropolitan development

In all the cases, the influx of foreign capital associated with the functional specialisations of these urban centres in terms of management and control, and structural specialisation in terms of the service sector, advanced business services in particular, were among the key identified factors underpinning regional development. At the same time, the role of endogenous factors other than human capital, which was a crucial factor determining the attractiveness of the cities concerned for inward capital, was rather limited. In particular, this applied to the low level of innovation of the SME sector as well as the absence of strong links between the R&D potential (largely public-owned) and enterprises. This can corroborate the hypothesis on the prevalence of exogenous factors in the metropolitan development processes in the CEECs, which however draw on their main endogenous asset, that is well-developed human capital. These factors drove the distinct structural changes in the metropolises, manifested by their deindustrialisation and relocation of their manufacturing activity to the outer parts of the metropolitan area. Another significant exogenous factor of growth was the role of public policies implemented with the EU funds, which, usually more often than in their reference economies, would help improve their competitiveness internationally, while still remaining more focused on enhancing the quality of life of their residents. In effect, the EU funds were mostly spent on indirect supports to the development processes taking place, and not on providing direct stimuli to initiating new development trajectories of the analysed metropolises.

Development factors in the regional surroundings and the metropolis-the region linkages

Compared to the metropolis, the regional surroundings depended much more strongly on the natural resources, which implied a significant share of agriculture as well as raw materials and energy industries in the economy, in some cases supplemented by their potential for tourism, albeit on a local rather than regional scale. As a rule, these regions were strongly focused on expanding the linkages with the metropolitan centre, which included mainly daily and weekly commuting to work within a 150-200 km radius from the metropolis. In addition to commuting, permanent migrations were significant in size, a process which was more frequently observable among the residents of cities, while the residents of rural areas were as a rule less mobile due to their lower qualifications. Usually, such migratory outflows were not offset by a sufficiently high natural increase, leading to increasing depopulation which predominantly affected the most peripheral rural areas. The latter

areas benefited from the modernisation of the agricultural sector to varying degrees; only in some cases farmers would specialise in the most profitable sections of agricultural production, in conjunction with the development of agri-food industries.

Selected larger urban centres, especially those the most efficiently managed, were among the fastest-developing entities in the regional surroundings; they, however, experienced a strong competitive pressure from the metropolis in terms of attracting highly qualified workers. For this reason, they recorded a growth mainly of those industries which were associated with the local resources or which developed using the existing fixed assets, which as a rule had been acquired by foreign investors. Such areas had few new greenfield projects, as investments of this kind were typically made within the metropolitan area of the core city. Cheap labour was the cardinal factor determining the attractiveness of a given location for inward capital. In some cases, their success could be attributed to the tourism potential or manufacturing cluster, which, as a rule, could be tapped more easily with efficient local leadership, accompanied by an adequate level of social integration.

Nonetheless, the majority of the local systems in the regional surroundings located at a further distance from the metropolis were performing relatively poorly. However, the proximity of the metropolitan labour market, with its potential to absorb any surplus of labour, helped alleviate the negative consequences of their restructuring. In this context, transport accessibility was of cardinal importance as it facilitated daily work commuting, which could in turn allow for the transfer of incomes to foster the development of endogenous potential locally. The situation of the regional surroundings was often varied spatially, due to the natural conditions as well as the level of physical infrastructure and fixed assets. The structural changes occurring in the surroundings of the metropolis were small and rather insignificant. With the SME sector quite poorly developed, these areas were dependent on the higher-order functions provided by the metropolitan city (education, health care, culture). The spread effects in the form of return migration or attracting people of post-working age through high-quality environmental assets and a sufficiently high quality of life, teleworkers or those working in ICT industries, have as yet been rather mediocre.

Role of public policies in shaping the relations between the metropolis and the region

In the majority of cases, metropolitan regions were not administrative in character. Nonetheless, this tier in Poland and the Czech Republic had its regional government, the only difference being that in the latter case both the city and its regional surroundings were accorded the status of a region. Furthermore, the metropolitan region in Romania was a planning region. Such situation obviously hindered the implementation of policies relating to the linkages between the metropolis and its surrounding region. Nevertheless, even if there existed a relevant administrative tier, its role in the coordination of development processes was relatively small owing to the weakness of this tier and the existing conflicts of interest between individual stakeholders from the city, the neighbouring municipalities forming its metropolitan area, and the remaining parts of the region on the one hand and the national authorities on the other (e.g. in 2012 one such conflict led to withdrawal from cooperation within a metropolitan area in Hungary). Likewise, cooperation at the level of metropolitan areas was as a rule rather difficult, mostly confined to transport services in the analysed cases.

In consequence, public policies implemented at the national level played a major part in shaping the relations between the metropolis and the region. They included in particular:

- Urban policy, which can give a relevant rank to cities located in the regional hinterland of the metropolis, which usually means more funds allocated to their growth (e.g. Romania and Lithuania);
- Transport policy, which as a rule is pursued with a view to ensuring spatial cohesion of a given country and its transit connections, and which only has an indirect bearing on the relations between the metropolis and the region, giving preference to municipalities located within the transport corridors, but also creating room for cooperation or conflicts inside the metropolitan area, associated with the planned routes of metropolitan ring-roads in densely populated areas;
- Fiscal policy, relating to the finances of local government units, which could, indirectly, significantly shape the metropolis-the region relations. Based on the analysed regions, the following examples can be provided: (1) the introduction of free public transport in Tallinn led to a substantial increase in the number of the city's population; (2) the changes in the distribution system of revenues from taxes, making the transfers for the local governments dependent not on the taxpayers' place of work but on the place of residence, which in effect resulted in the distribution of revenues from Vilnius to the municipalities situated within its commuting zone; (3) a compensatory tax in the case of the Mazowieckie region in Poland, which led to a collapse of the regional finances and significantly reduced also the revenues into Warsaw's budget, these funds being redistributed to other regions and poorer municipalities across the country.
- Cohesion policy programming both at the European and national level. In the case of Prague, Bratislava, and the Budapest metropolitan region in Hungary, in the 2007-2013 perspective it led to the exclusion of these capital cities from the Convergence Objective, as a result of which the volume of available development funds was reduced. In another case, in Prague, it resulted in the location of R&D facilities, which were exempted from financing in the city, outside of the city's administrative borders, thus crippling the development of R&D infrastructure that could potentially be done in the city.
- Educational policy, affecting the availability and quality of education, which played a role especially in the regional surroundings. However, none of the analysed case studies demonstrated beyond doubt that this instrument had been purposefully used to improve the quality of human capital in the regional surroundings.
- Industrial policy, associated with the establishment of industrial parks and special economic zones, which could facilitate the diffusion of investment to the regional surroundings. In this case, it also refers to the policies pursued at the national level, and in many cases having a significant impact on the distribution of the manufacturing potential within the metropolitan regions (to take an example, economic deconcentration in Hungary).

The local policies implemented by the local governments are in many cases fraught with the weaknesses typical of this administrative tier, i.e. excessive fragmentation of the municipalities, which is particularly well visible in the Czech Republic. In addition, their effectiveness is impaired by the necessity to create municipal associations which as a rule do not cover extensive areas, making it difficult to attain supra-local or regional objectives.

Prospects and dependency of the metropolis on the region

In all the regions, the respondents anticipated a continued increase of the disparities in the GDP per capita level between the metropolis and the regional surroundings, although, as the quantitative survey had proved, the pace of increase in the inequalities waned considerably in the recent years. In the majority of cases, it was emphasised that the development of the metropolises had been independent of their regional surroundings, due to their inclusion into the global informational economy, accompanied by significant supports from the region in the form of an inflow of well-qualified workforce. This indirectly suggests that these cities are still weakly involved in globalisation processes, which so far have not produced any significant inflows of immigrants from abroad – except Prague. On the other hand, the development prospects of the regional surroundings were assessed as low, mainly owing to ongoing depopulation and brain drain processes, and in effect to their low attractiveness for inward investment, in addition to their location in the zone of metropolis backwashing effect, which hampered the development of the service sector.

CONCLUSIONS

Metropolisation processes taking place in the Central and Eastern European countries had varying dynamics, largely dependent on the specific regional and national contexts. At the same time, some aspects were noticeable across all the countries of the macroregion. First and foremost, these included a growing involvement of the capital cities in the global economy, a phenomenon manifested *inter alia* by a substantial increase in the number of branch offices of transnational corporations providing services for the business sector. This means a visible progress in the tertiarisation of the economies of the metropolitan regions in the CEEC. It should be noted, however, that this inclusion into the globalisation processes remains one-sided, since the role of the CEEC metropolitan centres as seats of the head offices of large international companies is still insignificant, which to some extent can be attributed to the relative weakness of their national economies. Nevertheless, the convergence process of the CEEC metropolitan areas to the metropolises of highly-developed countries can be regarded as quite advanced.

Speedy increase in the level of wealth of the metropolitan areas can be observed, which is yet another aspect differentiating them from their national economies at large. Nonetheless, the scale of this dominance and the pace of increase can quite vary from one metropolitan area to another, the widest disparities being observed in the least-developed countries, i.e. Romania and Bulgaria, and the smallest – in the best-developed countries, Czech Republic and Slovenia, which partly corroborates the hypothesis formulated by Williamson, predicting that regional inequalities increase in the early stage of socio-economic development but decrease in the later stages. On the other hand, the Baltic states are different in that regard, as their capital city regions accumulate the bulk of the national economic potential and therefore play a key role in the changing of average values.

The metropolitan areas saw a substantial deconcentration in the population numbers, associated primarily with significant population dynamics outside the administrative boundaries of the core city, although, in some cases, it was also accompanied by a population decrease in this type of cities. In the capital city regions that are developing at a fast pace, the problem of the demographic weakening of the core city is usually less acute. This could probably be ascribed to their being attractive destinations for migration, and such migration could counterbalance population ageing and suburbanisation processes. The deconcentration of the economic activity within the

metropolitan area has not as yet been very advanced and can be observed only in some of the capital city regions (e.g. Budapest), whereas elsewhere it can adopt specific forms relating to selected types of activity (e.g. industry in Warsaw). In effect, the models of changes in the metropolitan systems are quite varied, with concentration processes observable in some of them and deconcentration processes visible in others.

The process of the metropolitan areas being separated from their regional hinterlands is quite well visible. It is the fastest in the case of Romania and Bulgaria and the slowest in Slovenia and the Czech Republic. In this particular regard, the scale of the disparities is even wider than in the analysis of the country at large, which can be viewed as proof of a weakness of the metropolitan hinterland, still functioning according to the industrial and agrarian development model. At the same time, in some cases the growth of inequalities was halted (and even decreased in the Warsaw macroregion in the period concerned), which indicates that the spatial scale of development diffusion processes has increased. In general terms, the widening of the disparities in all the macroregions slowed down post 2004, which can, amongst other things, be attributed to the direct and indirect effects of the EU membership of these countries.

According also to some other studies, the process of diffusion can be facilitated by such factors as development of transport accessibility of the peripheral areas or deconcentration of the population and economic potential within metropolitan areas. Such factors as these can increase the functional cohesion of metropolitan macroregions as far as work commuting is concerned. On the other hand, the differences in the economic structures between the metropolises and their surroundings still remain significant, and can hardly be viewed as factors stimulating economic integration. The regional surroundings remain strongly dependent on natural resources and raw materials and energy industries, and examples of local successes are few and far between. Furthermore, the role of public policies is limited in this regard and rather incidental owing to their implementation at the national level, and with visible distinct weaknesses of the supra-local tiers of public administration and territorial government.

References:

Aguilera A., 2005, 'Growth in commuting distances in French polycentric metropolitan areas: Paris, Lyon and Marseille', *Urban Studies* 42(9), pp. 1537–1547.

Batten D., 1995, 'Network cities: creative urban agglomerations for the 21st century', *Urban Studies* 32(2), pp. 312-327.

Castells M., 1998, *The Information Age: Economy, Society and Culture – The Rise of Network Society*. Blackwell Oxford.

Castells M., 2001, *The Internet Galaxy: Reflections on the Internet, Business, and Society*, Oxford University Press.

CBRE, 2011, *Business Footprints. Global Office Locations 2011*, CB RICHARD ELLIS.

Christaller W., 1933, *Die zentralen Orte in Süddeutschland*. Gustav Fischer, Jena.

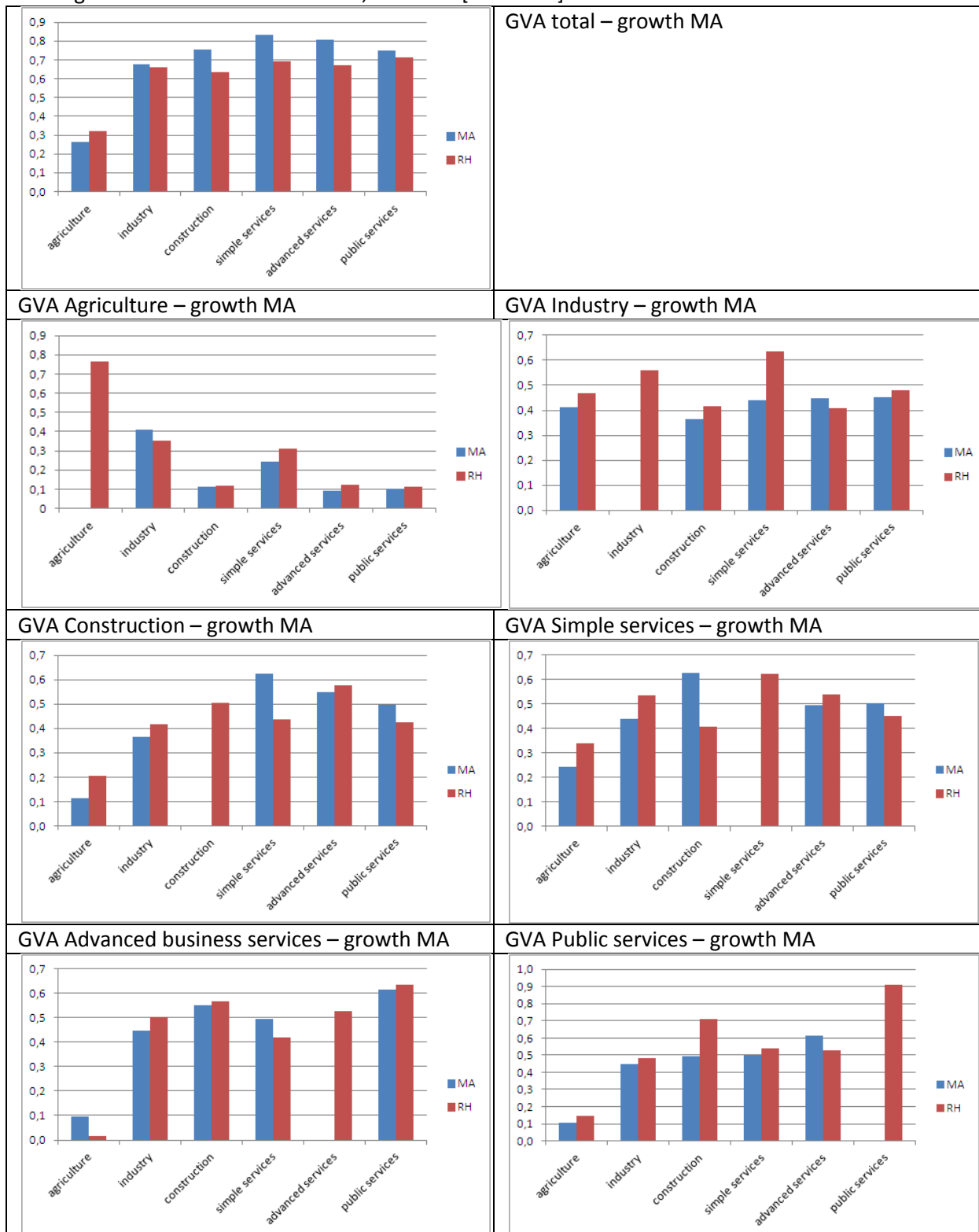
Degen M., Garcia M., 2012, 'The transformation of the 'Barcelona model: an analysis of culture, urban regeneration and governance', *International Journal of Urban and Regional Research* 36(5), pp. 1022–1038.

ESPON 1.1.1., 2004,, *Potentials for Polycentric Development in Europe*, www.espon.eu.

- ESPON FOCI, 2010, *Future Orientation of Cities*, www.espon.eu.
- ESPON SGPTD, 2012, *Second Tier Cities and Territorial Development in Europe: Performance, Policies and Prospects*, www.espon.eu.
- Florida R., 2005, 'The world is spiky', *The Atlantic* 296(3), pp. 48-51.
- Friedman J., 1986, 'The world city hypothesis', *Development and Change* 17, pp. 69-83.
- Friedman T L., 2005, *The World Is Flat: A Brief History of the Twenty-First Century*, Farrar, Straus & Giroux, New York.
- Glückler J., 2007, 'Economic geography and the evolution of networks', *Journal of Economic Geography* 7, pp. 619-634.
- Gorzela G., 1996, *The Regional Dimension of Transformation in Central Europe*. London: Jessica Kingsley Publishers.
- Hall P., 1999, 'The futures of cities', *Computers, Environment and Urban Systems* 23, pp. 173-185.
- Hall P., Pain K. (eds.), 2007, *The Polycentric Metropolis: Learning from Mega-city Regions in Europe*, Earthscan, London.
- Hirschman A. O., 1958, *The Strategy of Economic Development*, Yale University Press New Haven, Conn.
- Jałowicki B., 1999, *Metropolie*, Wydawnictwo Wyższej Szkoły Finansów and Zarządzania, Białystok.
- Krätke S., 2007, 'Metropolisation of the European economic territory as a consequence of increasing specialisation of urban agglomerations in the knowledge economy', *European Planning Studies* 15, pp. 1-27.
- Lo Y., Yeung Y. (eds.), 1998, *Globalization and the World of Large Cities*, UN University Press, Tokyo – New York – Paris.
- Nowosielska E., 2012, *Region metropolitalny. Pojęcie. Struktura przestrzenna. Dynamika* [Metropolitan region. Concept. Spatial structure. Dynamism]. IGIPIZ PAN, Warsaw.
- Perroux F., 1950, 'Economic Space. Theory and Applications', *Quarterly Journal of Economics* 64, pp. 89-104.
- Sassen S., 1991, *The Global City*, Princetown University Press.
- Simmie J., 2003, 'Innovation and urban regions as national and international nodes for the transfer and sharing of knowledge', *Regional Studies* 37(6/7), pp. 607-620.
- Smętkowski M., Gorzela G., 2008, 'Metropolis and its region: new relations in the information economy'. *European Planning Studies* 16, pp. 727-743
- Smętkowski M. et al., 2011, *European Metropolises and Their Regions: From Economic Landscapes to Metropolitan Networks*, Scholar, Warsaw.
- Smith D. A., Timberlake M., 2001, 'World city networks and hierarchies, 1977-1997: an empirical analysis of global air travel links', *American Behavioral Scientist*, 44(10), pp. 1656-1678.
- Taylor P. J., 2007, *World City Network: a Global Urban Analysis*, Routledge London and New York.
- Townsend A. M., 2001, 'Network cities and the global structure of the Internet', *American Behavioral Scientist* 44, pp. 1697-1716.
- Ullman E., L., 1957, *American Commodity Flow*, University of Washington Press Seattle and Washington.

Williamson J.G., 1965, 'Regional inequalities and the process of national development', *Economic Development and Cultural Change* 13(4), pp. 3–84.

Appendix 1. Correlation between development dynamics of economic sector in the metropolis and the regional hinterland in 1995-2011, between [r Perason]



* GVA – gross value added; MA – metropolitan area; RH – regional hinterland

Source: prepared by the author

Other appendices:

1. Report for the Bucharest metropolitan region, Daniela-Luminita Constantin (coordinator)
2. Report for the Budapest metropolitan region, James Scott, Boglárka Szalai
3. Report for the Prague metropolitan region, Martin Ferry
4. Report for the Tallinn metropolitan region, Marek Tiits, Imre Mürk
5. Report for the Vilnius metropolitan region, Donatas Burneika
6. Report for the Warsaw metropolitan region, Maciej Smętkowski