

METROPOLIZATION IN CENTRAL & EASTERN EUROPE UNEQUAL CHANCES¹

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Abstract:

Capital cities in CEECs are changing rapidly. Their capacity to join the network of European business metropolises is evaluated here on the basis of their relative specialization in high-order services and their connections with the rest of the world. The comparative analysis covers Bucharest, Budapest, Prague, Sofia and Warsaw.

Les villes capitales des PECO changent rapidement. Sur la base de leur spécialisation relative dans les services supérieurs et de leur connexion au reste du monde, nous évaluons leur capacité à entrer dans le réseau européen des métropoles d'affaires. L'analyse comparative est appliquée à Bucarest, Budapest, Prague, Sofia et Varsovie.

Key words:

*Central and Eastern European Countries, High-order services, Metropolises.
Métropolisation, Pays d'Europe Centrale et Orientale, Services supérieurs.*

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1. INTRODUCTION

Europe is changing. The widening of the European Union (EU) to include a number of Central and Eastern European Countries (CEECs) in several stages will profoundly alter the European economic landscape. It will introduce new inequalities between EU countries, regions and cities, and will open up new opportunities for interaction. This fuels a large part of the debate about the emergence of a “several-speed” Europe.

The new applicants for EU membership are transition economies which all abandoned the central planning system a little more than ten years ago but which have not yet completed their transition to the market economy (Andreff, 2003). This transition process entails not only adopting the rules of the market, but also adapting to the global nature of the emerging post-industrial economy and thus acquiring the capacity to participate in global networks.

However, the debate is too closely focused on national and regional inequalities as the sources of difficulties of integration in the EU. We live in an age where the economy is dominated by cities. Huriot and Thisse (2000, xiv) invite us to “reconsider the role of cities in economic life” and suggest that “cities will be important actors on the economic stage of the future”. The context of the post-industrial economy inevitably assigns a primary role to cities. “Post-industrial cities have resulted from the rise of the service economy and, more recently, from the information revolution. [...] At present, economic power and city growth both depend on new tertiary activities such as financial and producer services, research and development, planning, and business administration and, in general, on activities specialized in decision-making and control” (Huriot and Thisse, 2000, x). At their highest level, these activities are devoted to the coordination of economic activities at a large spatial scale and are selectively concentrated in what we call “business metropolises”.

Indeed, we define a metropolis as a *center of coordination of complex economic activities at a global scale* (Bourdeau-Lepage and Huriot, 2003a). At different historical periods, the metropolis has taken specific forms, depending on what activities had to be coordinated and how coordination was achieved. Today, the emergence of the post-industrial economy and the related growing need for coordination are bringing about far-reaching changes and considerably extending the coordination functions and the related high-order services, giving rise to the business metropolis. The literature offers near-synonymous terms such as global cities (Sassen, 2001), or world cities.

Because of their need for proximity to exchange information through face-to-face contacts, these high-order services are mostly concentrated in the CBDs of metropolises, so that their presence is a natural criterion for metropolization.

Through their global coordination functions, these services connect metropolises to one another, so forming global networks. This implies a close relation between the external role of the business metropolis and the concentration of high-order services in its CBD.

From this analysis, it appears that the emergence of business metropolises in the CEECs and their insertion in global networks would contribute to their successful integration in the EU. In these countries, the major cities are changing rapidly. New market economies generate increasing external interactions requiring more coordination and new forms of coordination, and therefore more high-order services which contribute to transforming the economy of major cities (Bourdeau-Lepage, 2003).

This paper is the first step of an analysis of the emergence of business metropolises in CEECs, in order to evaluate the chances these countries have of successfully integrating the EU.

Some results are already given by Bourdeau-Lepage (2002) and by Bourdeau-Lepage and Huriot (2003b) in the case of Warsaw. The present work extends this analysis, and aims to characterize and compare large CEEC cities, essentially in terms of the presence and the degree of concentration of high-order services, but also in terms of their economic environment, of their degree of insertion in the global city network, and of their image.

Five cities – Bucharest, Budapest, Prague, Sofia, and Warsaw – are studied here for several reasons. They all have more than one million inhabitants, which is often considered as the standard minimum size of a world city. They are the capital cities of countries involved in the next round of European enlargement in 2004 (the Czech Republic, Hungary and Poland), and of countries waiting to join at a later stage (Bulgaria and Romania). These countries are in very unequal situations in terms of GDP as well as in terms of historical background or of geographical situation. In such unequal environments, these cities probably do not have the same chances of joining the global network of business metropolises.

Before coming to the core of this investigation, it is useful to provide some information on the methodology of our analysis, including theoretical background, databases and empirical methodology (section 2). Then the proportions of high-order services in employment in the five cities are evaluated and compared (section 3). This reveals significant disparities, which are reinforced by their unequal integration in the interaction networks (section 4) and reflected in the images of the cities (section 5). These inequalities may be partly explained by local features related to national environments and the relative locations of cities (section 6). Finally some conclusions and research perspectives are proposed (section 7).

2. METHODOLOGY

First the analytical background of this study must be recalled *i.e.* elements of the analysis of city growth and metropolization which justifies emphasizing the role of high-order services and of long range interactions (2.1). Then, the database and the empirical method employed are presented (2.2).

2.1. Analytical background: globalization, metropolization and high-order services

Metropolises as centers of coordination and nodes of long range interaction networks already existed in the pre-industrial era and even more obviously in the industrial period. At different times in history, metropolises have adapted their coordination functions to the needs of the economy and to the possibilities of technology (Bourdeau-Lepage and Huriot, 2003a). Now the post-industrial economy has new and increasing coordination needs which can be satisfied through the use of new information technologies. Coordination functions and their intensive use of information are permanent urban

features (Hohenberg and Lees, 1995), but their extension and their implementation are entirely new (*e.g.*, Castells, 1996).

Three major characteristics of the post-industrial economy underlie the increasing need for coordination.

In the post-industrial economy, production is increasingly *intangible*, *i.e.* services are taking the first place, and, more recently, high-order services are rapidly growing. From 1993 to 2001, the proportion of employment in the high-order services sector rose from 13.3% to 16% in France, an increase of 38.8%. The same process is observed in the CEECs. For example, in the Czech Republic, with a growth rate of 25%, the share of high-order services in total employment increased from 5.9% to 7.6%.

Production is increasingly differentiated and *personalized*, in manufactured goods and even more so in services, and this is tied in with the development of variety preference on the part of consumers.

Production is clearly *globalized*, *i.e.* its management and organization as well as its supporting services are integrated at the world scale (Sykora, 1996). Globalization has benefited from the reduction in transport costs which allows production to be delocalized to remote countries with low labor costs and promotes the emergence of a new division of labor. It has also been made easier by the deregulation of markets.

Such an economy gives rise to important new needs for coordination which can be satisfied thanks to the information revolution which permits efficient long-distance circulation of codified information and the concentration of these functions in a small number of metropolises.

Since the 1990s, CEECs and their capitals have faced the double challenge of the market (the transition process) and of integration in the EU and thus in the world economy (the globalization process), which supposes a sufficient development of coordination functions and thus of high-order services concentrated in metropolises (the metropolization process).

On this basis, a set of criteria is used to evaluate the metropolization process and the correlative future integration in the EU. The focus here is on the production structures and on the presence of high-order services in CEEC capitals, as well as on some aspects of their long-range interactions, and of their image as business cities. All these factors are at the core of the metropolization process. Many other factors are known to play an important part. While this approach is still partial, it is a necessary first step in a field where data are not readily available.

2.2. Collecting and processing data

Collecting relevant data is a problem in the countries covered by this study. Although standard data at the scale of the whole country are readily available, detailed urban data by sectors are often non-existent. When obtainable, they are either not very reliable or often not directly comparable. As a consequence, certain results may be established only by combining several sources, and some data used in this paper must be interpreted very carefully.

For the moment, because of these problems, production structures are represented by the structures of employment per sector, in terms of NACE 1 rev. 1 (European nomenclature of activities, see table I in appendix 2). For convenience, some sectors have been grouped together to give 13 sectors as shown by table I in appendix 2. The construction of our database necessarily results from the combination and adaptation of several sources, which are indicated in the tables.

High-order services, which determine metropolization, are essentially grasped through the two sectors J (Financial Intermediation) and K (Real Estate, Renting and Business Activities). Remember that these sectors do not correspond exactly either to producer services or to high-order services. They clearly include household services as well as low-order producer services. But they provide a meaningful preliminary impression of differences in the structures of activities and in their changing patterns.

The relative importance of the main sectors in the five cities is evaluated by calculating location quotients (LQ). Two kinds of location quotients are used: the “domestic location quotient” (domestic LQ) and the “intercity location quotient” (intercity LQ). The two ratios have different but complementary interpretations and must be handled with care (see table II in appendix 2).

For a given sector, the domestic LQ is the ratio of the share of that sector in the city employment to the share of that sector in the nationwide employment in the same sector. It relates the city structure to the country structure, so identical city structures generate different domestic LQ values depending on the country structures. Given that the five countries are at different stages of development, they display very different employment structures. Consequently, domestic LQ values include a country effect. These values reflect the domestic specificities of the metropolization process.

For a given sector, the intercity LQ is the ratio of the share of that sector in the city employment to the average share of that sector in the five capital cities. This LQ is independent of the country structures. It permits direct comparisons between the employment structures of the five cities, regardless of their hinterlands, from the sole point of view of their relative ability to engage in a metropolization process.

As a consequence, the level and the ranking of the two sets of LQs may be very different. By definition, a high intercity LQ means only that the sector is more present in a given city than in the average of all five cities and a high domestic LQ indicates only that the sector is over-represented in the city relative to the country as a whole.

Apart from employment structures, the following sections examine a number of complementary quantitative or qualitative features taken from various sources and reflecting the presence of high-order services and the capacity for global world interactions.

Air traffic passengers data are provided by Airport Council International (ACI) in complete monthly and annual reports for more than 750 airports throughout the world. Useful information on the presence and connection of international firms of high-order services are available in the various works published by the research network “Globalization and World Cities”. The image of the cities as business places is well analyzed every year in a detailed report of the consulting firm Cushman & Wakefield Healey & Baker (2003).

3. EMPLOYMENT STRUCTURES AND HIGH-ORDER SERVICES

The five cities under study can be characterized by their employment structures and especially by the share of high-order services in their total employment (3.1). These structures can be usefully compared both with one another and with the structure of another EU city, Paris. They reveal meaningful differences which could affect the chances of successful integration (3.2).

3.1. Production structures and location quotients: preliminary observations

A number of significant elements of the cities' employment structures are selected in table 1. Special attention is given to the proportions of manufacturing and of high-order services in total employment and to their evolution as far as data are available. Table 2 compares the five cities, on the basis of their intercity and domestic LQs.

Table 1: Percentages of employment in manufacturing and high-order services

% of total employment	BUCHAREST		BUDAPEST		PRAGUE		SOFIA mun.		WARSAW		PARIS	
	1994 ¹	2001	1995	2001	1994	2001	1996 ¹	2000	1994 ¹	2001	1994	2001
Manufacturing (D)	-	24.3	18.1	14.4	14.8	10.5	-	17.3	25.6	14.8	8.4	6.1
Financial Intermediation (J)	-	2.8	3.5	3.4	3.2	4.9	-	3.2	6.0	7.8	11.1	8.9
Real estate, Renting and Business activities (K)	-	11.5	6.5	11.2	12.7	12.8	-	13.6	14.9	15.0	18.2	22.2
H-O Services ²	-	14.3	11.0	14.6	15.9	17.7	-	16.8	20.9	22.8	29.3	31.2

¹Data non comparable (different spatial scales or different nomenclatures).

²High-order services: total sector J and sector K.

Sources: calculated from INSSE (2003); KSHBPMI (2002); Czech Statistical Office (2003a); Municipality of Sofia (2003); BULSTAT (2003a) and EUROSTAT (2003); USW (1996) and (2002) and INSEE (2003).

Table 2: Location quotients (2001)

NACE 1 rev. 1	Average 5 cities in %	BUCHAREST		BUDAPEST		PRAGUE		SOFIA mun ³		WARSAW	
		IC LQ ¹	Dom LQ ²	IC LQ	Dom LQ	IC LQ	Dom LQ	IC LQ	Dom LQ	IC LQ	Dom LQ
A+B	0.6	1.5	0.0	0.8	0.1	1.2	0.1	0.8	0.0	0.7	0.0
D	16.4	1.5	1.2	0.9	0.5	0.6	0.4	1.1	0.8	0.9	0.9
C + E	2.1	1.4	0.8	0.6	0.5	1.1	0.7	1.0	0.6	0.9	0.6
F	6.8	1.1	2.0	0.6	1.0	1.4	1.0	0.9	1.5	1.0	1.3
G	15.9	1.1	1.9	0.8	1.1	1.0	1.3	1.1	1.5	1.0	1.1
H	2.7	0.5	1.6	1.2	1.1	1.5	1.2	1.1	1.0	0.8	1.4
I	9.6	1.0	2.1	1.0	1.2	1.0	1.2	1.1	1.4	0.9	1.8
J	4.5	0.6	3.6	0.8	1.8	1.1	2.3	0.7	2.9	1.7	4.1
K	12.8	0.9	3.5	0.9	1.9	1.0	2.4	1.1	3.4	1.2	2.7
L	9.0	0.4	1.9	2.2	1.8	0.8	1.0	0.6	1.8	0.8	2.1
M	7.4	0.9	1.4	1.1	0.9	0.9	1.1	1.1	1.1	1.0	1.3
N	7.1	0.7	1.2	1.2	1.1	1.1	1.2	0.9	1.3	1.1	1.4
O+P+Q	5.2	1.1	2.9	0.8	1.5	1.5	1.9	1.0	1.8	0.8	1.6
Total	100.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

¹ Intercity location quotients.

² Domestic location quotients.

³ in 2000.

Sources: calculated from INSSE (2003); KSHBPMI (2002); Czech Statistical Office (2003a and b); Municipality of Sofia (2003); BULSTAT (2003a) and EUROSTAT (2003); USW (2002); GUS (2002) and GUS (2003).

A first remark concerns the significant divergences between the two sets of location quotients. Recall that the intercity LQ compares the structure of each city with the average structure of all five cities, while the domestic LQ compares the structure of each

city with that of its country. Thus the differences between the two sets of location quotients could be explained by the fact that the five cities are subject to two kinds of forces. The first force comes from outside and results from the adaptation of each city to the requirements of the global economy, *i.e.* from the fact that they are drawn by a common tendency to metropolization. The second force results from the specificities of the country where each city is located. This country effect reflects the domestic environment and the internal constraints which may strengthen or weaken the external force of the metropolization process.

In this section, the differences between cities are evaluated by calculating the Intercity LQ, as explained in the preceding section, so as to compare the capacities to adapt to common external constraints of the post-industrial economy. A subsequent section compares the two sets of quotients and suggests explanations in terms of country effects.

3.2. The city structures compared

A series of results must be emphasized concerning the comparison of the five cities with a recognized business metropolis, the differences between the five cities, and the apparent advantageous position of Warsaw.

Because it calls for care in interpretation, it should be pointed out that the employment structure in Budapest is entirely dominated and biased by the disproportionate size of sector L. Indeed, public administration accounts for nearly 20% of total employment, in contrast with other cities where this percentage never exceeds 7.5. This can be related to the primacy ratio of 8.4. So, Budapest is about eight times more populated than the second largest Hungarian city. This suggests a higher level of centralization in Hungary than in the Czech Republic or in Poland where the primacy ratios are respectively 3.1 and 2.

Potential metropolises are far from looking like an EU business metropolis

Employment structures in the five CEEC cities are compared with that of a well established and recognized business metropolis in the European Union. The city of Paris, as one of the two dominant business metropolises in Europe provides a good basis for comparison. Although data are not really comparable because the spatial scale of observation varies from one city to the other, it is possible to define specific markers and to evaluate meaningful disparities.

In 2001, the share of high-order services (*i.e.* Finance-Insurance, Real Estate, Renting and Business Services) in employment was over 31% in Paris. In 2001, the corresponding share (sectors J and K, table I appendix 2) was only a little more than 17% on average in the five CEEC cities, with a minimum of 14% in Bucharest and a maximum of 23% in Warsaw.

Again in 2001, the share of manufacturing in employment was about 6.1% in Paris while it was 16.4% on average in the five CEEC cities, with a minimum of 10.5% in Prague and a maximum of 24.3% in Bucharest.

Thus, we have some evidence that the five cities are richer in manufacturing and poorer in high-order services than the French business metropolis.

The five CEEC cities are facing a common metropolization process with unequal chances

Direct comparison between the five cities can be made on the basis of the intercity location quotients. Again, emphasis is on the high-order services sectors. It appears that the relative specializations of the five cities in sectors J and K differ noticeably (table 2).

The relative specialization in sector J (Finance) is more marked in Prague and above all in Warsaw, while Sofia and Bucharest are less specialized than the average. Differences of specializations in sector K (Real Estate, Renting and Business Activities) are much less significant, the location quotients varying only from 0.9 to 1.2.

For the manufacturing sector, it will be recalled that one of the major features of transition economies is their rapid de-industrialization. This movement is clearly marked in each capital or capital region, much more than in their respective countries. Table 1 gives some indications of this change, where available.

As expected, specializations in the manufacturing sector and in high-order services vary in roughly opposing directions. Bucharest has a relatively large manufacturing sector. Even if de-industrialization is observed in Bucharest, this city is unusual because manufacturing still makes up 24.3% of the city's employment, which is a very much higher proportion than in the other cities, even in Sofia which is still highly industrialized. Budapest, Sofia and Warsaw lie very close to the average of 16%. It will be noticed that despite intense de-industrialization (the percentage of manufacturing employment fell from 25.6% in 1994 to 14.8% in 2001) the city of Warsaw still has a relatively high proportion of manufacturing activities. In Prague, this sector is under-represented relative to this average. With only 10.5% of employment in manufacturing, Prague looks more or less like western European metropolises.

It is noteworthy that of the five cities, Prague has the highest specialization in hotels and restaurants (table 1: intercity location quotient equal to 1.5). Prague is clearly attuned to tourism. For the same sector, Bucharest displays the opposite characteristics, with a very low intercity location quotient of 0.5: in this domain, Bucharest remains well behind the other cities.

Two results illustrate this point. On the one hand, differences in the employment structures of the five cities are relatively small, especially for high-order services, suggesting that they are pulled by a common global forces. On the other hand, these differences are sufficient to determine a significant ranking in which Warsaw, Budapest and Prague display more “advanced” structures than Bucharest and Sofia in terms of metropolization.

Warsaw is emerging as a future business metropolis

Warsaw easily holds on to its first place relative to the five cities for sector J, which is largely more represented than in the average structure of these cities (intercity LQ of 1.7). Warsaw is relatively less specialized in sector K (intercity LQ of 1.2). Nevertheless, it also remains in first place for the concentration of this sector among the five cities. Consequently, it can be suggested that Warsaw is certainly becoming a business metropolis as defined here. This is confirmed by the rapid and huge growth of specialized high-order services in Warsaw, already described in more detail in Bourdeau-Lepage and Huriot (2003). Finance and producer services were virtually absent before 1989 and have developed very rapidly since. A good illustration of this development is given by the rise in the number of consulting companies in Warsaw. There were 9 in 1989, 317 in 1996 and 432 in 1999 (Wilk, 2001). Law firms, notarial firms, and banks have followed the same pattern.

4. INTEGRATING THE GLOBAL ECONOMY

The concentration of high-order services in business metropolises is only one side of the metropolization process. The other side is the integration in the network of world cities. First of all, this integration is achieved through a set of connections which permit global interactions. Connections between high-order activities can be established in terms of information flows and of executive trips. Information flows are difficult to grasp and for the moment only the second aspect of these interactions is examined. Air traffic is an imperfect proxy for business trips, but first, specific data on business trips are not available, and second other kinds of trips can also contribute to the metropolitan status of a city. Notice that data do not include origin and destination. But even if this were the case, precise conclusions could hardly be drawn because of the bias introduced by transit traffic. So general air traffic data is used here, which reveals a dramatic lag in the intensity of traffic between the CEEC capitals and the major business metropolises in the rest of the world, as well as substantial inequalities between the five cities under study (4.1).

Global metropolitan networks are also established in the form of international firm networks, *i.e.* of the simultaneous presence of high-order service firms in several cities and/or countries. Along these lines, the literature proposes hierarchies and typologies of world cities based on the presence of high-order services and on their worldwide connections. We shall report some of their conclusions and relate them to the preceding results for the five cities (4.2). This affords a less pessimistic view of the CEEC situation.

4.1. The low levels of air traffic

The analysis of the air traffic, for which relevant data are given in table 3 for the 12 months to January 2003, supports the previous hypotheses and reveals some clear features about the position of the cities under study.

Table 3: Air traffic

12 MONTHS ENDING JANUARY 2003				
CITY	PASSENGERS*	% LONDON	% WORLD	% PRAGUE
BUCHAREST, RO	2 130 030	1,81	0,066	33,47
BUDAPEST, HU	4 494 356	3,81	0,140	70,62
PRAGUE, CZ	6 364 169	5,40	0,198	100,00
SOFIA, BG	1 227 195	1,04	0,038	19,28
WARSAW, PL	4 967 719	4,22	0,154	78,06
LONDON	117 855 983	100,00		
WORLD	3 217 987 049		100,000	

Source: Airports Council International, (2003).

* total passengers enplaned and deplaned, passengers in transit counted once.

First, the ranking of passenger traffic confirms the preceding diagnosis of there being two distinct groups: on the one hand the leading cities, Prague, Warsaw and Budapest; on the other hand, Bucharest and Sofia. Prague's heavy passenger traffic might be due to its tourist appeal.

However, these data take their full meaning only when compared with air traffic in European or world metropolises. Such a comparison shows that all these cities have very low air traffic. The busiest air traffic city in the world, London, had a traffic of 117.8 million during the year. Tokyo had 90.7 million, Atlanta 77.4, and Paris 71.8. Figures were 48.6 million in Frankfurt, 40.9 in Amsterdam and 34.1 in Madrid. In table 3, the traffic of the five CEEC cities is expressed on the basis of 100 for London. The figures lie between 1.8 and 5.5 percent.

Another perspective is given by examples of European cities with approximately the same levels of passenger traffic. Prague ranks close to Lyon, Warsaw to Hanover or Toulouse, Budapest to Faro or Venice, Bucharest to Valencia or Strasbourg, Sofia to Milan or Santiago. Most of these cities are secondary cities in terms of global networks.

4.2. International firms and the world cities network

The most striking character of a metropolis is its insertion in the world network of cities in interaction. Such a network is organized as a hierarchy. Evaluating the world integration of a city comes down to assessing its rank in such a hierarchy. In this spirit, this paper reports studies conducted by the Globalization and World Cities network (GaWC) and referring to what are considered here the major criteria, namely the presence of high-order services and their global dimension.

An inventory of 123 world cities (Beaverstock *et alii*, 1999) is based on the presence of four “advanced” producer services: accountancy, advertising, banking/finance, and law. For each service, cities are classified in three groups: prime centers (3 points), major centers (2 points), and minor centers (1 point), depending on the degree of presence of the largest international firms in this activity. The four classifications obtained are combined by giving each city a grade from 1 to 12, equal to the sum of the points obtained. The resulting roster regroups the cities in four categories by decreasing grade: 10 “Alpha World Cities” (grades 12 to 10), 10 “Beta World Cities” (grade 9 to 7), 35 “Gamma World Cities” (grades 6 to 4) and 67 “Evidence of World City Formation” (grades 3 to 1). The global evaluation of the five cities is given by table 4.

Table 4: The inventory of world cities

	Accountancy	Advertising	Banking	Legal services	General grade	Category	Comparable cities
Bucharest	<i>n.g.*</i>	minor	<i>n.g.</i>	minor	2	“Some” evidence of world city formation	Lisbon Rotterdam Stuttgart
Budapest	<i>n.g.</i>	minor	minor	major	4	gamma	Barcelona Berlin Munich
Prague	<i>n.g.</i>	major	major	major	6	gamma	Amsterdam Düsseldorf Geneva
Sofia	<i>n.g.</i>	<i>n.g.</i>	<i>n.g.</i>	<i>n.g.</i>			
Warsaw	<i>n.g.</i>	minor	major	major	5	gamma	Rome Stockholm

Source: Beaverstock *et alii*, (1999).
* non graded.

Prague scores well (major center) for advertising, banking and legal services, and Warsaw for banking and legal services. The ranking is consistent with expectations and

confirms the preceding evaluations. Prague, Warsaw and Budapest are major centers in at least one category of high-order services. Prague is the most complete.

Obviously, this evaluation is partial and records only the presence of major world firms. But such firms are the most able to develop global interactions and to generate a metropolization process in the cities where they have a significant presence.

It is important, then, to evaluate not only the presence of high-order services but their interactions in the network of world cities. The intensity of presence of 100 world leading firms in six categories of high-order services is evaluated in 316 cities (Taylor *et alii*, 2001). The degree of connectivity of a given city *A* increases with the simultaneous presence, in a greater number of other cities, of the firms present in *A*, and increases also with the intensity of this presence. London shows the highest connectivity in the world. Expressed as a percentage of this maximum, the connectivities of Budapest, Prague, and Warsaw are comparable at a medium level (between 40 and 49), while the connectivities of Bucharest and Sofia are much lower (between 20 and 29). Some 213 cities have connectivities of less than 20.

5. METROPOLIZATION AND THE IMAGE OF CITIES

The various factors of metropolization presented in the preceding sections may be reflected in the more or less positive images of the cities under study. The image of cities is both a cause and effect of metropolization. The representation of a given city by economic decision-makers depends on expected profits and on the metropolitan character of the city. In turn, a good image is an incentive to invest, to create or reinforce interactions, which promote metropolization.

In the 2003 edition of an annual survey of the 30 leading cities in terms of business (Cushman & Wakefield Healey & Baker, 2003), Prague, Warsaw and Budapest are respectively in 17th, 22nd and 23rd positions, while Bucharest and Sofia do not feature. Since 1990, the major change has been the increased attractiveness of Prague.

Over 20% of the firms surveyed have offices, manufacturing, distribution, or sales outlets in Warsaw or in Prague (ranked 7th and 13th in Europe), 15% in Budapest and 4% in Bucharest. If the anticipated expansion of these firms were carried out, then Warsaw would maintain the same rank while Prague and Budapest would occupy respectively the 9th and 15th ranks.

However, only 30% of the executives surveyed knew Warsaw well as a business location, which is a very low score, ranking Warsaw last-but-one of the 30 cities concerned, after Prague but before Budapest. This result is surprising compared with the expectations of expansion. Yet it is justified by the detailed results for attractiveness criteria.²

These results reveal that the three cities included in the survey are not very attractive in terms of the availability of qualified staff, external transport links, the quality of telecommunications, the ease of intra-urban transport, the quality of the environment (pollution), and language. Conversely, the three cities are highly appreciated for the cost of staff (the top three ranks in Europe), for the climate government creates and for value

² The questions are "Which city do you think is best in terms of the criterion X? Which is second best and which is the third?" The 30 cities are ranked according to their scores. The scores are based on the responses and weighted according to the first best, second best, and third best.

for money of office space. Other criteria discriminate the three cities. Warsaw is better rated than Budapest and Prague for easy access to markets.

Finally, the image of all five cities is relatively poor, except in terms of costs of staff and office space. Roughly speaking, it seems that the perception of the three cities is ambiguous. On the one hand they lack attractiveness because of their poor living conditions, low ratings for transport and environment, yet on the other hand they hold the promise of profitability because of their low costs.

The three metropolization criteria used in this paper, *i.e.* the presence of high-order services in the five cities, their integration in a world network, and their image as investment centers, converge toward the following evaluation of the five cities. Two groups clearly differ.

On the one hand, Budapest, Prague and Warsaw show clear signs of metropolization, even if they are far behind the major EU metropolises on the basis of most criteria. Warsaw, despite shortcomings for certain economic criteria, appears in a good overall position to become a business metropolis. Budapest is well ranked but closer to average values for the different criteria. Prague is developing its cultural advantages and its tourist appeal, but also business. It is noteworthy that while Warsaw dominates the five cities in terms of high-order services employment, Prague takes the first place if greater emphasis is placed on air traffic and the presence of international firms in high-order services.

On the other hand Bucharest and Sofia have a lot of disadvantages. Their employment structures are still far from those of a business metropolis, and they have difficulties in joining the global business network.

These inequalities in the face of globalization and metropolization stem from unequal capacities to adapt to external conditions, which in turn depend partly on local conditions, *i.e.* on what we have called the “country effect”. Determinants of this country effect are examined in the following section.

6. LOCAL SPECIFICITIES AND THE COUNTRY EFFECT

Metropolization is a selective process affecting certain large cities. But no city can be isolated from its environment. Every city is integrated to its country’s economy, is part of a population distribution, and has a specific location in Europe.

At the level of the employment structures, the existence of local specificities and of a country effect is clearly revealed by the significant differences between the intercity LQ and the domestic LQ (6.1), as was suggested in section 3, table 2. These specificities can be related to the general economic characteristics of the country in which each city is located (6.2), to the population size of the country and the form of its city system (6.3) and to the relative location of each city in the European city system, which determines its potential for interaction in an enlarged Europe (6.4).

6.1. Employment structures and the country effect

The domestic LQ yields two series of new information when compared with intercity location quotients.

More inequalities in domestic location quotients

For a given city, the sector distribution of the domestic LQ is much more unequal than the distribution of the intercity LQ. In other words, the service structure of each of the five cities is closer to the average structure of these cities than to the structures of their respective countries. This is not surprising because every large city is more specialized than its whole country. This is especially clear in sectors J (Finance) and K (Real Estate, Renting and Business Activities) to which particular attention is paid and for which the domestic LQ is more than 2 in most cities and even exceeds 4 in Warsaw, while this quotient is very low for manufacturing, except in Bucharest.

Specific discrepancies between domestic and intercity location quotients

Comparison of the two sector distributions for a given city reveals clear divergences in certain sectors, which can be explained by the country effect. Again this concerns sectors J and K particularly. For sector J, the ranking resulting from the domestic LQ puts Warsaw in first place (LQ of 4.1), followed by Bucharest, Sofia, Prague and Budapest. For sector K, the rank order is identical, except for Warsaw which falls from first to third place, after Bucharest and Sofia. This is very surprising because it contradicts the hierarchy based on the intercity LQ.

This confusion can be explained by the specificities of Romania and Bulgaria. Indeed, Bucharest and Sofia have very high domestic LQ in sector J (3.6 and 2.9) and the highest domestic LQ in sector K (3.5 and 3.4), while they have the lowest intercity LQ of the five cities in these sectors. In other words, in Bucharest and Sofia, high-order services are much less developed than in the other cities under study, although they are more developed than in their respective countries.

These cities appear specialized in their countries because of the dramatic lack of high-order services in Romania and in Bulgaria. In other words, these services are over-represented in Bucharest and Sofia on a domestic basis because they are under-represented in Romania and Bulgaria. This stresses the difficulties encountered by Bucharest and Sofia. Despite specialization in high-order services in their countries, they are in an unfavorable situation in face of the globalization process, because of a lag in the transition processes in Romania and Bulgaria.

As for sector H (Hotels and Restaurants), the specialization of Prague appears weaker on the basis of the domestic LQ, probably because the hotel industry is rather evenly distributed in the Czech Republic. Not only Prague but the entire country is clearly specialized in tourism. On the contrary, in Bucharest, for the same sector, the intercity LQ is very low while the domestic LQ is rather high. This may be because the hotel industry is weak in Romania, resulting in an artificially high value of this quotient.

Note that sector G (Wholesale and Retail Trade, Repair) appears as a marked specialization in Bucharest and Sofia in terms of the domestic LQ. Again, this is a clear-cut example of the country effect. The values of the intercity location quotients were uniform and neutral for this sector in the different cities. That is to say that the relative importance of this sector is the same in all five cities and thus was not quoted in section 3. Therefore, the high domestic LQ in Bucharest and Sofia reveals a relative underdevelopment of this sector in Romania and Bulgaria. Again, this could be interpreted as a lag in the transition process in these two countries.

These specializations can be explained by some general characteristics of the countries: firstly, economic performances related to progress in the transition process and secondly population size and the specific form of the city systems in the different countries.

6.2. Unequal economic transitions: gaps in economic performances

Hungary, Romania, the Czech Republic, Poland and Bulgaria all abandoned the central planning system a little more than ten years ago. They all belong to the group of countries “in transition”. But they differ in their states of development and their economic performances, for political and historical reasons and because of differences in the state of advancement of the transition process. These differences in economic conditions largely influence their ability to adapt and to generate sufficient novelty for an effective integration of their capitals in the European metropolitan system. Reference is made to data in table II of appendix 2.

There are important lags which can be explained for example by differences in per capita gross domestic product (GDP) and by unemployment rate. Table II shows that in 2000, the Czech Republic per capita GDP was 2.5 times that of Romania. But it was only equal to 56% of the average European per capita GDP (Europe of 15 in SPA 2000). Thus it is a matter of both development gaps relative to the European Union and of serious development disparities between the five countries. This corresponds to the two separate groups already identified: the Czech Republic, Hungary and Poland have higher per capita GDP than Bulgaria and Romania.

Another index of economic performance is the unemployment rate. Two countries have very high rates: Bulgaria and Poland. However, the rate is low in Warsaw, as in the other cities, except Sofia where the unemployment rate is more than twice the rate of the other cities. This further weakens the poor economic image of Sofia.

6.3. Population and city systems

The five countries are very different in size. Poland is larger than the other countries. On the contrary, the Czech Republic is a very small country. With more than 300 000 km², Poland is almost four times the size of the Czech Republic and roughly three times bigger than Bulgaria and Hungary. Differences are still more marked in terms of total population, since Poland, with more than 36 million inhabitants, is six times as populated as Bulgaria. However, although population size may go some way to explaining the relative attractiveness of Poland for foreign investments, it cannot explain the success of the Czech Republic.

The form of the city system, other things being equal, may condition the realization of the metropolization process. The distribution of city sizes may be more or less balanced. It is considered as well balanced when the ratio of the size of the capital city relative to the size of the other cities of the country is relatively low. In a well balanced system, the capital city is in more intense competition with the second rank cities to attract skilled workers, headquarters or financial services, and to achieve the status of business metropolis. This is the case in Poland, where the primacy ratio of 2 is relatively weak, and where the second rank cities form a large and relatively homogenous lattice of nine cities between 350 000 and 800 000 inhabitants. On the contrary, the primacy ratio is much higher in Hungary and Romania. By this criterion, Budapest and Bucharest might emerge more easily as metropolises. But this criterion is combined with many other more important opposing influences (*e.g.*, per capita GDP).

The five cities represent a variable share of the country's population, not exactly correlated with the primacy ratio, except for the extreme cases. As expected, Warsaw represents the smallest proportion (4.4%).

Population size and distribution define the framework for potential development. However, it seems difficult to establish a close correlation between these features on the one hand and the economic performances of the countries and their capacity to give rise to business metropolises, on the other hand.

It seems that metropolization processes are much more closely related to general economic conditions than to demographic characteristics.

6.4. The relative location of European capitals and their interaction potentials

Metropolization is closely linked to interaction networks. Now, the relative location of cities helps to explain the intensity of their interactions. Even if interaction by the new information technologies is partly independent of location, distances still largely influence trade and complex interactions needed by high-order services. The potential for interaction of each city, and thus its potential for integration in a network of European metropolises, depends on its position relative to the other cities. The evaluation of such positions may take different forms related to the analysis of centrality, accessibility and spatial potentials (Huriot and Perreur, 1997). Three approaches are proposed here the formulation of which is given in the technical appendix. For each city of a given set of cities, the "relative geographical centrality" depends only on the distances between this city and the others. The "relative interaction potential" is based on the theory of gravitation. For each city, it depends positively on its population and on the ratios of the population to the distance of all other cities. It is a weighted centrality. The "relative attractiveness" of a city as a potential metropolis depends positively on the weight of high-order services in this city (evaluated by the level of employment in sectors J and K) and negatively on the distance to the other cities. The results and the rankings obtained appear in table III. They prompt the following statements.

The relative interaction potentials differ largely from the relative geographical centralities

It is significantly illustrated by the fact the most favorable position is taken by Prague in terms of relative geographical centrality and by London in terms of relative interaction potential. Conversely, Prague is in the 12th position in terms of relative interaction potential and London in the 16th position in terms of relative geographical centrality. This simply means that a non-weighted centrality is of little relevance for present purposes.

The most favorable position for interaction in an enlarged Europe remains unchanged

In an enlarged Europe as well as within the European Union before enlargement, the same seven cities have the best interaction potentials: London, Paris, Berlin, Brussels, Rome, Amsterdam and Madrid. Thus, enlargement does not change the core of Europe.

However, the five cities have relatively favorable interaction potentials

Even if their potentials are much less than those of the leading cities London and Paris, they give our five cities (except for Sofia) good positions, and more favorable ones than many Western Europe capitals and in particular than the Scandinavian ones.

Among the five cities, Budapest, Warsaw and Prague have the best positions

Once more these three cities rank better than Bucharest and especially Sofia, the interaction potential of which is only 7% of the London potential and one-third of the Budapest potential. These relative positions cannot be taken as the cause of the differences in the metropolitan characteristics of these cities, however it cannot be excluded that it may play a part in their metropolization process.

Among the five cities, Warsaw has the highest attractiveness in an enlarged Europe in terms of high-order services

Even if it is only one-fifth of that of Paris, this attractiveness is significantly higher than that of the four other cities under study. Once more, the following ranks are occupied by Prague and Budapest.

Finally, this analysis of the interaction potentials and related concepts is compatible with the observations and interpretations of the preceding sections. This suggests that *space matters* in the process of metropolization and in integration of the European Union.

7. CONCLUSIONS AND PERSPECTIVES

Even if the various data assembled here are partial and never exactly comparable, they are sufficient to establish a preliminary diagnosis. Most of the different partial indicators are convergent, and tend to reinforce each other. Even if they are not well perceived as investment locations by European executives, there are good reasons to think that Budapest, Prague and Warsaw are in a good economic position, each with its own set of comparative advantages. Conversely, it can be feared that Bucharest and Sofia face great difficulties in entering the network of business metropolises, which probably could hamper the European integration of their countries. Budapest, Prague and Warsaw are thus in competition when it comes to attracting investors and emerging as global coordination centers.

As a result, serious disparities affect the five capitals under study. These inequalities could be gradually reduced but they might equally become more pronounced, given the cumulative character of the metropolization process. The economic theory of agglomeration focuses on the cumulative effect in self-organizing systems (Krugman, 1996; Fujita and Thisse, 2002). On that basis, it is possible that small differences in the processes of development of the post-industrial economy and of metropolization might turn into big differences. Even a small gap could engender dramatic differences if no counter-force comes into effect.

Future research should introduce other economic factors of metropolization. For example, the flows of foreign investment into the five cities might be evaluated and compared. As for coordination functions, information on the presence of large firms' headquarters would be highly significant. High-order services need to be examined in more detail. Not all activities classified as high-order activities play an effective part in the metropolization process. Of these activities, those directly related to economic decision-making, consulting, management, and innovation, are at the core of the metropolization process, while back office or routine activities have only a minor role. Such a detailed analysis has already been conducted for Warsaw in Bourdeau-Lepage and

Huriot (2003). Future research should extend such an analysis to other CEEC capital cities.

Apart from these economic factors, the future differential development of these cities and their chances of emerging as European metropolises depend on the interplay of historical, geographical and institutional factors. Factors such as the original historical development of the country and its influence on attitudes should also be included. The political dimension must not be overlooked. It determines the potential for metropolization, indirectly through the type and the stability of government, but also directly through regional and urban policies. Alongside strategies of private individual agents, public policies can be significant in promoting cities and creating attractive conditions. In particular, central or local government can invest in infrastructure, and thus create sufficient agglomeration economies to attract a number of firms which individually would have no incentive to locate there. However, it seems that urban policy is dramatically absent or largely ineffective in the five cities studied here.

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APPENDIX 1: METHODOLOGICAL NOTE

Location quotient

Let E_{ki} be the employment of sector k in city i , ($i = 1, \dots, 5$), $E_{kh(i)}$ the employment of sector k in the corresponding country and $\sum_i E_{ki}$ the total employment of sector k in the five cities. Then,

$$S_{ki} = \frac{E_{ki}}{\sum_l E_{li}}, \quad S_{kh(i)} = \frac{E_{kh(i)}}{\sum_l E_{lc(i)}} \quad \text{and} \quad S_{kl} = \frac{\sum_i E_{ki}}{\sum_l \sum_i E_{li}}$$

are respectively the shares of sector k in the city i , in the corresponding country and in the total employment of the five cities.

The intercity location quotient of sector k in city i is given by $\frac{S_{ki}}{S_{kl}}$,

and the domestic location quotient by $\frac{S_{ki}}{S_{kh(i)}}$.

Relative geographical centrality

Let P_i be the population of city i and d_{ij} the Euclidean distance between city i and city j . The relative geographical centrality of city i depends only of the sum of the distances between i and the other cities. It is given by:

$$RGC_i = \frac{\min_h \sum_h d_{hj}}{\sum_j d_{ij}}$$

It is an increasing function of the degree of centrality, equal to 1 for the most central city.

Relative interaction potential

The interaction potential of city i is:

$$IP_i = P_i \sum_{j \neq i} \frac{P_j}{d_{ij}}$$

The relative interaction potential is defined by the following normalization:

$$RIP_i = \frac{IP_i}{\max_j IP_j}$$

It is an increasing function of the interaction potential, equal to 1 for the city with the highest interaction potential.

Relative attractiveness

The relative attractiveness of the five selected CEEC cities is calculated on the basis of their respective weights in terms of high-order services. Let H_i be the level of employment in sectors J and K in city i . The attractiveness of city i is given by:

$$A_i = \frac{H_i}{\sum_j d_{ij}}$$

These values are compared with the corresponding attractiveness of Paris, A_p . The resulting relative attractiveness of city i is $RA_i = \frac{A_i}{A_p}$. It is an increasing function of the city's attractiveness equal to 1 for Paris.

APPENDIX 2: TABLES

Table I: Nomenclature

NACE 1 rev. 1 - 13 branches	
A + B	Agriculture, hunting and forestry, fishing
D	Manufacturing
C + E	Mining and quarrying, electricity, gas and water supply
F	Construction
G	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
H	Hotels and restaurants
I	Transport, storage and communication
J	Financial intermediation
K	Real estate, renting and business activities
L	Public administration and defence; compulsory social security
M	Education
N	Health and social work
O + P + Q	Other community, social and personal service activities, activities of households, extra-territorial organizations and bodies

Source: recomposed from EUROSTAT (2003).

Table II: General characteristics, countries, regions and cities (2001)

Country, region Nuts 2 and city	Area km²	Population	population density/km²	capital- 2nd city ratio	population 1991-2001 in %	GDP/inhab. EU15 (SPA) = 100*	Unemploy- ment rate in %	LQ students	LQ nb. of beds in hotels
Czech Republic (CR)	78 866	10 206 436	129		-0,02	56	8,9	1	1
Prague	496	1 160 118	2 339	3,1	-4,45	121	3,4	3,7	2,3
Prague/CR in %	0,6	11,4							
Romania (RO)	238 391	21 698 181	96		-4,87	23	10,5	1	-
Bucharest	238	1 921 751	8 075	6,0	-7,05		5,7	2,9	-
Bucharest/RO in %	0,1	8,9	84						
Bucharest Region	1 821	2 221 860	1 220		-5,63	48	5,8		
Bucharest Region/RO in %	0,8	10,2	13						
Poland (PO)	312 685	36 632 500	117,2		-4,38	39	17,4	1	1
Warsaw	494,3	1 609 780	3 257	2,00	-2,63		5,1	3,5	2,7
Warsaw/PO in %	0,16	4,4							
Mazowiecki						59			
Hungary (HU)	93029	10 197 119	110		-1,71	50	5,7	1	1
Budapest	525	1 775 203	3381	8,4	-11,98		4,2	2,2	1,7
Budapest/HU in %	0,6	17,4	30,8						
Central Hungary Region						76			
Bulgaria (BU)	110 994	7 973 671	72		-6,05	26	19,4	1*	1**
Sofia Mun.	1 310,8	1 173 811	896	3,4	-1,37		12,9	2,9 *	0,8**
Sofia Mun./BU in %	1,2	14,7							
West-South Region						34			

Notes: Czech Republic: population data: 03/91 and 2001;
Romania population data: 1992/07/01 and 2002/03/18; unemployment rate: 2000/12/31;
Poland: Population Data: 1991 and 2001;
Hungary: population data: 1990/01 and 2000/02; unemployment rate: 2000;
Bulgaria: population data: 1992/04 and 2001/03/01; employment Rate: 2001/09;
* in 2000; Students located at residence;** in 2002.

Sources: Behrens, 2003;
Czech Republic: Czech Office for Surveying (2003) and Czech Statistical Office (2003b);
Romania: www.citypopulation.de (2003); INSSE, 2003 and Bucharest Municipality (2003);
Poland: USW (2003); GUS (2002) and www.stat.gov.pl (2003);
Hungary: www.citypopulation.de (2003) and KSHBPMI, (2002);
Bulgaria: www.citypopulation.de (2003); BULSTAT (2002 and 2003b); Municipality of Sofia (2003) and Rutowski (2003).

Table III: Centrality and integration potentials

City i	RIP_i^1	rank	RGC_i^2	rank	$RA_i\text{-HOS}^3$	rank
London	1,00	1	0,73	16	1,00	1
Paris	0,92	2	0,78	12		
Berlin	0,40	3	0,98	2		
Brussels	0,35	4	0,85	9		
Rome	0,26	5	0,78	13		
Amsterdam	0,26	6	0,84	11		
Madrid	0,26	7	0,52	25		
Budapest	0,22	8	0,96	5		
Vienna	0,18	9	0,98	3		
Warsaw	0,17	10	0,88	8	0,40	2
Athens	0,14	11	0,57	23		
Prague	0,12	12	1,00	1	0,28	3
Lisbon	0,12	13	0,43	26		
Bucharest	0,11	14	0,69	18	0,19	5
Copenhagen	0,11	15	0,84	10		
Riga	0,10	16	0,74	15		
Stockholm	0,10	17	0,69	19		
Dublin	0,08	18	0,58	22		
Sofia	0,07	18	0,71	17	0,12	6
Helsinki	0,06	20	0,62	21		
Bratislava	0,06	21	0,98	4		
Vilnius	0,04	22	0,75	14		
Tallinn	0,03	23	0,64	20		
Ljubjana	0,02	24	0,93	6		
Luxembourg	0,02	25	0,89	7		
Valetta	0,01	26	0,56	24		
Nicosia	0,01	27	0,42	27		

¹ Relative integration potential of city I (see the methodological appendix for this note and the following ones)

² Relative geographical centrality of city i .

³ Relative attractiveness of the five CEEC cities in terms of high-order services compared with that of Paris.