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SPRAWLING POST-COMMUNIST METROPOLIS:

*commercial and residential suburbanisation in Prague and Brno, the
Czech Republic*

1. INTRODUCTION: CONDITIONS FOR SUBURBANISATION IN THE CZECH REPUBLIC

Suburbanisation is the dominant process that is changing the spatial organisation of post-communist cities and their metropolitan areas. Despite short period from the beginning of transition it has already dramatically reshaped physical morphology, functional land-use pattern and socio-spatial structure. The process deserves attention not only as the subject of our interest in the transformation of urban areas, but also because it brings irreversible changes into settlement patterns and produces economic, social and environmental consequences that will influence our society for several future generations (TCRP 1998).

This chapter overviews the development of suburbanisation in Prague and Brno metropolitan areas in the Czech Republic. A particular attention is given to specific features of suburbanisation in postcommunist cities. The chapter first outlines specific conditions for suburbanisation in the context of country settlement structure and transition from centrally planned to market economy. The study of suburbanisation in Prague and Brno begins with the introduction to these metropolitan areas and their spatial structure followed by a narrative describing the main trends and aspects of recent both residential and non-residential suburbanisation. Detail analyses are devoted to population and employment deconcentration.

The Czech Republic with Prague and Brno metropolitan areas are very special cases within the context of this book. The radical change of urban structures through suburbanisation started only recently in post-communist areas. During Communism and central planning, there was a strong preference for concentration of investment and development into major urban centres and within their territories to high-density residential housing estates and industrial zones at the edge of cities (Musil and Ryšavý 1983). The hinterland of large urban centres has received minimum investments and was characterised by stagnation and even decline, concentration of people of lower social status and rather agrarian and accompanying industrial production.

However, it must be noticed that Czech cities and their surrounding areas have experienced suburbanisation in the interwar period of 1920s and 1930s (Ullrich et al. 1938). At that time, mostly residential areas were springing around stations and stops on railway tracks radiating in all directions from central cities. These now well-established residential settlements belong at present among the most prestigious and demanded addresses in metropolitan regions. Such development was observed in Prague and other smaller Czech cities as well as in other cities of the region such as for instance Budapest or Tallinn (Berényi, 1994; Tammaru, 2001). At that time, the spatial deconcentration did not include economic functions.

The character of urbanisation is strongly shaped by historically developed settlement patterns. The Czech Republic has a very dense network of small settlements. While the urbanisation included concentration of population and jobs to selected places, suburbanisation does not mean a spatial expansion of cities into an unsettled hinterland but to areas that have been settled and used for ages. Furthermore, beside the decentralisation within metropolitan areas there is continuing concentration into metropolitan areas if compared with the overall country settlement and regional development. This is especially strong concerning the employment, particularly in service sector.

Suburbanisation in the sense of experience in United States and West European countries has not developed in post-Second World War period. The urbanisation pattern in Communist countries was characterised by the concentration of investments and growth into medium and large cities and within their territories into large housing and industrial complexes at their urban edge areas. Suburbanisation in western sense has not developed (Enyedi 1996, p. 117; Enyedi 1998, p. 15). Szelenyi (1996) uses a concept of under-urbanisation showing that growth of the urban population was lower in comparison with the growth of urban industrial and tertiary sector jobs. Consequently sharply rising commuting from urban hinterland substituted for urban growth via residential suburbanisation. A simple comparison of spatial structures of capitalist and communist cities can show important differences in the character of built environment, land use patterns and socio-spatial structures. The main differences are in central cities and suburban areas.

The spatial structure of cities and their metropolitan areas is gradually changing in the course of time. The relatively smooth process of urban change can be sometimes interrupted by periods of radical spatial restructuring influenced by turbulent developments in society. One recent example of such changes is urban transformation in post-communist societies. With the decentralised decision-making within market economy, conditions become more favourable for the development of spatial deconcentration.

2. PRAGUE AND BRNO METROPOLITAN AREAS

Prague and Brno are the two major metropolitan areas in the country. They have best preconditions for the development of suburbanisation and the process is actually developing in both these regions, yet it differs in extent and dynamics. Prague is the country capital and largest city with population of 1.2 million. It is a dominant centre in the Czech settlement and regional system not only due to its population size but also because it concentrates most of government institutions and control and command economic functions and is the gateway to the country for foreign investors (Drbohlav, Sýkora 1997). Prague is situated in the middle of Bohemia, western part of the Czech Republic (Figure X.1). Brno is the country second largest city considered sometimes as „capital“ of Moravia, the eastern part of the country. With nearly 400 thousand inhabitants it is a settlement centre of a second rank in the national urban hierarchy. The city is the seat of Supreme Court, hosts the most important trade-fairs in the country and is a major centre of university education.

Metropolitan regions do not exist as independent administrative units in the Czech Republic. They exist of core cities and a large number of usually small municipalities ranging from villages of few hundred inhabitants to small towns with population around ten thousands. There is no single officially declared delimitation of metropolitan areas. In this chapter we use core cities and districts adjacent to them (Figure X.1) as metropolitan areas (MA). This allows us to use statistical information that is available only on the district level for the analysis of employment deconcentration. The Prague Metropolitan Area (PMA) has 1,35 mil. of inhabitants living in the city of Prague and two surrounding districts of Prague-East and Prague-West and covers an area of 1666 square kilometres. Brno Metropolitan Area (BMA; 1338 sq. km) consists of two districts of Brno-city and Brno-country with total population of 535 thousand people. Basic data from the 2001 Census are presented in Table X.1.

Figure X.1: Location of case study areas within the territorial structure of districts

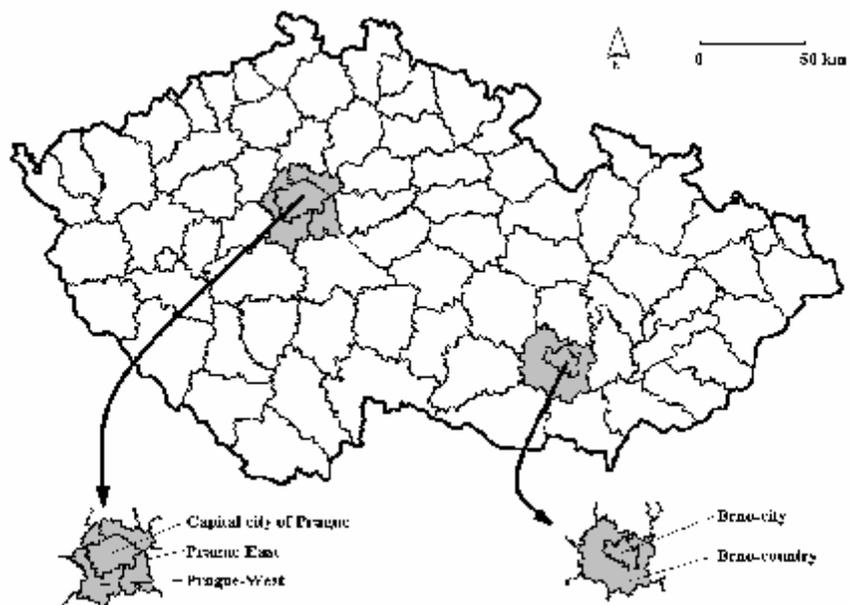


Table X.1: Prague and Brno - basic data from Census 2001 (1.3.2001)

Region	Area (sq. km)	No. of municipalities	Population	Density of population
Prague				
City	496	1 (57)*	1169106	2357
Hinterland	1170	171	179150	153
Total PMA	1666	172 (228)*	1348256	810
Brno				
City	230	1 (29)*	376172	1636
Country	1108	137	159169	144
Total BMA	1338	138 (166)*	535341	400

Note: * number of city parts (boroughs) for cities of Prague and Brno

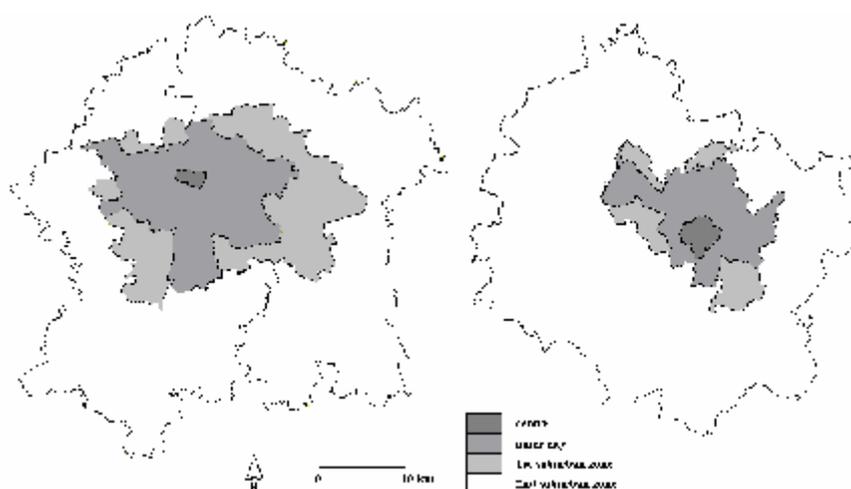
The analysis of spatial deconcentration processes within metropolitan areas is based on their division into four main zones: (1) centre, (2) inner city, (3) first (inner) suburban zone and (4) second (outer) suburban zone (Figure X.2). The division of Prague and Brno metropolitan areas respects urban morphology and takes into account boundaries of local government territorial units. Both cities, Prague and Brno are municipalities. Therefore from the point of view of local government rights and responsibilities they are on the same level as small municipalities around them. However, they are municipalities of a special kind and can be divided (it is at their own discretion) to city parts (boroughs) with its own elected local government. The spatial delimitation of metropolitan zones will use borough and municipal boundaries. The suburban zone is delimited as area outside the compact city and within the metropolitan area. Czech cities are overbounded, i.e. their administrative boundary is far behind their compactly built-up areas and their administrative territories contain part of suburban zone. Therefore, the suburban zone in metropolitan areas consists of zone within the administrative boundary of core city as well as areas outside the core city. We use the city administrative boundary as the division line between first and second or inner and outer suburban zone. The second (outer) suburban zone is defined as the districts around the core city (or municipalities within these districts). In the case of Prague, these are two districts Prague-West and Prague-East and in the case of Brno, it is district Brno-Country.

The division of city territory into centre, inner city and inner suburban zone reflects the historic development of intra-urban spatial structure. Both cities have medieval cores, which now concentrate government and commercial functions and play the role of city centres. Historic cores / city centres are encircled by inner city densely built-up residential neighbourhoods and old industrial zones, which development was stimulated by industrialisation and rural-to-urban migration in 19th century. In the inter-war period of 1920s and 1930s, low rise and low density residential areas consisting of villas and detached or terraced single family houses were constructed around inner city in both cities. A zone of housing estates with high-rise prefabricated blocks of flats and new industrial districts spatially separated from residential areas was constructed during communism. All these zones form compactly built-up areas of both cities. We separate narrow city centres from the rest that is termed inner city and is composed of very heterogeneous urban environment. Behind the compact city but still within administrative boundaries, there is a zone characterised by rural landscape with small villages and agricultural land. This zone is now a subject of intensive transformation through both residential and non-residential suburbanisation and we define it as the first (or inner) suburban zone.

In our analyses we rest on two levels of metropolitan territory division. The first spatial cut of metropolitan areas is a rough division between the core city and surrounding districts. This division is for instance

used in the analysis of employment deconcentration as the data are available only at the district level. Unfortunately, the developments in the inner suburban zone will not be depicted in this case. The second cut provides a more detailed spatial division of metropolitan areas based on the use of the lowest tier administrative areas in the Czech Republic, i.e. municipalities in city hinterlands and city parts (boroughs) within the core cities.

Figure X.2: Zones of Prague and Brno Metropolitan Areas



3. SUBURBANISATION IN PRAGUE AND BRNO

The postcommunist urban restructuring has been more dynamic in Prague than in Brno. Nevertheless, the main trends in intra-urban change have been similar. The most important processes of urban change in Prague and Brno since the beginning of postcommunist transition have been the commercialisation of historical cores and adjacent areas of inner city, the commercial and residential suburbanisation in the outer city and urban hinterland, and selective revitalisation in inner city areas (Sýkora et al. 2000). While most of the 1990s were characteristic by the huge investment inflow to city centres causing their commercialisation, physical upgrading and population decline, since the late 1990s, the most dynamic process changing metropolitan landscapes has been suburbanisation (Sýkora 1999).

Until mid 1990s there was only marginal residential suburbanisation, limited by low purchasing power of population. During the second half of the

1990s, residential and commercial suburbanisation quickly developed in the outer parts of Prague and Brno and the adjacent zone of their metropolitan regions and by the turn of centuries it became in both cities the most important process of urban change. New residential districts and reconstructed village properties are accompanied by mushrooming shopping centres, hypermarkets, warehousing and industrial properties. Interestingly and importantly, while in the West residential suburbanisation preceded the non-residential deconcentration, commercial developments are currently changing suburban areas of post-communist cities more radically than suburbanisation of homes. Grimm (1995), Nussl and Rink (2003) and Lisowski and Wilk (2002) observed this reversed sequence for Leipzig respectively Warsaw.

Residential suburbanisation takes several forms. There are districts of speculatively built housing for sale. Developers also assemble land, add infrastructure and sell plots for housing construction, often on a turn-key basis. Both of these forms create new residential districts of wealthy population, which are spatially attached to existing settlements. There are also individual developments, which transform the existing villages. Households purchase vacant lots within villages and build new homes, or purchase existing properties, which they demolish and replace with new luxurious homes or reconstruct and expand as modern housing. The suburban zone is now gaining a better-educated population with high incomes (Ouředníček 2003). Suburban settlements with newly emerged residential districts now consist of two distinct types of areas with contrasting population - rich newcomers and lower income, less educated indigenous inhabitants of former rural villages. In general, residential suburbanisation is changing spatial distribution of population according to its socio-economic status. It contributes to a reversal of the traditional socio-spatial pattern of the socialist city, characterised by the socio-economic status of population declining with distance from the centre. Residential suburbanisation is due to higher share of households with high incomes and larger total number of such population, more developed around Prague than Brno and other smaller cities and towns. It is spatially very selective. New districts of suburban housing emerge in areas with good physical environment (such as south-east of Prague and north of Brno) and transport connection to city centres. During most of the 1990s, the development of residential suburbanisation has been very slow, limited by the low purchasing power of population. However, with the increasing wealth especially of Prague population and with the introduction of mortgages supported by the state subsidy, more dynamic development of suburban family housing started at the turn of the century.

While residential suburbanisation has some pre-2nd World War tradition, non-residential suburbanisation is completely new and very recent phenomenon in the Czech Republic. While residential suburbanisation is driven by the investments of Czech households, non-residential suburbanisation is driven by the demand of international firms expanding on

Czech markets. After few years of experience, we can observe that non-residential suburbanisation has more important impacts on the transformation of outer urban areas. Commercial projects concentrate in complexes built along major highways and important transport intersections. In Prague, another important location factor is the existence of an underground transport system, which extends to the city outskirts. Non-residential developments include retail, warehousing and distribution and in Brno also industry. The deconcentration does not involve offices unless they are an integral part of retail or warehousing.

3.1. Residential deconcentration

There was deconcentration of population within urban areas during the communist times. However, its nature was quite different from the developments in Western cities. Almost all houses and apartments constructed by the state were built in housing estates of large prefabricated apartment blocks at the edge of cities. These areas were characterised by high densities and were linked by public transportation with the city centre and other places with concentration of jobs. The construction of housing estates could be seen as continuing urbanisation through keeping compact urban morphology and high densities.

Situation changed with the transition and reestablishment of market economy. Private ownership of land and houses formed necessary pre-conditions on supply side. The growth in the wealth of some segments of population in large cities and their preference for suburban living created demand for the development of residential suburbanisation. This was further supported with the establishment of mortgage system that includes state financial contributions to mortgages used to finance newly built housing.

The suburbanisation process is not as intensive as was suburbanisation after the 2nd World War in North America or Western Europe. There is general decrease of population in the Czech Republic and stagnation of population in metropolitan areas (Table X.2). The deconcentration of population happens mainly through the spatial redistribution of population within metropolitan areas with declining central and inner cities and growing suburban areas (Ouředníček and Sýkora 2002). This process of residential suburbanisation slowly developed already from the beginning of the 1990s. However, from late 1990s residential suburbanisation gained on a new dynamics that can be seen especially around Prague and in lesser extent also in other country metropolitan areas in particular around Brno. This is mirrored in the dynamics of population change when comparing periods 1991-96 and 1996-2001 (Table X.2).

Table X.2: Population in Prague and Brno metropolitan areas and their respective zones in 1991-2001

Area	1991	1996	2001	2001/91	1996/91	2001/96
Prague						
Centre	42590	37953	34581	81,20	89,11	91,12
Inner city	1065401	1058771	1018396	95,59	99,38	96,19
First suburban zone	106183	108229	116129	109,37	101,93	107,30
Second suburban zone	167421	167721	179150	107,01	100,18	106,81
Prague City	1214174	1204953	1169106	96,29	99,24	97,03
Prague Metropolitan Area	1381595	1372674	1350257	97,73	99,35	98,37
Brno						
Centre	78631		67395	85,71		
Inner city	295730	387570*	293528	99,26	103,03*	97,06*
First suburban zone	13935		15249	109,43		
Second suburban zone	156189	157042	159169	101,91	100,55	101,35
Brno City	388296	387570	376172	96,88	99,81	97,06
Brno Metropolitan Area	544485	544612	535341	98,32	100,02	98,30
Czech Republic	10302215	10309137	10230060	99,30	100,07	99,23

Notes: data from Census (March 3rd, 1991 and March 1st, 2001) and population register (December 31st, 1996), * in 1996, data are available only for Brno city as one spatial unit

Detail pictures of population growth and decline in Prague and Brno metropolitan areas according to municipalities and city parts (boroughs) show that while most units in the inner city are declining, there is increase in majority of suburban (out of compact city) boroughs and municipalities (Figure X.3 and X.4). The pattern of growth differs between Prague and Brno and within their metropolitan areas. The growth is concentrated in areas with best natural environment and good transport accessibility. The population of some municipalities in Prague MA doubled in 1991-2001, while it was quite modest around Brno. According to Mulíček and Olšová (2002) most of the new residential construction and population growth in Brno has happened in the outer areas of the city of Brno still within the administrative boundary, i.e. within the 1st suburban zone, with only some municipalities growing behind the Brno administrative boundary.

Figure X.3: Population change in city parts and municipalities of Prague Metropolitan Area in 1991-2001

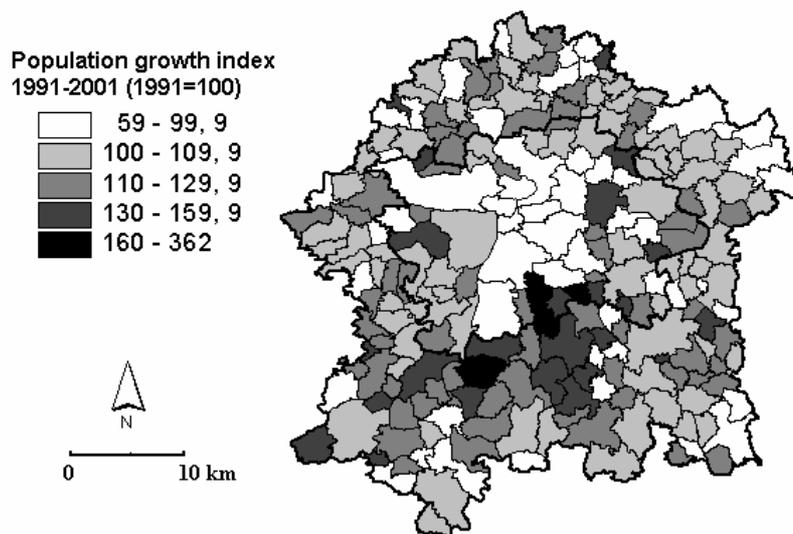
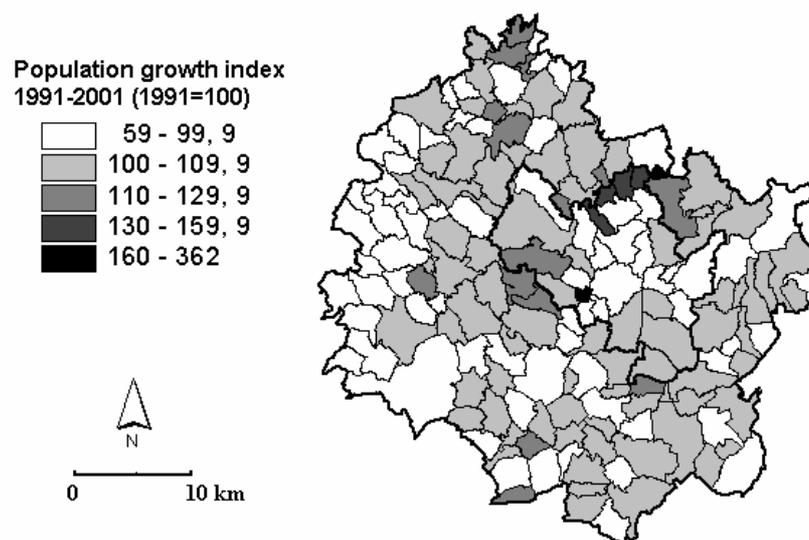
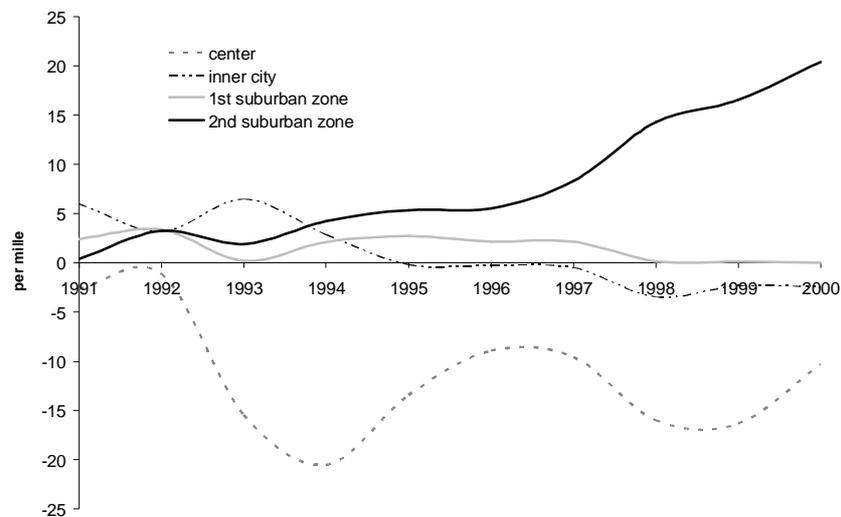


Figure X.4: Population change in city parts and municipalities of Brno Metropolitan Area in 1991-2001



A more precise method to evaluate population deconcentration is to divide total population increase into its migration and natural change components. The whole metropolitan areas and all their zones are affected by natural decrease of population with highest decline in city centres. Migration is the key factor that contributes to spatial redistribution of population and can indicate suburbanisation and population deconcentration trends. During the 1990s the inner cities started to loose population by migration while city hinterlands become the most important destinations of migrants (Figure X.5). At present, city centres and inner cities are loosing population by both natural decrease and migration, while both suburban zones are gaining population through migration. The rate of growth is especially strong in areas located just outside of the city administrative boundaries. Prague's second suburban zone now have the highest rates of net migration in the whole Czech Republic taking into account the period of the last forty years.

Figure X.5: Net migration rates for PMA zones in 1991-2000



3.2. Non-residential deconcentration

The non-residential deconcentration within Prague and Brno metropolitan areas is a very recent phenomenon that started only in the second half of the 1990s. However, the growth of new economic activities and jobs in suburban

locations was quite rapid, in particular around Prague. This part provides a narrative account of economic restructuring in Prague and Brno metropolitan areas and its spatial implications with focus on decentralisation tendencies.

The economic change in the first two-thirds of 1990s was especially affected by government directed reforms such as privatisation and following economic restructuring of the original domestic enterprises. This restructuring has involved only indirect effects on spatial reconfiguration through differences in restructuring in particular areas. New employment growth concentrated especially in financial intermediation and other business services (especially in Prague, associated with its role of command and control centre and gateway into the country), retail (in all larger towns and cities, associated with low levels of retail supply under Communism) and hotels and restaurants (in Prague, associated with growth of tourism). Most of these jobs concentrated in city centres and some of them were associated with new real estate development or redevelopment (mainly offices, but also hotels, retail or multipurpose centres) and consequent land use changes affecting central cities (Sýkora 1998). In this period, there were few examples of relocation of production facilities from central parts of cities to city outskirts (such as printing house Labe-Vltava-Press from downtown Prague to suburban borough Uhřetěves) or outside metropolitan areas (various industrial branches and products).

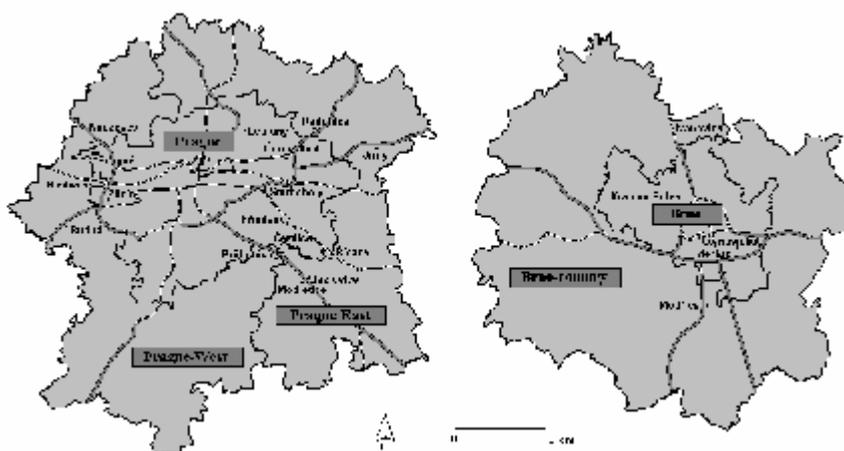
The situation changed in the second half of the 1990s and towards the end of this decade with the development of new economic activities often located in new suburban locations. This change was largely fuelled by rapidly growing inflow of foreign direct investments and it affected in particular economic activities in retail, warehousing and distribution and industries. The late 1990s and early 2000s were characteristic by a massive expansion of new retail operations to the Czech Republic. Hypermarkets and do-it-yourself (DIY) stores in big-boxes and later whole retail parks composed of shopping mall with variety of retail and entertainment and other retail facilities such as DIY, factory outlets, etc. rapidly changed outer areas in a number of larger Czech cities. These facilities were built mostly on greenfield areas at edge-of-compact-city or suburban locations. There are, of course, also examples of inner city malls, but majority of new retail emerged in outer city locations. These new facilities offered a relatively large amount of new jobs and substantially influenced the pattern of commuting to work of people employed in retail. New warehousing and distribution facilities concentrated in industrial and logistic parks developed on greenfield areas usually outside of city administrative boundaries.

Industrial employment has been affected by large decline especially in cities. The development of employment in manufacturing got a new momentum with the inflow of foreign direct investment attracted by stabilized domestic economy and politics, skilled and cheap labour force and sufficient infrastructure. Affected by the employment decline and growing unemployment, many towns and cities started to create new industrial zones at greenfields located at the edge of existing urban areas usually in locations

with easy transport accessibility. The Czech government via newly established organisation CzechInvest started to attract foreign direct investments into country and at the same time to support selected local governments in their preparation of new industrial zones. Consequently, there has been a kind of reindustrialisation affecting the creation of new manufacturing jobs in suburban locations of many towns and cities.

Retail has been the major force behind non-residential deconcentration. In the whole country, new suburban retail developments emerged virtually around all cities and towns with population over 50 thousand (Smolová and Szczyrba 2000). In Prague and its hinterland, there are several edge-of-city and suburban locations with new retail and wholesale facilities (see Figure X.6). In some areas they are associated with warehousing. The most important shopping areas are at Zličín (west), Černý Most (north-east), Průhonice/Čestlice (south-east), Letňany (north) and Štěrboholy (east) (Pommois 2004). All of them contain shopping mall, at least one hypermarket, DIY (do-it-yourself) or furniture store and other facilities. These areas can be divided according to their location into two types. Zličín, Černý Most, Letňany and Štěrboholy are located just at the edge of compactly build-up area right between the inner city and suburban zone. They certainly contribute to the spatial deconcentration of retail within the city. However, it is questionable whether they are part of suburbanisation process. Their location within metropolitan area can be seen as a result of a long-term strategic vision that placed these consumption places between the large pool of inner city population with huge consumption power and newly growing suburban residential areas with smaller number of people, however, with large incomes and growth potential. Two of these new shopping areas, Zličín and Černý Most are located on the last stops of underground, i.e. they are well-served by the inner city public transportation. The other two, Letňany and Štěrboholy are now served by busses with the ongoing construction of new underground line towards Letňany. These factors contribute to the idea to see them as edge-of-city rather than suburban places.

Figure X.6: Locations of places mentioned in the text



Průhonice/Čestlice zone is another type of location (Figure X.7 and X.8). This zone emerged out of Prague on the territory of two adjacent municipalities located on both sides of major D1 highway that connect Prague with Brno. It is distant from the edge of compact city. The zone contains hypermarket with a small mall, self-standing shopping mall, cash-and-carry hypermarket, DIY store, and many other shopping facilities from electronics to sport, clothing to luxury lights, including some factory outlets and wholesale facilities. Furthermore, the territory beside the retail part also contain large segment of warehousing. At present, a largest aqua-park is under construction adding leisure and entertainment element. This whole area is the beginning of a large ribbon development along the major national highway D1 linking Prague with Brno. This whole ribbon contains some other shops (from shoe and china to gardening tools) and is peaking with large industrial/logistic zones on next highway exit at Říčany. All this huge concentration is a prime example of non-residential suburban development and metropolitan deconcentration. In the part devoted to employment deconcentration we use the case of Průhonice/Čestlice and Říčany as examples of changes in employment between 1991-2001. Beside these major retail locations, there is a large number of self-standing stores, usually DIY, cash&carry and hypermarkets in big-boxes located in the outer areas of inner city or just at its edge, usually in places with a good accessibility by private car.

Figure X.7: Průhonice/Čestlice business zone



Source: Geodis Brno

Figure X.8: Průhonice/Čestlice business zone on D1 Highway approaching Prague from south-east



Author: Jana Temelová

Brno has seen the opening of the first Czech hypermarket in 1996 (Globus). It is located in Ivanovice at the northern edge right outside the compact city and is now accompanied by a DIY store. Since that time, new and now dominant retail zone was developed in southern part of the city next to the junction of two major highways, containing shopping malls, hypermarkets, DIY and furniture stores and other facilities (Mulíček 2002; Strategie pro Brno 2003; Figure X.9). The huge concentration in one spot is a result of market competition and location strategies of competing firms bringing agglomeration of economic activities and at the same time increasing the distance between services and its customers, albeit some may argue producing an advantage of bigger choice in one place. This

concentration was strongly influenced by locally specific factors namely the highway crossroad and availability of large plots of land.

Figure X.9: Olympia Shopping Park, Brno



Source: Geodis Brno

While until recently most retail turnover was concentrated in city centres and inner city shopping areas, a large proportion of shopping is now moving to the suburban zone. In Prague, first suburban shopping opened around mid-1990 and there has been rapid growth of suburban retail parks and zones since 1997 with several main concentrations developed out of the compact city area. Similarly, there has been a massive explosion of suburban retail in Brno with one large shopping area south of the city. This development caused a radical transformation in spatial pattern of shopping and travel. In Prague, half of retail turnover concentrated in city centre in 1989. In 1998, hypermarket was first shopping place for 4 % of Czechs and two years later in 2000, hypermarket was first shopping place for 20 % of Czechs and 25 % of Prague inhabitants. Most new retail space in shopping malls, hypermarkets, big boxes of do-it-yourself stores are located in out-of-city areas and urban population travel by private cars out of city to shop and entertain.

Warehousing and distribution is another vital component of recent suburban development, especially in Prague metropolitan area. Prague is well located in the middle of Bohemian basin, i.e. it is place from which the

rest of western part of country can be well served. Prague and its vicinity is also an area of crossroads between major highways going to all directions. At the same time, Prague and Central Bohemian region are huge markets with large amount of consumers with above average consumption power. Last but not least, the proximity of headquarters of major international as well as domestic firms and the government offices contribute to the attractiveness of this location.

Figure X.10: Warehousing area around D1 Exit Říčany/Jesenice



Source: Geodis Brno

In and around Prague, the major logistic parks are located on major highways, outer city ring road and close to the international airport Ruzyně. All the new major areas are outside the capital city of Prague administrative boundary in 2nd suburban zone or even behind it. Two major logistic parks developed east and west of the city. First, along the major country highway D1 connecting Prague with Brno, there is an extensive ribbon development starting with retail near Průhonice and continuing with warehousing and distribution facilities organised in parks or even as self standing independent buildings. Beside the already discussed Průhonice/Čestlice zone (see retail section) there are three major clusters of warehousing and distribution around the exit to Říčany and Jesenice (Jažlovice Industrial Zone, Říčany Logistic Park and Modletice cluster, Figure X.10). There are further warehousing and distribution facilities on following exits. Second, west of Prague on D5 highway to Pilsen and South Germany (Bavaria), there is large warehousing and distribution park in Rudná containing several premises (Figure X.11). Beside this park there are few single buildings on the crossing of D5 highway with the outer city ring road (on both sides of Prague administrative boundary). On this highway there is also the large retail concentration at Zličín at the edge of Prague. There are four smaller locations of new warehousing and distribution. Tulip Park near Hostivice in

Prague-West is utilising the proximity of outer city ring road being located between the international airport Ruzyně and D5 highway to Germany. Airport Logistic Park as the name suggest is located next to the airport, at the territory of Kněževes municipality just out of city administrative boundary on a highway R7 heading north-west of Prague. Two other warehousing locations are on the highway to north-east (R10 to Mladá Bosleslav and Liberec) at Radonice and east (D11 to Hradec Králové and Pardubice) at Jirny. In Brno, there is one new warehousing and distribution area Central Trade Park Brno located in Modřice south of centre close to the area of large retail concentration.

Figure X.11: Rudná warehousing and distribution park on D5 highway



Source: Geodis Brno

Both Prague and Brno, have industrial zones located in their outer parts and these areas are now under transformation influenced by the general economic restructuring. The transformation often includes the take-over of existing building by new firms and their reconstruction and extension. Furthermore, new premises are built on empty lots within these industrial zones or in adjacent areas. One of the examples of newly build industrial properties is printing house of Labe-Vltava-Press in Uhřetěves, which now accommodate economic activities formerly located right in the Prague city centre on Venceslas Square. This printing house is an example of relocation and direct deconcentration of economic function from city centre to inner suburban zone. Another example is relocation of former ČKD (now Siemens) manufacture from inner city area Smíchov to edge-of-city location at Zličín next to the already described retail area. The situation in Brno is different with the establishment of new zones for production activities. The first one is Czech Technology Park located in the northern part of inner city (Královo Pole) next to the campus of Brno Technical University. It contains both office and production facilities. Technology park is an example of spatial deconcentration within the city compactly build-up area and it does not

contribute to suburbanisation. The example of suburban non-residential deconcentration is Brno Industrial Zone Černovická terasa created by the city government with the central government support on greenfield site south-east of the city within the inner suburban zone. This new production/industrial site is together with the distribution/warehousing Central Trade Park Brno Modřice and huge retail concentration creating a new large non-residential suburban belt along south-eastern edge of Brno.

Industrial zones are the major difference between Prague and other cities and towns in the Czech Republic. While Prague plays the role of command and control function (offices), major distribution hub (logistic, distribution and warehousing), huge regional market (retail), there are limited new industrial developments. These, on the other hand side, concentrate around other towns, which governments prepare serviced plots in industrial zones and attract foreign investors on cheap land and labour. Brno cannot aspire to become another command and control centre beside Prague. However, it has ambition to attract besides routine manufacturing also high-value-added production and services to the Czech Technology Park. However, the park has not generated many new jobs as it is focused on the high-value-added and capital rather than labour intensive production. Therefore the city also developed new suburban greenfield industrial zone to attract manufacturing production and provide employment opportunities for people with traditional industrial skills.

3.3. Employment deconcentration

This section utilises data about employment and jobs from Censuses 1991 and 2001 and from the registry of employees to document changes in the distribution of jobs between the core city and remaining suburban parts of metropolitan areas in particular economic sectors according to NACE classification. There are two sources of information about employment and spatial distribution of jobs. There is registered number of employees and population censuses. The registered number of employees is available from Czech Statistical Office annual reports. Unfortunately, it covers only about two thirds of jobs in the country and the criteria for inclusion of employees changed few times during the 1990s. The other possibility is to use Census data, where for particular geographic area is available number of economically active people living in the area and number of people commuting to work out and into the area according to NACE sectors.

The number of jobs in the whole country declined between 1991 and 2001 by 10,8 %. There are only two geographic areas where the number of jobs increased: Prague metropolitan area and district Mladá Boleslav (location of Volkswagen Škoda car production plant). The share of Prague MA on the total number of jobs in the country increased between 1991 and 2001 by 15 % and 4 % in the case of Brno MA (Table X.3). This clearly shows a major difference in the dynamics of the two metropolitan

economies. The growth rate in Prague hinterland was 32 % compared to city itself with 14 %. And we do not have to forget that these data include the suburban growth within city administrative boundary. Therefore, the distinction between the jobs growth in compact city and suburban zone would be much sharper. In Brno MA, the share of city on the total country pool of jobs increased slightly faster than of its hinterland documenting from another angle that economic deconcentration in Brno MA is not very pronounced. Furthermore, it is mostly realized inside of city administrative boundary.

Table X.3: Number of jobs in metropolitan areas and their share on the Czech Republic

	1991	2001	1991	2001	2001/1991
	<i>no of jobs</i>	<i>no of jobs</i>	<i>share on CR</i>	<i>share on CR</i>	<i>change in the share</i>
Prague city	723349	734724	13,61%	15,50%	113,91%
2 nd suburban zone	62842	73875	1,18%	1,56%	131,83%
PMA	786191	808599	14,79%	17,06%	115,34%
Brno city	245755	228494	4,62%	4,82%	104,27%
2 nd suburban zone	57265	52687	1,08%	1,11%	103,18%
BMA	303020	281181	5,70%	5,93%	104,06%

What is the spatial distribution of jobs within Prague and Brno Metropolitan Areas and how it changed between 1991 and 2001? Prague city has the dominant position in its metropolitan area accounting for over 90 % of jobs (Table X.4). In 2001, the city centre concentrated 14 %, inner city 70 %, suburban areas within city limits 7 % and suburbs outside the city 9 % of all metropolitan jobs. Similar dominance is in Brno area with the city accounting for 81 % of metropolitan jobs. However, the proportion is slowly changing. Between 1991 and 2001, the hinterland of Prague increased its share on the whole MA by 14 %, while the share of the city slightly declined (Table X.5).

Which economic sectors contributed to the differential growth in the cities and their suburban hinterland? In Prague suburban zone if compared to the city, there has been remarkable growth in (F) construction, (G) wholesale and retail and (I) transport, storage and communications. In Brno the growth was mostly in (F) construction, while increase in (G) wholesale and retail was also high in the city and (I) transport, storage and communications has not increased on any spectacular level. These data, however, do not take into account the growth in suburban areas inside city administrative boundary. Provided this is reflected the difference would be more pronounced.

Table X.4: Share on the total number of jobs in metropolitan areas according to zone and economic branch (NACE)

NACE sectors	all sectors	A+B	C-E	F	G	I	M+N	H+J+K+L+O
1991								
Prague city	91,94%	1,48%	18,66%	11,01%	12,96%	8,10%	15,27%	24,46%
2nd suburban zone	8,06%	1,47%	2,57%	0,55%	0,77%	0,35%	0,81%	1,55%
total PMA	100,00%	2,95%	21,23%	11,57%	13,72%	8,45%	16,08%	26,00%
2001								
Prague city	90,83%	0,46%	11,15%	8,39%	11,34%	8,77%	10,38%	40,34%
2nd suburban zone	9,17%	0,33%	2,33%	0,94%	1,47%	0,67%	0,69%	2,74%
total PMA	100,00%	0,79%	13,48%	9,33%	12,81%	9,44%	11,07%	43,08%
1991								
Brno city	81,14%	1,87%	27,59%	9,69%	7,41%	5,89%	13,39%	15,30%
2nd suburban zone	18,86%	3,42%	8,06%	1,04%	1,50%	0,86%	1,84%	2,15%
total BMA	100,00%	5,29%	35,65%	10,73%	8,90%	6,75%	15,23%	17,45%
2001								
Brno city	81,23%	0,77%	16,68%	9,33%	10,08%	5,99%	12,23%	26,14%
2nd suburban zone	18,77%	1,28%	6,85%	2,11%	2,14%	1,07%	1,89%	3,43%
total BMA	100,00%	2,05%	23,54%	11,44%	12,23%	7,06%	14,12%	29,57%

Note: A+B – agriculture, forestry, fishing; C-E – total industry; F – construction; G – wholesale and retail; H – hotels and restaurants; I – transport, storage and communications; J – financial intermediation; K – real estate; renting and business activities; L – public administration and defence; M – education; N – health and social work; O – other communal, social and personal services

Table X.5: Change in the share on the total number of jobs in metropolitan areas

	all sectors	A+B	C-E	F	G	I	M+N	H+J+K+L+O
2001/1991								
Prague city	98,80%	30,74%	59,77%	76,15%	87,55%	108,30%	67,99%	164,95%
2nd suburban zone	113,69%	22,73%	90,49%	169,88%	191,90%	189,58%	85,64%	177,31%
total PMA	100,00%	26,75%	63,49%	80,63%	93,37%	111,68%	68,88%	165,68%
2001/1991								
Brno city	100,12%	41,28%	60,47%	96,28%	136,14%	101,65%	91,34%	170,89%
2nd suburban zone	99,50%	37,32%	85,01%	202,40%	143,23%	125,24%	102,66%	159,57%
total BMA	100,00%	38,72%	66,02%	106,57%	137,33%	104,65%	92,71%	169,50%

The economic deconcentration is spatially very selective. It is bringing rapid and enormous changes in particular locations and zones while other parts of suburban areas are omitted. The aggregated data for the

whole districts do not allow us to see this spatial variation. Furthermore, the most radical impact of employment decentralisation concerns suburban municipalities, where new development takes place. We have selected three municipalities behind the southeast edge of Prague administrative boundary to document the local impacts of employment deconcentration. There has been a remarkable growth in the number of jobs in all three municipalities. However, their different situation documents various local outcomes of non-residential suburbanisation.

Čestlice and Průhonice are neighbouring municipalities on which territory a new commercial zone was build since 1997. While in 1991 Čestlice was an agricultural village from which most economically active people had to commute for work, Průhonice was a striving suburban place oriented on weekend recreation and tourism and offered more jobs than there was the number of economically active residents. The situation in 2001 was already dramatically different, especially for Čestlice with nearly four times more jobs than economically active residents having 61 % of jobs in retail and wholesale. The new retail and warehousing zone also dramatically contributed to the change in the structure of employment in Průhonice increasing the share of jobs in retail and wholesale from 8 % to 33 %. There was also growth in manufacturing jobs in Čestlice and transport and communication in Průhonice. The place became a strong suburban target of commuting for work in shopping and warehousing facilities from both Prague and surrounding suburban municipalities. Říčany is a small suburban town, which has been losing its role of local center since 1960s being in the shadow of Prague to which many people commuted for work. With the transition to market local economy this town started to benefit from Prague vicinity and deconcentration processes. Outside the town itself, however on the municipal territory, two logistic and warehousing parks were established adding to the growing employment.

Table X.6: Change in employment of selected municipalities 1991-2001

<i>Municipality</i>	<i>Population</i>	<i>Economically active (Ea)</i>	<i>Employed (Emp)</i>	<i>Emp/Ea</i>
1991				
Čestlice	405	226	62	0.274
Průhonice	1589	914	958	1.048
Říčany	10650	4259	3698	0.868
2001				
Čestlice	405	241	934	3.876
Průhonice	1948	1089	2197	2.017
Říčany	10876	5838	6301	1.079

As most jobs are located in central cities there is a high level of centrality in both Prague and Brno Metropolitan Areas. This has been recently challenged by newly established jobs in the newly constructed

suburban retail, warehousing and industrial zones. The new suburban employment is clustered in just few areas, challenging the formerly dominant concentration in central city. The polynuclear pattern with a strong dominance by the city centres is emerging in metropolitan areas. In most instances the new areas are at the edge of existing compact city keeping continuity in urban expansion to hinterland. However, there are also leapfrogging areas offering new jobs. The former compact city with continuously built-up areas is being transformed to less continuous pattern with spatial fragmentation in outer parts. It is possible that over decades the new suburban nuclei of economic activity will develop to new large centres of employment (edge cities). The location of new areas is strategic from the long-run, as they are often placed between the huge pool of population (labour supply, consumption power) in the existing city and newly growing suburban areas with expanding population. The spatial pattern of metropolitan area can in future become polynuclear with a more even strength of urban and suburban centres. There, however, will be important differences in the composition of jobs between central city and edge cities, with specialized advanced services offering well-paid occupations in the centre and less-paid jobs in basic consumer and producer services (and industries) in new suburban centres. Considering the residential pattern and the socio-spatial structure spatial mismatch between jobs and residences is emerging.

4. CONCLUSIONS AND DISCUSSION

In Czech metropolitan areas, suburbanisation developed as an important process of metropolitan change only since the second half of the 1990s. The suburbanisation of non-residential functions, particularly of retail and warehousing has been more dynamic and influential than residential deconcentration. This is a quite specific situation in postcommunist city, which in this respect differs from the common sequence known from North America and Western Europe.

The residential suburbanisation is not fostered by large population migration to metropolitan areas and fast expansion of homes to cities hinterland. The overall population stagnate and the deconcentration happens mainly through the spatial redistribution of population within metropolitan areas. While central and inner cities decline, there is population increase in suburban areas. In 2001, 22 % of population in Prague MA and 33 % of population in Brno MA lived in suburban zone. However, most of these people are not typical suburban residents and settlements are not products of recent suburbanisation. The dense settlement network around cities has its roots in middle ages. Most suburban inhabitants still belong to rural population. The original employment in agriculture diminished over past five decades and people become dependent on industrial and service jobs in cities. The social status of this population is below average in the context of

metropolitan areas. The true new middle class suburban people have settled these areas only in 1920-30s and then in past few years. Therefore, its overall presence is not very strong. However, there are municipalities significantly affected by suburbanisation, where new residents already account for a substantial part and in some cases even majority of population.

The employment deconcentration is completely new and very recent phenomenon. There is rapid growth of new economic activities and jobs in suburban locations, in particular around Prague and to lower extent also around Brno. Employment in core cities of Prague and Brno metropolitan areas is shrinking while it is expanding in suburban areas. This general employment deconcentration is also important by its structural shift in the employment composition. In particular, the growth in suburbs is in retail, wholesale and storage sectors while decline in cities is due to deindustrialisation. The spatial deconcentration of employment does not concern advanced services and office jobs.

The extent, form and functional composition of suburbanisation differ between Prague and Brno. The metropolitan area of the capital city of Prague is the wealthiest region in the postcommunist Europe and residential suburbanisation is driven mainly by the wealth of its population. Commercial suburbanisation developed in retail and distribution serving booming local markets and being located in the very centre of country. Residential suburbanisation around Brno is less pronounced. The major difference from Prague is the development of new industrial zones and individual production plants in Brno suburban areas. While Prague is the country major command and control centre, Brno economic development strongly rests on reindustrialisation. In both cases, a majority of commercial facilities has been developed due to the inflow of foreign direct investments and realised on out-of-town greenfields. However, the distinctive character of these two metropolitan economies strongly affected the outcomes of suburbanisation.

Suburbanisation has major impacts on the quality of life in metropolitan areas. The compact character of the former socialist city is being changed through rapid commercial and residential suburbanisation that takes the form of unregulated sprawl. Non-contiguous, leap-frog suburban sprawl has more negative economic, social and environmental consequences than more concentrated forms of suburbanisation. The societal costs of sprawl are well-known from North America and Western Europe and now threaten sustainable metropolitan development in the Czech Republic. This concerns not only residences but also new commercial facilities. For instance, suburbanisation of retail facilities has completely reshaped the pattern of commuting for shopping. At present a large share of shopping is realised in suburban hypermarkets and shopping malls. Many of these locations are not served with capacity public transportation and people travel from the inner city by car. Another major impact of suburbanisation is in the field of spatial mismatch in the distribution of jobs in metropolitan areas. Suburban jobs are namely in retail, warehousing and distribution with low paid employees taken by people from inner city and surrounding region.

On the other hand suburban areas are now becoming home of wealthy population that commute to their office jobs in central and inner cities. Therefore, there is developing spatial mismatch between the location of jobs and residences, contributing to increased travel in metropolitan areas and consequent effects on the quality of environment and life. The outcomes of rapidly developing suburbanisation in terms of spatial distribution of people and their activities in metropolitan areas form conditions that will influence the life of society for several generations. Therefore, patterns of urbanisation in metropolitan areas shall become important targets of urban and metropolitan planning and policies that intend to keep a more compact urban form.

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