

shrink smart



**Governance of Shrinkage
Within a European Context**

Work package 2

Urban shrinkage in Ostrava, Czech Republic

Research report

D4 Comparable research report

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1. EXECUTIVE SUMMARY

The city of Ostrava and its urban agglomeration within the Moravian-Silesian Region grew on the economic base of coal mining, coke production, iron and steel production and related industries in different political contexts over the period 1828 – 1989. Year 1828 marks the establishment of a first important plant on Ostrava's territory - Vitkovice ironworks. Year 1989 signposts the "velvet" democratic revolution, which enabled launching of the necessary economic and political transformation process in the Czech Republic, resulting between 1990 and 2009 in remarkable social, economic, and structural changes which affected the city, the old industrial region, and the whole Czech Republic.

Ostrava and its metropolitan polycentric region with regional sub centres such as Karviná, Havířov, Frýdek-Místek, Třinec, Český Těšín, Orlová, Bohumín, has been traditionally industrial, miners' city with all the negative characteristics such as environmental damages and pollution, with bad image as city of workers and city without culture and quality education.

Shrinkage is characterised by the population losses and deterioration of building stock, which was the reality during the communist era in 1950s-1980s, and then during the post-communist transformation period since 1989 until now as well. In the period from 1950s to 1980s, on one hand new housing estates were established and developed such as Poruba or Ostrava-Jih (Zábřeh, Hrabůvka, Výškovice). On the other hand, the communist party decided in second half of 1940s and 1950s that the older building stock was to be left to decay. After this decision, large parts of the city, such as Vítkovice, Přívoz, Mariánské Hory, or for example in Moravská Ostrava its parts along Masná and Stodolní streets, started their decline due to disinvestment. In 1990, at the beginning of transformation, vast parts of the city were deteriorated and settled by people with the lowest social status and worst living conditions, especially Roma ethnic group. In the course of 1990s and 2000s the run-down parts of the city have been partly renewed. This process was based on the privatization of houses, finding out other dwellings for the people to be displaced (displacement), on the renewal of privatized houses by new owners, retrofitting and conversion of houses for new functions such as services. Very good examples of successful renewal are the revitalization of the area in Moravská Ostrava around the Stodolní street with more than a hundred of clubs, pubs (culture-driven regeneration) or regeneration of houses at Masná street through advanced producer services or health care services. The tertiarisation of economy, establishment of micro- and small enterprises was important impetus for the city regeneration. This services-driven regeneration contributed to the revival of Přívoz, Mariánské Hory, Vítkovice and surprisingly partially Hrušov as well.

After the "velvet" democratic revolution in November 1989, the transformation of the political and economic system of the former Czechoslovakia brought the liberalization and opening of the economy to the external global competition. The new stage of the history of Ostrava began. The competition pressures revealed the

very complex weaknesses of the regional big companies in old or traditional industrial branches and launched their adaptation process to conditions of global market. The restructuring process had different intensity with regards to the Czech, European and global economic development context, but brought high unemployment. The deindustrialization started at the beginning of 1990s – in June 1994 all the collieries and most of coke plants on the territory of Ostrava were closed down and the decay of production in related industries caused the increase of unemployment. The peak of unemployment rate of 18% was reached in 2003 (???), but in 2004 began the economy revival (after restructuring and modernization of companies in 1990-2003). The deindustrialization process and high unemployment has been dampened by tertiarisation and re-industrialization of the regional and national economy.

Ostrava has been slightly shrinking city in the period 1990-2009 in the context of transitional post-communist country in Middle Europe. The trajectory of shrinkage and its causes are generally similar to the causes in all bigger cities (like Brno, Plzeň), but are modified by specific situation of Ostrava as old industrial city affected by deindustrialization. The population decline as the most significant indicator of shrinkage was approximately 7% (331,000 in 1988 and 307,000 in 2009), which is evidently a slight shrinkage. The causes of shrinkage of some parts of Ostrava are the rapid plunge of birth rate in the whole Czech Republic as a natural adaptation to the demographic situation in developed countries, the outward migration of young, well educated people (“brain drain”) and the suburbanization (the move of people from the inner city or neglected and unattractive neighbourhoods to the periphery of Ostrava or beyond the administrative borders of Ostrava city).

The most affected neighbourhoods of Ostrava by the shrinkage process, measured as population decline/loss, in the last 20 years (1990-2009) are Poruba, then central “historical” parts of the city as Moravská Ostrava, Přívoz, Slezská Ostrava and its parts such as Hrušov or Kunčičky. The process of shrinkage has been rather slight and has been dampened by many factors such as the elimination of commuting to collieries from distant regions (North-western Slovakia – Kysuce), affecting the unemployment rather in these distant regions than directly in Ostrava, not well working or not well developed housing market (shortage of dwellings in all Czech cities, which eliminates mobility), low mobility inclination of population (Czechs have more strong social and family ties and lower mobility), the growing home and dwelling ownership in the Ostrava region (privatization of dwellings even in prefabricated housing estates). However, according to the Solansky demographic projection, Ostrava will have 280,000 inhabitants in 2050, which shows the necessity of being aware of the existing shrinkage trajectory and importance of political initiatives dealing with the shrinkage.

Ostrava has been shrinking, however with low intensity and the future development of Ostrava can/will be different according to many factors such as: the economic situation in the EU (EU competitiveness in comparison with competitiveness of USA and/or China), and the economic situation in the Czech Republic – its high dependence on external structures / framework conditions, and according to the

success of Ostrava's (or Moravian-Silesian Region's) shift from low road development strategy based on industrial mass production at lower prices of inputs to the **high road strategy** based on **innovation and quality** improvements of production (i.e. flexible provision of quality goods and services with higher added value at higher prices).

The success of implementation of the high road strategy in the city of Ostrava depends on the quality of education and R&D institutions; on urban planning and institutions supporting the development, which have to create innovative milieu through the improvement of soft development factors such as attractive housing; quality environment – clean air, water, green areas and parks; recreational and cultural facilities; architectural flag ships; better image; safety; existing events; etc. There are many projects in the pipeline to be carried out such as New Karolina development project, New Vitkovice, Cultural cluster on Černá Louka, IT4Innovations (Information Technology for Innovations is a project of development of research capacities at Technical University of Ostrava via Supercomputing Centre to be supported by EU structural funds).

Within the Moravian-Silesian Region, the city of Ostrava has pro-active economic and urban development policy, good working governance system based on cooperation of many actors such as local and regional government, central government and EU (e.g. attempts of JESSICA implementation), active universities, local businessmen (such as owner and general director of Vitkovice Mr. Světlík) and NGOs. The slight process of shrinkage will continue in some parts of the city, despite the pro-active local governance, and due to the analogical shrinkage reasons such as lower birth rates, selective out-migration and weak in-migration, ageing, suburbanization, social exclusion, and environmental situation.

The most remarkable problems and challenges in the future development of the slightly shrinking city of Ostrava will be:

- Diversification of the regional economy through support of higher added value economic activities and creation of more (quality) jobs;
- Maintenance and upgrading of prefabricated housing estates;
- Roma/gypsy exclusion/inclusion
- Solution of bad environmental situation - especially in the Eastern parts of the city.

2. PATTERNS OF URBAN SHRINKAGE

2.1. Reasons and premises

Introduction

Context – short characteristic of Ostrava

The city of Ostrava is located in Eastern Central Europe, in the Czech Republic in its North Eastern part, approximately 10 km from the borders with Poland and 50 km from Slovakia. It has an area of 214.22km² and is the third largest city of the Czech Republic (after Prague and Brno) with 308,374 inhabitants (as of December 31, 2007), and the second largest urban agglomeration after Prague. City of Ostrava consists of 34 historically independent villages and towns, which had been growing together in the course of the last 150 years. Since the reform of local administration in 1990, Ostrava is the so-called corporate town (statutární město) divided into 23 municipalities or city districts (městské obvody s vlastními správními úřady tzv. Úřady městského obvodu), which have its own councils, administrations and budgets. Ostrava is the capital of Moravian-Silesian Region (Moravskoslezský kraj, 5,427km² and 1,266,500 inhabitants) and administrative centre of county Ostrava – City (okres Ostrava město). County Ostrava – City has been in existence since January 1, 2007. Its size is 331.53km² and has 344,054 inhabitants and population density 1017 inhabitants/per 1km².

In our research project, the case study of Ostrava's particular shrinkage trajectory belongs among the East European case studies – together with case studies of Sosnowiec / Bytom, Donetsk / Makiivka and Timisoara. The cases cover the most important variants of both pathways and drivers of shrinkage: ongoing transformation, restructuring and deindustrialization, economic underdevelopment and out-migration, demographic changes and suburbanization. As a result of socialistic politically stimulated industrialization, these cities witnessed the increase in population until the end of 1980s. The East European cases form different pathways of shrinkage, presumably depending on their regional economy. For example Ostrava and Sosnowiec have managed in 2000s to attract considerable amount of foreign direct investments, and as a consequence could slow down the out-migration and population losses. Rather slight shrinkage of the city of Ostrava as a whole began particularly after the political changes and has been a steady condition of urban and regional development since then. The entry of these East European cities into EU on May 1, 2004 has not yet resulted in changing this image significantly and the cities belong to Convergence objective of the EU cohesion policy, which means to the most lagging behind urban regions in the EU 27, despite many successful efforts in the field of economic development and urban regeneration.

Historical background

Ostrava has been an industrial city based on hard coal mining, coal processing, coke production, chemical production, iron and steel production, and heavy machinery. Moravian Ostrava - as the main part of Ostrava - obtained the statute of a city in

1267, but was only an unimportant city until the discovery of coal in 1763 and its utilization in 1787. Three main factors played key role in the history of economic and urban growth of Ostrava. Firstly, it was the discovery and utilization of black/hard coal, which caused the dynamic industrialization of the region. Second factor was the foundation of the puddling works (later iron works) in Vitkovice by the Archbishop of Olomouc Rudolf Jan Habsburg in 1828, and its development by Salomon Meyer Rothschild, who gave rise to the first blast furnace. The third factor was improvement of accessibility of Ostrava through the Ferdinand Northern Railway, which led in 1847 to Ostrava, later joining Vienna and Bochnia near Krakow. The railway connection stimulated the industrialization and facilitated the immigration of workforce from Prussian Silesia and Galicia (now South Eastern Poland), and subsequent urbanization. At new collieries and factories (coke plants, chemical works) were built mining and smelting colonies. Ostrava became a diverse multicultural city with Czech, German, Polish and Jewish population. Ostrava was united in several waves, which were important for its territorial growth and effectiveness of city administration/government.

In 1924, the Greater Moravian Ostrava was established by unification and incorporation of originally independent municipalities Přívoz, Vitkovice, Mariánské Hory a Hulváky, Zábřeh, Hrabůvka, and Nová Ves, so that Ostrava reached the number of 130,000 inhabitants on the territory of 40.28km². In 1941, under Nazi occupation, Moravská Ostrava, and Slezská Ostrava (with Hrušov, Heřmanice, Muglinov), Michálkovice, Radvanice, Kunčice, Kunčičky, Výškovice and Hrabová were integrated. Then in the period of 1957-1976 came the big territorial growth of Ostrava. Many former villages with new developments – such as new housing estates in Poruba, Pustkovec, Martinov, Svinov, Třebovice, Bartovice, Hrabová, Výškovice, Nová Bělá, Stará Bělá, Proskovice, Antošovice, Hošťálkovice, Koblov, Krásné Pole, Lhotka, Petřkovice, Plesná and Polanka nad Odrou, etc. were incorporated. Ostrava grew up to approximately 330.000 inhabitants and the territory of 214km².

After the WW2 in 1945 Ostrava's importance grew, especially after 1948, when communist party came to power and pushed through its economic and political doctrine of the necessary strengthening of heavy industry for the general success of communism. In 1949-1951 the Nová Huť "New steel mill" was built, and in 1953 began the construction of two new parts of Ostrava: Poruba in the West, and Ostrava – South (Stalingrad – nowadays Zábřeh), which both separately reached in the 1980s more than 100,000 inhabitants.

In 1990 (December 31, 1990), Ostrava had 331,466 inhabitants, but on December 31, 2007 it was 308,374 inhabitants (without foreign residents). Ostrava shrank in this period by 23,092 inhabitants (Solanský, O., 2008, Socio-demographic analysis of Ostrava p. 6). According to Solansky's forecast, Ostrava will significantly shrink after 2030 and by 2050 it will have 280,319 inhabitants, supposing the unchanged linear socio-demographic trends.

Figure 1 23 municipalities/city districts of Ostrava



See tables for the further details on population development in city districts.

Reasons and premises

According to the census, Ostrava had in the year 1991 327,000 inhabitants and has been the third largest city in the Czech Republic – after Prague and Brno. Since then, the population declined to 317,000 inhabitants in 2001 and to 307,000 in 2006. In the number of inhabitants are not included foreigners, who live in the city temporarily but are registered. Nevertheless, the city also gains unregistered temporary population through the inflow of students from other regions, and from Slovakia. The city lost more than 20.000 inhabitants in the course of the last 15 years, and until 2009 it has been losing population together with the whole Moravian-Silesian Region. It is necessary to point out, that shrinkage is cyclical and some parts of Ostrava have been shrinking (depopulation, disinvestment and deterioration of building stock) since 1960s from several reasons e.g. Přívoz,

Moravská Ostrava, Vítkovice, Mariánské Hory. On the other hand, some parts of the city of Ostrava have been slightly improving since 2000s thanks to privatization of building stock and to the dislocation of business premises in as areas like Přívoz, Moravská Ostrava – around Poděbradova street (with Masná and Stodolní streets), parts of Vitkovice, Mariánské Hory.

The major reasons for this process of “slight shrinkage” have been the following:

- Lower birth rates and socio-demographic changes in the context of the second demographic transition
- Job related out-migration of young well educated people, mainly to Prague, but to Western Europe or to the USA as well
- Suburbanization and outflow of inhabitants both to the peripheral parts of the city of Ostrava (Krásné Pole) and to the hinterland of Ostrava (e.g. Vřesina, Čeladná, Ostravice, Malenovice, etc.)
- Flood in 1997 as environmental disaster having affected especially northern part of Hrušov in Slezská Ostrava
- Political decisions, especially in the 2nd half of 1940s and in 1950s

The main reason of shrinkage in the central parts of Ostrava with rather old building stock, such as Moravská Ostrava a Přívoz, Mariánské Hory a Hulváky, Slezská Ostrava are lower birth rates and socio-demographic changes. These parts of Ostrava have been losing population since 1960s due to the ageing of population and lower birth rate. Then, over the period 1991-2008, all the inner city parts of Ostrava and Poruba lost population on the grounds of lower birth-rate (because of ageing) and out-migration of young people. We can simplify and state, that the young age group of 20-35 year old, who came to Ostrava in 1950s-1970s, became older and then in 1980-2000s their children have been leaving their households. The four person family households became gradually two person households (so called “empty nesters”) and then after the death of the men, which is statistically more probable, even single person households of women. Especially the very strong age cohort born in 1970s (called Husák’s children – named after the communist president in 1970s-1980s), particularly in the context of the second demographic transition and post-transformation socio-demographic circumstances, will be the reason for shrinkage (in the form of population decline) even in the future (2030s-2050s) due to its ageing and demise in combination with the so far rather low in-migration to Ostrava from the beginning of 1990s and low fertility rates in 1990s (Solanský, 2008).

Job related out-migration of young well educated people from the Moravian Silesian region and from Ostrava, mainly to Prague, but to Western Europe or to the USA as well, is a reason of population shrinkage caused: Firstly by the lack of quality jobs for graduates/yuppies, secondly by the bad environmental situation, and thirdly by the lack of cultural attractiveness in its broad sense (in comparison to Prague, London). According to the students at Ostrava universities play certain role in out-migration process the simple desire to travel and get acquainted with the life in Prague or abroad, get experienced and return to the region after maybe a decade. The problem is that we are missing precise data and our statements are based only on estimations. The statistics can capture only the data on permanently residing

persons, who are registered. The estimations of job related out-migration from Ostrava amount to approximately 600 persons. On the other hand, some graduates from other regions stay after the graduation in Ostrava.

Suburbanization and outflow of inhabitants both to the peripheral parts of the city of Ostrava (Krásné Pole) and to the hinterland of Ostrava (e.g. Vřesina, Čeladná, Ostravice, Malenovice, etc.) is a reason of shrinkage in some parts of the city, but a reason of population growth and residential development as well. According to data and our qualified estimations, the losers – shrinking districts - will be the prefabricated housing estates with low quality of available amenities and with low social quality such as Dubina. On the other hand the winners will be rural parts, “villages” at the outskirts of Ostrava with better environmental quality. Surprisingly, even Radvanice and Bartovice have been growing notwithstanding the worst environmental situation in the whole Czech Republic - with exceeded air pollution limits of airborne dust and carcinogenic benzopyrene causing allergies, cancer and early deaths. For the less wealthy families who want to live in their own house plays a certain role in this “unnatural development” the lower prices of land and favourable zoning for residential development. According to Vondroušová (2009) the simplified social structure is as follows: in the eastern rural part of Ostrava, with more air pollution, stays dominantly (of course with exceptions) population with low socio-economic status and in the western rural part of Ostrava stays the population with high socio-economic status in good addresses such as Krásné Pole, Lhotka, Pustkovec. However, in general, the peripheral rural parts of Ostrava have been growing in terms of population and new building stock since 1990s.

Political decisions in 1940s-1950s affected Ostrava’s population and its structure in many ways. Firstly, the Jewish population was deported and killed in the 1st half of 1940s. As the matter of fact the first Jewish transport organised by Nazis departed from Ostrava to Nisko (October 18, 1939 - 2 years before the Wannsee conference). Then in 1945-1946 the Ostrava’s German population was expelled. These population losses were compensated by the in-migration of population from the whole former Czechoslovakia. Then, especially in the 2nd half of 1940s and in 1950s, the political decisions concerning new developments of Ostrava affected the inner city by the decision not to invest there, but to invest into developments westwards (Poruba) and southwards (Zábřeh, Hrabůvka, Výškovice). The reasons were the possibility of mining of mineable coal deposits underneath inner city of Ostrava in 2nd half of 1940s. Second reason for new greenfield developments was the bad environmental situation in the inner city due to the concentration of mines, coke plants (Karolina) and iron and steel works (Žofínská huť, Vítkovice) in the area. The industrial plants were causing air pollution and noise in the inner city, which accounted for very low quality of life in the inner city.

Flood in 1997 affected as an environmental disaster especially the northern part of Hrušov (a part of Slezská Ostrava). The damages caused by flood were intensified by plundering of houses by certain group of local inhabitants.

According to the statements of Ostrava inhabitants in the newspapers and certain surveys, the reason for leaving (certain locality) Ostrava, can be the presence of persons or a certain group of persons, who do not obey the law and do not follow conventions. Some of them even steal, plunder, litter, make noise in the night, destroy buildings and houses and are offensive to fellow-citizens. Unfortunately, there are such places in Ostrava. The reason for it is the wrong displacement policy of some politicians leading to concentration of negative phenomena. The local government, some NGOs and city police have been trying to improve the situation by some measures, but without any visible success yet.

The drivers of shrinkage have been as follows:

- Disinvestment in central parts of the city in the past, i.e. the decision of the communist party not to invest into central “historical” parts of the inner city in the end of 1940s – 1960s (because of mineable coal deposits underneath the city centre) and the decision to invest and establish “New Ostrava”, westwards of the city on the fields and meadows in the village of Poruba and construction of new huge housing estates in the southern territory of Ostrava (Ostrava – South: Zábřeh, Hrabůvka, Výškovice).
- Deindustrialization and economic decline in old industries: the loss of attractiveness for in-migrants due to decline of regional economic base after 1989 and loss of relatively well paid jobs in heavy industry
- Flood 1997 as a significant natural disaster
- Air pollution by industries and motor vehicles
- Less (or not at all) attractive prefabricated housing estates
- Significant social problems e.g. socially excluded areas
- The existence of brownfields (Lagunas, Karolina, Lower Vitkovice, Hrušov)
- Bad image of a polluted industrial city

National development trajectory and consequences for Ostrava region

The policy of Prague central government (economic policy, regional policy and regulations by law in former Czechoslovakia 1918-1992 with interruptions) has been very important factor for the development of regions and cities in the Czech Republic. The regional development trajectory of the Ostrava region (in terms of economic, social, demographic development) replicates to a large extent the development trajectory of the whole Czech Republic, which has been demonstrated and proved by statistical data included in the annex. In the Czech Republic and in Ostrava region we can track down the influences of all important societal processes typical for OECD nations such as deindustrialization, development and growth of services – especially advanced producer services, the growing importance of tertiary education and research, second demographic transition and ageing, suburbanisation and others.

However, Ostrava region has its specifics such as the less diversified economic structure based on coal and steel production (in other words very specialised economic structure in mature industries such as coal mining and coke production, iron and steel production, energy industries, chemical industries), high levels of

environmental damages of landscape, and lower social and educational level typical for old industrial regions.

Development of Ostrava's regional economy was in the communist period 1948-1989 strongly supported by the communist central government within the totalitarian political system and centrally planned economic system under the motto "Ostrava is the steel heart of the Czechoslovakia" (on 1.1.1993 Czechoslovakia was split up into two independent states – Czech Republic and Slovakia). Czech Republic with Ostrava region was a part of Eastern block and regional economy of Ostrava was part of the Council of Mutual Economic Cooperation, with all the negative consequences of international socialist economic specialization. The political support played an important role in the process of very extensive socialist industrialization (coal mining, heavy industry and energy production as core of national economy) and socialist urbanization especially in the 2nd half of 1940s and in 1950s and 1960s. Lots of new jobs were created in the framework conditions of completely inefficiently functioning central planning system. In order to gain enough workforce for the industrial complexes (such as OKD, VŽKG, NHKG, VOKD), the central government focused its efforts and investments into the construction of completely new neighbourhoods such as Poruba, Zábřeh (new part called "Stalingrad" at the moment of establishment, afterwards re-named), Hrabůvka, Dubina. Jobs and new apartments (in apartment houses – brick two story houses with good environment and social infrastructure built during the First two-year plan and the First five-year plan in 1947-1948 and 1950s, in contrast to prefabs built later in 1960s-1980s) attracted young people and accelerated extensive urban growth, but predominately of a low quality. The economic structure and the extensive industrialization in the last 150 years caused huge and various environmental problems, which lowered the degree of Ostrava's attractiveness to almost zero after the economic collapse and loss of jobs after 1990, when the economic transformation began.

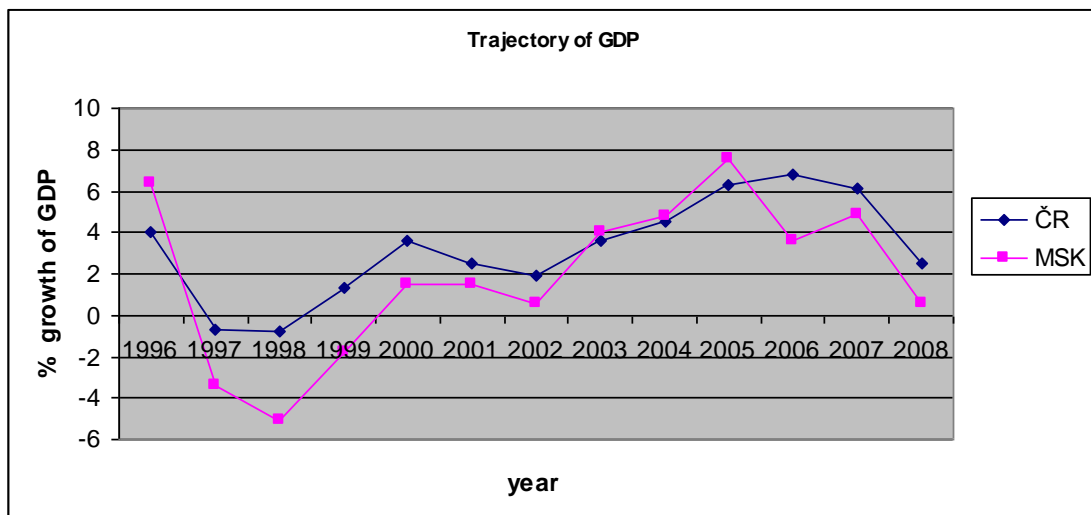
In the end of 1989 came the "Velvet revolution" in the Czech Republic and the process of political and economic transformation of the Czech Republic began. First consequence of transformation was the loss of "importance" of Ostrava region for national economy. Ostrava region major problems in 1990s in terms of economic development were a) the bad image as a blue collar/proletarian city with low social quality, which was the reason for low attractiveness for creative class; b) "black" polluted city and high pollution levels, especially high air pollution with airborne dust; c) bad connectivity / accessibility of the region due to missing highway and high speed railway; d) large distance from European and Czech growth centres; e) missing foreign direct investment inflow and developer activities until 2004; f) social exclusion and ghettos – especially affecting the Roma minority g) brain drain during the last 20 years (but without precise evidence).

New economic and political elites criticized after 1990 the central government support for Ostrava during the communism era (1948-1989). The necessary restructuring of the regional economy started in 1990s without any strong systemic approach of the central Prague government and led in Ostrava region to deindustrialization due to economic inefficiency of local big industrial companies.

The abrupt deindustrialization began in the framework of economic system transformation (liberalization of prices, restrictive monetary policy and monetary depreciation, small and large scale privatization, etc.) By 1994, all coal mines on the city territory were closed-down, most of the coke plants and factory power plants as well, and in 1998 were closed Vitkovice blast furnaces. The internal restructuring and closures of companies in the old industrial branches brought collective redundancies (layoffs) and high unemployment rate. In 2000, there were 100,000 unemployed in the Moravian-Silesian Region. The loss of jobs in 1990s in the old industrial branches during the transformation and restructuring led to shrinkage processes.

The labour offices began to monitor the unemployment rate in 1991 at the level of counties (okres), i.e. is in our case the county Ostrava – City. The unemployment rate trajectory developed as follows. According to data by Labour office in 1991 was the average unemployment rate in Ostrava county 4.7%, but then in the period 1997-2003 grew significantly to the highest unemployment rate in 2003 with 18.4% (in comparison with the whole Czech Republic 7.8% in 2003), and in 2003 was almost three times higher than the average unemployment rate of the Czech Republic. From 2004 to 2008 the unemployment rate began to fall by almost 2% yearly and reached the bottom in 2008 with 8.4% (Czech Republic 4.4% in 2008).

The GDP has been surveyed by the Czech Statistical Office from 1996 at the level of regions (kraj – NUTS3) and cohesion regions (NUTS2) and all the following GDP data are available only at the level of region i.e. the Moravian-Silesian Region (Moravskoslezský kraj). However, the development of the regional economy reflects the development of the local economy of the city of Ostrava. In terms of the trajectory of regional GDP, there was surprisingly a generally positive development (considering the “mature” economy based on coal mining and heavy industries) until 1996 (6.4% growth of regional GDP). Nevertheless, in 1997-1998 came the crisis of the Czech economy and the Czech Republic’s GDP growth rate dropped to –0.8% (1998), and regional GDP growth rate in the Moravian-Silesian region dropped to –5.1% (1998). The crisis 1997-1998 had several reasons such as the development of global economy, the restrictive monetary policy of the Czech National Bank, the very limited willingness of commercial banks to provide companies with risk loans, the impact of privatization of companies, and the real deep structural changes in the Czech industry leading to better efficiency and labour productivity. In 1997-1998 the economy witnessed the decrease of GDP, followed by increase of unemployment rate both in the Czech Republic and in the Moravian-Silesian Region.

Figure 2 Trajectory of GDP 1996-2008

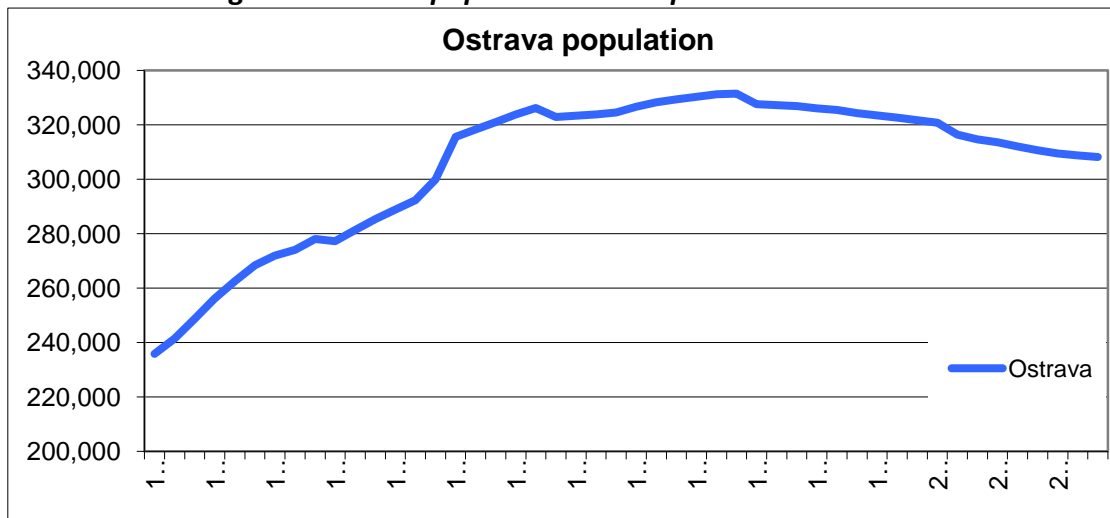
In the 2nd half of 1990s, and especially after the crisis of 1997-1998, started the extensive activities of all local and regional development actors with EU support, however with lack of central government support. In 1993, the Regional Development Agency was established with the support of the EU with aim to provide support for the development activities of cities in Moravian-Silesian Region. The Ostrava local authority established the Department for economic development, which carried out a strategy of attracting foreign investment to the city. A business zone was prepared on the greenfield of Hrabůvka, and regional marketing for attracting FDIs started in 1998 with the participation at the real estate exhibition MIPIM in Cannes (France). The efforts of attracting investors into the region brought in the first wave the retailers, and then also the industrial investors. The inflow of FDIs into the Czech Republic was supported by the Czechinvest Agency (established by the Ministry of Industry and Trade) and by the Act of Investment Support enabling to provide incentives to investors such as subsidies, tax reliefs or cheaper land. This direct support for FDIs brought about the re-industrialization of the Czech Republic and the Moravian-Silesian Region. In 2004 – 2005, GDP of Ostrava (and Moravian-Silesian Region) grew even faster than the average of the Czech Republic. In 2006, the Hyundai Motor Company decided to invest in the region, and in 2008 launched the car production at the regional strategic industrial zone in Nošovice. The Hyundai assembly plant with its tier one car part production suppliers has had high impact on regional employment. Very important for the development of the regional economy was the new highway to Ostrava built in 2008.

The global economic crisis at the end of 2008 and in 2009 caused new wave of unemployment in the Czech Republic and in the Ostrava region. Ostrava has undergone a rather short (in comparison with other industrial cities and regions) period of change over the past two decades. The change was caused by the breakdown of communist regime after/during the “Velvet revolution” and following political and economic transformation

Demographics (population development and migration)

After the launching of transformation process as a consequence of the 1989 democratic “velvet” revolution started also the adaptation process of Czech society to West European societal conditions. Socio-demographic behaviour and structure rapidly changed. The first decade of transformation was characterized by a rapid decline in birth rate. However, the situation changed slowly after 2000, and only after 2007 the birth rate started to grow more significantly. The post-productive age group (60+) proportion grew significantly and the pre-productive age group share dropped. The pattern of population structure development of Ostrava is to a large extent very similar to the pattern of population development of the Czech Republic.

Figure 3 Ostrava population development 1961 - 2008



In 1990, Ostrava had 331,219 inhabitants and in 2008 (December 31, 2008) 308,374. The city lost 22,845 inhabitants, which is a decrease by -6.9%. Since 1992 Ostrava has been experiencing continuous population decline by approximately 1,000 inhabitants per year.

Figure 4 Ostrava population 1991 – 2008

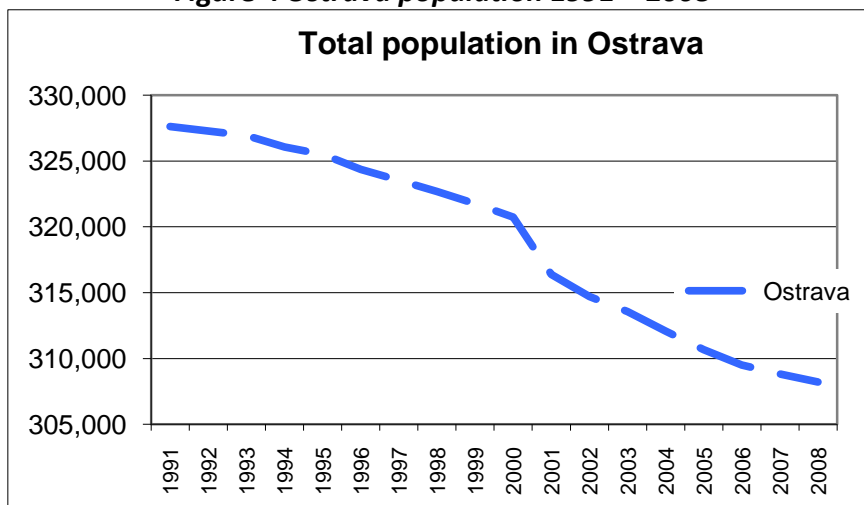


Figure 5 Ostrava population 65+

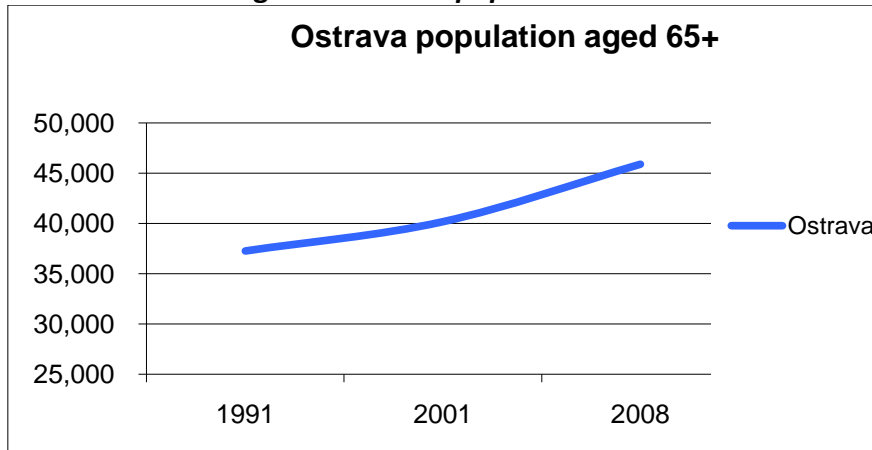
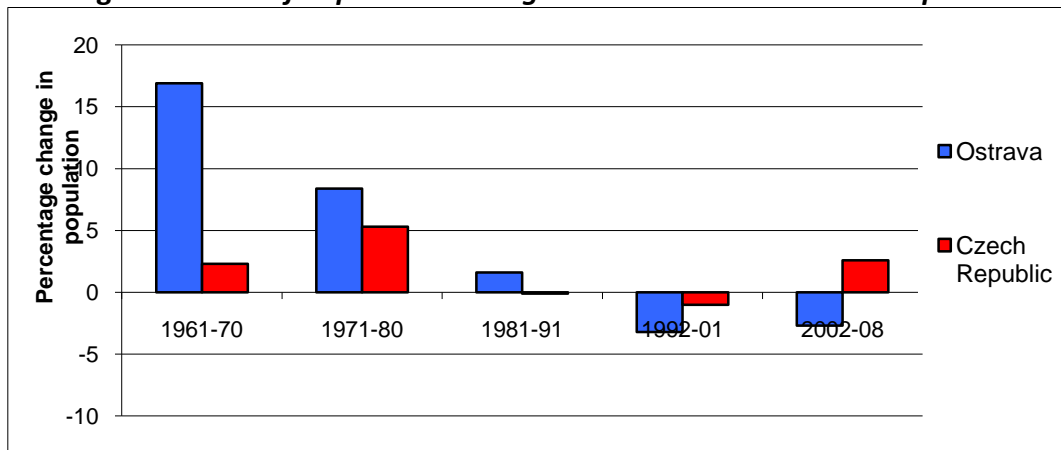
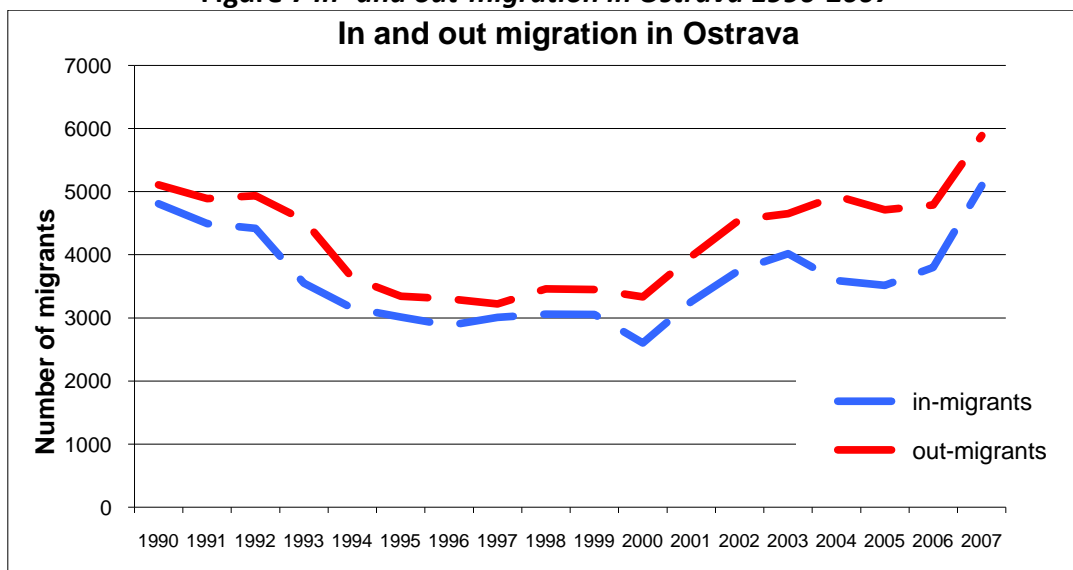


Figure 6 Rates of Population Change – Ostrava and the Czech Republic

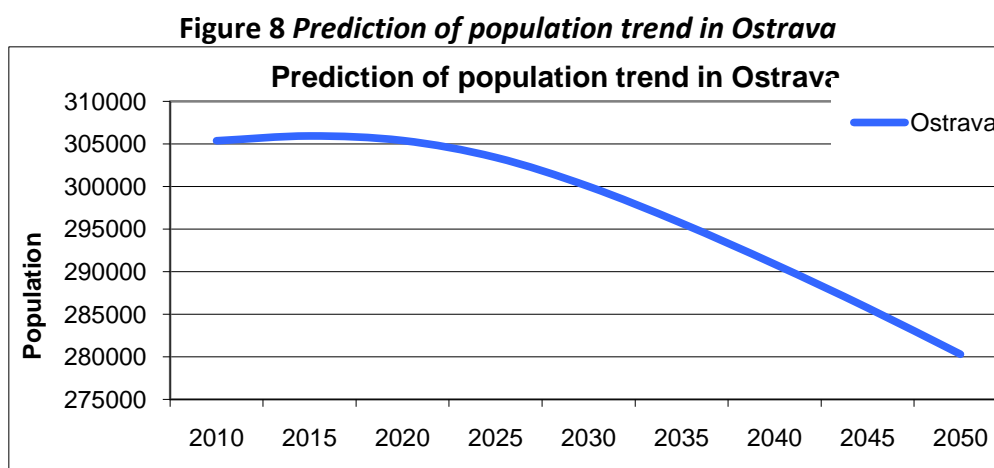


Peak of population losses was reached in 2004 with -1,686 inhabitants (-1,342 migration balance and -344 natural change balance). The principal reasons of shrinkage are negative migration balance over the whole time period 1990-2007, and negative balance of natural change.

Figure 7 In- and out-migration in Ostrava 1990-2007



According to demographic projection by Solanský (Sociodemografická struktura Ostravy – současný stav a očekávaný vývoj, Ostrava, 2008), in 2050 will Ostrava shrink and have only 280,000 inhabitants, because of the population decline due to deaths of the most numerous age group (in 2008 aged 30-34, born 1974-1978) and low birth rates from the beginning of 1990s. It is assumed, that the migration balance and international immigration will be most likely similar to the situation in 2007/2008, i.e. rather insignificant for population increase.



Economic development

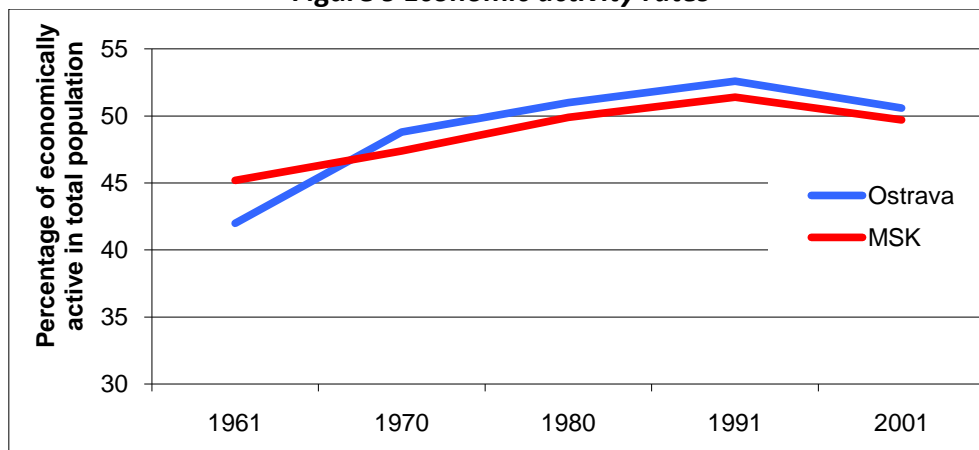
The disintegration of big companies after 1990, the shift from in-sourcing (within big socialist industrial complexes) to out-sourcing, and changes and reforms in the methodology of statistical surveys makes the comparison of different evolutionary stages of the regional economy almost impossible. Most important processes and phenomena in the field of economic development are deindustrialization fomenting the shrinkage (closure of mines and coke plants, and decline in metallurgy, heavy machinery and chemical industries); counter-shrinkage processes are growth of micro-, small and medium sized companies in construction, transport, retail and other services, privatization, and acquisitions (takeovers) of local big companies; the vertical disintegration of big companies in the era of outsourcing; development of services/tertiarisation - retail sector and services development, and attempts of quaternary sector development.

At the moment of the departure of economic reforms from the centrally planned economy to market economy the structure of Ostrava's economy was as follows: In 1990 there were several large state-owned companies such as OKD (Ostrava Karvina Mines), New steel mill (Nová Huť in 1988 25,000 jobs, nowadays in 2008 Mittal Steel 7,000), Iron- and machinery works Vítkovice (in 1988 in all plants of the industrial complex almost 36,000 jobs, see in Prokop, R. 2003), Moravian Chemical Works, VOKD Construction of mines and others. All the companies belonged to the so called mature or old traditional industries, which grew in Western Europe until the end of 1950s, but then came their decline, whereas in Ostrava and other regions of socialist

Eastern European countries they were subsidized by governments and grew very extensively until the breakdown of socialist regimes in 1989. During 1950s-1980s tens of thousands of people in-migrated to Ostrava new neighbourhoods from Slovakia and other regions of the Czech Republic because of the construction of new housing estates in Poruba and Ostrava – South (Hrabůvka, Zábřeh, Výškovice, Dubina), and tens of thousands of workers commuted by buses from the wider Ostrava region, and even from distant villages in North-West Slovakia (Kysuce region). Some workers, especially single men, stayed in workers' dormitories.

At the beginning of 1990s there were no private small and medium sized companies and only weakly developed sector of specialized services. Advanced producer services (business services such as ICT; design departments; construction, maintenance and reconstruction of buildings, including dwellings in residential company owned buildings), and even other services (health care – company hospitals, culture – culture houses, vocational schools, sport clubs and recreational centres and leisure amenities) were integrated into the big industrial complexes and financed by them. The industrial complexes were common in the context of the Soviet bloc, the Council for mutual economic cooperation, and the centrally planned system. These complexes were totally inefficient and had very high rate of latent (hidden) unemployment. Due to the long-term disinvestment and general technological backwardness of socialist economy they were competitive on the global market only in a limited way – through ecological/environmental dumping (no investment into environmental protection) and social dumping (very low wages). The economic reforms in 1990s revealed all the weaknesses and shortages of the local economy.

Figure 9 Economic activity rates

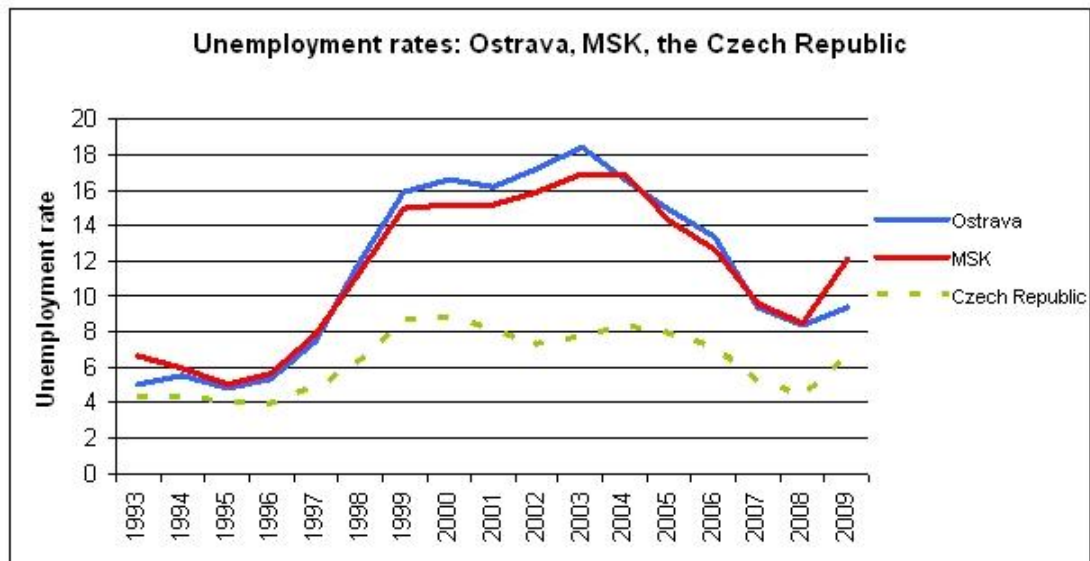


Note: MSK = Moravian Silesian Region

One of the main reasons for the population decline and out-migration in 1990s and 2000s has been the weak local economy of Ostrava, especially in comparison to Prague. The city with its mature old industries experienced a process of massive deindustrialization after the collapse of the centrally planned economic system, which resulted in dramatic job-losses and growing unemployment. In the period 1990-1994 all the mines on the city territory of Ostrava were closed down and other industrial companies lost at least 30% or more jobs until 1998. Since 1994 is Ostrava no longer a mining city, and in 1998 the blast furnaces of Vitkovice were closed down as well.

Figure 10 New steel mill / Arcelor Mittal

The industrial complex of mining in the whole Ostrava – Karvina mining region lost almost 100,000 jobs (in 1988 - 112,000 jobs in mining sector under the conditions of in-sourcing, and approximately 16,000 in 2008 under the conditions of extensive outsourcing). Ostrava still has a high rate of unemployment, currently about 11% (2009), while the Czech average unemployment rate is in 2009 9.9%, but locally – especially in socially excluded localities - more than 40% and higher (e.g. Na Liščině – Hrušov). The closure of companies such as collieries, coke plants and power stations has caused the occurrence of abandoned, contaminated areas with deteriorated industrial buildings and infrastructure – the brownfields, which make up officially 8% of the total area of Ostrava. The brownfields are located especially in the Northern zone of the city along the Odra River and along the railway. The industrial zone spreads from Heřmanice (brownfield Důl Heřmanice with dumps, then chemical plant brownfield in Hrušov) in the East and goes to the West through Přívoz and Mariánské Hory to Třebovice. Another brownfield zone, former Eastern zone of collieries and coke plants, is located in the inner city near to the city centre with the decontaminated brownfield Karolina, then lower Vitkovice area, in Slezská Ostrava brownfields of collieries Důl Trojice and Důl Petr Bezruč with dump Ema, and in the South dump in Hrabůvka and closed area of Mine Alexander (industrial monument) in Kunčičky. In the Southeast of Ostrava is the area of Mittal Steel, the biggest industrial polluter in the city.

Figure 11 Unemployment rates 1993 - 2009

On one hand, the deindustrialization brought about loss of jobs and unemployment in the traditional old industrial branches, on the other hand the fast tertiarisation/growth of service sector was the contradictory process partially retarding the negative consequences of deindustrialization.

In the course of economic transformation and restructuring from 1990s the service sector has grown, especially retail and advanced producer services connected with the market economy such as consultancy, lawyers' offices, real estate offices, banks, financial services, insurance companies, marketing and PR companies. But the services have been mature and strengthened in branches like accommodation and gastronomy – hotels, restaurants, fast foods, wellness, fitness, etc. Service micro-firms have often privatized or rented some premises in the neighbourhoods which deteriorated between 1950s and 1980s. Good examples of this are in Přívoz, Mariánské Hory or Vítkovice, where newly established micro firms found their seats and business premises, and renovated the building stock after displacing socially excluded groups with lower social status. Our pictures show how the business driven process contributed to the regeneration of building stock at Stodolní, Poděbradova or Masná streets, which suffered from deep decline of physical, functional and social structures.

Figure 12 Renovated buildings on Masná Street



Figure 13 Building on Stodolní Street before reconstruction



Very important for the economic development of the Czech Republic and other Middle European countries has been the attraction and inflow of foreign direct investment (FDIs) in 1990s-2000s. The attraction of FDIs were promoted by the Act on support of FDIs (from 2000) defining the support measures for FDIs. The city of Ostrava in 2000s has been advised to establish the Department for economic development, which will prepare and build industrial zones with the necessary

infrastructure on greenfield sites in the city, and then promote the new economic zones at real estate exhibitions. The assumption was that the investors will create new jobs in new branches and in this way replace the jobs lost during the deindustrialization and diversify the local economy. The social and economic situation of the city, especially high unemployment and job related outward migration should be eliminated. Paradoxically, first investors were the retail chains such as Makro (German Metro) in the new industrial zone Hrabová in the south of the city and French Carrefour in the inner city (former sport stadium in the very north west of Moravská Ostrava). In the course of economic boom from 2004 have been coming into the “greenfield” industrial zones new industrial companies creating even new industrial jobs, which we can see as a (low-road) re-industrialization (for example Pegatron Czech/Asus 1,500 jobs, Sungwoo Hitech 1,260 jobs, Henniges Automotive 810 jobs). Another type of investors is the company Tieto Enator in ICT sector with 1,400 new jobs or GE Money Multiservice with 610 jobs. The most important FDI is Korean automotive company Hyundai in Nošovice (in the vicinity of Ostrava, 25km from Ostrava) with more than 2,500 direct jobs and another 10,000 in tier one supplier companies. The fastest growing branches in terms of new jobs are ICT, electronics and automotive, which has a positive impact on the labour market situation. New companies (such as Elcom, Tieto) are partially concentrated in Ostrava Science and Technology Park (established by the city council of Ostrava together with local universities) in the vicinity of the Technical University of Ostrava. Some importance in terms of counter-shrinkage has the activities of local universities as the establishment of new universities and new faculties such as Faculty of Civil Construction, Faculty of Safety Engineering, Faculty of Medical Studies. The universities are trying to strengthen the research and development activity and have stronger impact on the economic development concerning the brain drain or brain gain.

Settlement system

Ostrava evolved from Moravian Ostrava as core historical town, but actually it is polycentric agglomeration, with very fragmented and chaotic urban structures until recent times. Moravian Ostrava as a small town was from 1267 until the industrial revolution the centre of business and trade with the agricultural hinterland. Nowadays there are on one hand areas with highest population density like Ostrava – South (e.g. Dubina housing estate) or Poruba city district, and on the other hand areas of fields or woods in between. These extensive and fragmented settlement systems make the delivery of public services and maintaining of infrastructure more complicated and expensive than in compact cities.

Figure 14 Aerial view of Ostrava-South

The new development trajectory commenced with the discovery of hard coal in Silesian Ostrava in 1763, and has been promoted in 1840s-1860s, when the extensive coal mining and related industries (railway transportation, coke production, iron and steel production, metallurgy, chemicals, heavy engineering, energy production) in close neighbouring villages emerged. The urbanization process was determined by industrialization and urbanization was lagging behind the industrialization, which is the reason of chaotic development. The typical story of the evolution of settlement system was as follows: In independent towns or villages like Moravská Ostrava, Vítkovice, Přívoz, Slezská Ostrava, Hrušov, Čertova Lhotka (later Mariánské Hory) were founded collieries or another types of industrial factories, and then near to the factory were built workers' colonies for immigrated labourers and later on houses for higher social class and representative buildings like churches or town halls. In 1924 came the first wave of administrative unification of towns around Moravská Ostrava such as Přívoz, Vítkovice, Hrabůvka, Mariánské Hory, Zábřeh, and Nová Ves. The city of Ostrava (Greater Moravian Ostrava) was established in 1924 with more than 120,000 inhabitants. Then, under Nazi occupation (1939-1945) in 1941, the Silesian towns and villages (Silesian Ostrava, Michálkovice, Muglinov, Hrušov, Heřmanice, Radvanice, Kunčičky, Kunčice) and 4 Moravian villages (Hrabová, Stará Bělá, Nová Bělá, Výškovice), which had strong economic ties and interconnected transportation system with Moravian Ostrava, were incorporated into the administration of Greater Moravian Ostrava.

Figure 15 *Prefabs housing estates in Ostrava-South*



Figure 16 *Aerial view of Moravian Ostrava*



Figure 17 *Ostrava consists of the following morphogenetic urban macrostructures (according to Bednář, P., 2008 and 2010)*

Morphogenetic zones of Ostrava

year 2010

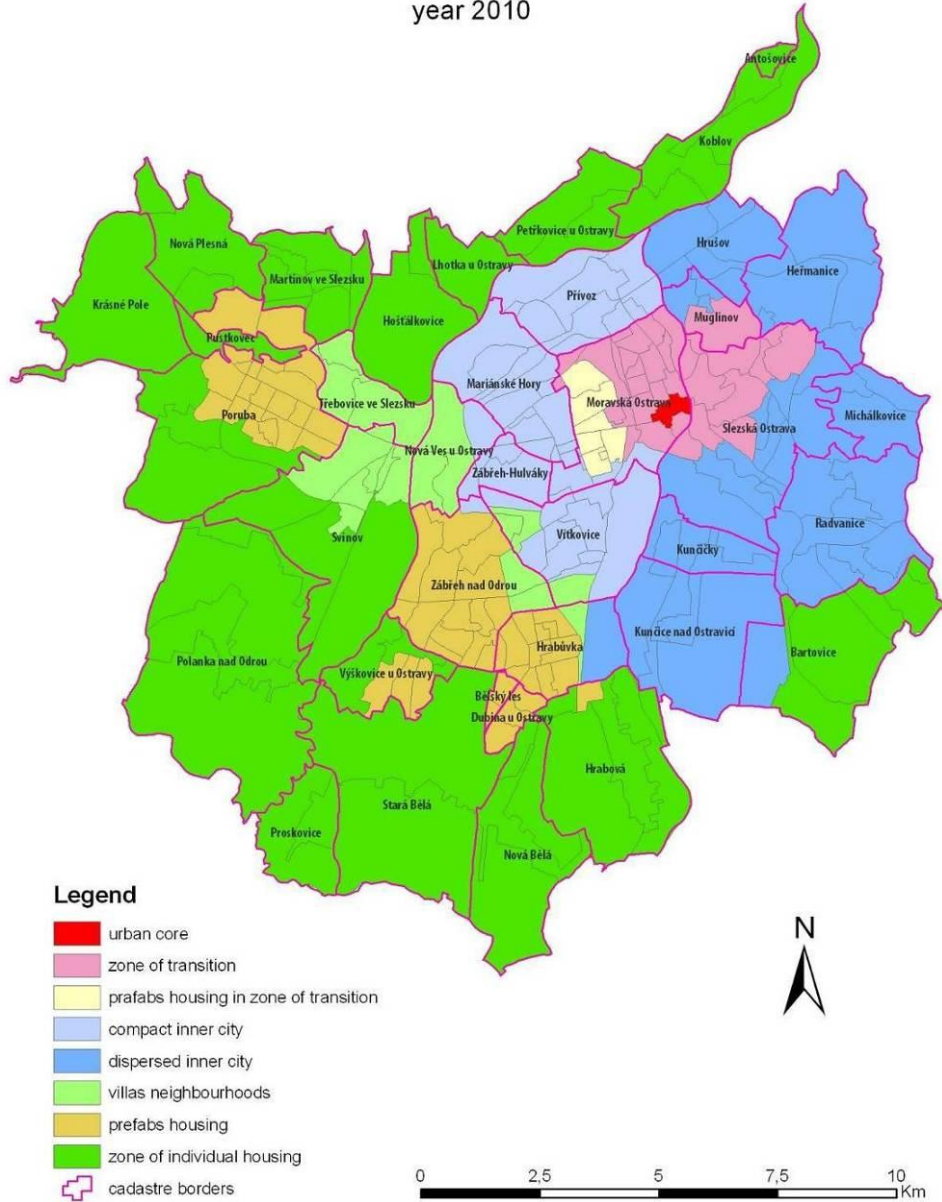


Figure 18 View of Silesian Ostrava



Figure 19 New suburb in Krásné Pole



Figure 20 Prefabs housing reconstruction in Bělský les housing estate

2.2. Trajectories of urban shrinkage

It is important to perceive the urban shrinkage of Ostrava in the evolutionary perspective and broad historical context. Until 1938 Ostrava was a multinational city where cohabitated Czechs, Poles, Germans and Jews. Polish workers came mostly from the territory of Halič in the period from 1850s-1920s. In the same period came Germans from neighbouring German/Prussian Silesia region and industry experts and mid-level managers from Austria or Germany. During the World War 2 the Jews were deported and killed in extermination camps and their property was confiscated by the occupation German administration. In 1945-1946 most of German population in Ostrava city was expelled according to president Beneš decrees (Edvard Beneš – Czech president 1945-1948, who decided with support of France and England about the deportation of German population from Czechoslovakia). The Germans lived predominantly in Vítkovice, Přívoz (Prokop, R.), and Moravská Ostrava. After the expulsion, their houses and dwellings were occupied by in-migrants from the whole Czechoslovakia, but the social structure in the originally German upper middle class and middle class neighbourhoods changed totally. The originally good address neighbourhoods changed step by step from 1950s until the end of 1980s to dilapidated and socially deprived neighbourhoods perceived by local population as

worst addresses, such as Přívoz or Vítkovice. The reason for the urban decay was the in-migration of Gypsy/Roma population from Slovakia from 1950s. The Roma population in Ostrava has been growing very fast due to very high fertility rate of local Roma population, and after 1993 (the splitting of Czechoslovakia into Czech Republic and Slovak Republic) this inflow was even promoted by in-migration from Slovakia thanks to higher social benefits in the Czech Republic than in Slovakia. In 2000s the problematic cohabitation of Roma population with majority population is one of the biggest challenges for experts and politicians as well. The Roma population has different value system than majority population and this is the reason for social exclusion of Roma, who tend to concentrate (or to be concentrated) in ghettos (as enclaves of poverty and social deprivation). Such ghettos or places of social exclusion (Tvrdý, L., Horák,) can be found in Hrušov (street Riegerova ulice, Na Liščině), in Vítkovice (street Sirotčí), in Přívoz (Palackého), or in Kunčičky.

Spatial-temporal patterns

The main factors causing urban shrinkage of Ostrava are demographic change, deindustrialization and suburbanisation. However, the causes and impact of shrinkage are different in different neighbourhoods and districts of the city of Ostrava. In general, there has been a significant shrinkage process in Poruba, where the population was 93,667 in 1980 and 71.788 in 2008. Poruba was founded in 1950s as New Ostrava and built up as satellite, example socialist city westwards of Ostrava. In 1957, it became an administrative part of Ostrava. We could call Poruba as an ageing district, because most of the young families came into this new neighbourhood in 1950s-1970s, had in average 2 children, who have been leaving the households continuously in 1980s-2000s. We assume that nowadays in 2010 there are many single households (a household with one elderly person instead of households with three/four persons). We assume (we cannot claim it because census was in 2001 and new census and new data we will be available in 2012 from census in 2011) that there is a certain change and young people (even young families) move into Poruba (intra urban in-migration), attracted by relatively good quality of life, living conditions, and better image than other parts of Ostrava. However, due to the low birth rates there is no population increase. Similar shrinkage process and situation is in central parts of Ostrava like Moravská Ostrava a Přívoz, Mariánské Hory a Hulváky. Surprisingly, when we take into consideration the district Ostrava-South as a whole, there is no strong shrinkage process, even though parts of this district were built in 1980s and at beginning of 1990s as very unattractive prefabricated high rises without appropriate infrastructure and amenities. Most of dwellings have been privatized, the houses reconstructed and dwellings modernized and retrofitted. Certain positive role plays the programme for regeneration of prefabricated housing estates financed via grants from central government.

Figure 21 Moravian Ostrava mixture of residential and industrial areas

On the other hand, we can observe population growth in the last decade in the peripheral, or even rural, parts of Ostrava due to the suburbanization process. We can assume (according to certain research results) that it is a process of intra-urban population movements to the peripheral parts of the city with more attractive natural environment (especially in the western parts of the city because of lower air pollution), where the younger middle class or even upper class families have been building their family houses. The process of population increase in 2000s thanks to in-migration can be seen in districts like Krásné Pole (the good/best address neighbourhood), Lhotka, Plesná, Pustkovec, and Třebovice. Even more surprising is the slight population growth in eastern parts of the city such as Slezská Ostrava and Michálkovice, which have been affected by development of mining and related economic and non-economic activities during long period from 1850s-1980s. Slezská Ostrava is the largest city district with structurally and functionally different parts (convenient subdivision of the district Slezská Ostrava is according to the cadastral units), which developed differently in the history. It consists of parts such as Antošovice, Koblův (villages with family houses in the north), Hrušov (originally industrial town, dilapidated, partly even destroyed more details below), Heřmanice (formerly mining village/municipality), Muglinov, cadastral unit Slezská Ostrava, Kunčičky, Kunčice (with a new steel mill - Arcelor Mittal). These parts of city district Slezská Ostrava have different urban structures and functions on micro-geographic level (basic settlement units), which influences the contemporary development. On the territory of Slezská Ostrava were built collieries with miners' colonies (houses with dwellings for miners), heaped colliery tips or subsidence of the ground were caused by mining activities. Many houses had to be demolished due to the subsidence of ground. However, we are witnessing certain positive residential developments in this district, such as the construction of condominiums (at

Keltičkova Street; Atrium Slezská; or houses in new residential areas), reconstruction of villas, or construction of University of Ostrava buildings at Chittussiho Street. In Muglinov was implemented an interesting project concerning the social inclusion – the so-called village of cohabitation for inhabitants from Hrušov, who were affected by floods in 1997.

Hrušov, shrank part of Ostrava

Hrušov, as a part of (Slezská) Ostrava since 1941, is a very interesting place in terms of shrinkage and reflects at small scale all the negative processes and problems (but not the positive trends), that are typical for Ostrava as a whole. Hrušov, as a former village at the border between Moravia and Silesia and at the confluence of rivers Odra and Ostravice, was first mentioned in written sources in 1256, but more important became in the 19th century. In 1838, the first mine was opened and in 1848 the railway came to Hrušov, which promoted the industrialization process and foundation of important companies such as First Austrian soda factory (1851) and in 1852 Ceramic goods factory. The industrialization boosted consequent urbanization through construction of workers' colonies/quarters (in 1860s) and related facilities such as school, post office and town hall. In 1908 became Hrušov the township village with about 5,000 inhabitants, closely connected both economically and in terms of transportation with Silesian Ostrava and Moravian Ostrava as well. In 1921 the number of inhabitants reached its top with 7,736 inhabitants – including Czechs, Poles, Germans and Jews. During the Nazi occupation in 1941 Hrušov was incorporated into the City of Ostrava. In the history of the development and shrinkage of the former municipality, the following events played important role: During the World War 2 the Jewish population was deported and killed in extermination camps and then in the 2nd half of 1945 and in 1946 the Germans were expelled and replaced by immigrants from the Ostrava region and from the whole former Czechoslovakia. The ethnic and social structures changed significantly in 1940s, but even in 1961 Hrušov as a city district had 7,278 inhabitants working mostly in the local collieries, chemical factory and other plants.

Since 1980s Hrušov has been shrinking due to several reasons. First reason was the subsidence of the ground due to long term mining activity and the consequent deterioration of building stock (disturbed statics of buildings), leading to demolitions. Secondly, it was the construction of new bridges over the railways and the necessary demolition of impedimentary building stock, and thirdly it was the loss of jobs caused by closing down of the Ceramic factory (1966) as well as some mines and works of the chemical company, and related out-migration. The fourth reason was the in-migration and presence of socially excluded groups of inhabitants, who deliberately gradually destroyed the already run-down building stock since 1960s. The economic transformation and restructuring revealed in 1990s the lack of competitiveness of local companies (collieries and the chemical factory), which were closed down and became brownfields or even 'blackfields' (as a sort of a strongly contaminated brownfield). The most important cause of the destruction of north-eastern part of Hrušov and its depopulation was the flood in 1997 (water level reached height of 3m) in combination with plundering of houses during this natural disaster. From this moment, Hrušov has been the most dilapidated part of Ostrava.

Figure 22 Dilapidated building in Hrušov - north eastern part

However, due to high fertility rate of Roma population (there are no official data on Roma population, because they declare themselves in censuses as Czechs and Slovaks or another nationality; but there is an empirical evidence) in the part “Na Liščině” (south eastern part of Hrušov) and in the south-western part in Riegrova street, in the census of 2001, the population decline was not dramatic in Hrušov. Thus, at the first glance Hrušov is being considered as a part of Ostrava with the lowest quality of life. There is the settlement of socially excluded Roma communities living in run-down houses in combination with industrial brownfields (as a result of the chemical plant demolition) and social brownfields such as former residential areas destroyed after floods. However, some positive developments have evolved in Hrušov as well. The industrial brownfields are expected to be reconverted into business zone. In the south-western part near to former Ceramic factory the buildings and some villas and parts of the former factory have been privatized and reconstructed by local entrepreneurs and are serving as their firm seats and workshops. Several attempts have been implemented to solve the Roma segregation in socially excluded communities.

The so-called “Village of cohabitation” was built in neighbouring cadastral district Muglinov (part of city district Slezská-Ostrava as well) after floods in 1997 through the support of many organizations and institutions, most notably Ministry for Regional Development, the City of Ostrava, charity organizations and church. It is a project and an attempt of social inclusion of Roma minority. The Village of cohabitation has been settled by Roma, mixed and majority population families together. A street worker from India Kumar Vishwanathan has been active here in supporting Roma population in their efforts for better life. The problem of coping with general shrinkage processes in Hrušov is very complex. The complicated and fragmented ownership structure of building stock and land (i.e. brownfields), not existing local authorities (as Hrušov is “only” cadastral district, a part of city district Slezská Ostrava), and the justified opinion of politicians and city officials that there

are more important problems in Ostrava to be solved. According to our estimations more than 70% of the territory of Hrušov is deteriorated areas and brownfields. Most of the brownfields such as former conical waste dumps (refuse tips) or chemical pit heaps will be naturally regenerated and will become urban wilderness. The brownfield in the north-eastern part of Hrušov will be regenerated through public-private-partnership project led by the city of Ostrava (owner of 51% of the brownfield). The territory of Hrušov could be developed with regards to its low attractiveness only as an area for industrial development, for small and medium sized enterprises in the field of services or light industries. The residential development is possible only in relation with the development of micro-firms (small construction or car repair firms) in the area, where entrepreneurs renovate the building stock with only few good examples in south-western part of Hrušov.

Figure 23 Hrušov building in process of renovation



Vítkovice, shrank city district

The first written reference about the village of Vítkovice is from June 15, 1357. The village was situated near the Ostravice River. Vítkovice was a part of Hukvaldy demesne. On the basis of Viennese professor F. X. Riepel's recommendation, archbishop Rudolf of Habsburg decided to build steel works in Vitkovice in 1828. This factory developed economically, socially and nationally to an exceptional extent during the capitalist industrialization. The Rothschilds bought the factory and in 1843 and then in 1873 allied with businessmen in mining, Guttman brothers, to create Vitkovicke horní a hutní těžířstvo (heavy industry corporation).

Thanks to this the agricultural village changed into an industrial town with the biggest and the most modern steelworks in the Habsburg Monarchy. Fast development of the steelworks helped to a dynamic population growth in Vitkovice and the surrounding villages. The national and professional structure of the population significantly changed. Originally, in 1843 the rural municipality had 328 citizens in 81 households; in the 1869 census Vitkovice had already 1,677 inhabitants (74.2 % who have moved in). 78.6% inhabitants were dependent on industrial production. The widespread construction of industrial buildings, flats and social infrastructure amenities according to the unique project called "New Vitkovice" outweighed the agriculture.

The development and growth of steelworks and the mine Louis, whose construction started in 1891, caused an influx of mostly unqualified workforce. At the beginning people were coming from close surroundings, later from faraway areas of Moravia, Silesia, Bohemia and Poland and since 1890s also from Halic. The massive wave of migration caused the fact that in the 1921 census Vitkovice had 27,358 inhabitants.

The most important dates in the history of the district are: 1908 when Vitkovice became a town, 1902 when the town hall was finished, and also 1924 when it was merged with Moravska Ostrava. After the liberation in 1945, the vulnerable balance of industry and civic amenities was destroyed. The socialist economy's plans favoured the development of industry to the development of trade and in late 1960s they sentenced the residential area of Vitkovice to a gradual run-down and destruction. At that time Vitkovice ceased to be a separate quarter and became a part of Ostrava 3 (today's Ostrava South). The second half of the 20th century was not a good era for Vitkovice. This fact is reflected by a huge decline in population (1961 – 16,907 inhabitants, 1971 – 11,272 inhabitants, 1980 – 9,555 inhabitants, 1991 – 7,292 inhabitants, 2001 – 7,518 inhabitants).

The district of Vitkovice was saved at the last moment in 1990 when it became a separate quarter again and the inappropriate enormous goals of the centrally planned economy were confronted with liberal economy and free enterprise. Life started to come back with the privatization of building stock, with the initiative of new entrepreneurs. In 1990s-2000s the newly reconstructed buildings emerged from under layers of dust. Formerly ruined buildings became seats of small and middle-sized companies, which chose this location because of its good accessibility and comparatively low purchase price of the properties. The forgotten beauty of the industrial architecture was revealed and the whole history of the quarter gained significance by the initiatives of several NGOs. People started to appreciate the typical redbrick buildings built in 19th and early 20th century and many houses in "Štítová" settlement and Josefinská Street have been reconstructed and now provide a high quality accommodation. The industrial complex in the lower part of Vitkovice has become a national cultural (industrial) heritage and since December 1, 2008 has been a European Cultural Site, which is awaiting its revitalization and visitors.

Figure 24 Vítkovice: *privatised and partly reconstructed houses in Štítová settlement*



Next problematic area in terms of shrinkage is the inner city (districts Moravská Ostrava a Přívoz, Mariánské Hory, parts of Slezská Ostrava) with population decline since 1960s. For example in 1961, population of Moravská Ostrava a Přívoz was 59,319, and in 2008 only 42,538 despite the construction of prefabricated housing estates in 1970s or 1980s such as Fifejdy in the north-western part of Moravská Ostrava. In 2000s there has been a moderate new residential development in Moravská Ostrava such as Podkova (Horseshoe), Améba, and Městská Brána at the most attractive location of the city close to Komenský Park, with positive impact on the physical structure.

To sum up: The most shrank area has been Hrušov with population decline, deindustrialization and occurrence of brownfields, downgrading of social structure (negative trends such as social exclusion of Roma population), and deterioration of building stock. Similar negative development can be observed in Kunčičky, where the Roma population is being displaced and the building stock suffers from long-term disinvestment and inappropriate way of usage by the socially excluded population.

The most problematic district in the future (2030-2050) could be some parts of Ostrava – South (such as Dubina) because of the ageing and high concentration of elderly population with rather lower income after 2030. We have to take into account the context of suburbanization, which means the moving out of young

middle class families from prefab housing estates and less attractive inner city areas to the geographic periphery of the city with better environmental conditions, especially in western part such as Krásné Pole with increasing number of houses, dwellings and population. Suburbanization with ageing and social polarization could/will lead to strong shrinkage process in Ostrava – South, with the high concentration of young people in 1980s - 2000s.

Dynamics

We can prove different waves of shrinkage in different districts or parts of the city. Recent situation in 2010 in socio-demographic development affects mainly Ostrava-Poruba, where in the last 20 years lower birth rates and high deaths rate caused the population decline significant in the demographic statistics for the whole Ostrava. Young, especially well educated people, are leaving the dwellings with originally four person families and in the dwellings live then only two-person families (empty nesters) or singles (elderly women or single young people). Paradoxically, there is no housing oversupply or building stock deterioration. On the contrary the houses are being renovated and flats retrofitted. Poruba is considered according to our research as good address and attractive district of Ostrava.

3. IMPACTS AND CONSEQUENCES OF URBAN SHRINKAGE

This part of the paper describes the structural impact that urban shrinkage has on different fields or aspects of urban development. It closely follows research questions and is based upon indicators defined in Tables 5 and 7 of WP1 (see attached below for your convenience). Thus, Part 3 analyzes direct and indirect impacts and asks which developments might be caused primarily by urban shrinkage. It also contains tables, photos and figures to support the main argument.

3.1. Patterns of segregation and social cohesion

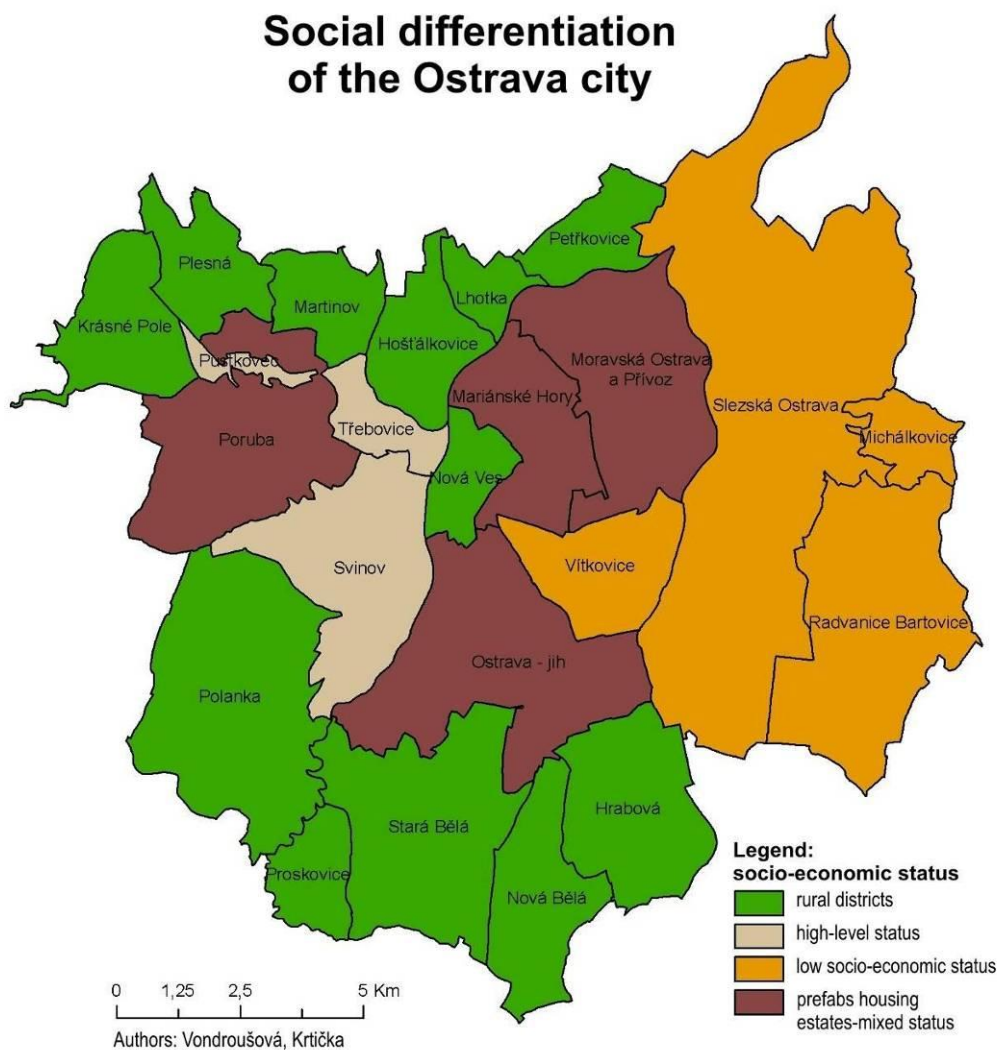
After the breakdown of the regime of totalitarianism of Communist party in 1989 marked by long-term equalization efforts affecting economic efficiency/performance and social levelling efforts (such as wage levelling), started the transformation to market economy with post-socialist democracy. After the extermination of Jews and expulsion of Germans in 1940s and after 40 years of socialism there were rather unclear spatial patterns of social structure in the cities like Ostrava. General trend during socialism was rather mixture of members of different social groups in new housing estates in form of new cities e.g. Poruba with 93,000 inhabitants in 1980 or Ostrava-South with 118,800 in 1991. Despite this general trend there were areas or enclaves with lower class inhabitants such as e.g. Vítkovice or Přívoz (originally until 1946 with strong German population) with Roma population and on the other side villa neighbourhoods with higher social status population such as Bazaly in Slezská Ostrava or Sadová street in Moravská Ostrava.

The market economy brought economic and social polarization with impact on the creation of more distinct spatial patterns of social structure. According to Horák (2009) Ostrava is in 2008 significantly more polarized than in 1990. The young, economically successful population move to the environmentally more attractive geographic periphery of Ostrava, to Krásné Pole (population increase by 29%/550 inhabitants from 1991 to 2008), Lhotka, Nová Bělá, Stará Bělá, Proskovice, Polanka nad Odrou or even into Pustkovec, Svinov, Michálkovice, Radvanice and Bartovice with less attractive environment due to dense traffic or pollution.

We cannot follow and explain the social exclusion at the level of city districts but rather city parts, basic settlement units (census tracts) or particular streets. In the district Slezská Ostrava we can see on one hand socially excluded communities in Hrušov (Riegrova street, area Na Liščině), in Zárubek area, in cadastral unit Kunčičky, and on the other hand the new housing estates or condominiums such as Atrium Slezská at Michálkovická street. The process of social exclusion has been in 1990s-2010 strongly connected with the displacement of Roma population from the inner city – from parts of Moravská Ostrava, Přívoz or Vítkovice. Roma population have been affected by unemployment due to missing qualification and skills for the new situation on the labour market. The socially excluded localities suffer from strong residential separation, are bordered by industrial areas with high pollution, brownfields, high-speed communications. The poverty of living in deteriorated houses is coupled with the environmental pollution. There is no evidence, but

according to our knowledge, the population growth in these communities is above average. We can consider this localities in Ostrava as most shrank areas in terms of deterioration of houses, environment, social and technical infrastructure even if the main indicator of shrinkage, i.e. the population decline, is definitely not the case. The bad living condition and social situation in the socially excluded communities and areas should be solved by the Agency for Social Inclusion established by the Ministry for Human Rights and Equal Opportunities in 2006. The Agency for Social Inclusion has its network of branches in selected locations of Ostrava e.g. Sirotčí, and cooperates with other NGOs in order to improve the situation. A successful project have been implemented at the end of 1990s - the construction of the “Village of cohabitation” in Muglinov for people from Hrušov – Roma population lives here together with majority population families, who have been affected by the flood in 1997. In 2010 rather growing polarization more than cohesion is the case in Ostrava.

Figure 25 Map of the social differentiation of the Ostrava city



3.2. Business and employment

In the last 20 years, from 1989 to 2009, the economic structure and structure of employment in Ostrava has changed significantly. From 1840 until 1989 tens of thousands workers in-migrated or commuted to the Ostrava region due to relatively well paid jobs in the companies in traditional regional industries such as coal mining and heavy industries.

After 1989 came the economic transformation and deindustrialization, and Ostrava became one of the most affected regions in terms of unemployment. The regional unemployment rate was 1990-2003 higher than in other Czech regions. The regional unemployment trajectory copied the national trajectory, i.e. when the unemployment in the Czech Republic grew, then grew the unemployment rate in the region, but with higher intensity. In 1990s grew the service sector, but industrial jobs declined. Since 2004, the economic situation began to change for the better due to the growth of the whole Czech economy thanks to development of small and medium sized enterprises, acquisitions of existing industrial companies and new foreign direct investments into industrial and business zones. New foreign companies came into the region in order to benefit from investment incentives, low labour cost, and to capture new emerging markets in Central Europe. The reindustrialization process was accompanied by the retail, residential, office and hospitality development until the start of economic crisis in 2008. The car industry and ICT sectors in the region underwent positive development and the regional economy became more diversified. Most important investments were the Tieto Enator investment (created about 1,400 new jobs in ICT sector), or Hyundai Motor Company investment (created about 2,500 jobs in manufacturing activities and assembly plant) with its tier one suppliers. The economic development process based on exogenous development strategy through attracting foreign investors has been criticized for several reasons. Firstly, the investors came due the incentives and low labour cost and can/will leave the region after gaining all the benefits. Secondly, the re-industrialization based on low costs of inputs is not the strategy for developing higher value added activities. Thirdly, the foreign investors will transfer the profits made in region anywhere else and re-invest the profit for example in Russia. The region itself will not have any other profit but new jobs.

In 2009, new effort towards more endogenous development based on innovation in regionally embedded companies has been introduced, and in 2010 the implementation of the regional innovation strategy has been launched. The local and regional authorities want to support innovative, export oriented firms in order to create more diversified economy with higher value production. If it will be successful is not ensured, but such attempts are being made in all European (not only) regions and Ostrava region does not want to be an exception, even if the future positive results will be rather limited.

The positive economic development, especially since 2003/2004, together with strong urban renewal efforts and investments made by local authorities, influenced the attractiveness of Ostrava for its inhabitants and we may assume that the process of out-migration and urban deterioration has been stopped. The shrinkage is and will

be the reality in certain parts of the city of Ostrava in the future due to ageing and shrinkage of households, due to suburbanization and social polarization. However, the urban decay connected with economic development and possible economic breakdown of the local economic base in the period 1990-2003 has been warded off. The economic crisis 2009-2010 hit the local and regional economy in similar way as the whole Czech Republic's economy. The unemployment rate in the region in the course of the economic crisis increased from 6.8% in January 2009 to 9.9% in February 2010.

3.3. Social infrastructure and education

Ostrava as a formerly pure industrial city has many specific problems having impact on state of health and social situation of the inhabitants, who have been working in companies of heavy industry (physically demanding jobs) and living in a highly polluted environment. Generally, we can say that the polluted environment and unhealthy lifestyle of the dominant working class population with lower educational level caused early retirements and industrial occupational diseases. The local industrial economy has been determining the social structure and subsequently the specific needs in the fields of social infrastructure and social services, in specialized medical services and health care infrastructure.

According to the research results of the "Analytical part of The Strategic plan of the development of the city Ostrava for 2009-2015" (Strategic plan, 2008) there is no oversupply in social infrastructure with regard to the slight population decline, but there is the need to enhance, improve and modernize the social infrastructure, especially with regard to the gradual ageing of the population. Due to the ageing process and growing number of elderly people (age group 70+), and due to the needs of handicapped and disabled persons in Ostrava, the capacities of social services and social infrastructure are not sufficient, although there is a whole range of social services for elderly, handicapped and disabled people. For example we can name retirement homes, day care centres and homes with domiciliary services, consulting centres, etc. The city administration in cooperation with all important actors in the field of social services has been applying the methodology of community planning since 2003, which enables the upgrading of social services and social infrastructure. For instance in 2000s CZK 500 million has been invested only into the construction of the retirement home "Slunečnice" in Ostrava – Poruba. One of the recent major challenges is the social inclusion of the Roma population, which is numerous in Ostrava (but we do not have any precise official data). To tackle the problem of social exclusion of Roma population the government of the Czech Republic launched in 2000s some activities such as the establishment of the Agency for Social Inclusion. Ostrava has adequate availability of medical services and healthcare infrastructure comprising three major hospitals such as University Hospital Ostrava (with 1,370 beds), Municipal Hospital (1,050 beds), Vitkovice Hospital, and 900 other medical facilities serving the population of Ostrava and its hinterland.

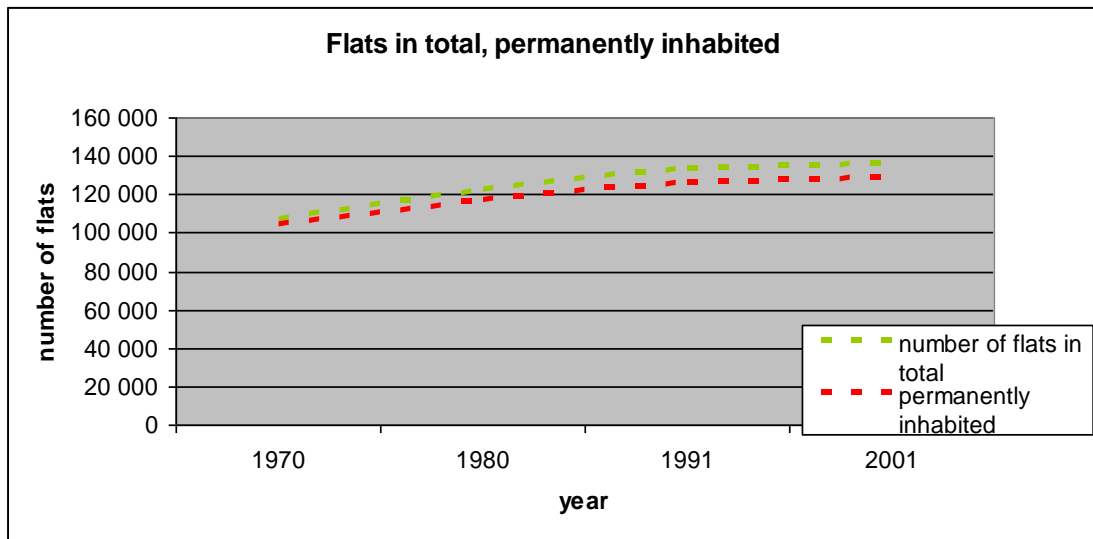
Unfortunately, Ostrava has not been the city of culture, which is connected with the social structure of the former industrial city and the limited cultural needs of the prevailing working class inhabitants. Ostrava has been perceived rather as a city with low cultural and educational level (in comparison to Prague and particularly to Brno) by both inhabitants of Ostrava, and by the whole Czech population. In fact, the reality is better than the image and Ostrava dispose of theatres, museums, galleries. Furthermore, the city council supports the candidature of Ostrava for European Capital of Culture 2015, which should help in development of cultural infrastructure, e.g. the needed big concert hall.

3.4. Housing

In the whole Czech Republic was housing deficit/shortage in the period 1945-1989 and the construction of new estate housing in Ostrava in combination with the availability of well paid jobs in the heavy industry over this period attracted many people to Ostrava. There were strong in-migration waves during 1950s-1980s to Ostrava, which stopped after the launch of transformation process 1990 because of lack of jobs. In Ostrava, even over the transformation period in 1990s-2000s the demand for dwellings was higher than new supply – not many vacant dwellings have been available. There have been rather quality dwellings shortages on the housing market than housing oversupply. This fact has weakened the mobility of persons and of workforce after 1989 together with the low mobility propensity (inclination) of Czech population due to their value system and preference of strong local social ties.

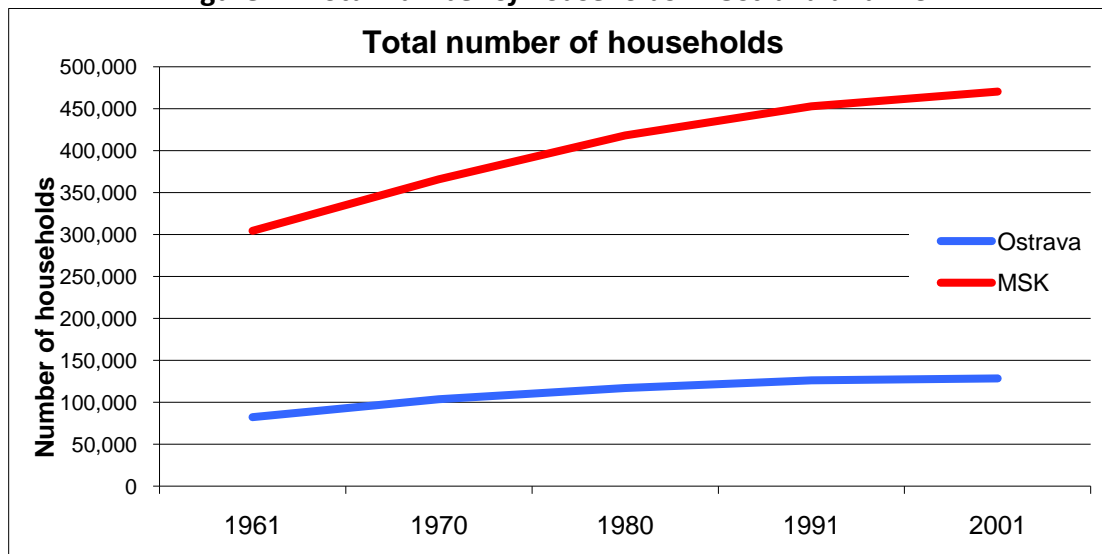
The number and size of dwellings grew from 1947 permanently, even after 1992 when the slight shrinkage process began. We can distinguish different stages during the period of communist urbanization and construction of housing estates. In 1950s were built rather small dwellings (2 rooms and kitchen) in housing estates with brick two story houses and good living environment and social infrastructure were taken into account. In 1970s were built dwellings with 2/3 rooms and kitchen in mostly prefabricated housing estates with high rises (15 story houses were not exceptional) and prefabricated table houses. The environmental quality was lower than in 1950s (not much green and public space) but the social infrastructure such as health centres, nurseries, kindergartens and schools was available. In 1980s, due to economic weakness of the communist regime, the construction of housing estates was of lowest quality, even though 4 room dwellings were built at that time. Typical was extraordinary density of population, with neglected built-environment, no amenities such as green and public space, and not enough developed social infrastructure. Such an example is Dubina housing estate in Ostrava – South. In 1989 the state of building stock and houses in the Czech Republic and particularly in Ostrava was in very bad condition due to disinvestment. The facades of houses were grey and dilapidated and the dwellings needed to be reconstructed and retrofitted.

Figure 26 Flats and permanently inhabited flats in total

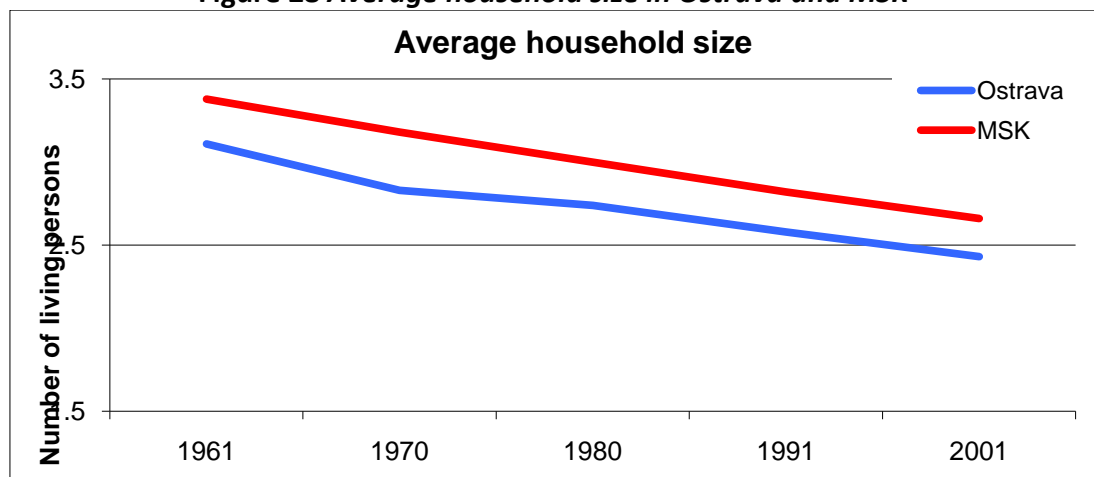


The slight population decline did not cause dwelling vacancies, but enabled the improvement of living conditions through the growth of dwelling space per person (in sq. m.). The growth of number of dwelling has been determined with the demand of inhabitants/households for living alone in one dwelling and having more space per person. According to census data in 1970, in Ostrava there were 106,412 dwellings with dwelling space per person 10.6 m² and average number of persons in a permanently inhabited dwelling 2.83. In 1991, there were in Ostrava 132,806 dwellings with dwelling space per person 15.3 m² and average number of persons in permanently inhabited dwelling 2.58. In 2001 there were 135,912 dwellings with dwelling space per person 17.0 m² and average number of persons in permanently inhabited dwelling 2.43.

Figure 27 Total number of households in Ostrava and MSK



Note: MSK = Moravian Silesian Region

Figure 28 Average household size in Ostrava and MSK

Note: MSK = Moravian Silesian Region

Actually, we do not have enough quality data to be able to assess precisely the state of housing in Ostrava. According to data of the Czech Statistical Office, the number of vacant houses (not permanently inhabited) has been growing. We can claim that due to the growth of number of students, which tripled during the last 20 years from approximately 10,000 in 1990 to 30,000 students in 2009, the vacancy rate did not increase significantly. Some dwellings have been occupied by legal (or even illegal) workers and in some dwellings, especially in socially excluded neighbourhoods, are staying much more inhabitants than officially registered.

The Roma population and its social position in Ostrava and in other Czech municipalities are very specific in the context of urban development in Europe. In the course of economic transformation in 1990s – 2000s, connected with the pressure on productivity and efficiency in local companies, the Roma population was affected very intensively. The Roma were laid off as first due to the low level of education and skills, which even worsened the economic and social situation of the large and growing (due to high fertility rate) Roma families.

Very important process from the shrinkage point of view was the privatization of houses in the Czech Republic and in Ostrava. In 1990 the city of Ostrava was the owner of 45,476 dwellings. Then, in 1990s-2000s the privatization of houses and dwellings took place and new property relations were established. The higher ratio of dwellings or houses ownership contributes to higher stability of inhabitants and better identification with Ostrava. We can see it as a remarkable stimulus for reconstructions of houses and dwellings and a significant factor of improvement of building stock in the city. Since 2004, over the economic revival period 2004-2008, has began the wave of construction of new residential buildings in Ostrava by developers (houses “Podkova”, “Ameba” and “Městská brána” in the city centre, “Atrium Slezska” in Slezská Ostrava, “Nová Poruba” in Poruba. Since 1990s, in the peripheral rural districts of Ostrava has been booming the construction of family houses for instance in Krasné Pole (73 new houses in period 1991-2001 that is 15.4% growth of housing stock), Lhotka, Nová Bělá, Proskovice, Pustkovec.

3.5. Technical infrastructure

In the course of the last 20 years (1990-2009) important modernization efforts of technical infrastructure in the city of Ostrava have been carried out, or are in the pipeline. However, there are also localities affected by disinvestment, such as Hrušov. The most important for the development of the city is transportation infrastructure, especially the launch of high speed train to Prague in 2005 (so-called SuperCity Pendolino train), the completion of the motorway D1 (to Brno, Prague) and slow development of the Ostrava airport in Mošnov, which improved the accessibility of the city and its attractiveness for investors.

The biggest problem is the rapid growth of numbers of cars (in 2008 330 cars per 1000 inhabitants and 474 motor vehicles per 1000 inhabitants) and car transportation in the city affecting air quality due to high levels of pollution. Missing parking spaces are the reality in the inner city and local authorities invest into construction of parking garages and parking lots, unfortunately at the expense of public space and green space in the city. After 1990 dropped among the public the degree of preference for public transportation in the city in connection with the changes of lifestyle of certain social groups, who prefers to drive. However, Ostrava has still very well developed system of public transportation based on tramways, busses and trolley-busses. There is no decline in number of vehicles or lines in the period 2006-2008 (according to Analysis carried out in the course of the preparation of Ostrava development strategy 2009-2016, p.108-110). More than 10 years ago the Integrated public transportation system ODIS for the Moravian-Silesian Region was established and is being developed and improved. Only the public connections between distant regions and cities, especially the workers' commuter busses were reduced or abolished.

Unfortunately, the cyclist transportation in the city has not developed yet (until 2010) and has a very limited importance, mainly as a sport activity in the surroundings of the city. There are 330 km of cycling paths in the pipeline according to the city master plan. Ostrava has been very important railway hub with 5 railway stations – Ostrava main station in Ostrava – Přívoz, Ostrava – Svinov, Ostrava – Vítkovice, Ostrava – Centre, Ostrava – Kunčice. In 2007 was opened the railway station Ostrava-Stodolní.

Freight trains and regional freight railway network were the most important transportation infrastructure in the history of intensive coal mining in the Ostrava region. After 1994 became the freight railway network on the Ostrava territory obsolete and redundant. There are tens of kilometres of useless track-bed brownfields without any utilization, which affects the attractiveness of the city. It is the sign of shrinkage in Ostrava, related to the closure of mines and decay in iron and steel production and transportation within the region and outside the region.

3.6. Land use and environmental quality

Ostrava's land use is characterized by very high density of mining and industrial areas, brownfields and even 'blackfields' (very contaminated areas). In the northern part of the city along the Odra river and the railway evolved industrial areas of huge extent with collieries, coke plants, chemical factories and power plants with related infrastructure, which became brownfields after the decline of old traditional industries. A typical 'blackfield' is the former factory zone of chemical industry in Hrušov, or former coke plant Karolina in Moravská Ostrava, where the new city centre with mixed use should be built up. There are lots of deserted industrial zones in the vicinity of the city centre, in the potential inner city such as Lower Vítkovice area with blast furnaces as monuments of industrial history under the protection of the state.

Figure 29 Lower Vítkovice blast furnaces in the background



Very typical for Ostrava landscape are anthropogenic relief forms as refuse tips and slag dumps, especially in the Eastern part – Silesian Ostrava (Ema refuse tip as symbol of mining history of Silesian Ostrava) together with subsidence of the ground (slow downfall of the ground), which affected the building stock (like in Hrušov, Slezská Ostrava and Moravská Ostrava).

Figure 30 Coke plant Jan Šverma in Přívoz with dump

There are proportionally more water areas in Ostrava than in comparable cities of the Czech Republic, but less wooded land.

Table 1 Land use of Ostrava (as of December 31, 2007) in comparison with comparable Czech cities

	Ostrava	Brno	Plzeň	Moravian-Silesian Region
Total size of the area (km²)	214.22 (100%)	230.19 (100%)	137.67 (100%)	5426.98 (100%)
Farmland	84.63 (39.51%)	79.35 (34.47%)	60.50 (43.94%)	2771.83 (51.07%)
Wooded land	24.29 (11.34%)	63.69 (27.66%)	25.92 (18.82%)	1927.25 (35.51%)
Water area	9.62 (4.50%)	4.45 (1.93%)	4.38 (3.18%)	114.10 (21.02%)
Built up area	20.04 (9.35%)	20.91 (9.08%)	9.71 (7.05%)	120.71 (2.22%)
Others	75.64 (35.30%)	61.79 (26.84%)	37.16 (27.00%)	493.09 (9.08%)
Population (without foreigners)	308,374	368,533	165,238	1,249,290
Population density	1439.52	1600.99	1200.25	230.20

Ostrava has been the core city of the Ostrava old industrial region based on mining, coke production, metallurgy, energy production and heavy mechanical engineering determining the land use and environmental quality to a great extent, even after the closure of many plants. In Ostrava, all the components of environment (air, water, soils, and plants) have been affected, polluted or contaminated. Most important is the large scale degradation of landscape owing to mining (subsidence and refuse tips), furthermore contamination of soil and the surface areas together with ground water pollution and the air pollution due to industrial production, automobile transport and heating of houses with low quality coal or even waste.

The city of Ostrava is one of the most polluted cities in the Czech Republic, together with Prague and Ústí nad Labem. The most influential is the pollution by airborne dust especially in the Eastern part of the city (Bartovice and Radvanice). The air pollution can be considered as one of the main factors of unattractiveness of Ostrava region and as a push factor for out-migration. However, the pollution is not even in all parts of Ostrava but there are strong differences in spatial distribution of air pollution. The most polluted air is in Eastern parts of Ostrava (Moravská Ostrava, Radvanice, Bartovice), reverse situation is in the western parts such as Krásné Pole or Poruba. The differences are caused by the prevailing western winds and the spatial distribution of industrial pollutants in the northern industrial area (with coke plants and chemical factories) and in the south-east industrial area (with Arcelor Mittal). We have to consider the bad environmental situation, and especially air pollution as one of the main factors causing the out-migration in the future development of Ostrava.

3.7. Municipal finances and budget

Ostrava is a corporate town (statutární město) with central town council and its budget. The corporate town of Ostrava is divided into 23 city districts (městské obvody) with their own councils and budgets. There is a rather complicated system of redistribution of finance in a Czech corporate town such as Ostrava. As an example: In 2009, the budget of the corporate city was CZK 8,251,960 million (Czech Republic's currency with exchange rate 1EUR = circa 26 CZK) and the budgets of 23 city neighbourhoods made up 3,015,000,000 CZK.

Table 2 Budget of the city of Ostrava (corporate town)

Year	Planned/approved city budget (in thousand CZK)	Running expenses	Capital expenses
1989	2,462,149	1,961,379	500,770
1995	2,554,491	1,648,448	906,043
1996	3,303,934	2,086,391	1,217,543
1997	3,941,596	2,368,698	1,572,898
1998	2,986,423	2,425,443	560,980
1999	3,488,292	2,860,372	627,920
2000	3,467,064	2,876,564	590,500
2001	5,651,204	3,332,925	2,318,279
2002	6,085,994	3,789,673	2,296,321
2003	5,777,433	3,945,590	1,831,843
2004	5,814,392	4,358,710	1,455,682
2005	7,748,479	4,879,179	2,869,300
2006	7,247,169	5,212,143	2,035,026
2007	6,040,258	5,183,251	857,007
2008	7,310,635	5,535,653	1,774,982
2009	8,251,969	5,606,417	2,645,552
2010	6,366,953	5,169,050	1,197,903

Lindovská (Head of the Finance and budget department City of Ostrava)

According to Lindovská, the decline in number of inhabitants between 1989 and 2009 did not play any significant role in the positive development of budget. There were several important points in the development of the budget of Ostrava:

In 1996 were issued city bonds (1.3 billion CZK) and the revenues were invested into the construction and improvements of water infrastructure, sewage canals and sewage disposal plant. In 2004 were issued the second city bonds (3.16 billion CZK) and the revenues plus EU funding (ISPA fund) were invested into the construction of collector channels in the city centre and new sewage lines. The revenues from the city bonds in 2004 were used for other investments such as the retirement home „Slunečnice“ in Poruba (0.6 billion CZK), hospice in Bartovice, indoor swimming pool, etc.

Much investment were put into the business support and preparation and construction of business and industrial zones (such as in Hrabová, or Mošnov) in order to create new jobs. Very important was the city's investment into the Ostrava Science and Technology Park in the vicinity of the Technical University of Ostrava. In 2009, 1.2 billion CZK were allocated in the form of grants for cultural, sports and charity organizations. In crisis year 2010 the budget is at the level of the year 2007. The city of Ostrava has relatively enough funds to cover all the necessary mandatory expenses, and the city council decided to support the project Ostrava - European capital of culture 2015. Very significant role plays the EU structural funding covering the investment of several projects.

Table 3 Rating of municipal finances of the city of Ostrava

Rating agency	rating in 2006	rating in 2007	rating in 2008	rating in 2009
Moody's	A2 Stable	A2 Stable	A2 Stable	A2 Stable
Standard and Poor's	A-/Stable/A-2	A-/Stable/A-2	A-/Stable/A-2	A-/Stable/A-2

Since 1998, the city finances have been rated by two internationally recognized rating agencies – the Moody's and Standard and Poor's. According to these ratings the municipal finances of Ostrava are in very good condition and ratings reflect the low total indebtedness, the ability to pay off all loans, good city liquidity and efficient financial performance. The strength of municipal finances in the last 5 years emphasized in these ratings are the inflow of investment from European Union structural funds helping the city to improve the infrastructure for the economic base and to raise the attractiveness of the city in general. The rating is lowered only by the fact of limited ability of the city to influence the revenues significantly in short term (but the fact is valid for all municipalities in the Czech Republic, not only for Ostrava). The prospect for next good ratings is being based on conservative financial policy of the city and continuous low level of indebtedness. The ratings suggest the confidence in future positive development of Ostrava.

POLITICAL AND PLANNING RESPONSES

The revitalization of the old-industrial Moravian Silesian region with its centre in Ostrava represents one of the biggest challenges for the Czech Republic as the regions suffers from accumulation of social, economic (only few jobs in new modern

sectors) and environmental (air pollution, lots of brownfields) problems. The main policy responses towards shrinkage have been directed on attracting investments and regaining economic prosperity. In this context, the Moravian–Silesian Region has by far the most active and respected Regional Development Agency which operates in the region since 1993. Nevertheless, within the Czech Republic, Ostrava has one of the most proactive local governments and makes a systemic effort to implement (along with regional government and RDA) a lot of development activities such as Ostrava strategic development plan, Regional development plan, efficient implementation of European cohesion funding; Regional innovation strategy (to be completed in 2010); regional marketing attracting developers, investors and tourists into the urban region; ten cluster initiatives; European Capital of Culture 2015; tertiary education development and support for establishing a faculty of medicine. The aim is to diversify the economy, strengthen new industries such as automotive and ICT services and modernize traditional industries such as engineering. The regional governance system tries to improve both the quality of hard development factors (transportation system – highway, railway and airport) and soft location/development factors (housing, education, events, and environment) and change the negative trends in economic, social, environmental and population development.

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5. ANNEX: Database

Table 4 Population development in city districts

city district	size km ²	1961	1970	1980	1991	2001	2008	difference 2008-1991
Hošťálkovice	5,29	1634	1620	1611	1538	1511	1572	+34/+1%
Hrabová	9,19	4571	3946	3544	3446	3433	3779	+333/+11%
Krásné Pole	6,30	1643	1762	1966	1898	2101	2448	+550/+29%
Lhotka	2,13	1059	997	1009	941	1004	1142	+201/+21%
Mariánské Hory a Hulváky	6,17	19780	14119	16152	14542	12998	13165	-1377/-10%
Martinov	4,08	710	869	872	1109	1093	1126	+17/+1%
Michálkovice	2,89	4766	3599	2965	2466	2836	3126	+660/+27%
Moravská Ostrava a Přívoz	13,85	59319	50086	50395	46397	43428	42538	-3859/-9%
Nová Bělá	6,88	1437	1334	1406	1460	1565	1702	+242/+16%
Nová Ves	3,00	1666	1080	779	640	603	676	+36/+5%
Ostrava - Jih	16,95	33413	70748	90109	118806	118094	116945	-1149/-1%
Petřkovice	3,90	3236	2891	2846	2659	2783	2960	+301/+11%
Plesná	4,84	992	979	996	1001	1098	1222	+221/+22%
Polanka nad Odrou	17,22	3815	3792	4032	3934	4224	4603	+669/+17%
Poruba	12,78	42575	83196	93667	83982	74980	71788	-12194/-15%
Proskovice	3,43	775	775	954	1052	1125	1199	+147/+14%
Pustkovec	1,08	697	653	824	999	1115	1216	+217/+22%
Radvanice a Bartovice	15,18	9387	7588	6510	5773	6284	6755	+982/+17%
Slezská Ostrava	42,68	36731	27537	23534	19466	19484	21349	+1883/+10%
Stará Bělá	13,66	2843	2884	3013	2989	3233	3623	+634/+21%
Svinov	11,70	5088	3904	3572	3379	4536	4516	+1137/+33,5%
Třebovice	3,41	1253	1540	1762	1620	1698	1836	+216/+13%
Vítkovice	7,38	16907	11272	9555	7292	7518	7798	+506/+7%
Ostrava - celkem	214,20	254297	297171	322073	327389	316744	317086	-10303/-3%

Table 5 Population development in Ostrava

	1990	1995	2000	2005	2008
Total population	331,219	325,670	321,263	311,402	308,374

Yearbooks of Czech Statistical Office

Table 6 Migration balance in Ostrava

Year	In-migration	Out-migration	Migration balance
1990	4808	5107	-299
1991	4495	4887	-392
1992	4416	4933	-517
1993	3551	4550	-999
1994	3157	3638	-481
1995	3014	3342	-328
1996	2881	3304	-423
1997	3007	3220	-231
1998	3058	3462	-404
1999	3055	3450	-395
2000	2601	3334	-733
2001	3257	3972	-715
2002	3759	4556	-797
2003	4018	4649	-631
2004	3590	4932	-1342
2005	3513	4713	-1200
2006	3800	4788	-988
2007	5096	5887	-791

Table 7 Indicators of population change since 1990

Indicator	1990	1995	2000	2005	2006	2007
Marriages	3138	1794	1692	1653	1650	1896*
Divorces	1245	1182	1241	1224	1193	1208*
Births	4516	3098	2853	3269	3241	3431
Deaths	3970	3627	3342	3393	3233	3364
Natural change balance	546	-529	-489	-124	8	67
In-migration	4808	3014	2601	3513	3800	4788
Out- migration	5107	3342	3334	4713	4788	5887
Migration balance	-299	-328	-733	-1200	-988	-791
Population change balance	+247	-857	-1222	-1324	-980	-724

Note: * Ostrava county

Table 8 Population

Year	Ostrava	MSK	Czech Republic
1991	327 605	1 280 131	10 313 000
1992	327 271	1 282 196	10 326 000
1993	326 933	1 284 787	10 334 000
1994	326 049	1 285 898	10 333 000
1995	325 508	1 285 449	10 321 000
1996	324 359	1 283 935	10 309 000
1997	323 539	1 282 082	10 227 000
1998	322 684	1 280 659	10 290 000
1999	321 764	1 276 929	10 278 000
2000	320 743	1 273 537	10 267 000
2001	316 396	1 261 503	10 206 000
2002	314 710	1 258 251	10 203 000
2003	313 568	1 255 910	10 211 000
2004	312 080	1 253 257	10 221 000
2005	310 681	1 250 769	10 251 000
2006	309 495	1 249 290	10 287 000
2007	308 832	1 249 897	10 381 000
2008	308 211	1 250 255	10 468 000

Source: CZSO. Note: MSK = Moravian Silesian Region

Table 9 Prediction of age structure of Ostrava in 2050

Age	2010	2015	2020	2025	2030	2035	2040	2045	2050
0 - 4	14401	14047	13426	12551	11900	11808	11874	11706	11289
5 - 9	13938	14387	14033	13413	12538	11888	11796	11862	11694
10 - 14	13242	13929	14377	14024	13404	12530	11881	11789	11855
15 - 19	17067	13350	14037	14485	14133	13515	12642	11994	11902
20 - 24	19720	17427	13721	14407	14856	14506	13889	13020	12374
25 - 29	21119	20214	17928	14236	14920	15367	15019	14405	13539
30 - 34	25983	21539	20639	18362	14683	15366	15813	15466	14855
35 - 39	26039	26340	21920	21027	18762	15102	15784	16230	15886
40 - 44	20881	26330	26634	22253	21373	19126	15494	16176	16623
45 - 49	20765	21091	26490	26802	22487	21629	19414	15827	16511
50 - 54	20232	20791	21132	26455	26778	22567	21744	19579	16064
55 - 59	22609	19736	20321	20683	25890	26230	22168	21394	19302
60 - 64	21984	21425	18750	19374	19768	24814	25181	21331	20628
65 - 69	16283	20259	19837	17426	18095	18528	23346	23749	20182
70 - 74	11178	14365	17987	17740	15675	16402	16887	21406	21855
75 - 79	9033	9145	11913	15077	15048	13424	14219	14765	18888
80 - 84	6640	6435	6723	8960	11545	11748	10646	11500	12106
85 - 89	3472	3737	3776	4154	5748	7635	8024	7466	8333
90 +	820	1425	1787	2021	2438	3540	5094	6117	6431
in total	305406	305969	305433	303451	300042	295725	290915	285781	280319

Source: Solansky, modified by Rumpel. Note: Red marked is the strong population wave of 1970s

Table 10 Population rates of change

	1961-70	1971-80	1981-91	1992-01	2002-08
Ostrava	16,9	8,4	1,6	-3,2	-2,7
Czech Republic	2,3	5,3	-0,1	-1,0	2,6

Source: CZSO

Table 11 Gross Domestic Product (GDP)

	1999	2000	2001	2002	2003	2004	2005	2006	2007
MSK	162,531	166,891	179,745	186,132	195,867	226,089	246,825	261,158	286,580
Czech,Rep.	2,080,797	2,189,169	2,352,214	2,464,432	2,577,110	2,814,762	2,987,722	3,231,576	3,530,249

Source: CZSO. Note: Data for city Ostrava are not available

Table 12 Total number of households

	1961	1970	1980	1991	2001
Ostrava	81,915	103,554	116,650	125,969	128,388
MSK	304,261	365,512	417,817	452,609	470,235

Source: CZSO, census data

Table 13 Average household size

	1961	1970	1980	1991	2001
Ostrava	3.11	2.83	2.74	2.58	2.43
MSK	3.38	3.18	3.0	2.82	2.66

Source: CZSO, census data

Table 14 In and out migration

Year	in-migrants	out-migrants
1990	4,808	5107
1991	4,495	4887
1992	4,416	4933
1993	3,551	4550
1994	3157	3638
1995	3014	3342
1996	2881	3304
1997	3007	3220
1998	3058	3462
1999	3055	3450
2000	2601	3334
2001	3257	3972
2002	3759	4556
2003	4018	4649
2004	3590	4932
2005	3513	4713
2006	3800	4788
2007	5096	5887

Source: Solansky, modified by Rumpel

Table 15 Age percentage of population

	1961	1970	1980	1991	2001
Ostrava					
0-14	25,6	22,8	23,8	20,8	16,4
15-59	62,6	62,1	61,8	63,0	66,0
60+	11,8	15,0	14,4	16,1	17,6
MSK					
0-14	28,3	24,6	24,9	21,9	17,2
15-59	60,0	61,1	61,4	62,5	65,7
60+	11,7	14,3	13,8	15,6	17,1

Source: CZSO, census data

Table 16 Dependency rate

Ostrava	Economically active	Economically inactive	Rate
1961	106892	147405	1,4
1970	145092	152079	1,0
1980	164378	157695	1,0
1991	172268	155103	0,9
2001	160210	156534	1,0
MSK			
MSK	Economically active	Economically inactive	Rate
1961	467130	565537	1,2
1970	555006	615943	1,1
1980	629279	631707	1,0
1991	659395	623876	0,9
2001	630679	638788	1,0

Source: CZSO, census data

Table 17 One person households

	1961	1970	1980	1991	2001
Ostrava	16,7	20,8	26,1	19,7	33,9

Source: CZSO, census data

Table 18 Number of persons employed

year	Ostrava	MSK	Czech Republic
1992	177118		
1993	170557	574,7 tis	4931,9 tis
1994	169827	579,6 tis	4943,3 tis
1995	166329	587,6 tis	4994,9 tis
1996	162024	598,3 tis	4980,3 tis
1997	157434	581,9 tis	4926,9 tis
1998	151610	568,6 tis	4865,7 tis
1999	143032	542,6 tis	4765,4 tis
2000	139060	530,5 tis	4751,0 tis
2001	138385	528,1 tis	4738,6 tis
2002	135800	536,5 tis	4791,7 tis
2003	131115	524,3 tis	4724,9 tis
2004	128568	522,7 tis	4732,7 tis
2005	129853	535,6 tis	4803,7 tis
2006	130058	536,9 tis	4861,7 tis
2007	139045	553,3 tis	4967,2 tis
2008	142305	568,6 tis	5033,4 tis

Source: Labour Office Ostrava, CZSO

Table 19 Unemployment rate

year	Ostrava	MSK	ČR
1991	4,7		
1992	3,0		
1993	5,1	6,63	4,3
1994	5,6	5,99	4,3
1995	4,8	5,07	4,0
1996	5,4	5,67	3,9
1997	7,5	7,85	4,8
1998	12,0	11,45	6,5
1999	15,9	14,94	8,7
2000	16,6	15,13	8,8
2001	16,2	15,11	8,1
2002	17,2	15,89	7,3
2003	18,4	16,84	7,8
2004	16,6	16,85	8,3
2005	14,8	14,23	7,9
2006	13,3	12,58	7,1
2007	9,4	9,62	5,3
2008	8,4	8,49	4,4
2009	9,4	12,14	6,7

Source: Labour Office Ostrava, CSZO. Note: from 2005 new changed methodology

Table 20 Proportion long term unemployed

year	Ostrava
1991	5,2
1992	15,6
1993	14,7
1994	24,2
1995	29,7
1996	24,9
1997	25,5
1998	27,4
1999	36,6
2000	46,8
2001	49,1
2002	49,4
2003	52,7
2004	54,0
2005	55,6
2006	54,3
2007	52,6
2008	42,3

Source: Labour Office Ostrava

Table 21 Economic activity rate

year	Ostrava	MSK
1961	42,0	45,2
1970	48,8	47,4
1980	51,0	49,9
1991	52,6	51,4
2001	50,6	49,7

Source: Labour Office Ostrava

Table 22 Vacancy rate

	1970	1980	1991	2001
Ostrava	2,7	4,1	5,1	5,5

Source: CZSO, census data

Table 23 Population density (population per sq. km)

	1961	1970	1980	1991	2001	2008
Ostrava	1 187,1	1 387,2	1 503,5	1 528,3	1 478,6	1 438,8
MSK					227,9	230,4
Czech Rep.					129,3	132,2

Source: CZSO, census data

Table 24 Population density (population per sq. km)

year	Czech Rep.	MSK	Ostrava
1993	131,0	229,5	1 527
1994	131,1	229,5	1 523
1995	131,0	229,3	1 520
1996	130,8	231,8	1 516
1997	130,7	231,5	1 512
1998	130,5	231,1	1 509
1999	130,4	230,7	1 504
2000	130,3	230,1	1 500
2001	129,6	227,9	1 478
2002	129,3	228,1	1 473
2003	129,4	227,7	1 466
2004	129,4	227,2	1 462
2005	129,8	230,5	1 454
2006	130,2	230,2	1 448
2007	130,9	230,3	1 443
2008	132,2	230,4	1 439

Source: CZSO