

shrink smart



**Governance of Shrinkage  
Within a European Context**

Work package 2

## **Urban shrinkage in Leipzig and Halle, the Leipzig-Halle urban region, Germany**

Research report

D4 Comparable research report

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## *PART A – LEIPZIG*

### **A.1. EXECUTIVE SUMMARY**

Leipzig looks back on a long-term period of shrinkage that lasted from the 1960s to the end of the 1990s. The political change after 1989 led to a rapid deindustrialization and breakdown in employment and, as a result, a mass out-migration towards western Germany bringing about a dramatic acceleration of population losses. From 1989-1998, Leipzig lost about 100,000 inhabitants, that is, 20 per cent of its total population. The main reasons for the recent population losses were the (job-related) out-migration to western Germany (starting right after 1990), a state-sponsored and thus artificially initiated suburbanization (that had its peak from the early mid-1990s until 1997), and demographic ageing (decrease in birth rates - a continuous process). The main reason for out-migration was the loss of jobs due to deindustrialization (loss of tens of thousands of jobs in the industrial sector in the early 1990s). In 1999, Leipzig enlarged its administrative territory. In this way the city ceased to lose inhabitants due to these reforms; the reform coincided with the stabilization of the city in terms of population size bringing with it positive migration balances and a vibrant in-migration. After 2000, Leipzig saw a turnaround, that is, a re-growth of the population after decades of shrinkage. Since 2000, Leipzig has had positive migration balances with the hinterland and in general. Research speaks about reurbanization tendencies that are prominent in Leipzig as one of only a few big cities in eastern Germany (see below).

Although the population is no longer decreasing, Leipzig is still today faced with the consequences of urban shrinkage, and will also be faced with them in the future. The consequences are first and foremost housing and commercial vacancies, demolition, oversupply of infrastructure, brownfields and the perforation of the urban grid. Leipzig is characterized by the close neighbourhood of stabilizing and shrinking neighbourhoods in the city. Vacant and/or unused lots, wastelands and new forms of 'urban wilderness' exist in many places all over the city. In other words: urban shrinkage continues to play a role within the city, but not all neighbourhoods or districts are affected by it. Moreover, Leipzig will face a new wave of urban shrinkage within the near future: after 2015, household numbers will start to decrease; additionally, the reservoir of current in-migration (age groups 20-40) will decrease due to ageing. Today, Leipzig is not a shrinking city anymore when one only looks at the total population numbers; but urban shrinkage is an important topic for the city (coping with its consequences, dealing with shrinking neighbourhoods within the city) and this will also be true within the near future (new wave of shrinkage due to ageing and decrease in households).

Since 1990, socio-spatial separation and segregation in the city have advanced and the widespread socio-economic mix of many residential areas has decreased. Like in Halle, segregation has, however, not reached extreme values yet. It is most visible in its socio-economic dimension (income, share of unemployed). Socially weak households are concentrated in different parts of the city, mainly in some traditional

old built-up workers' areas as well as in parts of the prefab district Leipzig-Grünau. In the public debate, Leipzig is often mentioned as a 'boom town' or 'lightening house' within the eastern German 'ocean of shrinkage'. The public perception is mainly of the story of stabilization and reurbanization of the city after the losses in the 1990s. Subsequently, it becomes more and more difficult to discuss urban shrinkage although urban planners already know about the processes that will lead to new population losses in a few years.

The phenomenon of urban shrinkage is perceived in Leipzig mainly through the 'lens' of the housing market perspective; its appearance relates to (residential and commercial) housing vacancies (which reached their peak in 2000 with 62,500 vacant flats or 20 per cent of the total stock). Housing vacancies are not a new phenomenon in the city, which already had a vacancy rate of about 10 per cent in 1989 (25,000 vacant flats). However, after the 1990s, vacancies grew due to oversupply and no longer due to the poor technical conditions, which were the reason for their existence in GDR times. Therefore, the city has a vibrant interest to make people stay in the city as well as to attract new residents to counteract the vacancies (apart from demolitions). In this vein, the city offers, for instance, suburban-like housing in the inner city (town houses) as an alternative to suburbanization. Housing vacancies are a very visible consequence of urban shrinkage, a fact that led to the programme Stadtumbau Ost (urban restructuring) in 2002. Other appearances of shrinkage are the oversupply of infrastructure and the high number of (inner-city) brownfields that have to be prepared for re-use (either commercial, residential, or recreational as parks, playgrounds or urban woodlands). Population losses were ignored by municipal planning and urban policy throughout the 1990s, although there were already voices pointing to the visible decline and rising numbers of vacant flats. Shrinkage as a term and debate became an issue in Leipzig only after the report of a federal commission in 2000 that highlighted the housing supply surplus as an urgent problem in the new German federal states. From that time onwards, Leipzig developed different strategies to cope with shrinkage and to adapt the built structures to the declining demand using federal subsidies to demolish vast numbers of vacant flats. The deconstruction of housing and infrastructure concentrates on prefab districts in the western part of the city although vacancy rates are still highest in the old built-up stock. At the same time, Leipzig pursues a strategy of 'active' population policy to persuade people to stay in the city and to attract new residents. Among others, town houses are being built, ownership within the existing stock is financially supported, and interim uses are advanced to both maintain vacant stock and keep vacant lots 'working'.

Concerning the future, Leipzig will be faced with contradicting trends: on the one hand, the city will try to sustain itself as a re-growing city with a positive migration balance and a young in-migration that counteracts the ageing process. Thus, a support of its role as a university city and an investment-friendly urban policy is probable; on the other hand, the city will see a new wave of population loss after 2015, that is, when household numbers will start to decrease regardless of in-migration. The potential in-migration groups will become smaller and smaller due to ageing – it is possible that the city will enforce efforts to attract older age groups as

'reurbanites', i.e. those who suburbanized in the 1990s and cannot get along with their daily wants and needs in suburbia because of a lack of amenities and services there. This scenario could become true in one or two decades, i.e. exactly at a time when the quantitative resource of young in-migrants will significantly decrease; for the city it would bring about the need to adapt the urban space and services ever more to the needs of the elderly.

## **A.2. REASONS AND PREMISES OF URBAN SHRINKAGE**

### ***Introduction***

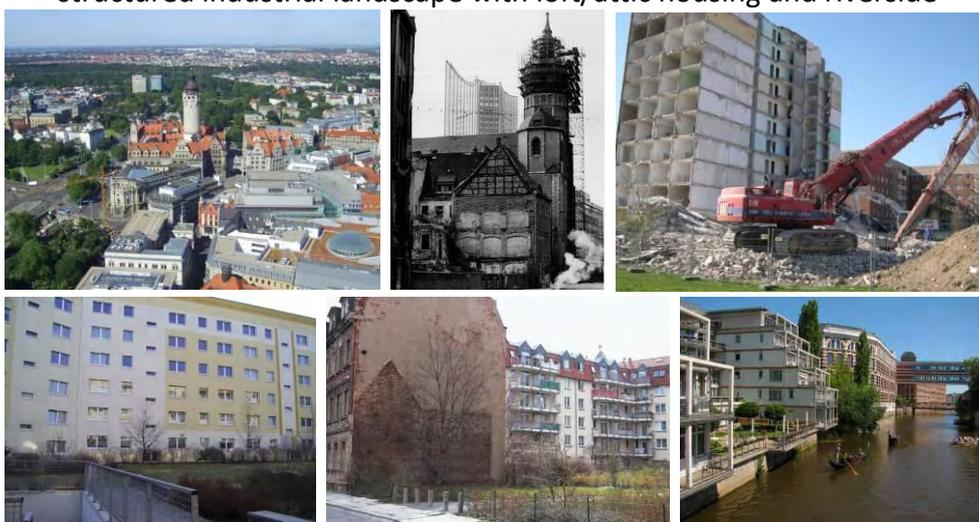
This report describes the process of shrinkage as it has occurred within the city of Leipzig. It examines the reasons, dynamics and patterns of change as well as the consequences for different fields of urban development and planning. The period covered in the report runs from the 1980s to the present day; in particular cases, longer or shorter time periods are considered. Over this time, Leipzig has moved from a (more or less rapidly) shrinking city until the late 1990s to a point where its population stabilized and even returned to a slight growth during the last few years. Today, Leipzig is no longer a shrinking city. When one looks only at the total population numbers, Leipzig represents one of a few large cities in eastern Germany that have undergone reurbanization processes (Haase et al. 2009). However, urban shrinkage continues to be an important topic for the city. The city is still facing the consequences of long-term shrinkage and will have to cope with it during the years to come. At the same time, shrinkage still affects some parts of the city and will also do so in the future. Moreover, Leipzig awaits a new wave of shrinkage due to ageing and a decrease in households after 2015.

Leipzig is the second largest city in the eastern part of Germany after Berlin. About 500,000 inhabitants live on nearly 300 square kilometres of land. Named the "mother of all trade fairs", Leipzig is a traditional centre of commerce (Figure 1.1). In recent years, the city has become an important site of the vehicle and automotive components industry (e.g. Porsche since 2002, BMW since 2005) and an international logistics node (European hub of DHL since 2007). Furthermore, Leipzig hosts a number of institutions of higher education (with about 37,000 students) and research. The university is the second oldest in Germany (founded in 1409, Figure 1.1). The city disposes of a broad cultural heritage and events (Gewandhaus Orchestra, Bach Festival, Wave Gothic Festival). The urban appearance of Leipzig is mainly characterised by more than 12,000 residential buildings with 110,000 flats (35 per cent of the total number) from the time between 1870 and 1918, the so-called *Gründerzeit* or Wilhelminian style building stock, which is seen as architectural heritage.

Leipzig looks back to a long-term period of shrinkage, which lasted from the 1960s to the end of the 1990s. The political change after 1989 that led to a rapid deindustrialization and breakdown in employment and – as a result – a mass out-migration towards western Germany brought about a dramatic acceleration of

population losses. From 1989 to 1998, Leipzig lost about 100,000 inhabitants, that is, 20 per cent of its total population. Fundamentally there are two underlying causes for Leipzig's population decline from the 1960s to the 1980s: firstly out-migration of population towards the new industrial development cities in the northern and eastern parts of the GDR (see also Kress 2008), and secondly the poor housing and environmental conditions due to dilapidation and neglect that drove people out of the city in the search for more attractive places to live. The main reasons for the recent population losses were the (job-related) out-migration to western Germany (starting right after 1990), a state-sponsored and, in this way, artificially initiated suburbanization (that had its peak from the early mid-1990s until 1997), demographic ageing (decrease in birth rates, a continuous process). The main reason for out-migration was the loss of jobs due to deindustrialization (loss of 10,000s of jobs in the industrial sector in the early 1990s). As a result of population decline, a housing surplus developed, and enormous rates of housing vacancies emerged (Figure 1.1).

**Figure 1.1: Leipzig** – images of a city: a) the city from a bird's eye view; b) Dilapidation in Leipzig's city centre in the late 1980s; c) demolition of housing; d) vacant housing; e) old, newly built and re-used structures in close proximity; f) re-structured industrial landscape with loft/attic housing and riverside



Source: Dieter Rink, Annegret Haase and Matthias Bernt, Armin Kühne

### *Materials and methods*

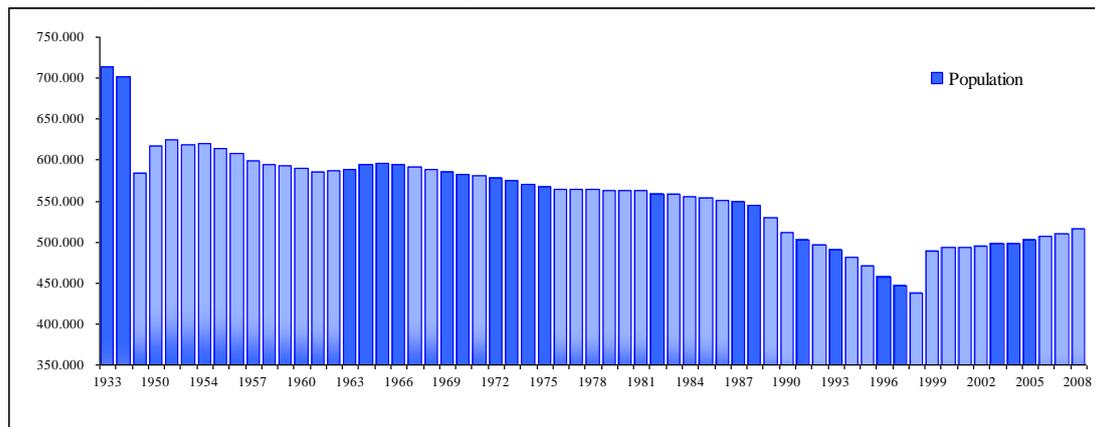
The report covers in general the time period between the late 1980s (to consider also the situation in the late GDR time) and today. To look back to the late 1980s it is necessary to correctly assess the impact of the political turnaround in 1989 and the German reunification in 1990. Depending on particular topics, the time period considered may vary and also cover longer or shorter periods. The report refers to the city of Leipzig as a whole and – in particular cases – to parts of the city, single districts or neighbourhoods. Since urban shrinkage affects single parts and districts of the city in a different way and we find growing and stabilizing areas close to those losing inhabitants and showing high vacancy rates, the view beyond the overall city level is necessary.

The report mainly uses municipal data. Furthermore, official planning documents and other reports issued by the city of Leipzig are used as well as scientific literature. In some cases, expert interviews were carried out to gather knowledge that was not available by using data and documents. In other cases, expert interviews helped to properly interpret and understand the data and documents. The references for the interviews are given in the report. A full statistical database is provided at the end of this document in the form of Tables.

### ***Demographic development***

Leipzig reached its maximum population in 1933 with 713,470 inhabitants. It saw a rapid population growth during the period of industrialization after 1880. At that time, the city prepared to become a city with a population over a million. This vision ended soon after due to the persecution of the Jewish population, the Second World War and out-migration to the western parts of Germany in the aftermath of the war (LCC 2009, A-12). It has only been very recently that Leipzig, due to municipal amalgamations, started to regain inhabitants. Figure 2.1.1 gives an impression of the population development in the last 75 years.

**Figure 2.1.1: City of Leipzig – population development 1933–2008**



Source: UFZ database

To describe and understand the development of population Figures from the 1960s to the 2000s, the history of Leipzig makes it necessary to consider three time lines: firstly, the period before the fall of the Iron Curtain in 1989, secondly, the period between 1990 and 2000 and thirdly, the period since 2001.

#### *Long-term urban shrinkage in the second part of the 20<sup>th</sup> century*

Before World War II, Leipzig was one of the five largest cities in Germany. As a result of the Second World War, the population decreased by more than 100,000. After the division of Germany and Europe as a consequence of the war Leipzig lost most of its former national and international economic importance. In the 1950s especially, young and qualified people in particular out-migrated to the western part of Germany. There was an almost balanced in- and out-migration after the establishment of the Berlin Wall in 1961. Yet between 1951 and 1989 Leipzig lost

nearly 58,000 inhabitants by migration (32,800 people alone in 1989 and 1990) and more than 48,000 by the negative natural development (Table 2.1.1). To a large extent out-migrants went to the newly developing industrial cities in other parts of the former GDR. Birth rates were higher than in western Germany but – also due to the birth-rate slump caused by the pill in the end of the 1960s and liberal abortion politics – below replacement level.

**Table 2.1.1: Natural population development and balance of migration of Leipzig 1951–1990**

	1951-60	1961-70	1971-80	1981-90	1951-90
Natural population development	-6,700	-4,400	-26,200	-11,300	-48,600
Balance of migration	-21,200	-1,300	+4,800	-40,000	-57,700
<b>Total population development</b>	<b>-27,900</b>	<b>-5,700</b>	<b>-21,400</b>	<b>-51,300</b>	<b>-106,300</b>

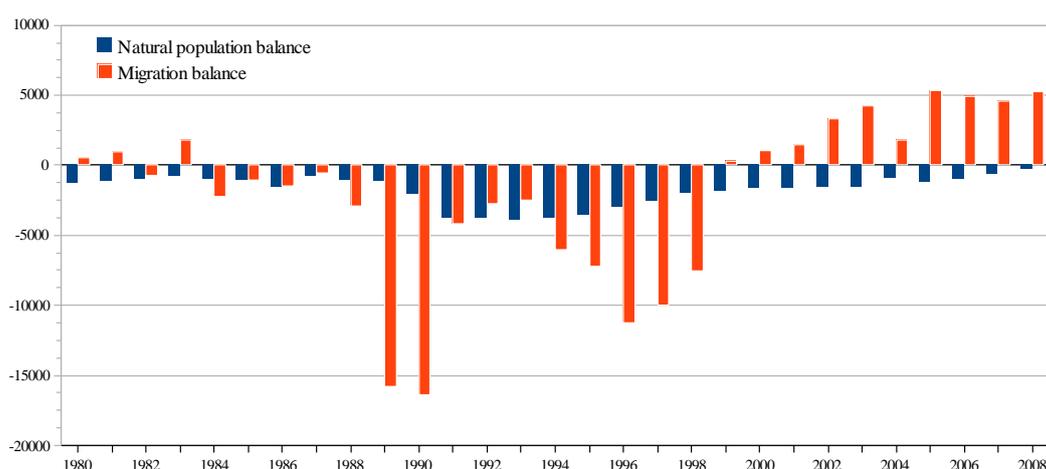
Source: Kabisch et al. 2008

In comparison with the 1930s, by 1990 the city had lost a quarter of the inhabitants due to the German separation. At the beginning of the 1990s, there were 511,000 residents.

#### *New dimension of urban shrinkage and ageing in the 1990s*

The 1990s were characterized by a (further) dramatic decline in population (until 1998: loss of almost 100,000 people). The main reasons were the radical fall of the birth rate after the reunification of Germany, the constant migration to western Germany (due to the poor economic situation) and to suburbia. The population density declined from 3,600 inhabitants to 2,400 inhabitants per square kilometre. Figure 2.1.2 shows the population development from 1991 to 2000.

**Figure 2.1.2: City of Leipzig – natural population development and migration balance 1980–2008**



Source: UFZ database

In the first half of the 1990s, 20,000 more people died than were born. In 1995, a Total Fertility Rate of 0.77 children per woman was measured in eastern Germany, which presented the world's lowest value (Federal Statistical Office Germany 2003).

After the mid-1990s, also in Leipzig, the situation improved: by the millennium the number of live births increased up to 7.3 per 1,000 inhabitants.

The ethnic composition changed decisively. In 1989, almost 20,000 foreigners (which is the official term in German statistics) had lived in the city, mainly from socialist countries like Vietnam, Mozambique or Angola. Most of them had to leave Germany after the reunification. While in 1990, just 9,000 foreigners lived in Leipzig, at the end of the 1990s there were nearly 27,000 foreigners (5 per cent of the entire population) mainly from Vietnam, the Ukraine, Russia, Poland and Iraq. While in- and out-migration during the second half of the 1990s were both at their highest level, even in this period of time the migration balance was moderate (Figures 2.1.4 and 2.1.5, see also Philipps and Rink 2009). In 2007, approximately 32,800 foreigners were living in Leipzig, which amounted to 6.4 per cent of the inhabitants (LCC 2008b, 5). In addition 10,000 ethnic Germans came from Eastern Europe to Leipzig who are not registered as foreigners (LCC 1991a, LCC 2007d). Subsequently, almost every 10th inhabitant (49,321 persons) had, independently from his/her nationality, in 2007 a migration background. The foreign population is, on average, 9 years younger than the German population; with 68 women to 100 men the gender balance is the opposite of that of the German inhabitants (LCC 2009, A-17; LCC 2008e, 72, 77-78).

In the first half of the 1990s, a massive suburbanisation process started too. The main period of suburbanization was short; it lasted from 1994 to 1997 (Figure 2.1.3 and 2.1.5; see section 2.3 of this part of the report). From 1996 to 1998 almost 30,000 people left Leipzig for its surroundings (LCC 2001a). The situation changed in 1999. During the 2000s, Leipzig benefitted from a positive migration balance, which is mainly due to a higher in-migration, although suburbanization processes continue at a modest level (Nuisl and Rink 2005). In-migration (currently about 4-5,000 persons per year) is mainly borne by younger age groups (18-25 years, partly also 25-30 years), and, at a modest level, also by older age groups (65+). In-migrants stem mainly from other regions in eastern Germany and (at a more modest level) from abroad. The migration balance with the western parts of Germany continues to be negative although it no longer reaches the rates of the 1990s.

Due to the drop of the birth rate and the selective out-migration, especially of younger people, the ageing process gained a special dynamic. Since 1990 the proportion of children under 15 years (out of the total population) has been decreasing from 17 per cent to less than 10 per cent nowadays. At the same time the proportion of people aged 65+ increased from 16 per cent to nearly 22 per cent. Looking at the index of ageing (Table 2.1.2), it becomes obvious that while in 1990 there were 90 people of aged 65+ per 100 children, in 2006 the number was already 220. The average age of the population increased from 40 to almost 44.

**Table 2.1.2: Demographic indicators of ageing for Leipzig 1990-2006**

	1990	1995	2000	2006

Share of people 0-14	17.0	13.8	11.2	9.9
share of people 15-65	67.5	69.8	70.6	68.3
Share of people 65 and older	15.5	16.4	18.2	21.8
Youth dependency rate (0-14/15-64, per cent)	25.2	19.8	15.9	14.6
Age dependency rate (65+/15-64, per cent)	23.0	23.5	25.7	31.9
Index of ageing (65+/0-14, per cent)	91.5	118.3	161.7	218.7
Average age	40.0	41.8	43.8	43.9
Number of people aged 65-79	57,600	55,500	68,300	85,200
Number of people aged 80+	21,900	21,500	21,300	25,100
<b>Number of people aged 65+</b>	<b>79,500</b>	<b>77,000</b>	<b>89,600</b>	<b>110,300</b>

Source: Kabisch et al. 2008

*New direction of population development in the 2000s – stabilisation and ‘gentle’ growth*

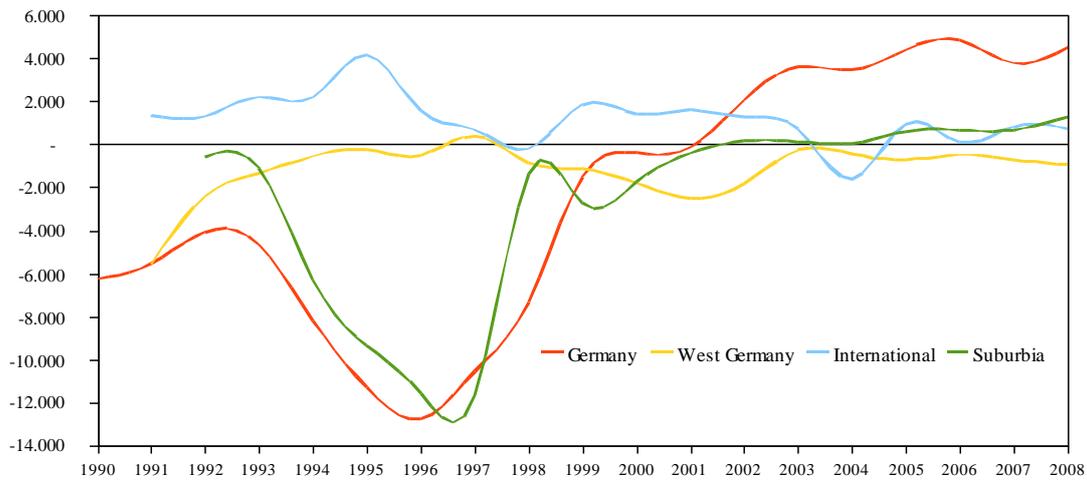
The administrative reform of 1999/2000 led to a considerable increase in the number of inhabitants. Since that time, Leipzig has seen a continuous growth of its population. In 2005, the city crossed – again – the border of 500,000 inhabitants. At the end of 2007, Leipzig had 510,512 inhabitants (LCC 2009, p. A-12).<sup>1</sup> The population density saw a further decline (from 2,400 inhabitants in 1998 to 1,700 in 2007) per square kilometre since the new territories were former suburbs of Leipzig and much less densely populated than the core city.

Since the mid-1990s the birth rate increased thus reducing the birth deficit, but the TFR is, nevertheless, very low with 1.2 children per woman (2007). The number of deaths exceeds the number of births, which brings about a negative balance of the natural population development (LCC 2009, A-13). The migration balance gradually became positive (Figure 2.1.2 above). Since 2002 migration has been compensating for the negative natural population development. Since 2006, however, also the number of out-migrations has increased again. During the mid 1990s, Leipzig faced big losses of population in favour of its hinterland. During the 2000s, the dynamics of suburbanization, however, considerably declined and became more and more outweighed by a new in-migration from adjacent municipalities including a ‘back-to-the-city’ movement of some suburbanites who left the city in the 1990s, or their children, for educational or professional purposes. This has led to a slightly positive migration balance of the city and its hinterland in recent years (LCC 2009, A-14). Leipzig is growing mainly due to in-migration of people aged between 18-30 years from east German regions and the surroundings of the city (Haase et al. 2009; Figure 2.1.4 and 2.1.6). The universities and schools of higher education are a major factor of attraction. The number of students increased between 2000/01 and 2006/07 from 31,000 to 37,000. This new trend of positive net migration has been slowing down the ageing process. While there is a continuous slight out-migration of people aged between 30-65 years (among them many family households with dependent children), there have been first signs of an in-migration of older age groups (65+) in the last few years. The average age is constant at around 44 years. Above all, inner-city areas profit from the growth in the younger population.

<sup>1</sup> To a certain degree this has also been the effect of the introduction of a new tax on second residences.

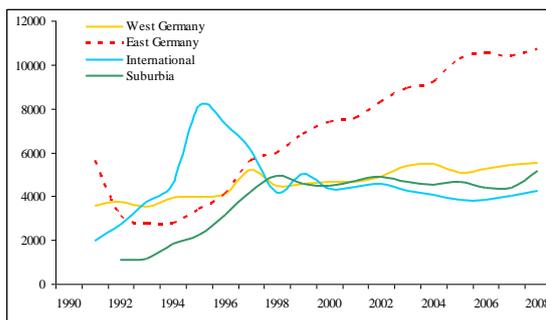
According to a questionnaire survey among in-migrants that was first carried out in 2007 by the city of Leipzig, in-migrants have an above-average educational level but, at the same time, many of them dispose of only at a limited income. This is due to their status as students or early-stage professionals. There is also a group of better-off households among the in-migrants that is (proportionally) higher than among the long-term inhabitants. The reasons for in-migration relate mainly to qualification, labour and private reasons but also to Leipzig as an attractive place to live. 18 per cent of the surveyed in-migrants represent 'back-to-the-city' migrants, 30 per cent of them stemmed from hinterland municipalities of Leipzig (LCC 2009, A-17)

**Figure 2.1.3: In- and out-migration by target region 1990-2008**



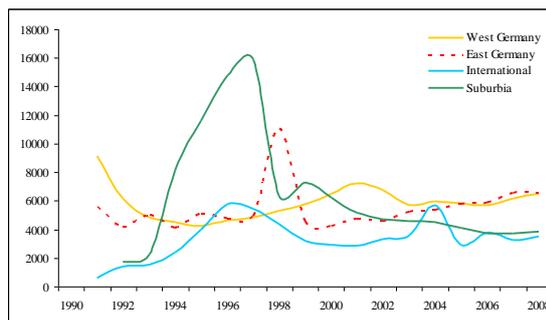
Source: UFZ database

**Figure 2.1.4: In-migration by target region 1990-2008**

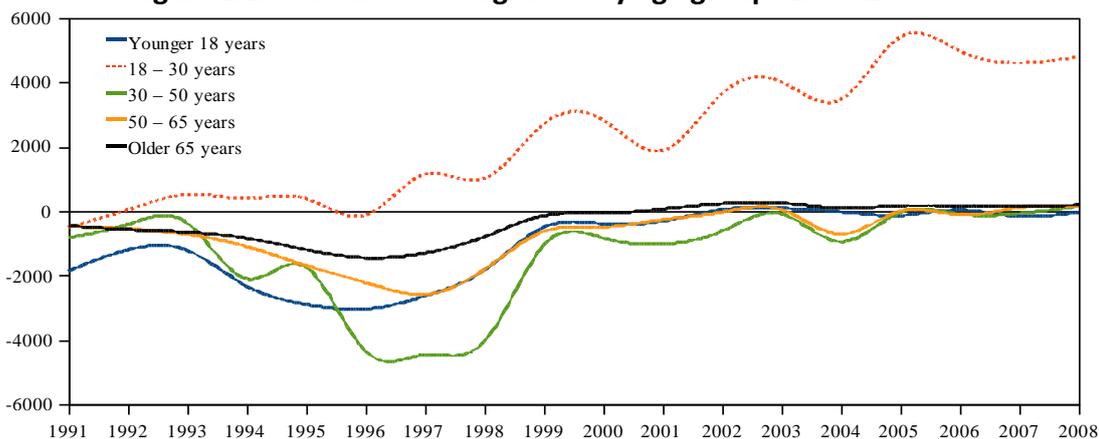


Source: UFZ database

**Figure 2.1.5: Out-migration by target region 1990-2008**



Source: UFZ database

**Figure 2.1.6: In- and out-migration by age groups 1990-2008**

Source: UFZ database

#### *The future – moderate population growth and ongoing ageing*

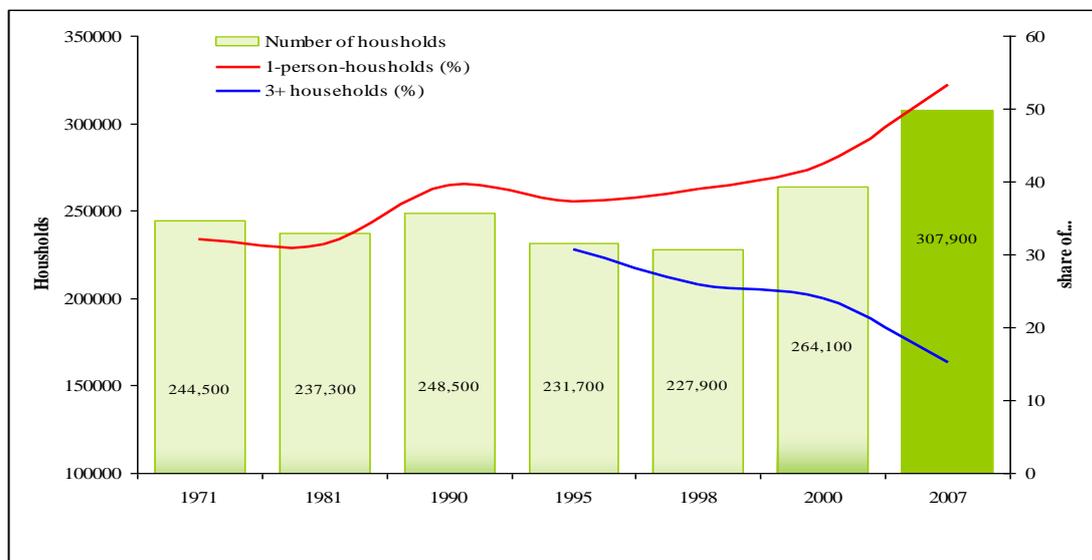
According to demographic projections, there will be a moderate population growth until 2020. Different forecasts suggest that the population will reach approximately 530,000 inhabitants. Demographic change in the surroundings of Leipzig and other regions, associated with the process of ageing and shrinkage, leads, however, to a decreasing potential of in-migration. The deficit of births in Leipzig cannot be compensated for by in-migration in the long term. In a mid-term period, the population of Leipzig will certainly decrease again. Yet the number of elderly people (80+) will decisively increase, alone between 2006 and 2020 from 25,000 to 44,000 people (LCC 2003b), which will comprise 8 per cent of the total population. Subsequently, the age rate will increase by 35 per cent in 2027. After that date, increase rates will be considerably lower. The youth rate will not decrease further; it will increase from the current level of 15 per cent to 18 per cent until 2017 and remain at that level during the following decade. The existing projections do not forecast a new wave of population decline in Leipzig in a mid-term perspective (LCC 2009, A-18). This has to be critically reflected set against the expected decline in household numbers and the decrease of in-migration potential due to ageing as well as the decline of the age groups that bear Leipzig's in-migration in the future.

#### *Households*

The number of households declined by 8 per cent from 1989 to 1998 (from 249,000 to 228,000 (see also Steinführer et al. 2009, Figure 2.1.7). Compared to the population decline (18 per cent) this is more moderate, which is mainly due to the downsizing of the mean size of households (from 2.1 in 1989 to 1.7 in 2007, Figure 2.1.8). The number of households increased again during the 2000s. Currently, the number of households is, with 308,000, considerably higher than in 1989 although the population is still lower (510,000 inhabitants instead of 530,000). Since 2001, the number of households has been affected by positive population development. The increase of one-person households is significant due to the growing number of young people (students, young professionals). As for the housing market, it needs to be pointed out that not all of these people actually live alone – among the younger age groups, flat sharing with typically one to three others is very common

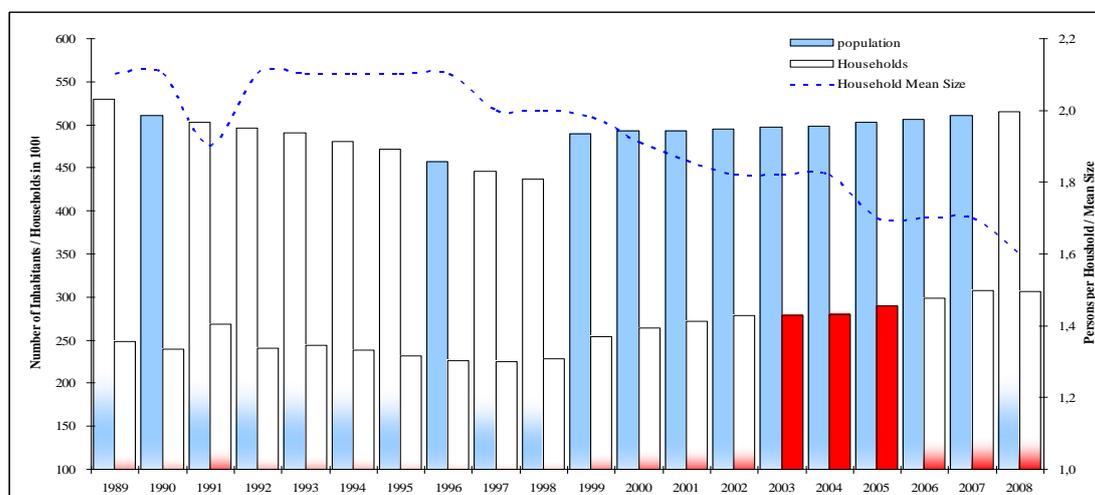
(Steinführer and Haase 2009). The statistic counts around 35,000 one-person households which were rented to people under the age of 35 in the year 2000 and more than 65,000 in the year 2006. In 2007, the proportion of one-person households was 53 per cent. The striking increase of one-person households since 1994 has to be seen also in relation to the reform of unemployment and social benefit regulations (Hartz IV). The trend towards downsizing is reflected also by the continuously decreasing share of 3+ households. The share of one- and two-person households has continuously increased and meanwhile exceeds 85 per cent (Figure 2.1.9). Whilst in 1995 31 per cent of Leipzig’s inhabitants still lived in a household with 3 and more persons and 13 per cent in a household with 4 and more persons, these proportions decreased to 14 and 5 per cent by 2007 (LCC 2009, A-17).

**Figure 2.1.7: Development of households, single and 3+ households 1971-2007**

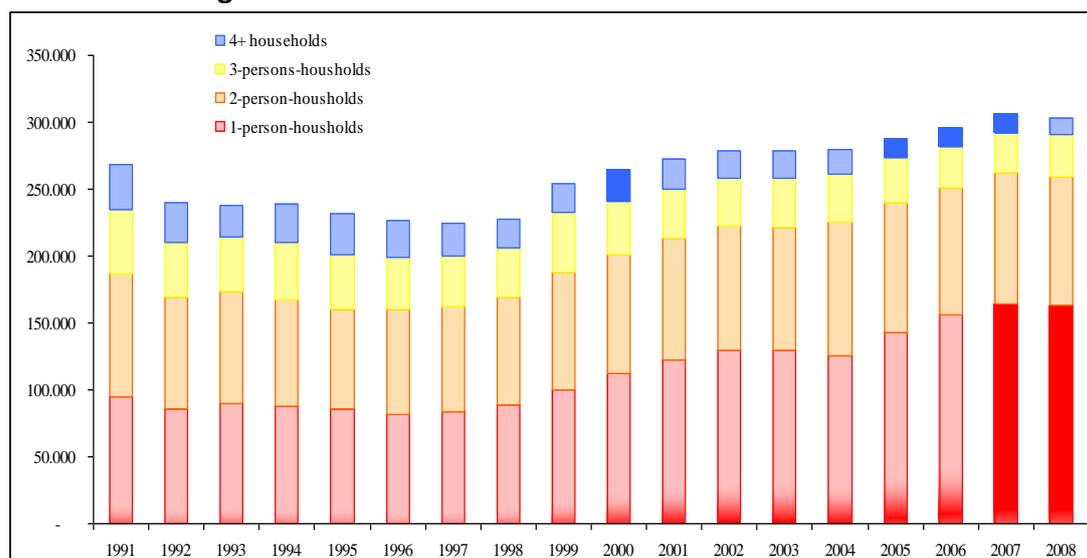


Source: UFZ database

**Figure 2.1.8: Development of population, households and mean household size 1989-2008**



Source: UFZ database

**Figure 2.1.9: Size distribution of households 1991-2008**

Source: UFZ database

### *Summary*

Seen from a long-term perspective, Leipzig has developed from a long-term shrinking city (from the 1960s to the late 1990s) to a stabilizing city with slight population growth that will be limited in time. It represents one of the most striking examples of a large shrinking city during the time of the GDR. Its loss of about 100,000 inhabitants between 1989 and 1998 (as a result of the systemic change) was mainly due to job-related out-migration and suburbanization. During the 2000s, however, this trend stopped: recently, Leipzig has seen population stabilization or even a slight growth by 'young' in-migration, which builds on an education-related influx of people in the 18-30 age group, a potential that will decrease in the near future as a consequences of ageing. At the moment, the city represents, however, one of the most prominent examples of reurbanization of eastern Germany although its natural development has remained negative since 1989. The number of households decreased more slowly than the population. During the 2000s Leipzig again saw a growth in household numbers. The main reason for this was downsizing. Leipzig's ageing has been attenuated by young in-migration in recent years. Until today, there is, however, a coincidence of population losses and gains in particular districts, which pushes forward socio-spatial differentiation and increases levels of residential segregation (see section 3.1 of this part of the report).

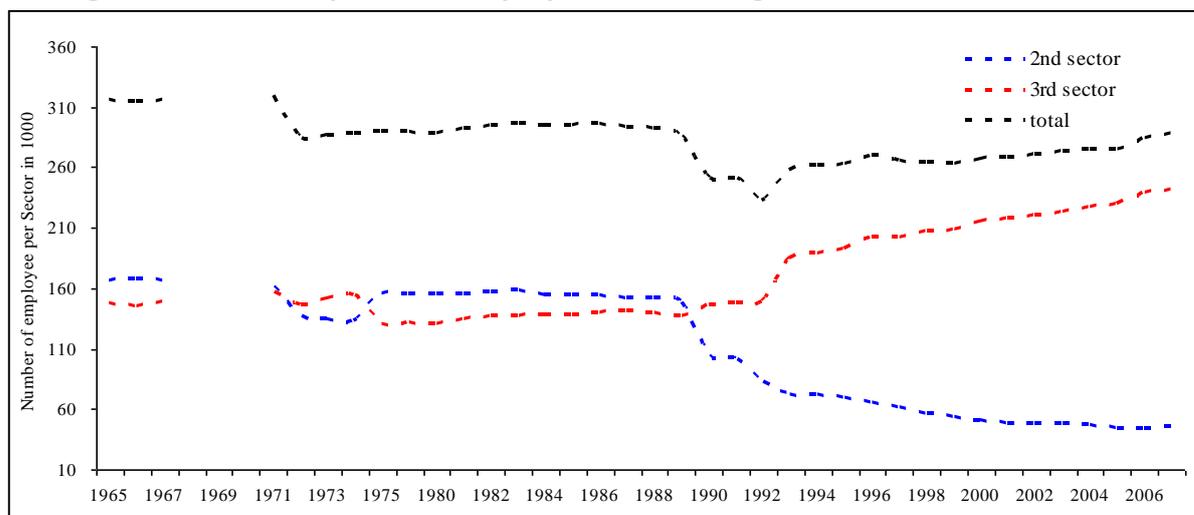
### ***Economic development and employment***

The city of Leipzig has a long history as a centre of industry, administration, science and trade. Traditionally it was the location of the Leipzig trade fair which served large parts of Central Europe as well as being the location for publishers, the

polygraph industry, foundries, machine building, and the textile industry and the fur trade. In the times of state socialism Leipzig remained one of the most important locations for industrial activities that accounted for about one tenth of the whole industrial production of the GDR. Besides already existing branches, mining and energy production as well as machine building (Baukema, Takraf), the electronic industry (RFT), and the chemical industry were expanded. Thereby, Leipzig hosted important control functions, as it housed the headquarters for 16 *Kombinate* (state companies with a usually dominant role for a particular branch).

As a consequence of German monetary union and the subsequent privatisation, nearly all of these existing functions were liquidated in a very short period of time, mainly between the summer and fall of 1990, and the economic basis literally disintegrated. Until the mid-1990s Leipzig's industry alone lost 80,000 jobs (Figure 2.2.1). As deindustrialisation was accompanied by "de-administration" (liquidation of administrative structures) the result of these simultaneous developments was an immense loss of jobs, which have not been able to be absorbed by new developments up to now. In addition to jobs, the liquidation of the planned economy also led to the loss of nearly all command and control functions and facilitated a dependent economic structure. Altogether this economic shock was decisive for the weak economic basis of Leipzig in the last two decades and has not yet been absorbed.

**Figure 2.2.1: Development of employment according to sectors 1965-2007**

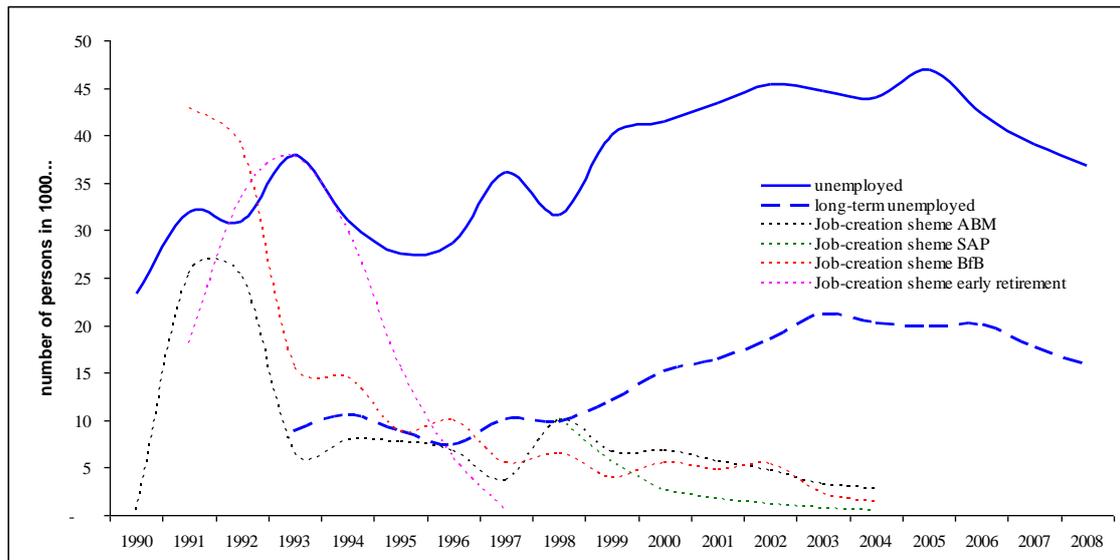


Source: UFZ database

The consequence is not only a downturn in the overall number of jobs available, but also a change from industrial to service-sector occupations. Interestingly, these service sector activities are only connected to industrial activities to a very minor degree (no research etc.), but for the major part are very much dependent on public sector transfers (like with water suppliers, medical services, universities). Moreover, the secondary sector is to a large degree dominated by the construction industry, which held more than half of the jobs in the late 1990s. Since then, due to oversupply in the housing market, construction activities have considerably cooled down and the share was down to about one quarter. Nevertheless, it needs to be emphasized that altogether, those secondary sector activities that remained after

the collapse of the industry in the early 1990s, are to a large extent characterized by low wages and precarious contracts. As a consequence, unemployment is nearly double the national average (usually between 17 and 20 per cent in the last decade). The official Figures were considerably reduced by a number of labour-market related policies (like job-creation schemes, early retirements, retraining measures), mostly in the early 1990s, but since these policies were considerably weakened unemployment even gained ground in the 2000s. This also led to an increase in the share of permanently unemployed persons, which has never fallen under 40 per cent of the unemployed since 2002 (Figure 2.2.2).

**Figure 2.2.2: Unemployment and job-creation schemes 1990-2008**



Source: UFZ database

Publicly applauded successes like the opening of a BMW branch, or the expansion of logistic services at the airport, thus only had a minor influence on the labour market and have been countered by ongoing job losses in the construction industry and from other employers. Also, the economic structure shows considerable differences. In Leipzig, construction firms, public health-, social and educational services, public administration and infrastructure suppliers hold the lion's share of the job market. All these branches are dependent on public transfers. High volume enterprises in Leipzig are the regional broadcasting station (MDR), the municipal utility company, the public water supplier, as well as the municipal housing company.

However, in the last decade Leipzig managed to attract some branches of West German companies, which can be seen as a sign of economic revitalization and reindustrialisation. Showcase examples of this are car producers like Porsche (400 jobs, and additional 400 jobs in supply-companies), BMW (2,500 jobs, adding up to 5,200 together with suppliers and partners). Moreover, closely connected to the airport and in close proximity to the highway, a logistics cluster has developed, with companies like Quelle, Amazon, and DHL. All these economic activities are concentrated at the northern fringes of the city. Although the establishment of these companies in Leipzig has been an undisputable success, it needs to be emphasized, that many of these activities have proved to be fairly vulnerable in the face of the

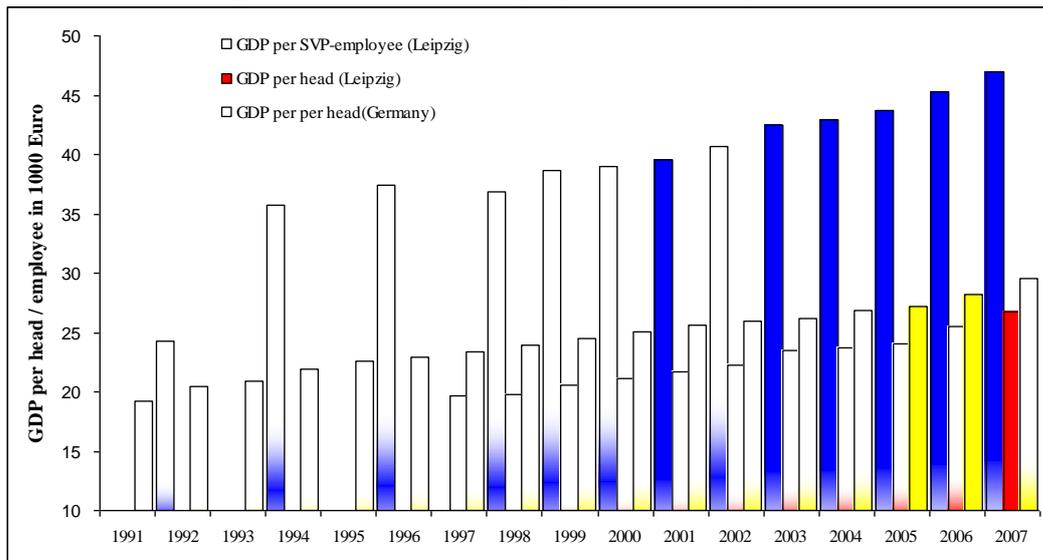
current economic crisis. Both BMW and Porsche have considerably downsized their personnel, and Quelle is currently being completely liquidated. In addition to car-building and logistics, Leipzig has had some successes in other sectors too. Most of all, medicine, the university, and a number of scientific institutes play a key role in the local job market that has been expanded in the last years.

**Table 2.2.1: Large investment in Leipzig and its region since 1990  
(investments > 200 million Euro)**

Project	Time period	Estimated total investment in Mio. €
<b>Mainly public investments (urban fringe)</b>		
Medical Scientific Centre including Heart Clinic	1992–1996	1,500
New Leipzig Fair	1993–1995	2,060
Leipzig airport	1993–2007	1,340
<b>Mainly private investments (urban fringe)</b>		
Quelle mail–order warehouse	1992–1995	500
Central German Office and Administration Centre, Schkeuditz	1992–1996	500
Porsche/car production	2000–2009	280
BMW/car production	2002–2005	1,400
DHL Logistics	2006–2008	300
<b>Investments in inner Leipzig</b>		
Deutsche Telekom, including district office	1992–1995	580
Technical infrastructure (gas, electricity, water)	1993–1994	1,000
Redevelopment and preparation of enterprise areas	1993–1996	1,200
Various media–related projects of urban renewal	1993–1996	900
Main station, Leipzig Mall	1996–1998	260
media –city/MDR	1998–2002	250
University Leipzig, hospital	2004–2014	214
City-tunnel	2005–2012	900

Source: UFZ database

Despite all efforts to attract new investments, the GDP per capita in Leipzig is lower than the German average (Figure 2.2.3). The city and its region are not able to close the gap between the local level of GDP and the national average. The reasons for this are related to the fact that the regional economy is too weak and that there are too few innovative enterprises and R&D activities in the region.

**Figure 2.2.3: GDP in Leipzig and Germany 1991-2007**

Source: UFZ database

To summarise, it can be said that Leipzig's economy is still burdened with the collapse of the industrial basis in 1990. Yet important investments have been carried out, mainly with the help of public subsidies. The results, though, are split: on the one hand, the job-basis could be expanded with projects like the expansion of medical complexes and the university, the establishment of a headquarters for the regional broadcasting station, as well as the opening of numerous scientific institutes. On the other hand, notwithstanding population growth, the losses of the 1990s have not yet been absorbed, unemployment rates remain high and wages paid in large parts of the expanding service sector (i.e. logistics, supplier firms of BMW or Porsche car manufacturers, shopping complexes) are notoriously low. Leipzig thus represents a split labour market with a weak economic base that is, to a considerable degree, dependent on public transfers.

### ***Settlement system***

Leipzig represents a compact city with a comparably small territory. Most parts of the core city are densely built. The city centre is surrounded by a 'first ring' of old built-up residential areas, which represent today the heart of Leipzig's 'Wilhelminian' or *Gründerzeit* built heritage. Leipzig saw a first wave of enlargements of its territory at the end of the 19<sup>th</sup> century when many of today's traditional working and middle class districts of the 'second ring' became part of the city. During the period of industrialization in the second half of the 19<sup>th</sup> century, mixed zones of industrial and residential use emerged holding simpler flats for craftsmen and workers in the eastern and western parts of the inner city. From the beginning of the *Gründerzeit* (from 1870 up to the beginning of the First World War in 1914), Leipzig's population rose from 106,000 to 624,000. Most of these industrial outskirts were incorporated at this time, which considerably contributed to the growth of the city in terms of inhabitants and space.

During the time of the GDR, the city's territory saw a further growth, not in the form of suburbanization like in the western parts of Germany but in the form of the building of new residential settlements and – from the late 1960s onwards - large (prefabricated) housing estates on the outskirts of the city. The biggest of the latter is Leipzig-Grünau in the west of the city, on which building started in 1979 and it was planned for 100,000 inhabitants. Some western scholars have coined the building of large housing estates at the fringes of socialist cities as a 'peculiarly socialist' form of suburbanization (see Couch et al. 2005). After 1989, postsocialist transition ushered in a period of subsidised suburbanization or even urban sprawl with several shopping malls, business parks and residential neighbourhoods spreading, in this order, into the city's outskirts and the suburban towns and villages. To understand this development, the period after 1990 will be described in the following in four phases (see NuiSSL and Rink 2005).

*1990–1992: The beginning of suburbanization*

Immediately after the opening of the borders in 1989, thousands of investors came to the still existing GDR and endeavoured to gain a foothold in the emerging market. As far as the real estate, retail and housing sectors were concerned, their interest was mainly focused on the fringes of the major urban centres. This influx of capital affected, in particular, Leipzig's suburbia since it was part of a big agglomeration, and thus part of one of the most promising regional markets in eastern Germany (NuiSSL and Rink 2005). The first suburban investments to arrive were shopping malls, soon to be followed by the costly but subsidised preparation of enterprise zones in almost every municipality around the city (Figure 2.3.2). The development of residential areas started a little later (Herfert 1996). This development led to the simultaneity of decay in the inner city and 'new developments' in the surrounding areas (Doehler and Rink 1996).

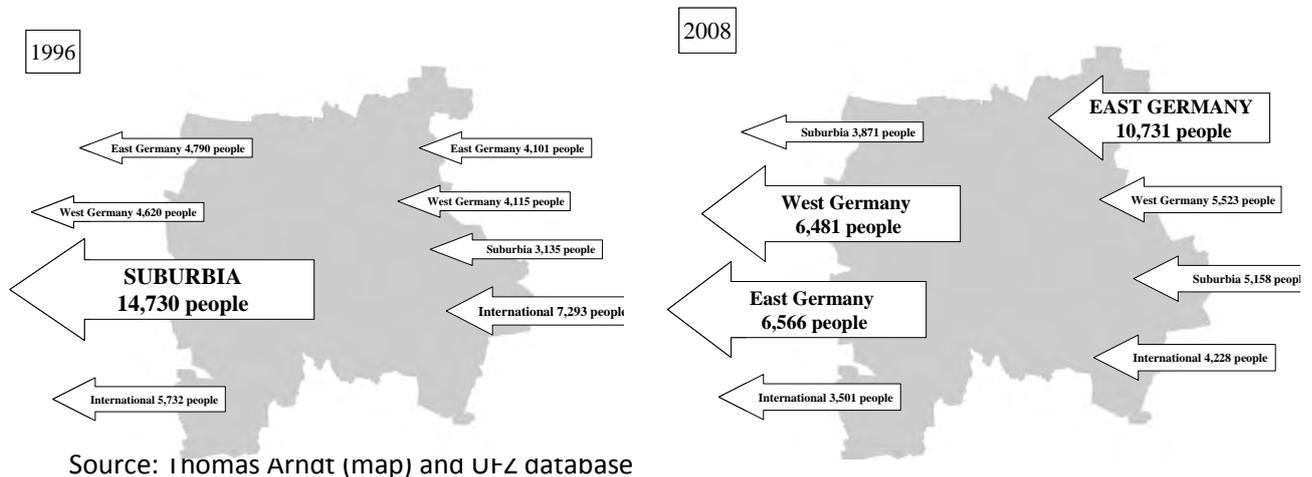
*1992–1996: The rise of residential suburbanization*

From 1992 onwards Leipzig experienced a period of considerable residential suburbanization which reached its peak by the end of 1996 (Herfert and Röhl 2001, Figure 2.3.1). This can largely be attributed to two influencing factors that diminished the quality of life in the inner city during that period. On the one hand, large parts of the old housing stock remained in a bad condition (partly due to restitution). As a result, there was still a lack of acceptable housing in the inner city and hence a considerable difference in rents for decent dwellings between the city and the outskirts. In particular, rents for the few refurbished homes were fairly high. On the other hand, although rapidly improving, the environmental quality was still low, especially in the inner parts of Leipzig (NuiSSL and Rink 2005).

Residential sprawl was only possible because real estate companies and investment funds provided a growing supply of housing on the urban fringe, making suburbia a place where people could afford to instantly improve their standard of living. The suburban dwellings are mostly still possessed by the investors; the rates of home ownership are unusually low. Apart from single-family houses, 2- to 4-storey apartment blocks became a typical suburban building (Figure 2.3.3). However, several 'residential parks' characterised by this type of architecture were afflicted by

a high rate of vacant housing from the outset (Herfert and Röhl, 2001). All in all, Leipzig, like the whole of eastern Germany, developed a type of urban sprawl that is rather different from the idea that the main driving force of urban sprawl is ‘suburbanites’ fulfilling their desire to live in detached housing in a non-urban environment. It was not the suburban surroundings that were considered a pull-factor. It was the unattractiveness of the inner city that was considered to be a push-factor (Haase et al. 2009). “The residents were not necessarily fleeing from the city into greener areas; they were forced into the surrounding areas due to a lack of alternatives [...]. Almost half of the Leipzig greater metropolitan area inhabitants changed their residence, even though they would have – under similar conditions – preferred to have remained in the city; this even refers to home-owners as well” (Herfert and Röhl 2001, 154). Both large housing estates as well as the *Gründerzeit* districts had been the origins of these suburbanites. Suburbanization was driven by young families and also by older households aged 50-65 years.

**Figure 2.3.1: Pathways of suburbanization around Leipzig**



**Figure 2.3.2: Commercial suburbanization: the Paunsdorf Centre**



Source: Thomas Arndt

**Figure 2.3.3: Residential suburbanization**

Source: UFZ

*1997–2000: The ‘comeback’ of the core city*

The short-term dynamic of residential suburbanization pulled back once again as early as 1997 (Herfert 2002). In 1997, for the first time since 1989 the flow of residential suburbanization no longer increased. Rather than occurring by chance, this development reflects the completion of the first round of transformational dynamics. Most importantly, temporary fiscal instruments and programmes, which had proved tremendously conducive to urban sprawl, ran out in the second half of the 1990s. In addition, municipal administrations and regional planning authorities managed to catch up on their planning backlog. Hence, the regulations imposed by planning authorities in order to contain the use of land for urban purposes became increasingly effective (Nuissl and Rink 2005).

In 1999 Leipzig enlarged its administrative territory. In this way, the city ceased to lose inhabitants and re-gained some of those who were lost through suburbanization in the mid 1990s. Furthermore, the ongoing resolution of restitution claims enabled the effective renewal of inner city districts, which, as of the mid-1990s, greatly improved the inner-city environment as a whole and increased the supply of refurbished inner-city dwellings. The successful (re-)establishment of a couple of shopping malls and one big department store (with another one currently under construction) in Leipzig’s city centre contributed further to this resurgence of the inner city. Step by step, the construction and conditions of the residential environment improved in the second half of the 1990s in many inner-city neighbourhoods, and they slowly began to attract inhabitants (Figure 2.3.4). Subsequently, the inner city became both a cheaper and a more attractive place to live and finding a good home there was no longer more difficult or more expensive than in suburbia. At the end of the 1990s, Leipzig entered the phase of reurbanization (Steinführer et al. 2009; Haase 2008). A surplus of in-migration, mostly from other regions in eastern Germany, led to positive migration balances throughout the 2000s (Figure 2.3.1). From the end of the 1990s until the mid 2000s, most of the inner-city districts underwent processes of repopulation, rejuvenation

and ethnic diversification (Table 2.3.1), processes that have endured until today. Consequently, the housing markets in the central and the peripheral parts of the urban region levelled out (Steinführer, 2004). At the same time, the character of residential development in suburbia began to change. The single-family house became predominant, as a slowly growing number of comparatively well off households had managed to accumulate the financial resources necessary to acquire property in the preceding years (Nuisl and Rink 2005).

**Figure 2.3.4: Renovated inner-city housing**



Source: Annegret Haase

**Table 2.3.1: Socio-demographic indicators of selected inner-city districts of Leipzig**

District	Part of the city	Mean age	Inhabitants < 40 years	Youth dependency rate	Age Dependency rate	Share of foreigners	Population development 1999 - 2005
Altlindenau	West	37.5	59%	15.3	16.6	7.5%	+12%
Lindenau	West	36.9	64%	13.6	16.4	9.9%	+14%
Plagwitz	West	40.6	56%	12.0	23.1	5.9%	+23%
Anger-Crottendorf	East	39.2	56%	16.7	22.7	7.0%	+15%
Neustadt-Neuschönefeld	East	37.2	60%	15.3	17.0	16.4%	+10%
Reudnitz-Thonberg	East	38.5	60%	13.5	20.4	7.6%	+6%
Volkmarsdorf	East	37.9	56%	16.7	17.6	14.8%	-5%
Schleußig	South-West	35.9	64%	19.2	14.1	4.4%	+26%
Südvorstadt	South	37.9	63%	12.8	19.1	4.5%	+26%
Gohlis-Süd	Nord	38.6	57%	16.3	19.0	7.7%	+28%
<b>Leipzig</b>	–	<b>43.1</b>	<b>47%</b>	<b>13.3</b>	<b>28.7</b>	<b>5.1%</b>	<b>+3%</b>

Source: Steinführer et al. 2009, updated

*The last ten years: consolidation, re-growth or perforation?*

After 2000, Leipzig saw a turnaround, that is, a consolidation of its population and even a slight re-growth after several decades of shrinkage. Since 2000, Leipzig has had positive migration balances with the hinterland and in general. Urban research speaks about reurbanization tendencies that are especially prominent in Leipzig as one of only a few big cities in eastern Germany).<sup>2</sup>

<sup>2</sup> Reurbanization as an emergent process can be recognised in eastern Germany, particularly in some large cities which represent university and commercial hubs. It appears in the form of both increased in-migration into the

Accordingly, the flow to suburbia appears to have come to a halt. Migration between Leipzig and its hinterland is more or less balanced and, except for a few major investments (BMW in 2002-2005, Quelle in 1992), there have been no more peripheral development projects. Moreover, the population figures of the inner city districts have been growing since the late 1990s, which brings Leipzig into its new role as an 'island of stability' in a widely shrinking landscape of eastern Germany. Reurbanization tendencies are – compared with other East Germany cities – especially prominent in Leipzig (Herfert 2002; Haase et al. 2009). At the same time, the population of some parts of suburbia has been declining in the last years. The demand for suburban housing has dropped considerably, leading to growing differences between the more and the less attractive segments of the suburban housing market. In addition, many suburban office blocks planned and built in the expectant times of the 1990s are still vacant, and some of them are shortly to be demolished (Nuisl and Rink 2005).

The abatement of urban sprawl in and around Leipzig is taking place against the background of a highly relaxed real estate and housing market and considerable rates of housing and commercial vacancies (see section 3.4 of this part of the report). This oversupply makes investments to redevelop urban brownfields or to refurbish the decaying buildings that remain hardly economical. It has thus supported the onset of a process of 'perforation' in the urban fabric (Lütke-Daldrup, 2001): while some districts have stabilized and even gained population (recent research identified those districts as a 'young reurban cluster', see Kabisch, N. et al. 2009), others are still losing population and face high rates of unused housing and urban land. In other words: "If there had not been so many developmental activities in suburbia creating a huge surplus of buildings and building land, the problem of urban perforation nowadays would be much less serious." (Nuisl and Rink 2005, 130)

To counteract suburbanization and high vacancy rates in the inner city, it was the intention of the municipality to make people stay in the city. Next to federal, state, and EU financial grants, a programme for subsidized owner-occupied housing in the inner city started in 2001 represented a case in point to show the top-down urban development. Originally intended as a strategy to support the formation of owner-occupied housing in the old building stock in need of renovation, the construction of new buildings developed over time, in the form of the 'town houses', and became a visible trademark of the programme. By end of 2007, 312 households were supported and 153 new town houses and 159 condominium apartments had been completed (LCC 2008c, 49). The target of appealing to mostly families was for the most part realised – but not to keep potential suburbanites in the city. According to qualitative studies, the owner-occupiers in this specific housing stock) comprised city-minded dwellers for whom a move into the surroundings would never have come into question (Kausch 2007, 88-90). In this sense, the programme adds to the

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city as well as decreased out-migration from the inner city. The in-migration from outside is dominated by students and early stage professionals. At the neighbourhood level, this is reflected in the high demand for young and, to a very high degree, non-conventional household types. This trend has stabilised in this regard since roughly 2000 (Haase et al. 2010).

stabilisation and structural differentiation of the inner city. The numbers show that it represents no more than a niche-market, which is attractive and feasible only for families of middle to higher income groups.

Concerning the future, Leipzig will be faced with contradicting trends: on the one hand, the city will try to sustain itself as a 're-growing' city with a positive migration balance and a young in-migration that counteracts the ageing process. On the other hand, the city will see a new wave of population loss after 2015, that is, when household numbers will start to decrease regardless of in-migration and the potential (younger) in-migration groups will become smaller due to ageing (see section 2.1 of this part of the report). The city will probably enforce efforts to attract older age groups as reurbanites, i.e. those who suburbanized in the 1990s and will face difficulties concerning their daily wants and needs in suburbia because of a lack of amenities and services there. This could become true in one or two decades (Haase 2008; Köppen 2005; Glasze and Graze 2007). Finally, it has to be emphasised that the simultaneity of urban sprawl and shrinkage was a major challenge to urban policy-making and planning for cities like Leipzig (and Halle, too), and will continue to be in the future (cf. Nuisl and Rink 2005).

### A.3. IMPACTS AND CONSEQUENCES OF URBAN SHRINKAGE

#### A.3.1. *Patterns of segregation and social cohesion*

*The specifics of Leipzig: 'postsocialist segregation' and housing market supply surplus*

To understand the development of socio-spatial differentiation and today's patterns of socio-spatial segregation in Leipzig<sup>3</sup>, one has to consider two facts:

- Leipzig's socialist past and its impact on segregation and
- the specifics of its 'supply surplus' housing market.

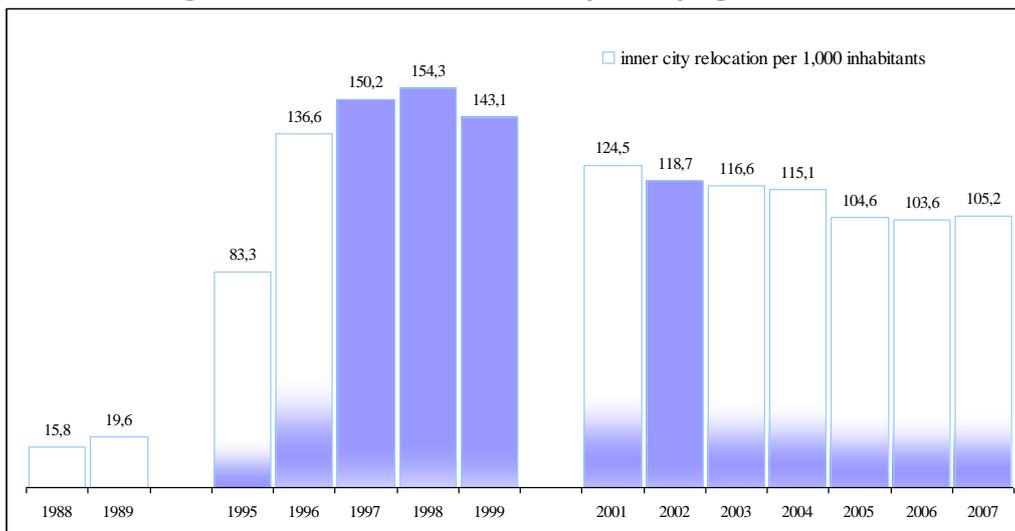
During the period of state socialism, as a consequence of the absence of both a private housing market as well as state controlled systems of housing provision, there was a low level of socio-spatial differentiation and segregation. Typical forms of segregation under socialism in Leipzig were the concentration of older people in the city centre, representatives of the socialist *nomenklatura* households in villa areas and some professional groups (teachers, technical intelligence) in prefab estates. The little community of foreigners who had jobs as contract workers from other socialist countries or who studied at Leipzig university was strictly separated from the locals in dormitories. The same was true for the Soviet soldiers and officers who lived in closed housing complexes and the barracks.

After 1989 the situation changed. As a consequence of population decline and an oversupply of flats due to renovation, newly built housing and increasing vacancies in the 1990s, Leipzig developed to be a housing market with a supply surplus (see also section 3.4. of this part of the report). The emergence of housing vacancies led to falling rents/prices and a greater choice in terms of housing for a variety of residential groups. Subsequently, residential mobility increased and was at its highest level at the time when the housing vacancies reached their top numbers (in 2000). During the 2000s, residential mobility then decreased but remained at a level that is above that of comparable western German cities with a demand surplus housing market (Figures 3.1.1 and 3.1.2).

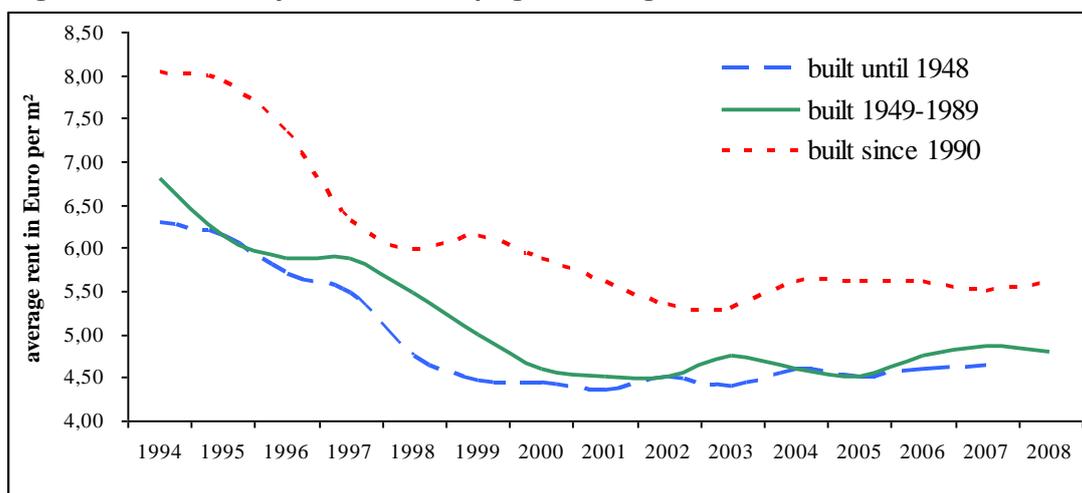
We understand supply surplus as a situation where there are more inhabitable dwellings than households available on the housing market. The supply is, subsequently, higher than the demand (Rink et al. 2010). Since most studies on socio-spatial segregation refer to the context of housing markets with demand surplus, the question whether supply surplus changes processes of differentiation and patterns of segregation has been under-researched up to now. The few existing studies are contradictory in their assumptions or conclusions and say either that the segregation under the conditions of supply surplus at the city level is stronger or that it is – in the same context – weaker. Some studies underline that the level of segregation of certain population groups (low income households, unemployed, older people, migrants) is more pronounced in cities with housing vacancies and a declining population.

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<sup>3</sup> For the definition of processes of socio-spatial differentiation and patterns of socio-spatial segregation as a result of these processes see Rink (1997).

**Figure 3.1.1: Residential mobility in Leipzig 1984-2008**

Source: UFZ database

**Figure 3.1.2: Monthly net-rent in Leipzig according to date of construction 1994-2008**

Source: UFZ database

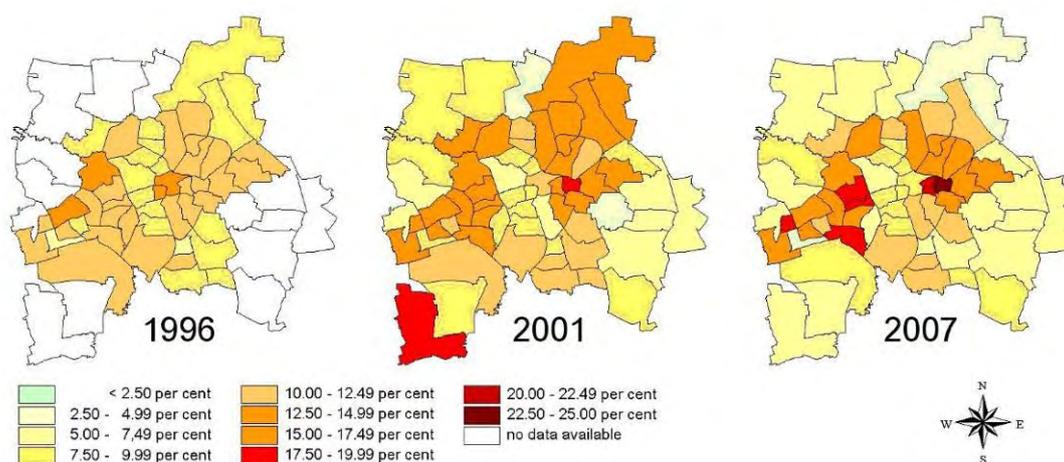
*'Postsocialist' differentiation, re-arrangements and segregation*

Looking at the period from 1990 to today, socio-spatial differences between the districts in Leipzig have increased (Rink 1997). These distinct processes of socio-spatial differentiation have not, up to now, produced a 'clear' picture of 'postsocialist' segregation in Leipzig. In the following, we present selected results of research that has been carried out in the last few years (Rink et al. 2010, Großmann et al. 2009). We use maps and correlations at the district level and show indices of segregation for the total city level. The maps show the development of spatial concentrations of certain residential groups over time on the scale of urban districts; the correlations relate district values to each other. The segregation indices, finally, relate specific residential groups to the entity of all other residents of the city (based on urban districts). We are well aware of the limits of the applied approach/methods: we cannot use them to picture small-scale differences, we can show aggregate data for urban districts but not for residential groups, the

differences are limited to administrative boundaries and do not provide any explanation of causes and the logics/dynamics of the processes behind.

Residential segregation in Leipzig is strongest in its socio-economic dimension. Figure 3.1.1 shows that socio-economic segregation at the district level (operationalised through the unemployment rate) was already visible in the mid 1990s. In 2001, the (north-)eastern and western parts of the inner city as well as the large housing estate Grünau had developed as the foci of unemployment – those districts that also show high rates of housing vacancies (see section 3.4 and especially Figure 3.4.5 of this part of the report). This picture was consolidated and strengthened until 2005. Generally, the difference between the districts became more pronounced up to today. While until 2005 unemployment also rose, the recent years have brought a decrease in unemployment, but not in the level of socio-economic segregation. The latter is increasingly impacted by selective in-migration as a consequence of a rising impact of the market and the renting policy of particular owners/housing companies as adjustment factors: while some areas with a high socio-economic status see a better-off in-migration, poorer people move to districts where there is already a concentration of low income households.

**Figure 3.1.1: Social segregation (% unemployed) in Leipzig 1996, 2001, 2005**

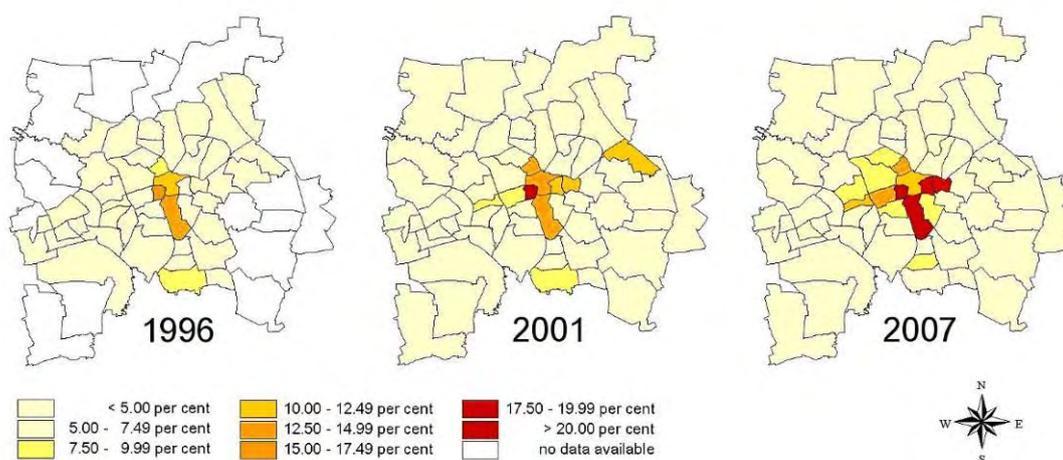


Source: Grossmann et al. 2009

Socio-economic segregation is, in many cases, in line with segregation according to education. There is a considerable concentration of population with a low educational level in those parts of the city that are characterized by high shares of unemployment and low income households as well as high shares of housing vacancies (above-average proportion of pupils with learning difficulties or who stayed down a year as well as pupils at secondary modern schools/*Hauptschule*, below-average recommendations for the secondary school/*Gymnasium*, cf. LCC 2008e, 83-89).

Ethnic segregation shows both persistent and newly emerging patterns (Figure 3.1.2). The community of migrants - or foreigners as they are called commonly in the German debate - in Leipzig changed in the 1990s since some of the contract workers from the state socialist time left the city while others came. Since the mid 1990s, Leipzig has seen continuously increasing numbers of migrants; their share rose from 1990 to 2007 from 8,700 (1.7 per cent) to 33,000 persons (6.4 per cent, representing the highest share of migrants of an East German city except Berlin). Many of Leipzig's migrants are first generation migrants. We can observe two trends concerning the concentration of migrants in urban space: on the one hand, there is a continuation of socio-spatial patterns that already existed in the 1980s, i.e. the concentration of migrants in the city centre and the area south-east of the city centre with many students' residences. On the other hand, new socio-spatial patterns have emerged from the second half of the 1990s onwards, that is, the development of 'migrants' areas' in the inner east of Leipzig where their share amounts to 18-20 per cent of the population. Migrants living in these areas stem mainly from Vietnam, Russia, Iraq, Ukraine and Poland. The spatial distribution over the city as a whole shows that there is a concentration of migrants and persons with 'migration background' (see section 2.1 of this part of the report) in the inner city as well as in the large housing estate Grünau (which is probably due to the precarious income situation of many households with migration background and the possibility of finding cheap housing in Grünau, cf. LCC 2008e, 73-75).

**Figure 3.1.2: Ethnic segregation (% migrants) in Leipzig 1996, 2001, 2005**

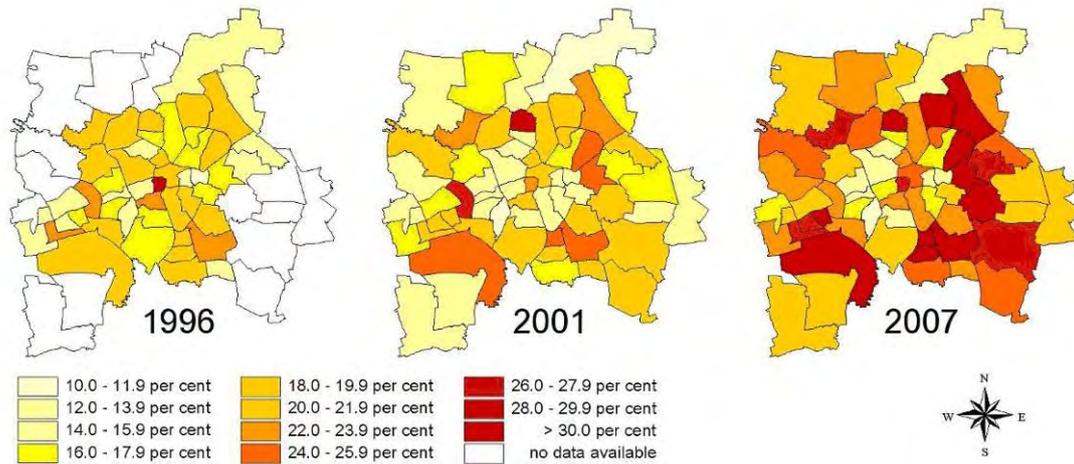


Source: Grossmann et al. 2009

Looking at the age-specific segregation, one sees a changing pattern during the 1990s and 2000s, at least concerning the distribution of older people in the city (Figure 3.1.3). Generally, Leipzig is a rapidly ageing city (see section 2.1 of this part of the report). The index of ageing (the relation 65+/0-14) increased from 91.2 in 1990 to 220.2 in 2006 (Kabisch et al. 2008, 17). While in the early 1990s the city centre was the 'oldest' district, all other districts did not show remarkable differences. This situation has changed during the 1990s and 2000s. The reasons are to be found in the overlap of two processes: on the one hand, a rejuvenation of the city centre and

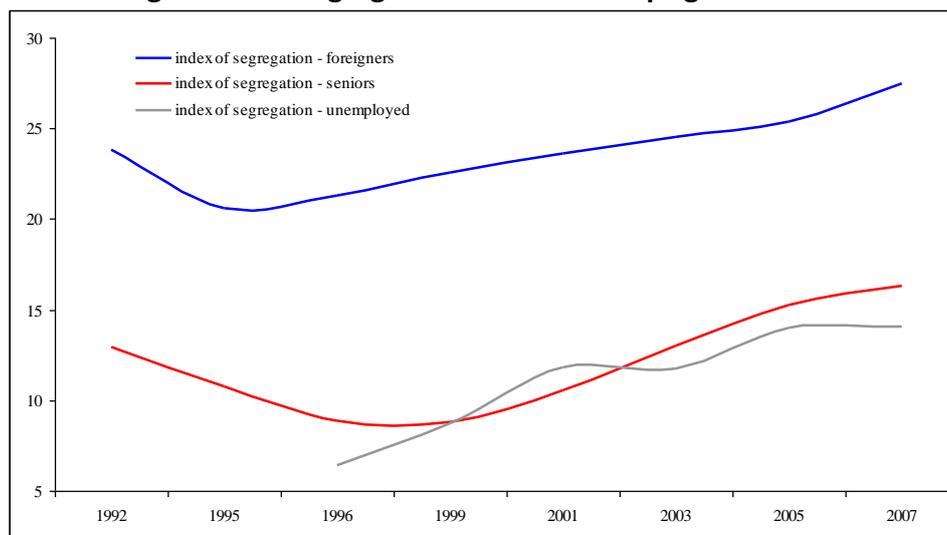
most of the inner-city districts (reurbanisation) and, on the other hand, an advancing ageing of the residential areas of the 'second ring' due to the out-migration of younger people to suburbia and the inner city (at a moderate level until today) and an advancing ageing in place in the affected districts, which show a share of 65+ population of >25 or even >30 per cent (LCC 2008e, 54). To put it differently: the pattern of the concentration of older people of the early 1990s no longer exists. There is a high dynamics of change, although the newly evolving pattern has to consolidate to really become a longer-term characteristic of the 'second-ring' districts.

**Figure 3.1.3: Age-specific segregation (% 65+) in Leipzig 1996, 2001, 2005**



Source: Grossmann et al. 2009

Figure 3.1.4 shows the development of segregation indices for Leipzig. The values neither show striking levels nor a high dynamic of growth or decline. It has to be emphasised that the values do not start with 'zero' in 1990, which clearly shows that there was already socio-spatial segregation in the GDR. Compared to other European cities, the overall level of segregation is still moderate in Leipzig. There is an increasing value of the segregation of unemployed. Migrants, as a group, show the strongest segregation but this value has not dramatically changed since 1990. What the value does not show is, however, the character of the segregation of migrants that partly changed during the 1990s and 2000s (see above).

**Figure 3.1.4: Segregation indices for Leipzig 1992-2007**

Source: Grossmann et al. 2009

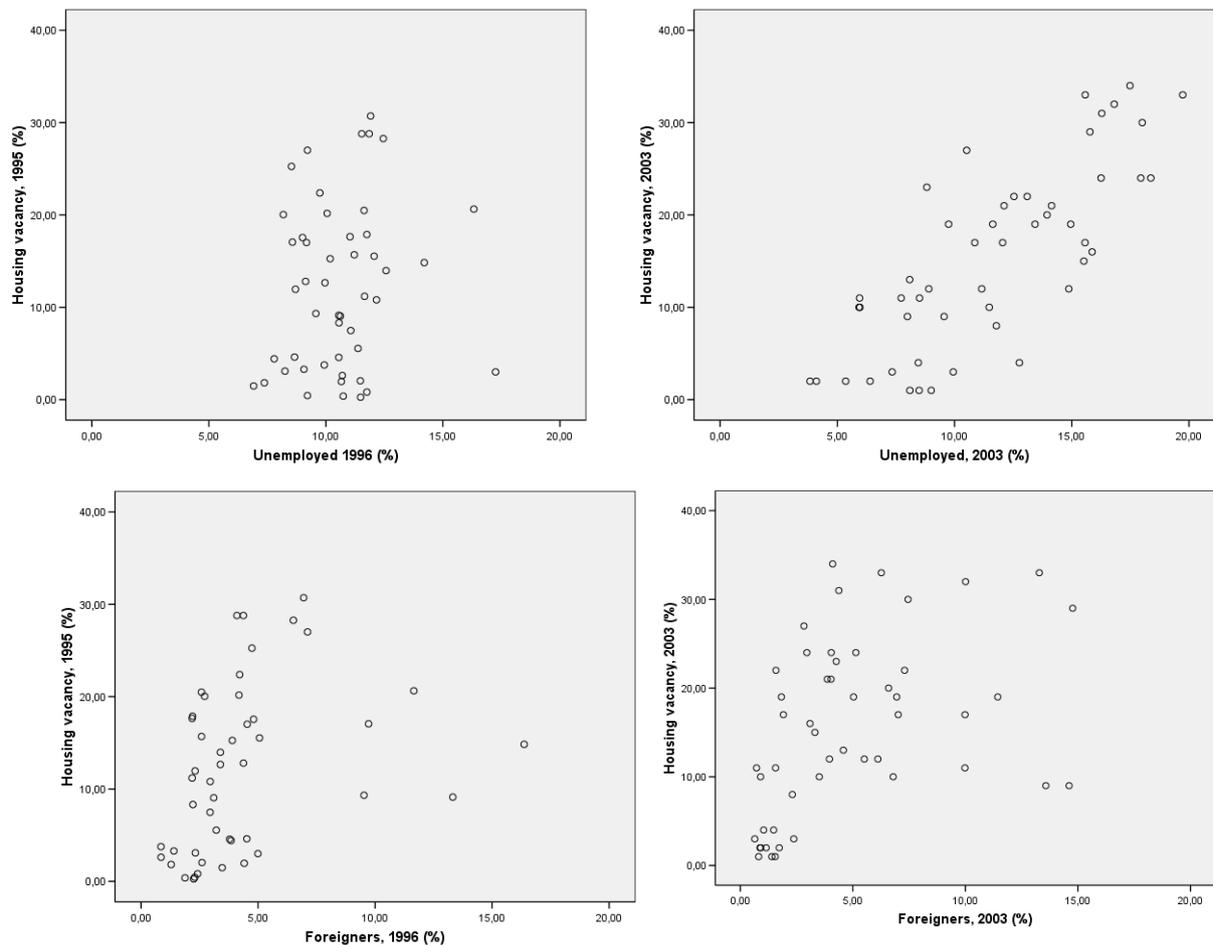
#### *Impact of urban shrinkage on socio-spatial segregation*

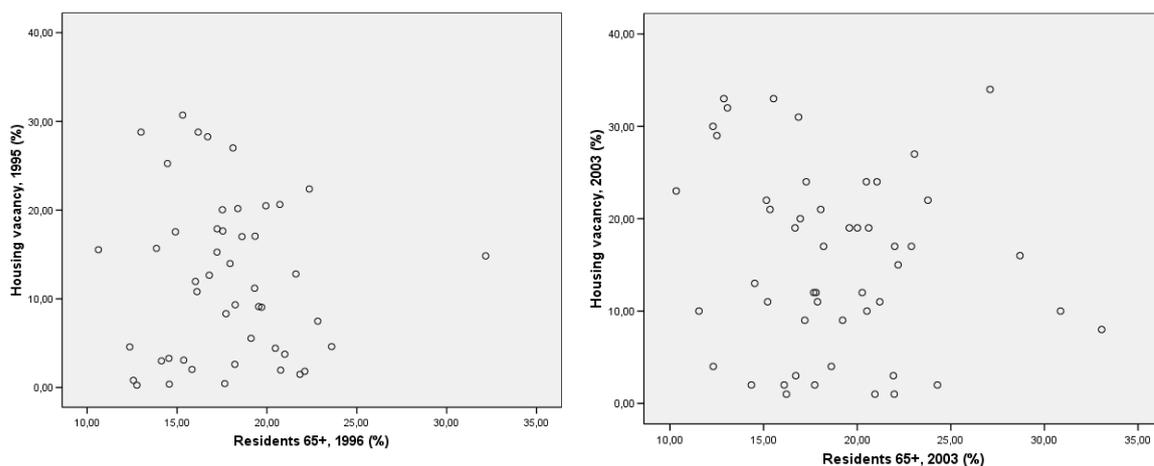
What impact does urban shrinkage have on the development of socio-spatial segregation? To assess direct impacts is not easy; we tried to operationalise urban shrinkage by making an estimation of vacancy rates (including both buildings on and off the market) and correlated it with the share of unemployed, migrants and 65+ inhabitants to get an initial idea of its influence on socio-spatial inequality. Figures 3.1.5 a) and b) show that while there was no correlation between vacancy rates and the level of unemployment in 1996, in 2003 there was a clear connection (Pearson correlation 0,156 and 0,783\*\*). Many unemployed people are living in urban districts with high vacancy rates and vice versa. It has to be clearly pointed out here that the above mentioned consolidation or up-grading of some areas of the (old built-up, inner) city led to the (exclusionary) displacement of low income households into those areas where they can find appropriate housing for moderate costs (see Marcuse 1985).

The correlation between the share of migrants and vacancy rates ranges around a middle level. One could conclude that in those districts where (relatively) many migrants are living we also find above-average vacancy levels and vice versa (Figures 3.1.5 c) and d)). However, compared with the first correlation, the significance of the values is much lower. In contrast to the group of unemployed, the value of the correlation did not change from 1996 to 2003 (Pearson correlation 0,334\* and 0,441\*\*). There is no correlation between the distribution of specific age groups of 65+ or 0-14 over the districts and the proportion of vacancies, either in 1996 or in 2003 (Pearson correlation -0,050 and -0,156). This means that although we have a clear concentration of 65+ population in the 'second-ring' districts in the 2000s, this is more related to ageing and specific out-migration (of younger households) from these districts than to urban shrinkage as the former did not lead to high vacancy rates (Figures 3.1.5 e) and f)).

According to our current knowledge, we conclude that there is an impact of supply surplus on the dynamics of residential segregation, but not on all its dimensions. While the surplus of supply is strongest in the socio-economic dimension, we find both persistent and new patterns with respect to ethnic segregation and a high dynamism and changing patterns for the 65+ dimension of age-specific segregation. There is a certain postponement of the impact of housing vacancies on re-arranging or changing patterns of residential segregation since the supply surplus with its consequences (low housing costs and greater choice) had to be there before a rise in residential mobility could start. This means that although Leipzig is no longer a shrinking city, it shows the characteristics of a housing market with supply surplus and, because of this characteristic, urban shrinkage has an impact on the patterns of segregation and on processes of socio-spatial differentiation. Since today's differentiation is driven mainly by selective in-migration and no longer by selective out-migration like in the 1990s, attraction factors of the districts and their housing offers come more into the focus, be it in the form of choice or constraints. In the 2000s, the increasing segmentation of the housing market has led to housing shortages in particular areas/segments whereas supply surplus remains in others (not all areas have a supply surplus!). Generally, the supply surplus context represents a dynamic one: whilst the 1990s were the phase of re-arrangement of the housing market, the 2000s were the phase of a certain consolidation of patterns that had evolved in the late 1990s as well as new restrictions (Rink et al. 2010).

**Figure 3.1.5** a)-f): Correlation between share of housing vacancies and share of unemployed persons (a) and b)), foreigners (c) and d)) and 65+ population (e) and f)) 1996 and 2003



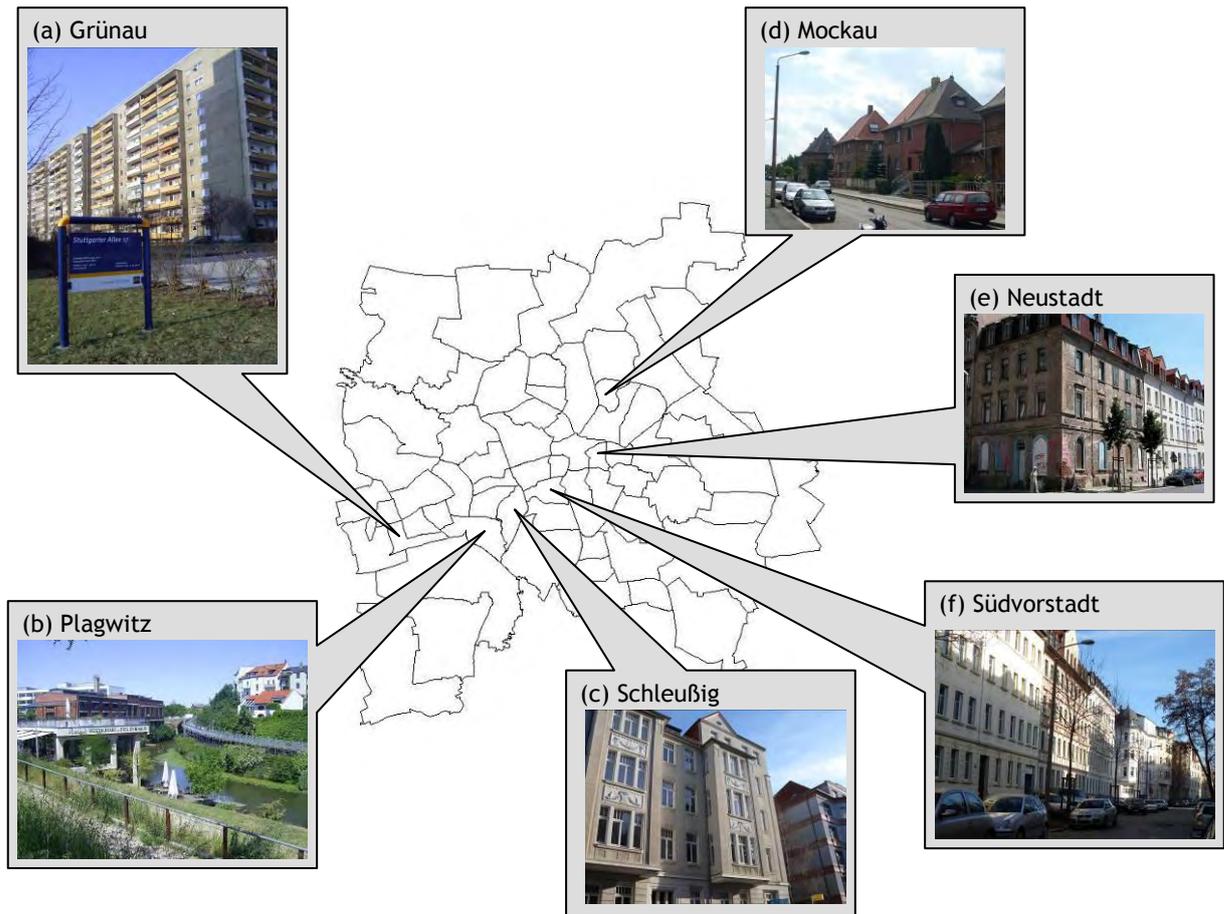


Source: Grossmann et al. 2009

#### *The district and small-scale level*

Patterns of segregation are clearly visible at the district level. In some cases, they relate even to a more small-scale level (parts of districts, neighbourhoods) or go beyond the (administratively assigned) borders of districts. There are considerable differences between inner-city old built-up districts. While some of them (Waldstraßenviertel, Gohlis-Süd, Schleußig, Plagwitz) have undergone up-grading and gentrification processes, others (Neustadt-Neuschönefeld, Volkmarsdorf, Reudnitz) have become increasingly areas where low-income households, unemployed persons and migrants are concentrated. Districts where social exclusion plays a role are to be found not only in the inner city but also in the large housing estates (Leipzig-Grünau). In most cases, physical dilapidation, housing vacancies and demolitions go hand in hand with high proportions and concentration processes of low-income households. This is partly a result of municipal policies (about where to house social welfare recipients). Processes of 'de- and re-mixing' are happening, either by ageing in place in many 'second-ring' districts (Marienbrunn, Abtnaudorf, Sellerhausen, Mockau) and by repopulation and rejuvenation in districts undergoing reurbanization after massive losses in the 1990s (Südvorstadt, Connewitz, Neustadt-Neuschönefeld, Altlindenau). Figure 3.1.6 shows examples of such pathways of Leipzig's urban districts.

**Figure 3.1.6: Districts of Leipzig** The map shows the administrative borders of Leipzig's urban districts and some examples of districts mentioned in the text: a) Grünau; b) Plagwitz; c) Schleußig; d) Mockau; e) Neustadt-Neuschönefeld; f) Südvorstadt.



Source: Thomas Arndt (map layout and photo d), Annegret Haase (all other photos)

### **A.3.2. Business and employment**

*Please note: With the aim to improve readability, this chapter discusses both the economic development of Halle as a causal factor for shrinkage, and the development of business in Halle as a consequence of shrinkage. Thus, chapters 2.2. and 3.2.go as one.*

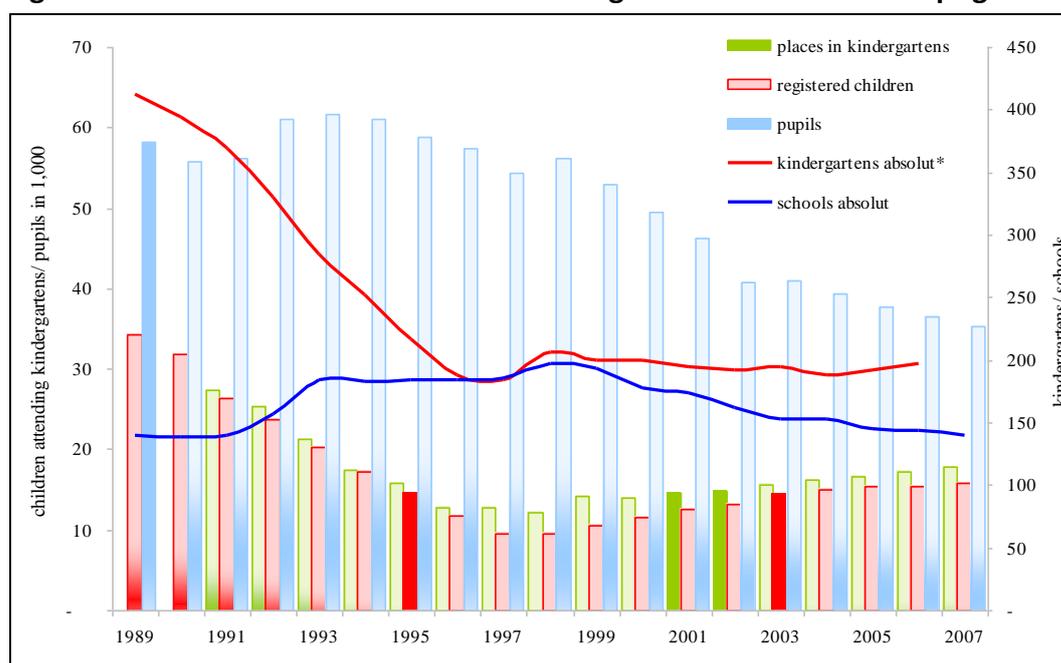
### **A.3.3. Social infrastructure and education**

Urban shrinkage has an impact on the demand for social infrastructure: while the demand for social amenities decreases in areas with population outflow and high shares of housing vacancies, it increases in stabilizing and growing areas, mainly due to selective in-migration (e.g. of young families to particular districts, see also sections 2.1 and 3.1 of this part of the report). Subsequently, the distribution of much social infrastructure is characterized by areas of under- and oversupply across the city's territory. Urban shrinkage does not generally mean supply surplus, it means, in the case of Leipzig, a selective pattern of district-related under- or oversupply. The main challenge for the municipality for the coming years will be to

adapt the supply to the areas of demand.<sup>4</sup> The demand for schools decreased during the 1990s and 2000s; subsequently, several schools had to be closed.

The number of kindergartens decreased from 412 (1988) to 184 (1998). In 1999, it increased to 206 due to the administrative reform to decrease again to 202 in 2008 (Figure 3.3.1). The numbers include all kindergartens, both public and private. Private kindergartens have emerged only since 1989 and are possibly to be found mainly in better-off neighbourhoods. The number of places decreased from 27,000 (1991) to 18,000 (2008), and the number of registered children from 36,000 (1987) to 17,000 (2008). The supply of kindergartens differs over the city's territory and the fulfilment of demand differed in 2005 between 80 and 140 per cent in the individual districts. The social report (2008) distinguishes three types of districts: those with undersupply (below 90 per cent), those with balanced supply and demand (90-120 per cent) and those with oversupply (>120 per cent). While districts with undersupply are to be found mainly in the northern and southern districts of the inner city that see in-migration of a younger population (north-south-axis along the floodplain forest areas), the oversupply is concentrated in the prefabricated areas of Grünau and Paunsdorf in the west and north-east of the city where we have either high vacancy rates (in the case of Grünau) or an increasing concentration of social welfare recipients (in the case of Paunsdorf) (LCC 2008e, 35-37, Figure 3.3.2).

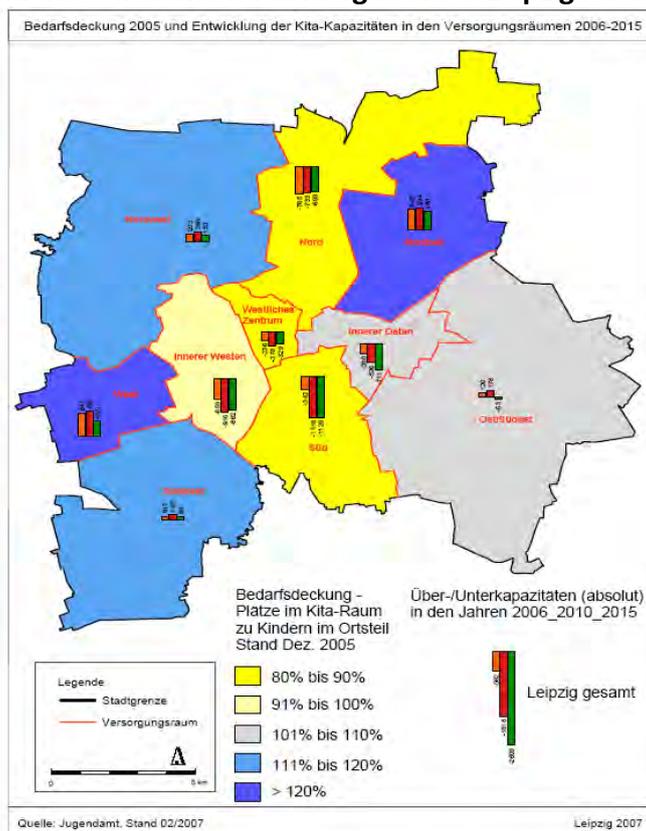
**Figure 3.3.1: Places in and attendants of kindergartens and schools in Leipzig 1989-2007**



\* From 2001, the number of kindergartens also includes nurseries at schools.

Source: UFZ database

<sup>4</sup> This information is based on an interview with representatives of the urban planning unit of Leipzig in December 2009.

**Figure 3.3.2: Fulfilment of demand for kindergartens in Leipzig for the period 2006-2015**

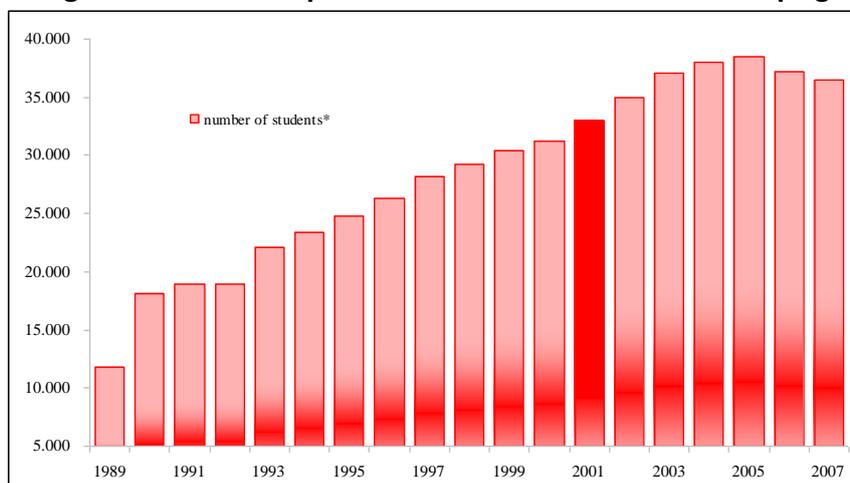
Source: LCC 2008e, 36

The number of pupils in Leipzig's schools decreased from 1989 (58,000) to 2008 (35,000), mainly as a consequence of out-migration and suburbanization (of families with dependent children) (Figure 3.3.1). The number of schools increased from 1985 to 1998 from 135 to 197 and decreased afterwards to 143 in 2008. Due to the decreasing demand, schools of different types (primary and secondary schools) had to be closed. In recent years, a slight increase in numbers of pupils in primary schools can be observed (LCC 2008e, 79-80). There is a considerable concentration of education related problems in those parts of the city that are characterized by high shares of unemployment and low income households as well as high proportions of housing vacancies (above-average proportions of pupils with learning difficulties or who stayed down a year, as well as pupils at secondary modern schools/*Hauptschule*, below-average recommendations for the secondary school/*Gymnasium*, cf. LCC 2008e, 83-89 and section 3.1 of this part of the report).

The number of apprentices increased during the 1990s and remained stable at about 25,000 during the 2000s. The share of adolescents who did not find an apprenticeship recently rose from 3 to 10 per cent from 2002 to 2007. Most of them attended the *Hauptschule* or *Realschule*. In line with the overall trend, the level of unemployment of the young in Leipzig has undergone a decrease during recent years. The number of students at Leipzig's university started to rise considerably after 1989, until this time it was approximately 12,000. In 2005, it reached a peak with 38,500 students, in 2008 the number slightly decreased to 36,000 (Figure 3.3.2).

Since the 2000s, students and apprentices have constituted a considerable potential for inner-city reurbanization and population gains from in-migration in Leipzig (counteracting urban shrinkage!) This potential will, however, decrease in the future due to fact that the age group 18-30 will decrease during the next years.

**Figure 3.3.2: Development of number of students in Leipzig**



\* The numbers relate to the respective winter term, e.g. 2005 = winter term 2005/2006.

Source: UFZ database

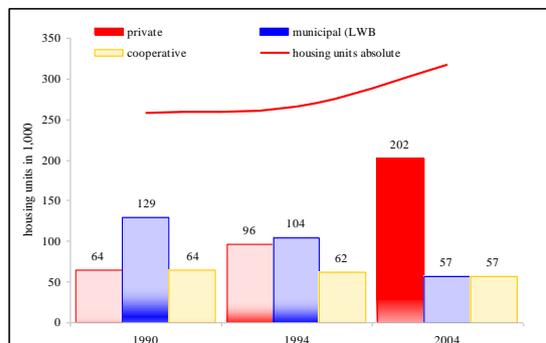
The number of doctors in private surgeries and hospitals increased from 1989 to 2008. The same is true for the number of surgeries – there was an increase from 568 in 1992 to 991 in 2006. At the same time, the supply of doctors as well as of surgeries improved with the number of doctors increasing from 4.2 to 5.7 (per 1,000 inhabitants) from 1988 to 2006, and the number of surgeries increasing from 1.1 to 2.0 from 1992 to 2006.

#### **A.3.4. Housing**

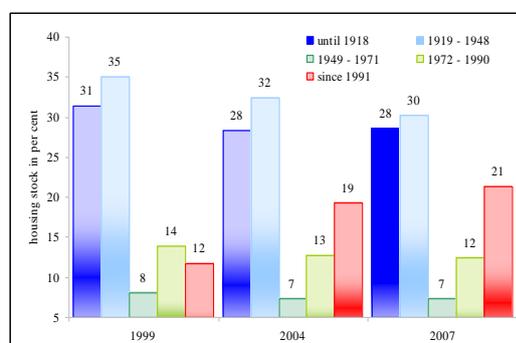
The discussion about shrinkage in Leipzig is dominated by the housing market perspective. Residential vacancies were the origin of any debate about shrinkage in East German cities – the term itself came largely into discussion in relation to housing vacancies or housing surplus. A federal commission dealt with that phenomenon in 2000. The mayor of Leipzig (at that time) was the head of this commission, which illustrates quite well the importance and scope of the vacancy problem, especially for Leipzig. Housing vacancies, and especially vacancies in renovated housing stock, became the talking points of urban shrinkage, not only in Leipzig but in the whole of eastern Germany. Research and planning speaks of ‘tenants’ markets’ (seen from the perspective of the demand side) or ‘housing markets with supply surplus’ (seen from the perspective of both the supply and the demand side). Other dimensions of urban shrinkage are possibly underestimated because of the importance of the vacancy issue. Leipzig’s housing stock is dominated by multi-family residential buildings, with the majority being built before 1948. The majority of houses are privately owned (64 per cent), 17 per cent belong to the

municipal housing company, and another 17 per cent to less than a dozen housing cooperatives (Figures 3.4.1 and 3.4.2).

**Figure 3.4.1 Leipzig's housing stock ownership according to ownership**



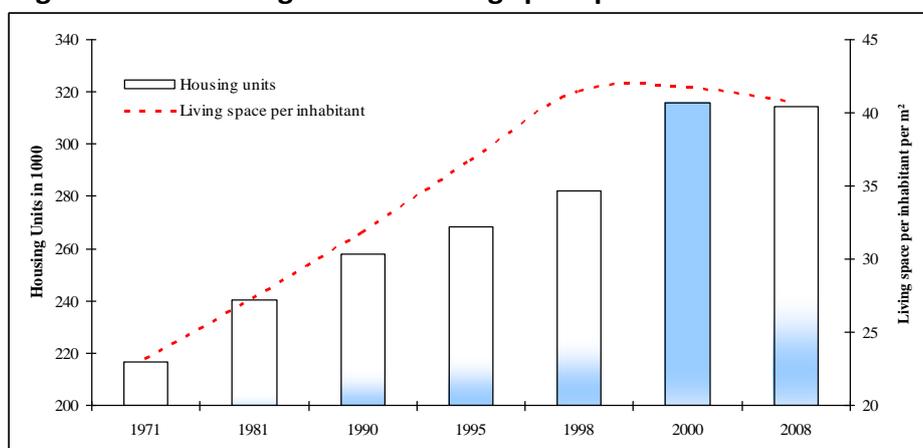
**3.4.2 Leipzig housing stock according to date of construction**



Source: UFZ database

Until the early 1990s, the housing market in Leipzig was characterised by an extreme lack of dwellings and very poor housing conditions. More than half of the buildings were built before 1918. Lack of maintenance was a severe problem and, until the 1990s, many apartments did not have a bathroom and a separate toilet. In 1989 about 10 per cent of the flats (25,000 in total) were vacant since they were not habitable. During the GDR time, the housing stock grew due to newly built housing on the outskirts of the city. From the late 1960s onwards, large-scale prefabricated housing estates were built; the largest of them being Leipzig-Grünau in the west of the city. Between 1970 and 1990 about 40,000 new dwellings were built in Leipzig (Figure 3.4.3), most of them in Leipzig-Grünau. However, more and appropriate apartments were needed due to the rising number of households, increasing comfort needs, the shrinking size of households, and the dilapidation of the old housing stock (see above). This situation changed decisively after 1990. Supported by massive state-aid incentives, tens of thousands of old buildings were renovated and new dwellings built. In 2000, 14 per cent of all dwellings (43,000) in Leipzig were less than 10 years old. At the same time around 75 per cent of the old housing stock had been renovated.

**Figure 3.4.3: Housing units and living space per inhabitant 1971-2008**



Source: UFZ database

Since the population and, more importantly, also of the households decreased (see section 2.1 of this part of the report), such a mixture was bound to go wrong. Thus a new gap between supply and demand emerged which resulted in an extreme increase in housing vacancies. In 2000, there were an estimated 62,500 unoccupied flats (more than 20 per cent of the entire housing stock), around 70 per cent of them in old built-up buildings (Table 3.4.2). The effects of such high vacancy rates are highly problematic – both for property owners and for the affected neighbourhoods. Thus, lack of maintenance, security problems, and perforation of the urban fabric proved to be among the top problems for old-building neighbourhoods, visible to everyone. Losses of profit, devaluation of vacant sites, lower prices, reduced mortgage values and greater marketing expenditures are keywords that describe the effects on real estate markets.

Interestingly, the allocation of vacancies over the city and the housing market segments is fairly unbalanced – though rather on a micro- than on a macro-scale. Contrary to public opinion it is not only peripheral prefabs that are subject to high vacancy rates, but moreover vacancies are also concentrated in under-maintained historical buildings, simple structures and along main roads, even if these are located in favourable neighbourhoods. Furthermore, property structures play a crucial role in dealing with vacancies. The main instrument in dealing with residential vacancies has become a public subsidy scheme called “Stadtumbau Ost” which has supported the demolition of vacant houses since 2001 (see also Bernt 2009). With the help of this programme 10,211 apartments were demolished between 2001 and 2007, most of them (70 per cent) in buildings in large housing estates that had been built during the GDR time (Table 3.4.1). At the same time, new constructions were completed in the city and its surroundings so that housing surplus was only partly resolved by demolitions. From the end of the 1990s onwards, the population of Leipzig has increased and consequently housing demand is growing, especially in central historic areas. As a consequence, vacancies have decreased to a level of around 43,000 apartments (60 per cent of these being on the market).

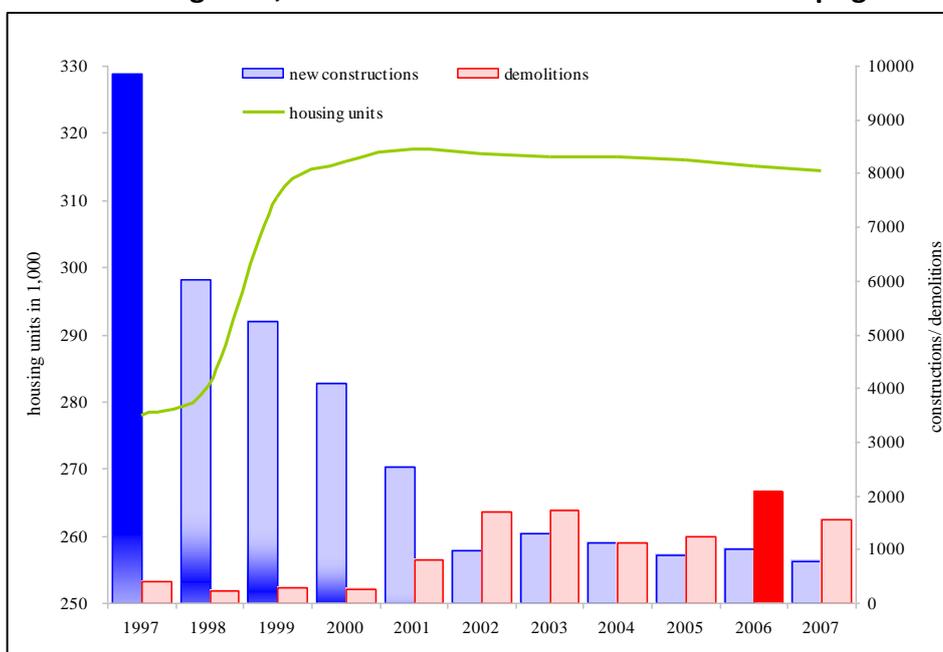
**Table 3.4.1: Development in Leipzig’s housing stock 1997-2007**

	1997	1999	2001	2002	2003	2004	2005	2006	2007	1997 - 2007
Housing units total	277.812	310.329	317.439	316.763	316.358	316.358	316.027	314.223	314.223	+36.411
<b>New constructions</b>	<b>13.891</b>	<b>9.086</b>	<b>n.a.</b>	<b>2.124</b>	<b>n.a.</b>	<b>2.429</b>	<b>1.935</b>	<b>1.948</b>	<b>1.347</b>	<b>+32.760</b>
in Leipzig	9.845	5.236	n.a.	984	n.a.	1.112	881	1.016	782	+19.856
in the region	4.046	3.850	n.a.	1.140	n.a.	1.317	1.054	932	565	+12.904
<b>Demolition</b>	<b>400</b>	<b>288</b>	<b>798</b>	<b>1.687</b>	<b>1.731</b>	<b>1.128</b>	<b>1.231</b>	<b>2.080</b>	<b>1.556</b>	<b>11.390</b>
vacancies	57.000	68.000	68.000	64.000	60.000	57.000	53.000	48.000	43.000	n.a.
per cent	25,5	21,9	21,4	20,2	19,0	18,0	16,8	15,2	13,7	n.a.

Source: UFZ database

The supply surplus led to a decreasing scope of building completions, but only in the mid 2000s. The number of building completions, that had reached high levels up to then, considerably decreased from 1997-2001 (from 10,000 to 2,500 units per year, LCC 2008e, 17). During the 2000s it remained at a very low level (around 1,000 units per year) and was exceeded in scope by demolitions that amounted to over 1,000 units per year and reached over 2,000 in 2006. In Leipzig's suburban zone, the number of building completions decreased after 2001 and remained at a very low level until the end of the 2000s (below 1,000 units per year). Demolitions in the suburban areas, by contrast, saw an increase from 2002 onwards. In some years their number even exceeded the number of building completions (LCC 2008c, 12-13). While the stock of multi-storey buildings decreased from 2001-2007 by 2.3 per cent, the stock of detached houses increased by 12 per cent. This clearly shows the focus on demolitions and the on-going suburbanization (although a percentage of detached housing has also been built within the city).

**Figure 3.4.4: Housing units, new constructions and demolitions in Leipzig 1997 – 2007**



*The increase of the number of housing units in 1999 was a result of an administrative reform that enlarged Leipzig's territory.*

Source: UFZ database

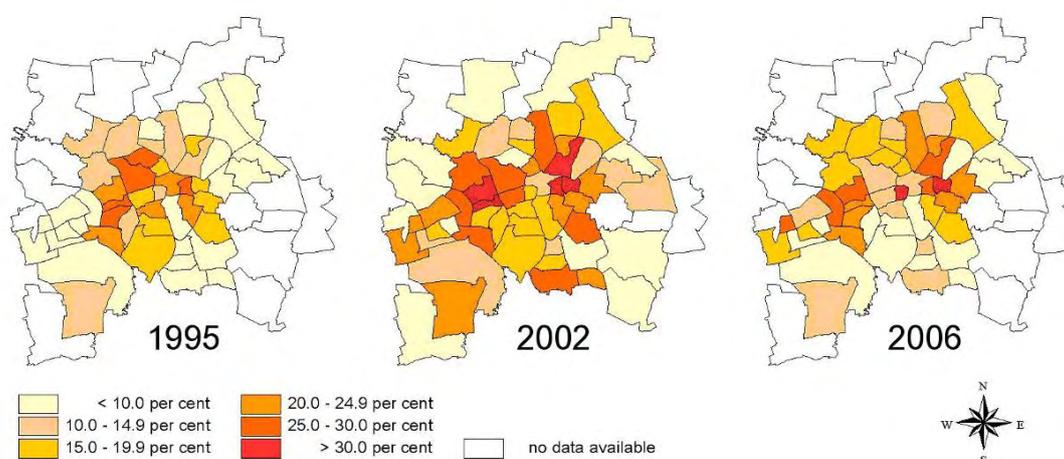
While demolition took place mainly in prefab housing areas, newly built housing was erected on the outskirts of the city; the housing stock in most of the pre-war inner-city areas remained unchanged. Newly built housing there was mainly due to inner-city detached housing (*Stadthäuser*). Urban shrinkage never affected the whole territory in the same manner (see also LCC 2008e, 18).

**Table 3.4.2: Development of housing vacancies in Leipzig 2002-2007 in relation to construction age**

Date of construction	Housing stock		Vacancies 2002		Vacancies 2007		Change 2002-2007		
	2002	2007	Total	Per cent	Total	Per cent	Total	Per cent change	Per cent of stock
Until 1948	175.000	171.813	47.000	27%	32.000	19%	-15.000	-32%	-8%
1949 - 1990	100.228	95.631	15.000	15%	9.500	10%	-5.500	-37%	-5%
Since 1991	46.535	51.779	2.000	4%	1.500	3%	-500	-25%	-1%
<b>Total</b>	<b>321.763</b>	<b>319.223</b>	<b>64.000</b>	<b>20%</b>	<b>43.000</b>	<b>13%</b>	<b>-21.000</b>	<b>-33%</b>	<b>-6%</b>

Source: UFZ database, Monitoringbericht 2008, 15

**Figure 3.4.5: Vacancy rates in Leipzig's districts 1995, 2002, 2006**



Source: Arndt (2008)

**Figure 3.4.6: Vacant housing**



Source: Annegret Haase

**Figure 3.4.7: Demolition of housing**



Source: Matthias Bernt

On analysing statistics some important characteristics about the development of Leipzig's housing stock become clear. Firstly, contrary to the development of households, the housing stock was expanded by more than 36,000 flats (which made up 11.6 per cent of the total stock in 2007) in the time examined. Secondly, the peak of new constructions occurred in the late 1990s when these were heavily subsidized.

Since 2000 construction activities have considerably decreased, yet more so in the city than in its surroundings. Moreover, it is only very recently that more new housing units have been built inside the city than outside (which can be interpreted as a trend of reurbanisation). Thirdly, although demolitions helped to tackle oversupply, they hardly matched new constructions. In the period from 1997 to 2007 newly constructed housing units comprised 174 per cent of the number of demolished ones. If new constructions in the region are added, nearly three times as many flats have been built as demolished (Figure 3.4.7).

As a consequence of both population decrease and housing stock increase, Leipzig represents an urban housing market with a sustaining supply surplus. The period where housing vacancies reached the highest percentages was also characterized by the highest level of housing mobility in the city, a housing mobility that was much higher than in western German cities that have no supply surplus housing markets (Steinführer et al. 2009). Around 2000,– due to many vacant flats also in newly renovated buildings and moderate rents - it was possible for a wide range of residential groups (including those with a limited income) to move and look for appropriate housing.

The problem of housing vacancies does not affect all parts of the city. While some districts do meanwhile have almost next to no vacancies, others continue to suffer from shares of more than 30 per cent vacancies. In some neighbourhoods, whole streets, parts of streets or neighbouring buildings or blocks are vacant (see Figure 3.4.5 and 3.4.6). In many cases, the districts hit by vacancies also represent those with a high presence of low income groups and high levels of unemployed persons and other disadvantaged social groups. This 'coincidence' of social and urban/built patterns has consolidated over the 2000s (see Figure 3.4.5 above and section 3.1 of this part of the report). Or, to put it differently, urban shrinkage relates to particular patterns of segregation of the urban space, building stock and residing population. In Halle, our second case study city, similar processes can be found (see section 3.1 of this part of the report and sections 3.1 and 3.4 of part B, too).

Housing vacancies do not only represent one of the most dramatic and visible impacts of urban shrinkage in Leipzig. This also presents one of the top priorities to be solved or improved for local urban planners. The city of Leipzig tries to counteract the housing vacancy problem with different counter-strategies, although they refer to specific places and residential groups and cannot be seen as a general alternative to demolition as the main instrument to balance the housing market. Some examples of these strategies are:

- The municipality supports instruments that encourage people to stay in the city and counteract a further out-migration into the suburban zone. The support of owner-occupied housing in old built-up stock or newly built detached housing in the inner city forms a part of this reurbanization policy (the so-called *Selbstnutzer* programme, see section 2.3 of this part of the report). It is mostly better-off households (families and couples) who benefit from these incentives, and according to research, most of them never did plan to move to the suburbs. Most of the programme sites are located in attractive inner-city districts, only few of

them are to be found in areas especially hit by urban shrinkage. Therefore, the *Selbstnutzer* strategy has to be seen as a niche project that will not be the solution for mass vacancies in Leipzig (Steinführer et al. 2009; Bernt 2009).

- In 2004, the city and a civic association (*HausHalten e.V.*) cooperated in order to maintain vacant buildings along big streets. The flats in such 'guardian' houses are given to associations and initiatives that use the rooms for their activities. One flat is continuously inhabited by a 'guard' who cares for the house. In this way, the buildings are kept in a habitable state and do not run the risk of dilapidating further and being demolished. Currently 12 'guardian houses' exist in Leipzig, mostly along big streets in western, eastern and northern inner-city districts particularly hit by urban shrinkage and housing vacancies.

- Some years ago a model was developed in Leipzig about how to keep vacant plots from further dilapidation: the so-called *Gestattungsvereinbarung* is an agreement between the owner of the plot and a user who uses the plot for a given time with the acceptance of the owner (see in more detail section 3.6 of this part of the report).

According to the results of the municipal survey in 2007, the mean living space per person increased to 44.4 square metres. Compared with 1993, it increased by almost 10 square metres per inhabitant or by 27 per cent. The main reason for this increase relates to the downsizing of households. A consequence during the last few years was a constant rise of the expenditures for housing in relation to the monthly income from 17 per cent in 1993 to 34 per cent in 2006 (LCC 2008e, 19-20).

The problem of residential vacancies is closely connected to other trends which characterize more recent developments in Leipzig's housing market:

- As the population shrinkage goes hand in hand with an aging of the population providing adequate housing is becoming a more severe problem. Due to the different age structure of neighbourhoods, this is especially the case in prefabricated neighbourhoods of the 1960s and 1970s – which at the same time have become the focus of demolitions and housing market renewal.

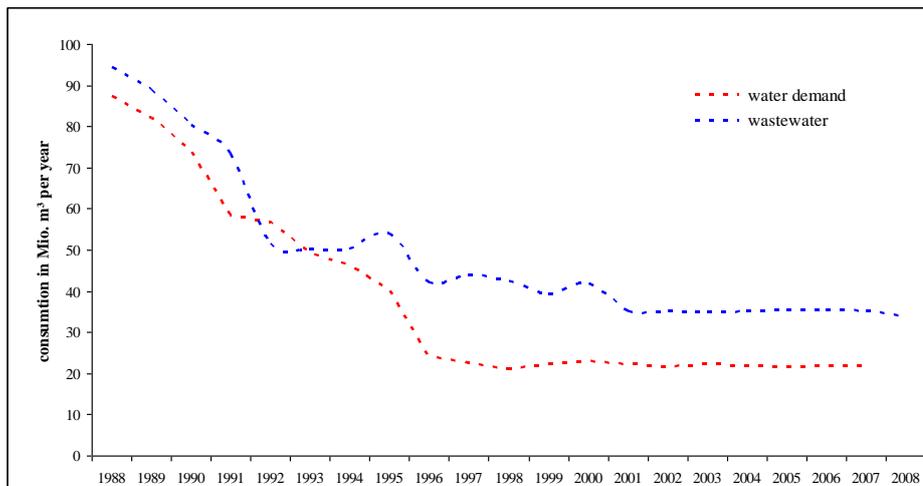
- The number of poor households has increased tremendously in the last couple of years. Altogether 79,000 households (28 per cent) are estimated to be poor, and thus the demand for small and inexpensive apartments has increased. As these are more concentrated in peripheral prefabricated areas, social segregation is becoming a more relevant problem.

- The scope of housing vacancies and related processes of socio-spatial differentiation in the city (see above) was driven mainly by out-migration in the 1990s. Since 2000, it is mainly in-migration that drives further socio-spatial differentiation between the urban districts. Subsequently, the housing policy of owners comes more and more into focus as a driver of the allocation occupancy of stocks in terms of socio-economic characteristics of the tenants and processes of social streamlining and exclusion. This will have implications for the housing market policy and urges a further observation of stocks, their owners and interests.

### A.3.5. Technical infrastructure

The consequences of population losses in Leipzig are not only widespread housing vacancies, but also a falling demand for water, as well as wastewater and garbage disposal, central heating and public transport. Water demand has thus fallen from 87 Mio m<sup>3</sup> per year (1988) to 21 Mio m<sup>3</sup> (2007), residual waste disposal from 187,300 tons to 79,082 tons in the same period, the number of public transport passengers per day has reduced by nearly two thirds, the demand for central heating has gone down from 2,212 Gwh/year (1990) to 1,554 Gwh/year (2008). Together with more modern technologies, population loss has thus effectively reduced the demand for infrastructural amenities (Figure 3.5.1).

**Figure 3.5.1: Water and waste water demand**



Source: UFZ database

However, the situation is fairly complex and can only be understood against the background of the historic development of the city. The essential parts of Leipzig's infrastructural grid were built at the beginning of the 20<sup>th</sup> century, at a time when population growth was taken for granted and an increase in the number of inhabitants to a level of one million was expected. Moreover, as described above, Leipzig experienced a dramatic change of its settlement structure in the 1990s, with considerable consequences for infrastructure provision:

- deindustrialisation led to the closure of existing industries with an inner-city location, new companies tended to open in peripheral rather than in central locations,
- new constructions were for the most part placed in suburban locations,
- large-scale sales structures also tended to be built at the fringes, often in close proximity to freeways.

Thus, the collapse of large industrial customers together with better technologies and population losses has reduced the overall consumption of water to less than a quarter in the course of one decade. As both the length and the diameters of the piped networks have been dimensioned to manage the peak water consumption, this leads to a situation whereby the utility system is considerably oversized in relation to recent consumption. Additionally, the grid to be managed by the water companies grew enormously and the networks for piped drinking water and wastewater increased from 3,607 km (1988) to 5,748 km (2007). To quote a planner

from Leipzig's municipal water company: "We have the demand of 1945, with a network of the 1990s."<sup>5</sup>

This situation leads to numerous technical problems (Koziol, 2004, 122-123) and presents a danger for the quality of the water supply. In order to maintain technical and hygienic standards, additional technical measures, such as flushing, a reduction in the tubes' diameter, pressure increase, makeshift pipes, etc., are necessary. In the face of imminent quality problems, the adjustment of plants and networks becomes more and more urgent. Although these adjustments are technically unproblematic in most cases, they cause serious problems from an economic point of view. They generate high additional expenses, while revenues have declined. Moreover this need for additional expenses comes at a time when water suppliers have just made huge investments in the last decade. Since the 1990s investments have not yet been depreciated, a high number of companies and associations find themselves in a situation in which they have to put up with both a reduction in profits as well as having to pay off high liabilities. Moreover, often the peripheral prefab housing estates, hence the areas with younger, better maintained and less depreciated networks are often the focus of large scale urban renewal programmes that include demolitions, whereas inner city areas with significant maintenance backlogs have to be maintained. At the same time, suburbanisation leads to a lower consumer density, which increases the fixed costs of the supply companies.

The situation is especially problematic in Leipzig because the water network has, at least in the central parts, reached an age where the end of the usage period has been reached and considerable investments are needed to make sure that future requirements can be met. Paradoxically, the need for redoing the existing grid is thus most pressing in those areas that are to be consolidated in the future, whereas the network in the peripheral prefab estates (that was mainly built in the 1970s) is still functioning effectively. Against this background the uncertainty about future settlement structures becomes an immense problem for infrastructure suppliers who need to place investments within a very long-term perspective. Moreover, connectivities play an immense role in piped networks, so that large-scale planning, instead of piecemeal incremental changes is necessary from a technical point of view. Infrastructure suppliers, and within them most of all the water and wastewater company, thus regularly call for more coordination and long-term planning. In practice this has, however proved to be hard to achieve.

### ***A.3.6. Land use and environmental quality***

#### *New land uses in the city of Leipzig and the surroundings*

The city of Leipzig is a compact city – compared to its number of inhabitants, it has only a small territory and is, therefore, densely built. This brings about consequences for the land use. The city experienced only little urban sprawl in the post-Second World War period, except for the building of a few big housing estates on the urban fringes. These estates are very densely built and they are well connected with the

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<sup>5</sup> The Interview was hold in 2007.

city centre via public transport. During the 1990s, the creation of a number of small- and medium-scaled as well as some big residential and commercial extensions occurred at the urban peripheries and in the wider surroundings. Subsequently, the city sprawled despite its considerable population loss (see sections 2.1 and 2.3 of this part of the report, Nuissl and Rink 2005). Generally speaking, the share of the built environment increased in comparison to the situation before 1989. More space was dedicated to housing and commercial purposes.

**Table 3.6.1: Land use in Leipzig over time**

Year	Total area	Built-up areas and related open spaces	Recreation areas	Municipal traffic areas	Arable Land	Forest	Water
1996	29.173	7.165	1.238	3.004	13.651	1.795	611
2000	29.754	7.718	1.455	3.297	13.176	1.631	559
2004	29.760	8.244	1.680	3.476	12.183	1.703	551
2008	29.736	8.393	2.434	3.505	11.298	1.938	849

Source: UFZ database

As the Table shows for the period 1996-2008, the land use structure changed over time (Table 3.6.1). One can observe an increase in built-up and traffic areas, whereas the share of arable land decreased. The changes of the built-up areas in relation to the period before 1996 were remarkable, especially between 1996 and 2000 as well as between 2000 and 2004 (7 and 6 per cent). At the same time, the share of forests and water surfaces increased too, mainly due to the conversion of former opencast mines into lakes and recreational areas.

#### *Emergence of brownfields in the city*

At the same time - as a consequence of the deindustrialisation process - a high number of brownfields emerged in the city. On the one hand, these are brownfields that result from the breakdown of industry in the western and northern parts of the city. These constitute especially industrial brownfields, but commercial, railway and military brownfields as well (Figure 3.6.1). For the past several years brownfields have appeared, on the other hand, as a result of the demolition of houses in the inner city too, especially in the prefab housing estates but also in inner-city old built-up districts (Figure 3.6.2). In the course of urban restructuring, approximately 30 ha of brownfields have emerged since 2000 as a result of the demolition of housing. As a result of these processes, Leipzig faces a high number of brownfields. The city is, subsequently, forced to find solutions for a new use or re-use of them. As Figure 3.6.3 shows, an increasing number of urban brownfields came into new or re-use during the last years. In 2007, about one third of all existing (former and current) brownfields was under new use. There are various forms of re-use both for the long-term and interim uses.

Figure 3.6.1: Post-industrial brownfield

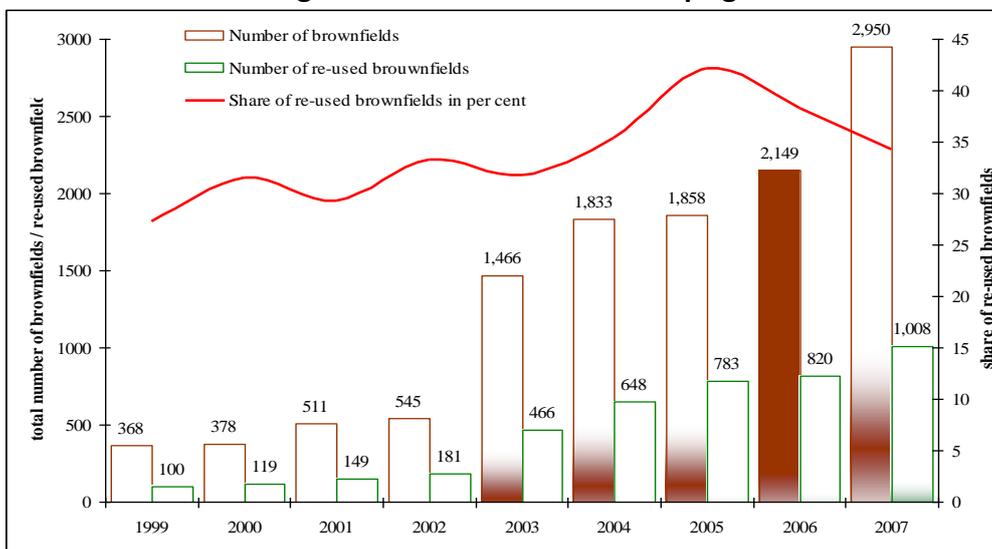


Source: Dieter Rink

Figure 3.6.2: After-demolition brownfield



Figure 3.6.3: Brownfields in Leipzig



Source: IGNIS Leipzig 2006

As a consequence of the above mentioned processes, the urban fabric of Leipzig has become more dispersed or, to use a new term which was brought into the debate by eastern German urban planners from Leipzig, “perforated”. That also means that the urban fabric is becoming less dense and heterogeneous and that unused urban lands are to be found at many places within a city’s boundaries. The term perforation itself was used in this way during the debate about shrinking cities in eastern Germany (Lütke-Daldrup 2001). The idea of perforation implies that urban areas with strong demographic decline are however sprawling (Haase, D. et al. 2008; Nuissl and Rink 2005). Thus, a heterogeneous mosaic of growing, stabilising and declining urban structures is developing. Perforation affects mainly those areas where there are the most brownfields, be it as a consequence of deindustrialization or demolition of housing stock, for instance in the industrial belt in the west of the city (Plagwitz and adjacent districts) as well as the large housing estate Grünau. In inner-city residential areas, perforation emerges along some main roads where housing stock has been demolished (mostly true for some parts of the inner east of Leipzig).

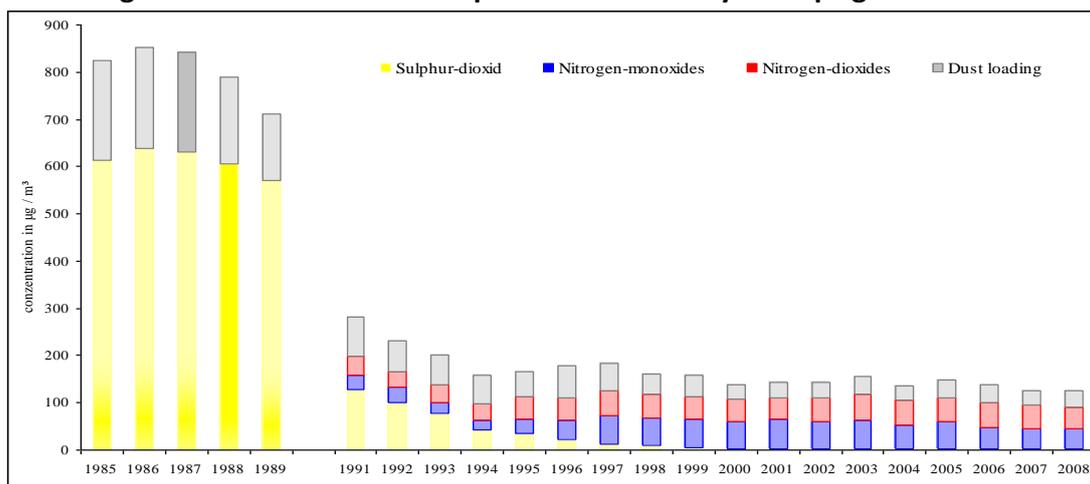
In general the city of Leipzig follows the vision of the ‘compact city’ and tries to organise the restructuring as a phase out from the periphery to the core. Additionally, the city tries to combine a reduction of land consumption with an improvement of the quality of life. Concerning the new or re-use of urban brownfields, Leipzig gives priority to a ‘twofold inner-development’ instead of to an outer-development (cf. Muschak et al. 2009). This means that generally developments should be concentrated within the city’s boundaries in the form of re-use, redevelopment and densification. There are two strategies for the restructuring of urban brownfields: on the one hand, brownfields are planned to be revitalized. For this purpose, different ideas were developed: loft-housing in former industrial structures, the erection of town houses (detached housing in inner-city locations - *Stadthäuser*) and the interim use of vacant housing and plots (*Gestattungsvereinbarungen*, *Wächterhäuser*, see also section 2.3 of this part of the report). The *Gestattungsvereinbarung* enables landlords to improve their brownfield areas and to make them accessible to the public for a certain time with financial support from the municipality. On the other hand, some of them should be renaturalised. In this vein urban parks have been created on the sites of former industrial and railway brownfields (Figure 3.6.1). A very recent initiative tests the acceptance of ‘urban forests’ on vacant lots at different places in the city. This idea supports the goal of an improvement of open space services and the urban ecology according to the vision ‘more green, less density.’ As a result of all these initiatives, a dynamic system of new open spaces has emerged in Leipzig, which is steadily changing due to new supplies of and demands on urban land. Obviously, the population losses in the last few decades did not lead to a reduction of land consumption in a general manner but rather to a diverse pattern/mosaic of densities and perforation which demands site-specific actions.

#### *Environmental quality*

The quality of the environment in Leipzig and the surrounding region was appalling during the period of the GDR. Air pollution was severe due to the regional industries (especially the chemical and energy industries) and the Leipzig-Halle conurbation was one of the most badly polluted regions in Europe. The maximum air-pollution limits for almost all relevant chemicals were by far exceeded. Nowadays, this problem has almost completely disappeared: the level of pollution significantly decreased due to almost complete deindustrialisation (Figure 3.6.4; see also section 2.2 of this part of the report). At the same time, the structure of environmental loads changed significantly: whereas today “classical” pollutants such as sulphur dioxides and particulates no longer cause severe problems, traffic-related pollutants such as benzene, soot, nitrogen oxide and ozone merit critical attention. This is also true for carbon dioxide, although emissions have decreased enormously since 1990 due to deindustrialisation and improvements in both the energy sector and transport technologies. This relates to the considerable increase (“explosion”) in the motorisation rate in eastern Germany where car traffic more than doubled after 1989. At the same time, noise pollution caused by traffic has become a problem in the residential areas along and close to the main roads.

Leipzig’s population benefited as a whole from the decreasing pollution rates. The new environmental burdens caused by traffic have led to new foci of pollution on a small scale: it is mainly people living along the main transport axes who suffer from these new atmospheric loadings. This has led to two consequences: due to the supply surplus in housing, many flats along the main roads are vacant and quasi un-lettable because of the traffic and noise pollution. If they are inhabited, then it is by low-income households or social benefit recipients who have only a limited choice of where to live.

**Figure 3.6.4: Environmental pollution in the city of Leipzig 1985-2008**

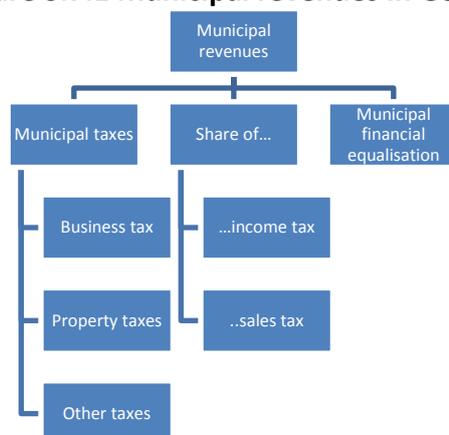


Source: UFZ database (measuring point: Leipzig city centre)

### A.3.7. Municipal finances and budget

*Municipal budgets* - In Germany, the structure of municipal budgets is fairly formalized, so that opportunities and restrictions are pretty much the same for different cities in relation to shrinkage. In this system main revenues come from three sources (Figure 3.7.1):

**Figure 3.7.1 Municipal revenues in Germany**



Source: authors’ work

Thereby the own revenues can mainly be generated from business taxes (whose structure was changed in favour of municipalities in the early 2000s) and property taxes. Other taxes (entertainment tax, dog tax, fees and concessions) play a minor role. A major part of municipal revenues stems from equalisation schemes that work in the context of the federal state. Thus municipalities receive a share of income and business taxes (which is set in relation to their taxing capacity) and they profit from both committed and uncommitted allocations of funds from upper levels of government (state and federal government), which is calculated by complex codes. Especially for economically weak municipalities these allocations make up for a lion's share of their budget. They are calculated on the basis of population figures, student numbers, and equalised in relation to the taxing capacity of the particular federal state (*Bundesland*) and the centrality of the respective place.

From this short overview it follows that, although the system of financial equalisation is set effectively reducing the differences in revenues between economically strong and economically weak municipalities, population losses and deindustrialisation severely impact on the revenues of shrinking cities. Business taxes and property taxes, as the main sources of autonomous taxes, are highly sensitive to economic downturns and financial equalisation schemes are (to a large degree) based on population figures and student numbers. Thus, cities that lose population and economic functions nearly unavoidably lose tax revenues too. This is especially problematic because East German cities are faced with a number of problems on the expenditure side of their budgets. Here, four aspects for the most part form interrelated burdens (Mäding, 2004, 88-89):

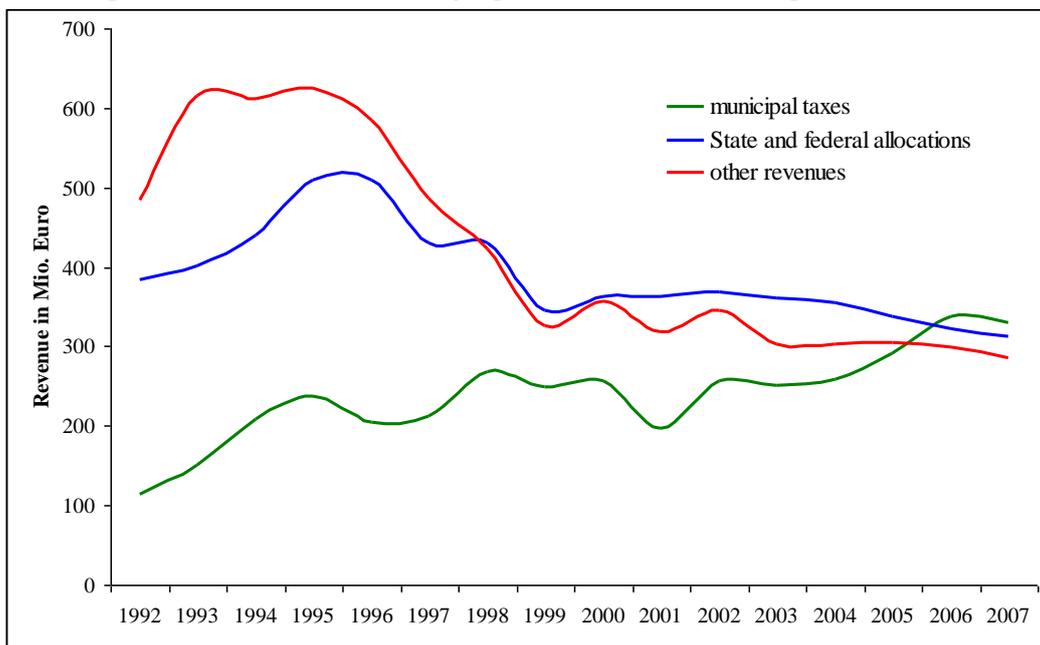
- persistence of expenditures in the event of a dwindling population,
- rising per capita spending owing to the effects of demographic structural changes (ageing, heterogenisation, individualisation);
- supplementary spending owing to the effects of internal migration (East-West, suburbanisation);
- additional spending in pursuit of an "excessive" attractiveness policy in "cut-throat" competition for residents.

In addition to these factors, municipalities have a legal obligation to provide several services (*kommunale Pflichtaufgaben*), like social welfare, that are required by law and make up the lion's share of expenditures. In this context, the last few years have been characterized by a continuous shifting of obligations for the provision of compulsory services from upper state levels towards municipalities. Most of all welfare benefits have had to be paid by municipalities since the welfare reforms ("*Hartz IV*") in 2003. Thus, in addition to "shrinkage-specific" expenditures, municipalities with high unemployment figures are burdened with growing social spending too. Altogether, deindustrialization and population losses thus not only lead to problematic expenditure structures, but, on top of this, they lead to additional costs which the municipalities affected can hardly avoid.

*Leipzig's municipal finances: Revenues and expenditures*

This situation is nearly paradigmatically reflected in Leipzig's municipal budget all through the years since 1992 (Figure 3.7.2). No data on the budget is available for the time before 1991. The most striking characteristic of the budget in respect to the revenue-situation is that budget appropriations (by the federal government and the state of Saxony) from tax equalisation schemes form the most important source of revenue making up between a quarter and a third of the whole budget. Thereby fund allocation has considerably decreased, by about one third since the early 1990s. At the same time autonomous municipal revenues have increased considerably, both as a consequence of economic recovery and a change in tax laws concerning business taxes.

**Figure 3.7.2 Revenues in Leipzig's administrative budget 1992-2007**



Source: LCC 1990a-2009a, own calculation

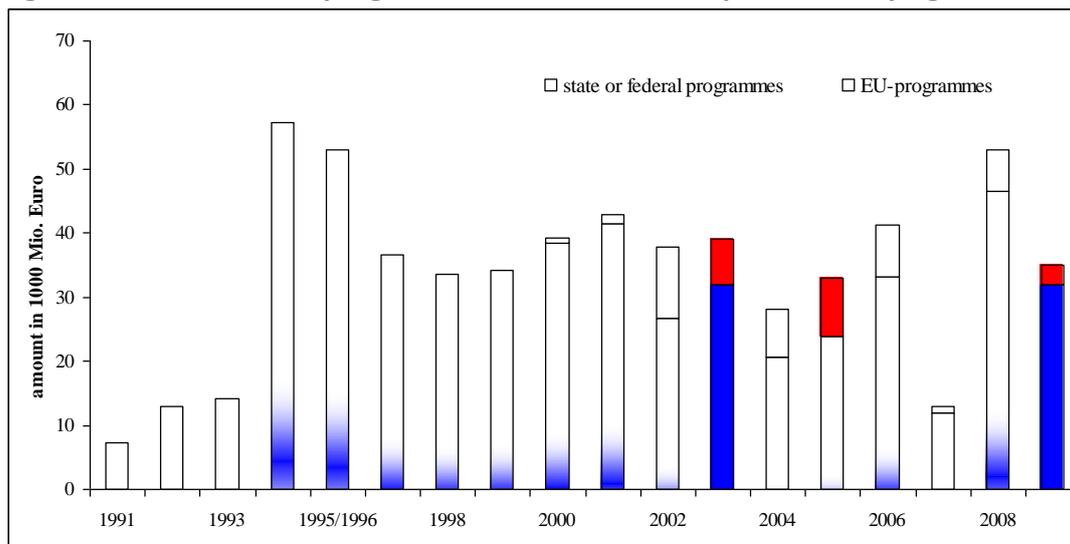
In addition to continuous revenues, Leipzig has enormously profited from earmarked allocations of funds from upper state levels which, nearly every year since 1991, made up around 100 million Euro of Leipzig's spending and were used for the refurbishment of existing infrastructures as well as for large scale projects like construction of a new railway-tunnel, the rebuilding of the university campus, or the renovation of historic monuments. However, incoming revenues hardly matched necessary expenditures throughout the analyzed period. Here, the biggest single items are personnel costs and social welfare. Despite immense wage increases in the period from 1991 until now, the city has managed to reduce the expenses for personnel by one third. This has only been possible through a dramatic reduction of public service personnel, through reorganization of existing administrations, outsourcing, and service-cuts.

The expenditures for schools have nearly halved, as a consequence of decreasing student-numbers and school closures. Construction expenses have been reduced extremely. Quite in contrast, expenditures for social welfare remain on a high level. They were particularly high in the early to mid 1990s when unemployment rates rocketed, and since the federal welfare reforms in 2003 when the obligations towards the unemployed were shifted from the federal state towards the municipalities. Altogether, municipal expenses have been considerably reduced from a peak of 1.9 billion Euro in 1995 to a recent level of 1.1 to 1.2 billion Euro. This has been made possible by service cuts, an adjustment of existing infrastructures, and personnel lay-offs. Leipzig is structurally dependent on support from upper state-levels, and regular transfers make up more than one third of the budget. Yet, neither the own tax income, nor the allocations from the federal state, are sufficient to close the gap between expenditures and revenues. As a consequence, Leipzig has had to downgrade public services, as well as take loans and engage in all sorts of bidding procedures and other financial activities (see below).

#### *Utilisation of subsidies*

Leipzig has been fairly active in all kinds of bidding procedures for public subsidies and has thus managed to make use of a plethora of programmes for its urban development issues. Figure 3.7.3 shows the usage of altogether 19 programmes from the EU, the federal state, and the state of Saxony that have been applied in the sector of urban development in Leipzig. Altogether the volume of these subsidies makes up about 609 million Euro in the period 1991-2009. Compared to the overall volume of spending for construction activities in the same period (3 billion), it is obvious that gaining earmarked subsidies in specific programmes has become “business as usual”, without which crucial parts of Leipzig’s development could not be financed.

**Figure 3.7.3 Funds from programmes for urban development in Leipzig 1991-2009**



Source: LCC 2009, authors' calculation

The difficulty with building on external subsidies is, however, twofold: a) as grants are earmarked and subject to complicated bureaucratic and political procedures,

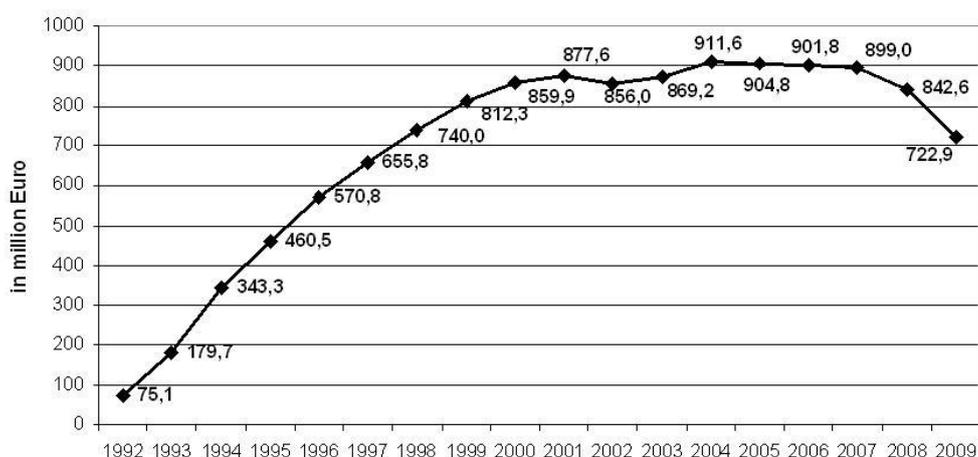
agenda-setting power is shifted towards upper levels of statehood, b) many of the programmes require a co-financing by the municipality, so that, given the tight budget, gaining public subsidies goes hand in hand with additional expenses.

### *Borrowing and debts*

As neither tax equalisation schemes, nor additional subsidies were sufficient to close the gap between revenues and expenditures, Leipzig started as early as 1992 to take loans, primarily for infrastructure projects (like the renovation of schools and hospitals, the construction of streets and bridges). At this time the necessity to go into debt was mainly justified by the immense backlog in nearly all sectors of public life and the need to catch up to the standard of western cities. Thus, until 1996, infrastructure projects were financed using a mix of public grants, own revenues, and municipal loans (Stadt Leipzig 2009, 3). Starting in 1997, this form of financing replaced allocations from the state of Saxony that were earmarked for the financing of particular infrastructure.

Since that time loans have been primarily used for financing economic development projects, like the New Leipzig Trade Fair (Neue Messe), or the expansion of the airport. As a consequence, the debt load increased continuously between 1992 and 2004 (see Figure 3.7.4), Since the beginning of the millennium, partly as a result of demands from supervising regional agencies and the state of Saxony, Leipzig changed towards a course of strong fiscal austerity and managed to reduce its liabilities. As a result of both considerable municipal borrowing and decreasing population numbers per-capita debt has tremendously increased in the analyzed period. With a per-capita debt level of 1,648 Euro (2008) Leipzig lies at place 5 in the inter-municipal comparison of the twelve biggest German cities and is in the top range (ibid., 8).

**Figure 3.7.4 Development of dept level**



Source: UFZ database

With the aim of meeting liabilities and making leeway for necessary projects, Leipzig has not only continued to take loans but, moreover, municipal administrations and companies have used innovative, and often highly risky, financial instruments to acquire additional capital. Most of all, Cross Border Leasing agreements (CBL) have been used intensively and municipal infrastructure like hospitals, tram-lines, and water pipes have been sold to and leased back from global financial investors. It is only very recently, in the wake of the global financial crisis, that it has become clear that many of the existing contracts imply serious risks – mostly to the disadvantage of the participating municipality.

To summarize, the following **conclusions** can be made:

- Notwithstanding the system of financial equalisation and allocations of revenues, both autonomous taxes and funds received from upper levels of government are seriously affected by a population decline.
- At the same time expenditures remain on a high level. This is mainly due to an increase in social spending, as a consequence of the miserable economic situation and a number of additional tasks that are caused by shrinkage.
- Thus, a structural gap between falling revenues and high expenditures emerges. Although Leipzig decreased expenditures with the help of strong politics of budgetary discipline, cuts on all sorts of spending and a reorganization of the administration, municipal efforts have proved to be unable to close this gap.
- As a consequence, Leipzig is in strong need of acquiring external resources to finance its projects. Within this context mainly three sources have been used: a) borrowing, b) participation in subsidy programmes from state, federal and EU-levels, c) new financial instruments (CBL), often connected with high risks

## A.4. ANNEX: DATABASE

The following annex lists all data the Figures in the text of part A are based on.

**Figure 2.1.1: City of Leipzig – population development 1933–2008**

Year	Inhabitants	Year	Inhabitants
1933	713,470	1979	563,225
1939	702,155	1980	562,480
1945	584,593	1981	562,266
1950	617,574	1982	557,923
1952	624,070	1983	558,994
1953	618,433	1984	555,764
1954	619,830	1985	553,660
1955	613,707	1986	550,641
1956	607,523	1987	549,230
1957	598,909	1988	545,307
1958	593,902	1989	530,010
1959	592,821	1990	511,079
1960	589,632	1991	503,191
1961	585,258	1992	496,647
1962	587,226	1993	490,851
1963	588,135	1994	481,121
1964	594,880	1995	471,409
1965	595,660	1996	457,173
1966	594,099	1997	446,491
1967	591,538	1998	437,101
1968	589,064	1999	489,532
1969	585,781	2000	493,208
1970	582,885	2001	493,052
1971	580,711	2002	494,795
1972	577,495	2003	497,531
1973	574,432	2004	498,491
1974	570,972	2005	502,651
1975	566,630	2006	506,578
1976	564,596	2007	510,512
1977	564,306	2008	515,469
1978	563,980	2009	n.a.

Sources: LCC 1991a-2009a; Staatliche Zentralverwaltung für Statistik, Bezirksstelle Leipzig: Statistische Jahrbücher des Bezirks Leipzig (1970, 1973, 1975).

**Figure 2.1.2: City of Leipzig – natural population development and migration balance 1980–2008**

Year	Natural balance	Migration balance	Year	Natural balance	Migration balance
1980	-1,293	548	1997	-2,551	-9,983
1981	-1,170	956	1998	-1,998	-7,556
1982	-969	-682	1999	-1,843	315
1983	-766	1,837	2000	-1,676	1,012
1984	-957	-2,272	2001	-1,609	1,453
1985	-1,021	-1,083	2002	-1,584	3,330
1986	-1,537	-1,482	2003	-1,547	4,292
1987	-831	-580	2004	-912	1,843
1988	-1,033	-2,890	2005	-1,218	n.a.
1989	-1,107	-15,801	2006	-1,012	n.a.
1990	-2,064	-16,403	2007	-664	n.a.
1991	-3,745	-4,143	2008	-265	n.a.
1992	-3,793	-2,751	2009	n.a.	n.a.
1993	-3,919	-2,484			
1994	-3,726	-6,005			
1995	-3,580	7,167			
1996	-3,025	-11,228			

Sources: LCC 1991a-2009a; Staatliche Zentralverwaltung für Statistik, Bezirksstelle Leipzig: Statistische Jahrbücher des Bezirks Leipzig (1970, 1973, 1975).

**Figure 2.1.3: In- and out-migration by target region 1990-2008**

Year	Germany	Western Germany	International	Suburbia	Total
1990	-6,270	n.a.	n.a.	n.a.	-17,016
1991	-5,564	-5,574	1,345	n.a.	-4,143
1992	-4,076	-2,427	1,305	-575	-2,751
1993	-4,685	-1,320	2,201	-1,121	-2,484
1994	-8,201	-555	2,196	-6,305	-6,005
1995	-11,323	-248	4,156	-9,365	-7,167
1996	-12,789	-505	1,561	-11,595	-11,228
1997	-10,585	n.a.	388	683	-11,683
1998	-7,345	-847	-211	-1,385	-7,556
1999	-1,531	-1,149	1,846	-2,727	315
2000	-415	-1,802	1,427	-1,777	1,012
2001	-139	-2,524	1,592	-422	1,453
2002	2,068	-1,830	1,262	151	3,330
2003	3,594	-273	698	125	4,292
2004	3,454	-444	-1,611	37	1,843
2005	4,403	-720	950	596	5,353
2006	4,835	-483	104	659	4,939
2007	3,780	-714	812	669	4,592
2008	4,494	-958	727	1,287	5,221

Sources: LCC 1991a-2009a; Staatliche Zentralverwaltung für Statistik, Bezirksstelle Leipzig; Statistische Jahrbücher des Bezirks Leipzig (1970, 1973, 1975).

**Figure 2.1.4: In-migration by target region 1990-2008**

Year	Germany	Western Germany	East Germany	International	Suburbia	total
1990	8,149	n.a.	n.a.	n.a.	n.a.	13,277
1991	9,146	3,550	5,596	1,950	n.a.	11,172
1992	7,932	3,730	3,086	2,707	1,116	10,659
1993	7,434	3,519	2,797	3,735	1,118	11,169
1994	8,540	3,916	2,778	4,557	1,846	13,097
1995	9,638	3,975	3,415	8,113	2,248	17,751
1996	11,351	4,115	4,101	7,293	3,135	18,644
1997	15,014	5,191	5,604	6,107	4,219	21,077
1998	15,350	4,453	5,962	4,151	4,935	19,501
1999	15,982	4,579	6,833	5,033	4,570	21,015
2000	16,521	4,676	7,384	4,319	4,461	20,840
2001	16,956	4,664	7,572	4,409	4,720	21,365
2002	18,090	4,903	8,317	4,552	4,870	22,642
2003	19,015	5,405	8,937	4,259	4,673	23,274
2004	19,253	5,492	9,234	4,053	4,527	23,306
2005	20,026	5,078	10,272	3,852	4,676	23,878
2006	20,126	5,236	10,531	3,843	4,359	23,969
2007	20,227	5,434	10,405	4,023	4,388	24,250
2008	21,412	5,523	10,731	4,228	5,158	25,640

Sources: LCC 1991a-2009a; Staatliche Zentralverwaltung für Statistik, Bezirksstelle Leipzig; Statistische Jahrbücher des Bezirks Leipzig (1970, 1973, 1975).

**Figure 2.1.5: Out-migration by target region 1990-2008**

Year	Germany	Western Germany	Eastern Germany	International	Suburbia	total
1990	14,419	n.a.	n.a.	n.a.	n.a.	29,680
1991	14,710	9,124	5,586	605	n.a.	15,315
1992	12,008	6,157	4,160	1,402	1,691	13,410
1993	12,119	4,839	5,041	1,534	2,239	13,653
1994	16,741	4,471	4,119	2,361	8,151	19,102
1995	20,961	4,223	5,125	3,957	11,613	24,918
1996	24,140	4,620	4,790	5,732	14,730	29,872
1997	25,599	4,803	4,894	5,424	15,902	31,060
1998	22,695	5,300	11,075	4,362	6,320	27,057
1999	17,513	5,728	4,488	3,187	7,297	20,700
2000	16,936	6,478	4,220	2,892	6,238	19,828
2001	17,095	7,188	4,765	2,817	5,142	19,912
2002	16,022	6,733	4,570	3,290	4,719	19,312
2003	15,421	5,678	5,195	3,561	4,548	18,982
2004	15,799	5,936	5,373	5,664	4,490	21,463
2005	15,623	5,798	5,745	2,902	4,080	18,525
2006	15,291	5,719	5,872	3,739	3,700	19,030
2007	16,447	6,148	6,580	3,211	3,719	19,658
2008	16,918	6,481	6,566	3,501	3,871	20,419

Sources: LCC 1991a-2009a; Staatliche Zentralverwaltung für Statistik, Bezirksstelle Leipzig: Statistische Jahrbücher des Bezirks Leipzig (1970, 1973, 1975).

**Figure 2.1.6: In- and out-migration by age groups 1990-2008 (balance)**

Year	<18 years	18<30 years	25-30 years	30-50 years	50-65 years	>65 years
1991	-1,871	-510	-395	-830	-469	-463
1992	-1,214	27	-16	-423	-559	-582
1993	-1,225	507	290	-377	-730	-659
1994	-2,335	391	-39	-2,109	-1,104	-848
1995	-2,903	382	24	-1,742	-1,701	-1,203
1996	-3,058	-131	-353	-4,355	-2,223	-1,461
1997	-2,650	1,137	-76	-4,479	-2,597	-1,313
1998	-1,849	1,004	86	-4,073	-1,830	-808
1999	-511	2,698	818	-1,073	-645	-154
2000	-400	2,833	632	-841	-502	-78
2001	-321	1,872	-452	-1,032	-277	59
2002	42	3,643	813	-630	-42	227
2003	83	4,016	1,002	-96	44	245
2004	-28	3,462	792	-953	-723	85
2005	-144	5,407	1,378	-59	-13	162
2006	29	4,979	1,328	-100	-122	154
2007	-170	4,599	893	-82	98	148
2008	-36	4,795	893	133	151	178

Sources: LCC 1991a-2009a; Stadt Leipzig, Amt für Statistik und Wahlen (2008): Zuwanderung nach Leipzig 2007.

**Figure 2.1.7: Development of households, single and 3+ households 1971-2007**

Year	Number of households	1-person-households (%)	3+ households (%)
1971	244,500	32.1	n.a.
1981	237,300	31.4	n.a.
1990	248,500	39.4	n.a.
1995	231,700	37.2	30.7
1998	227,900	38.9	25.9
2000	264,100	42.5	23.9
2007	307,900	53.3	15.2

Source: Mikrozensus, Stadt Leipzig: Statistische Jahrbücher 1991-2008.

**Figure 2.1.8: Development of population, households and mean household size 1989-2008**

Year	population	Households	Mean size
1989	530.010	248.502	2,1
1990	511.079	239.614	2,1
1991	503.191	268.100	1,9
1992	496.647	240.200	2,1
1993	490.851	243.500	2,1
1994	481.121	238.600	2,1
1995	471.409	231.700	2,1
1996	457.173	226.200	2,1
1997	446.491	224.700	2,0
1998	437.101	227.900	2,0
1999	489.532	253.800	2,0
2000	493.208	264.100	1,9
2001	493.052	272.100	1,9
2002	494.795	278.100	1,8
2003	497.531	278.500	1,8
2004	498.491	280.100	1,8
2005	502.651	290.100	1,7
2006	506.578	298.700	1,7
2007	510.512	307.900	1,7
2008	515.469	n.a.	n.a.

Sources: LCC 1991a-2008a; Staatliche Zentralverwaltung für Statistik, Bezirksstelle Leipzig: Statistische Jahrbücher des Bezirks Leipzig (1970, 1973, 1975); Mikrozensus, Stadt Leipzig: Statistische Jahrbücher 1991-2008.

**Figure 2.1.9: Size distribution of households 1991-2008**

Year	Total		One-person households		2-person households		3-person-housholds		4+ person households	
			Total	Per cent	Total	Per cent	Total	Per cent	Total	Per cent
1991	268,100	1.9	94,700	35.32	92,200	34.39	47,700	17.79	33,500	12.50
1992	240,200	2.1	85,400	35.55	83,500	34.76	41,000	17.07	30,300	12.61
1993	243,500	2.1	89,700	36.84	84,000	34.50	40,400	16.59	24,000	9.86
1994	238,600	2.1	87,900	36.84	79,200	33.19	42,600	17.85	28,800	12.07
1995	231,700	2.1	86,200	37.20	74,400	32.11	40,900	17.65	30,200	13.03
1996	226,200	2.1	81,900	36.21	78,100	34.53	39,400	17.42	26,700	11.80
1997	224,700	2.0	83,500	37.16	78,800	35.07	37,700	16.78	24,700	10.99
1998	227,900	2.0	88,500	38.83	80,400	35.28	37,400	16.41	21,600	9.48
1999	253,800	2.0	99,900	39.36	88,300	34.79	44,000	17.34	21,600	8.51
2000	264,100	1.9	112,200	42.48	88,900	33.66	39,900	15.11	23,100	8.75
2001	272,100	1.9	122,700	45.09	90,300	33.19	36,700	13.49	22,400	8.23
2002	278,100	1.8	129,500	46.57	93,000	33.44	35,700	12.84	19,900	7.16
2003	278,500	1.8	129,400	46.46	91,600	32.89	36,800	13.21	20,700	7.43
2004	280,100	1.8	125,900	44.95	99,200	35.42	35,900	12.82	19,100	6.82
2005	290,100	1.7	142,400	49.09	97,500	33.61	33,500	11.55	14,000	4.83
2006	298,700	1.7	156,000	52.23	94,800	31.74	31,300	10.48	14,100	4.72
2007	307,900	1.7	164,100	53.30	97,700	31.73	30,000	9.74	14,100	4.58
2008	306,700	1.7	162,800	53.08	96,800	31.56	31,300	10.21	12,600	4.11

Source: Mikrozensus, Stadt Leipzig: Statistische Jahrbücher 1991-2008.

**Figure 2.2.1: Development of employment according to sectors 1965-2007**

Year	1st Sector	2nd Sector	3rd Sector	Year	1st Sector	2nd Sector	3rd Sector
1965	1,334	167,084	147,460	1988	340	152,051	140,574
1966	1,349	168,181	145,447	1989	329	148,496	137,040
1967	1,311	166,444	148,820	1990	200	104,400	145,900
1968	n.a.	n.a.	n.a.	1991	2,500	101,100	148,300
1969	n.a.	n.a.	n.a.	1992	1,600	82,300	148,800
1970	330	n.a.	n.a.	1993	725	72,396	184,886
1971	373	161,389	156,602	1994	587	72,347	188,857
1972	n.a.	137,703	146,784	1995	1,200	69,000	193,300
1973	29	135,169	151,319	1996	1,600	65,700	202,400
1974	479	133,390	154,198	1997	1,700	62,300	202,100
1975	1,664	156,354	131,196	1998	1,300	56,700	207,100
1978	1,295	156,196	132,406	1999	1,400	53,200	208,600
1980	1,199	156,155	130,556	2000	1,100	50,800	215,900
1981	1,245	155,953	134,818	2001	1,200	49,100	218,300
1982	1,232	157,177	137,013	2002	900	48,700	221,300
1983	1,218	157,985	137,523	2003	900	49,000	224,100
1984	1,239	155,065	138,285	2004	900	46,900	227,500
1985	1,221	155,113	138,945	2005	800	45,100	229,600
1986	1,210	154,712	140,005	2006	800	44,700	238,700
1987	1,222	151,939	140,766	2007	900	45,500	242,000

Sources: LCC 1991a-2008a; Staatliche Zentralverwaltung für Statistik, Bezirksstelle Leipzig: Statistische Jahrbücher des Bezirks Leipzig (1970, 1973, 1975), own calculations.

**Figure 2.2.2: Unemployment and job-creation schemes 1990-2008**

Year	Unemployed	Long-term Unemployed	Job-creation scheme ABM	Job-creation shame SAP	Job-creation shame BfB	Job-creation shame early retirement
1990	23,371	n.a.	512	n.a.	n.a.	n.a.
1991	31,913	n.a.	25,435	n.a.	42,862	18,090
1992	30,936	n.a.	25,112	n.a.	38,699	33,442
1993	37,905	8,852	6,569	n.a.	15,544	37,730
1994	31,003	10,560	7,864	n.a.	14,458	29,728
1995	27,466	8,893	7,714	n.a.	8,742	15,519
1996	28,625	7,402	6,717	n.a.	10,015	6,060
1997	36,148	10,062	3,708	n.a.	5,545	593
1998	31,559	9,801	9,972	10,138	6,523	n.a.
1999	40,038	12,142	6,606	5,452	3,910	n.a.
2000	41,399	15,167	6,734	2,556	5,427	n.a.
2001	43,402	16,372	5,681	1,624	4,735	n.a.
2002	45,376	18,524	4,683	1,101	5,396	n.a.
2003	44,627	21,162	3,216	644	2,313	n.a.
2004	43,957	20,213	2,854	434	1,464	n.a.
2005	46,870	19,898	n.a.	n.a.	n.a.	n.a.
2006	42,273	20,025	n.a.	n.a.	n.a.	n.a.
2007	39,089	17,701	n.a.	n.a.	n.a.	n.a.
2008	36,808	15,865	n.a.	n.a.	n.a.	n.a.

Sources: LCC 1991a-2008a.

**Figure 2.2.3: GDP in Leipzig and Germany 1991-2007**

Year	GDP per SVP-employee in Euro (Leipzig)	GDP per head in Euro (Leipzig)	GDP per head in Euro (Germany)
1991	n.a.	n.a.	19,186
1992	24,305	n.a.	20,431
1993	n.a.	n.a.	20,872
1994	35,688	n.a.	21,871
1995	n.a.	n.a.	22,636
1996	37,409	n.a.	22,909
1997	n.a.	19,677	23,346
1998	36,845	19,740	23,960
1999	38,606	20,600	24,511
2000	38,947	21,156	25,095
2001	39,524	21,641	25,664
2002	40,653	22,222	25,984
2003	42,494	23,484	26,222
2004	42,911	23,751	26,798
2005	43,668	24,064	27,190
2006	45,309	25,506	28,229
2007	47,018	26,695	29,518
2008	n.a.	n.a.	30,392
2009	n.a.	n.a.	29,380

Sources: Statistisches Jahrbuch des Freistaats Sachsen, LCC 1991a-2008a.

**Figure 2.3.1: Pathways of suburbanization around Leipzig**

	Year	Germany	Western Germany	Eastern Germany	International	Suburbia
In-migration	1996	11,351	4,115	4,101	7,293	3,135
	2008	21,412	5,523	10,731	4,228	5,158
Out-migration	1996	24,140	4,620	4,790	5,732	14,730
	2008	16,918	6,481	6,566	3,501	3,871

Sources: LCC 1991a-2008a; Staatliche Zentralverwaltung für Statistik, Bezirksstelle Leipzig: Statistische Jahrbücher des Bezirks Leipzig (1970, 1973, 1975).

**Figure 3.1.1: Residential mobility in Leipzig 1984-2008**

Year	Intra-city relocations per 1,000 inhabitants
1988	15,8
1989	19,6
1990	n.a.
1995	83,3
1996	136,6
1997	150,2
1998	154,3
1999	143,1
2000	n.a.
2001	124,5
2002	118,7
2003	116,6
2004	115,1
2005	104,6
2006	103,6
2007	105,2

Sources: LCC 1991a-2008a; LCC 2001c-2008c.

**Figure 3.1.2: Monthly net-rent in Leipzig according to date of construction 1994-2008**

Year	Built until 1948*	Built 1949-1989*	Built since 1990*
1994	6,29	6,80	8,03
1995	6,14	6,14	7,93
1996	5,70	5,88	7,34
1997	5,47	5,88	6,31
1998	4,76	5,47	5,98
1999	4,47	4,99	6,14
2000	4,45	4,60	5,88
2001	4,35	4,50	5,62
2002	4,50	4,50	5,35
2003	4,40	4,75	5,30
2004	4,60	4,60	5,60
2005	4,50	4,50	5,60
2006	4,60	4,75	5,60
2007	4,65	4,85	5,50
2008	n.a.	4,80	5,60

Sources: LCC 1991a-2008a; LCC 2001c-2008c; LCC 2007e: 21.

\*Data are given until 1999 in DM, afterwards in Euro.

**Figure 3.1.4: Segregation indices for Leipzig 1992-2007**

Year	Index of segregation - foreigners	Index of segregation - seniors	Index of segregation - unemployed
1992	23.81	12.93	n.a.
1995	20.56	10.77	n.a.
1996	21.31	8.83	6.41
1999	22.55	8.79	8.69
2001	23.62	10.53	11.80
2003	24.51	12.98	11.77
2005	25.39	15.22	13.97
2007	27.46	16.30	14.04

Source: Grossmann et al. 2009.

**Figure 3.3.1: Places in and attendants of kindergartens and schools in Leipzig 1989-2007**

Year	Places in kindergartens	Registered children	Kindergartens absolute*	Pupils	Schools absolute
1989	n.a.	34,319	412	58,77	140
1990	n.a.	31,954	394	55,734	138
1991	27,423	26,365	369	56,205	139
1992	25,289	23,747	330	61,168	157
1993	21,309	20,247	-	61,722	184
1994	17,541	17,241	284	61,151	183
1995	15,740	14,668	252	58,868	184
1996	12,858	11,707	216	57,373	184
1997	12,868	9,630	188	54,452	185
1998	12,239	9,592	184	56,245	197
1999	14,215	10,652	206	52,965	193
2000	14,039	11,490	200	49,550	178
2001	14,619	12,548	199	46,174	173
2002	14,814	13,224	194	40,819	162
2003	15,578	14,378	192	40,914	153
2004	16,187	14,921	194	39,353	152
2005	16,574	15,383	188	37,758	145
2006	17,278	15,448	192	36,481	143
2007	17,920	15,879	197	35,402	140

Source: LCC 1991a-2008a.

**Figure 3.3.2: Development of number of students in Leipzig**

Year	Number of students*
1989	11,762
1990	18,153
1991	18,885
1992	18,874
1993	22,054
1994	23,343
1995	24,774
1996	26,258
1997	28,204
1998	29,277
1999	30,415
2000	31,260
2001	32,950
2002	34,997
2003	37,092
2004	37,953
2005	38,469
2006	37,136
2007	36,469

Sources: LCC 1991a-2008a; IGNIS database.

\* The numbers relate to the respective winter term, e.g. 2005 = winter term 2005/2006.

**Figure 3.4.1 Leipzig's housing stock ownership according to ownership**

Year	Housing units absolute	Private	Municipal	Cooperative
1990	257,928	64,482	128,964	64,482
1994	265,367	95,844	104,218	61,990
2004	316,358	202,469	56,944	56,944

Sources: LCC 1991a-2008a; LCC 2001c-2008c.

**3.4.2 Leipzig housing stock according to data of construction**

Year	1996	2003	2005	2007
Until 1918	13,914	15,758	15,252	15,901
1919 - 1948	13,851	17,315	17,471	16,836
1949 - 1990	8,794	10,923	10,953	10,957
Since 1991	1,889	9,980	11,332	11,896

Sources: LCC 1991a-2008a; LCC 2001c-2008c.

**Figure 3.4.3: Housing units and living space per inhabitant 1971-2008**

Year	Housing units total	Living space per inhabitant (m <sup>2</sup> )
1971	216,551	23.1
1981	240,568	27.3
1990	257,928	31.8
1995	268,247	36.7
1998	282,186	41.4
2000	315,701	41.7
2008	314,402	40.7

Sources: LCC 1991a-2008a; LCC 2001c-2008c.

**Figure 3.4.4: Housing units, new constructions and demolitions in Leipzig 1997 – 2007**

Year	Housing units	New Constructions	Demolitions
1997	277,812	9,845	400
1998	282,186	6,031	238
1999	310,329	5,236	288
2000	315,701	4,079	253
2001	317,439	2,525	798
2002	316,763	984	1,687
2003	316,341	1,298	1,731
2004	316,358	1,112	1,128
2005	316,027	881	1,231
2006	314,973	1,016	2,080
2007	314,223	782	1,556

Source: LCC 2008c.

**Figure 3.5.1: Water and waster water demand**

Year	Water demand m <sup>3</sup> per year	Wastewater m <sup>3</sup> per hour
1988	87,27	94,44
1989	82,11	88,64
1990	74,23	80,22
1991	58,53	73,32
1992	56,88	51,34
1993	49,29	50,39
1994	46,41	50,41
1995	40,19	53,96
1996	24,15	42,1
1997	22,60	43,8
1998	20,98	42,5
1999	22,12	39,2
2000	22,93	41,8
2001	22,31	35,2
2002	21,52	35,2
2003	22,26	34,9
2004	21,83	35,0
2005	21,57	35,5
2006	21,92	35,3
2007	21,81	35,1
2008	n.a.	33,6

Source: LCC 1991a-2008a.

\* The water supply to the end user is given until 1995 in m<sup>3</sup>/year (calculation: supply divided through 365.5 days \*1000; 1m<sup>3</sup> = 1,000 litres).\*\* The amount of waste water was given until 1996 in m<sup>3</sup>/hour; calculation: 365.5 days\*24hours = 8,772.

**Figure 3.6.3: Brownfields in Leipzig**

Year	Number of brownfields	Number of re-used brownfields	Share of re-used brownfields in per cent
1999	368	100	27.2
2000	378	119	31.5
2001	511	149	29.2
2002	545	181	33.2
2003	1,466	466	31.8
2004	1,833	648	35.4
2005	1,858	783	42.1
2006	2,149	820	38.2
2007	2,950	1,008	34.2

Source: LCC 1991a-2008a; IGNIS database.

**Figure 3.6.4: Environmental pollution in the city of Leipzig 1985-2008**

Year	Sulphur-dioxide $\mu\text{g}/\text{m}^3$	Nitrogen-monoxides $\mu\text{g}/\text{m}^3$	Nitrogen-dioxides $\mu\text{g}/\text{m}^3$	Respirable dust loading $\mu\text{g}/\text{m}^3$
1985	613,00	n.a.	n.a.	210,70
1986	638,00	n.a.	n.a.	213,20
1987	630,60	n.a.	n.a.	210,80
1988	606,80	n.a.	n.a.	182,70
1989	570,10	n.a.	n.a.	142,30
1990	n.a.	n.a.	n.a.	n.a.
1991	129,17	29,33	40,08	82,50
1992	101,67	30,50	33,58	65,00
1993	77,92	23,50	36,75	62,58
1994	42,44	20,55	35,27	60,64
1995	34,25	30,45	48,64	52,67
1996	23,25	39,58	47,75	68,27
1997	12,45	60,64	53,73	57,50
1998	9,27	58,25	49,42	44,67
1999	5,92	60,50	47,92	43,83
2000	3,00	58,27	48,00	29,40
2001	3,50	62,00	45,17	33,60
2002	3,67	56,75	49,50	32,40
2003	3,73	58,67	55,58	37,10
2004	2,98	50,75	50,75	31,40
2005	3,48	56,00	51,42	38,00
2006	3,10	45,00	53,18	37,34
2007	2,43	44,00	48,42	31,35
2008	2,30	43,00	46,00	34,00

Source: LCC 1991a-2008a.

\* The given values represent mean values per annum based on mean values per months; the measurement point was the city centre of Leipzig (main railway station). Until 1992 the pollution was calculated in  $\text{mg}/\text{m}^3$  (conversion factor  $1\text{mg} = 1000 \mu\text{g}$ ).

\*\* The values are given for respirable dust loadings with grain sizes  $<10 \mu\text{m}$ ; from 1993-2001, they represent airborne particles without grain size limits; the measurement point was Leipzig city centre (main railway station).

\*\*\*1985-1989 the density of emission was given in  $\text{tons}/\text{km}^2$  (see LCC 1991a: 141).

**Figure 3.7.2 Revenues in Leipzig's administrative budget 1992-2007**

Year	Municipal taxes in Mio. Euro	State and federal allocations in Mio. Euro	Other revenues in Mio. Euro
1992	114,6	383,9	484,8
1993	150,6	401,8	615,4
1994	207,8	439,1	611,9
1995	237,7	509,9	625,0
1996	203,8	509,9	584,7
1997	212,7	429,9	485,0
1998	268,0	430,2	421,6
1999	249,7	344,8	326,7
2000	255,7	362,3	356,5
2001	195,9	362,4	317,5
2002	257,0	369,0	345,9
2003	251,5	360,0	303,4
2004	258,6	354,7	302,0
2005	291,1	338,3	305,3
2006	336,6	321,3	298,7
2007	329,8	311,7	285,7

Source: LCC 1990a-2009a, own calculations.

**Figure 3.7.3 Funds from programmes for urban development in Leipzig 1991-2009**

Year	State or federal programmes in Mio. Euro	EU-programmes in Mio. Euro
1991	7,250	n.a.
1992	12,971	n.a.
1993	14,110	n.a.
1994	57,339	n.a.
1995/1996	52,982	n.a.
1997	36,605	n.a.
1998	33,484	n.a.
1999	34,240	n.a.
2000	38,373	875
2001	41,415	1,425
2002	26,726	11,172
2003	31,938	7,030
2004	20,607	7,569
2005	23,796	9,207
2006	33,270	8,064
2007	11,953	950
2008	46,434	6,530
2009	32,060	2,867

Source: LCC 2009, authors' calculations.

## ***PART B – HALLE***

### **B.1. EXECUTIVE SUMMARY**

Halle belonged to the industrial hubs of the former GDR (with focus on machine building and the chemical industry). Halle and Halle-Neustadt were (formally) separated in 1967, Halle-Neustadt quickly developed into a town of about 100,000 inhabitants in 1989; in 1990, the two cities were 'reunified' and formed a city of about 300,000 inhabitants. Halle (after the merging with Halle-Neustadt) has faced urban shrinkage since 1990, the main reason was (comparable to Leipzig) the out-migration to western Germany as a consequence of deindustrialization and the loss of tens of thousands of jobs in the industrial sector (breakdown of the biggest enterprises in and around Halle where those people lived who came to the city and to Halle-Neustadt during the 1960s to 1980s). The city lost 56,000 inhabitants from 1990 to 1999 (some 20 per cent of the total population from 1990, comparable to Leipzig). In recent years, also in Halle, the migration balance with the suburban hinterland has stabilized and been even slightly positive, which provides evidence of/ shows a decreasing importance of suburbanization; however, one cannot speak about reurbanization tendencies like in the case of Leipzig. Further reasons for urban shrinkage were suburbanization (predominating from 1994-2001), demographic ageing (decrease in birth rates, continuous process) but the main reason for out-migration was the loss of jobs due to deindustrialization (see Leipzig).

In contrary to the situation in Leipzig, Halle did not stabilize after 2000; the city continues to lose population and will do so also in the future (according to prognoses). On the meso-scale level, i.e. the level of urban districts and neighbourhoods, there are also large differences in the city between stable districts and those that continuously lose population and where demolition activities are carried out. The term 'urban shrinkage' emerged in Halle with the problem of housing vacancies and the start of the programme Stadtumbau Ost (urban restructuring 'East') in about 2000 and the years afterwards; before, the talk was about 'the adaptation of urban infrastructure and amenities to the population loss'. In the 1980s, the city already had to deal with housing vacancies due to bad conditions, in 1985 the city started larger-scale demolition and reconstruction activities in the inner city (also as in Leipzig during the 1980s). Like in Leipzig, the housing market perspective also predominates in Halle. Other appearances of shrinkage are the oversupply of infrastructure and the high number of (industrial) brownfields around the inner city or in outer parts of the city (here also railway or military brownfields) that have to be prepared for re-use (either commercial, residential, or recreational as parks, playgrounds or 'urban forests').

Since urban shrinkage will predominate as a trajectory also in the future, the discussion in Halle is about the stabilization of the city and its functions at a lower level (with fewer inhabitants) and also how to best manage shrinkage, including the question of giving up some districts especially hit by population losses (the prefab district Halle-Silberhöhe that will lose the majority of its inhabitants by 2025 and should become a 'forest city').

Halle was – in contrast to Leipzig – not successful in enlarging its administrative territory; the hinterland always forms bigger municipalities and attracts investment, whereas the city itself is characterized by a lack of large-scale investment and (enduring) high unemployment. In contrast to Leipzig, today Halle is still more characterized by a workers' population or by a mix of in-migrants who do not have a strong attachment to the location and, therefore, do not get engaged very much in local initiatives and activities – the lack of civic activities could negatively impact on any efforts to stabilize the city as a place to live for different residential and lifestyle groups. Since 1990, socio-spatial separation and segregation in the city have advanced and the widespread socio-economic mix of many residential areas has decreased. Like in Leipzig, segregation has, however, not yet reached extreme values. While some old built-up areas in the northwest of the inner city develop to become better-off areas, those in the south and east, as well as the prefab areas are characterized by a concentration of poorer households. In these areas, high vacancy rates in the housing stock go hand in hand with a concentration of socially weak residents.

The city of Halle uses federal subsidies to demolish vacant housing. The focus of demolition lies on the prefab housing areas Halle –Neustadt and Halle-Silberhöhe. Apart from demolition, the city started a range of activities to stabilize inner-city old built-up areas (e.g. the former workers' area Halle-Glauchau). In areas where demolition takes place, social infrastructures and amenities are no longer improved but only maintained in an acceptable quantity and quality for the remaining residents. Concerning future prospects, Halle will continue to deal with urban shrinkage and the main issue will probably be the question about how one can organize a sustainable functioning of the city and its inhabitants under the conditions of an enduring population loss and ageing; a positive counter-development could be the in-migration by students and apprentices (although a positive effect depends on how many of them will stay for longer in the city).

## B.2. REASONS AND PREMISES OF URBAN SHRINKAGE

### *Introduction*

This report describes the process of shrinkage as it has occurred within the city of Halle. It examines the reasons, dynamics and patterns of change as well as the consequences for different fields of urban development and planning. The period covered in the report runs from the 1980s to the present day; in particular cases, longer or shorter time periods are considered. While Halle's new part, Halle-Neustadt, saw a rapid growth of population during the 1960s and 1970s, the old city of Halle underwent population losses throughout the whole time of the GDR. During the 1980s, both parts (at that time two different cities in administrative terms) were stagnating, the old parts of the city suffered from decay (Figure 1.1b). Since 1990, Halle (including Halle-Neustadt) has seen a continuous and rapid process of population loss that hit the city after the systemic change and German reunification. Today, Halle still represents a shrinking city and expects further population losses for the decades to come. The most visible sign of decline are housing vacancies in different parts of the city, even of renovated stock (Figure 1.1). At the same time, the city has to cope with the consequences of hitherto shrinkage processes. Although migration balances with the hinterland recently show, in contrast to former years, a slight plus for the city, Halle has not yet been able to stabilize its population.

Halle belonged to the industrial hubs of the former GDR (with focus on machine building and the chemical industry). Halle and Halle-Neustadt were (formally) separated in 1967, Halle-Neustadt quickly developed to become a town of about 100,000 inhabitants in 1989; in 1990, the two cities were 'reunified' and formed a city of about 300,000 inhabitants. Halle (after the merging with Halle-Neustadt) has faced urban shrinkage since 1990. The main reason was (comparable to Leipzig) the out-migration to western Germany as a consequence of deindustrialization and loss of tens of thousands of jobs in the industrial sector (breakdown of the biggest enterprises in and around Halle where those people lived who came to the city and to Halle-Neustadt during the 1960s-1980s). The city lost 56,000 inhabitants from 1990 to 1999 (some 20 per cent of the total population from 1990, comparable to Leipzig). Recently, also in Halle, the migration balance with the suburban hinterland in the recent years has stabilized and been even slightly positive, which provides evidence of a decreasing importance of suburbanization; however, one cannot speak about reurbanization tendencies like in the case of Leipzig.

Further reasons for urban shrinkage were suburbanization (predominating from 1994 to 2001), demographic ageing (decrease in birth rates, continuous process) but the main reason for out-migration was the loss of jobs due to deindustrialization (see Leipzig). In contrary to the situation in Leipzig, Halle did not stabilize after 2000; the city continues to lose population and will do so also in the future (according to prognoses).

**Figure 1.1: Halle – images of a city:** a) Halle bird's eye view on the city centre; b) demolition in the city centre during the 1980s; c) Frankesche Stiftungen renovated old built-up housing (cultural and research centre); d) Mühlweg district renovated old built-up housing; e) Halle-Neustadt large housing estate; f) vacant old built-up housing in Glaucha



Source: Dieter Rink, Johanna Ludwig, AKI Halle

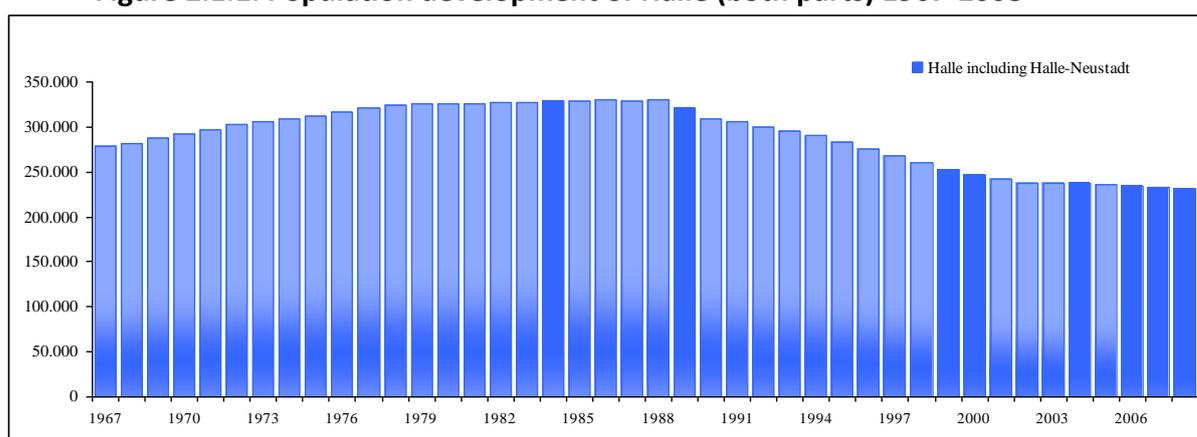
### *Materials and methods*

The report covers in general the time period between the late 1980s (to consider also the situation in the late GDR time) and today. To look back to the late 1980s is necessary to correctly assess the impact of the political turnaround in 1989 and the German reunification in 1990. Depending on particular topics, the time period considered may vary and also cover longer or shorter periods. The report refers to the city of Halle as a whole and – in particular cases – to parts of the city, single districts or neighbourhoods. Since urban shrinkage affects single parts and districts of the city in a different way and we find growing and stabilizing areas close to those losing inhabitants and showing high vacancy rates, the look beyond the overall city level is necessary. The report uses mainly municipal data. Furthermore, official planning documents and other reports issued by the city of Leipzig are used, as well as scientific literature. In a number of cases, expert interviews were carried out to gather knowledge that was not available through the use of data and documents. In other cases, expert interviews helped to interpret and understand properly the data and documents. The references for the interviews are given in the report.

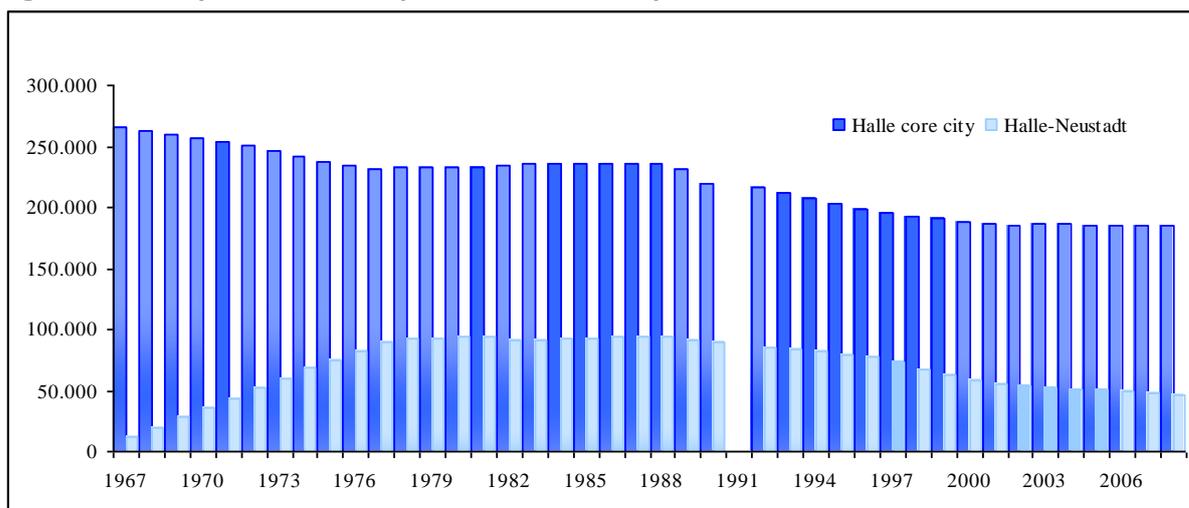
### Demographic development

Halle (including Halle-Neustadt) reached its peak population with 329,625 inhabitants in 1986 (Figure 2.1.1). During the last years of the GDR time, it already lost population – about 30,000 until 1990. Comparable to Leipzig, Halle’s shrinkage also did not start with the systemic break-up in 1989/90. The part of ‘old Halle’ already saw a decline in population during the late 1960s to the late 1970s when many inhabitants moved to the newly emerging city of Halle-Neustadt (prefab housing estates, Figure 2.1.2). In 1990, the city parts were reunified (they had been separated in 1967) and together had 309,406 inhabitants. From 1990 onwards, Halle lost 25 per cent of its inhabitants. The population declined from 1990 to 2008 78,000 inhabitants (from 309,000 to 231,000). Halle represents one of the big cities in eastern Germany with the biggest population losses throughout the 1990s and 2000s (Raschke and Schultz 2006, 50). But shrinkage does not affect both parts of the city in the same way. While the ‘old part’ of Halle lost only 4,000 inhabitants from 2000-2008 and saw almost a stabilization of its population during the last few years, the part Halle-Neustadt continues to be hit by shrinkage – it lost 8,000 inhabitants from 2000-2008, and there is no stabilization visible. It is mainly because of Halle-Neustadt’s occupational (workers in the chemical industry) and age structure (ageing in place and demographic ‘waves’, see below and section 3.4 of this report) as well as the concentration of housing demolitions in the large housing estates. The population loss of Halle-Neustadt is significant: compared to the maximum in 1987 (almost 94,000 inhabitants), the population has decreased to almost half of that today (2008: ca. 46,000 inhabitants) and will further decrease to some 40,000 inhabitants in 2015 (Fliegner 2006, 85). While the population density decreased considerably in the prefab areas and less attractive old built-up districts, it remained stable in the more attractive old built-up areas and even increased in the city centre due to renovation (HCC 2008a, 31).

**Figure 2.1.1: Population development of Halle (both parts) 1967-2008**

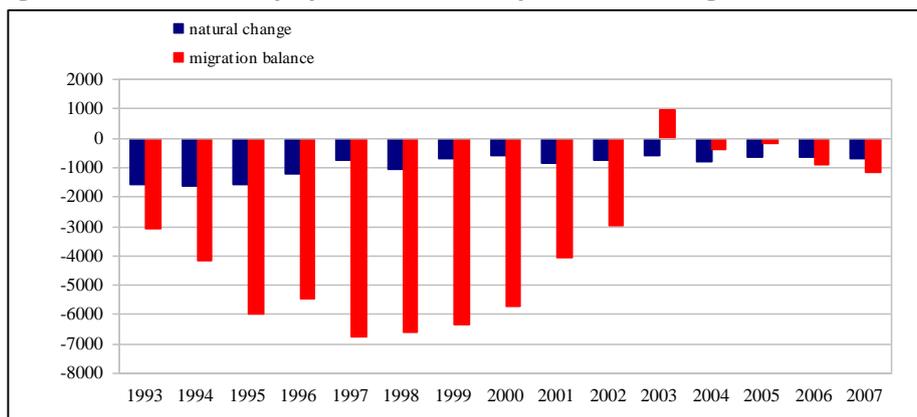


Source: UFZ database

**Figure 2.1.2: Population development of Halle 'old part' and Halle-Neustadt 1967-2008**

Source: UFZ database

The main reason for population decline was the massive out-migration ('responsible' for 80 per cent of Halle's population losses (Raschke and Schultz 2006, 51). Out-migration has taken place mainly towards western Germany and other regions of eastern Germany. Suburbanization, by contrast, amounted up only to 20-30 per cent of the total outflow in the period 1994-1999 when it reached its 'peak values' (Figures 2.1.3 and 2.1.4). Out-migration per year decreased from the 'extreme value' of almost 12,000 inhabitants in 1990 to numbers between 1,000-2,000 inhabitants during the later 1990s to increase again after 2000 to values between 2,000-4,000 persons per year (Figure 2.1.6). Since the job-related out-migration affects mostly younger and highly educated people, it leads to phenomena that are discussed as "brain drain" or "social erosion" (Raschke and Schultz 2006, 52). While during the 1990s, out-migration was mainly job-driven and focused on the western parts of Germany, suburbanization has played a more important role since the mid 1990s (between 1993 and 2001, Halle lost about 37,000 people to the suburban zone, see section 2.1 of this report). From 2000 onwards, however, suburbanization lost importance. Apart from migration, the natural population development also contributed to population decline. The city population reached its lowest level of births in 1995; at that time, the number of births was considerably lower than in the 1980s – it reached less than one half of the 1980s' level (1,570 births compared to 3,200). Until 2000, births saw an increase again; during the last years, about 2,000 children have been born yearly (HCC 2008c, 14). While at the same time the level of deaths also declined, Halle has had a less dramatic loss of population by natural development during the last few years (from -600 to -800 per year during the 2000s; yearly losses during the 1990s were from -1,000 to -1,600).

**Figure 2.1.3: Natural population development and migration 1993-2007**

Source: UFZ database

Out-migration and low birth rates led to an accelerated ageing process of the population (Table 2.1.1) that had, until 1990, including Halle-Neustadt a relatively young population (since it was mainly young people and families with small children who moved to the prefab housing estates). The older age groups (65+) were the only ones that grew (from 1989 to 2008 from 14 to 23 per cent) while especially the young age groups (up to 18) declined dramatically (from 1989 to 2008 from 22 to 13 per cent). The share of the population aged 18-65 remained nearly unchanged (64 per cent) but is expected to decrease in the near future, too, as a consequence of low birth rates and ageing. The ageing index rose from 75.5 in 1989 to 214.1 in 2008.

**Table 2.1.1: Age groups and ageing 1989 -2008**

	1989*	1996	2000	<b>2008</b>
Share of people 0-14	19.2	13.5	11.1	10.8
Share of people 15-65	66.3	71.8	71.9	66.2
Share of people 65 and older	14.5	14.7	17.1	23.1
Youth dependency rate (0-14/15-64, per cent)	28.9	18.8	15.4	15.6
Age dependency rate (65+/15-64, per cent)	21.8	20.5	23.7	33.4
Index of ageing (65+/0-14, per cent)	75.5	108.9	154.0	214.1
Average age	n.a.	n.a.	42.8	45.1
Number of people aged 65-79	n.a.	n.a.	n.a.	n.a.
Number of people aged 80+	n.a.	n.a.	n.a.	n.a.
Number of people aged 65+	33.406	40.494	42.031	53.260

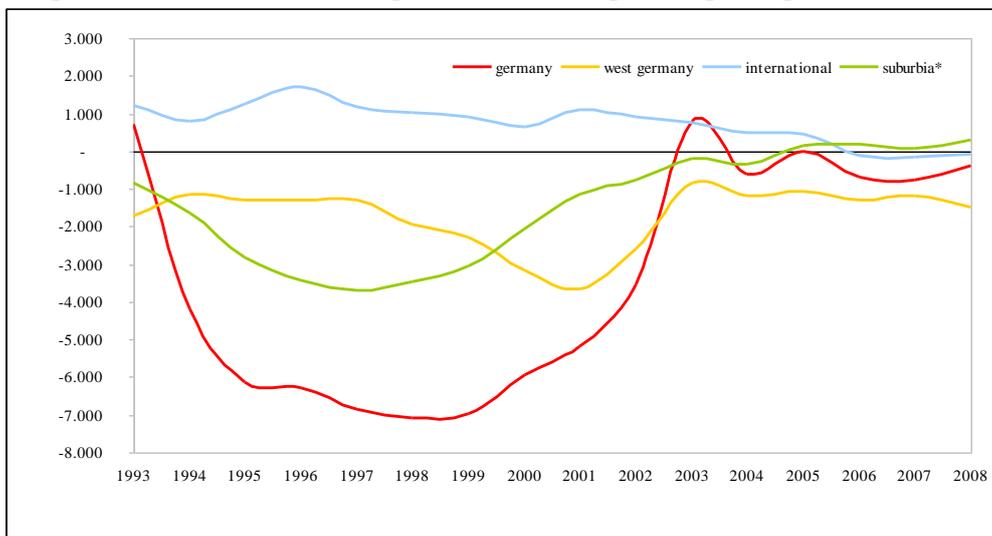
\* without Halle-Neustadt

Source: UFZ database

Apart from in- and out-migration at the total city level, Halle also saw shifts of intra-urban migration. While during the first half of the 1990s it was mainly the (dilapidating) pre-war housing areas of the core city that lost population, population decline became more and more important for the prefab housing areas within the second half of the 1990s. Before 1997, they even had modest gains through intra-urban mobility. Between 1997 and 2000, both types of housing areas saw striking changes, but while there were gains in the case of pre-war housing areas, there were losses in case of the prefab housing estates. During the 200s, these patterns

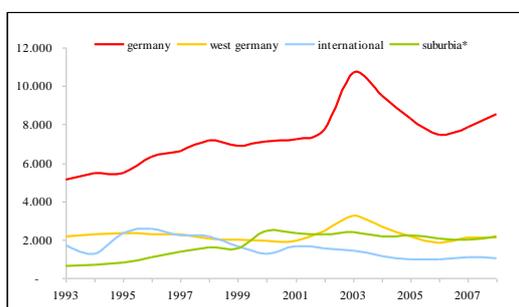
consolidated. Fundamentally, there were two reasons for these shifts: On the one hand, the renovation of old built-up stock in the inner city offered new, attractive housing space (both rental and owner-occupied). On the other hand, prefab estates and less attractive, industrialized old built-up districts areas were (and still are) abandoned in favour of single family houses in the suburbs (HCC 2008c, 15). Processes of population gains and losses in single districts closely correlate with processes of socio-spatial differentiation and patterns of segregation – districts with the highest population losses are also those with high unemployment and housing vacancy rates (Raschke and Schultz 2006, 53-56). Currently, in-migration to Halle is borne mainly by young age groups (18-30) and, although at a very modest level, older people (65+) whereas families with children continue to leave the city.

**Figure 2.1.4: In- and out-migration according to target region 1993-2008**



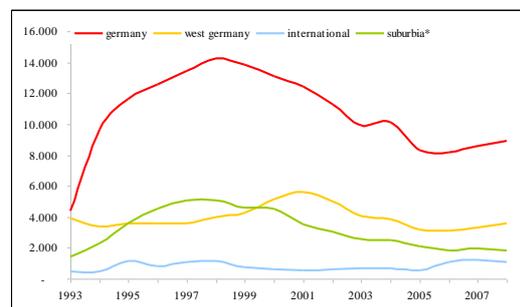
Source: UFZ database

**Figure 2.1.5: In-migration according to target region 1993-2008**



Source: UFZ database

**Figure 2.1.6: Out-migration according to target region 1993-2008**



Source: UFZ database

Since 2003, urban shrinkage has occurred at a more moderate level. At the same time, the processes of ageing and intra-urban mobility have declined in speed. There are three main causes for this:

- the support of a campaign in favour of the main residence principle, especially for students, and later on the introduction of a tax for the second place of residence in 2004,
- decrease in losses due to long-distance out-migration and
- an equalized migration balance with the suburban hinterland.

Since 2003-2003, population losses due to out-migration have decreased considerably. While during the 1990s the yearly losses amounted up to 3,000-7,000 people, from 2002 onwards they have no longer exceeded the limit of 1,000 persons. Concerning the migration balance with the other parts of eastern Germany and the hinterland, Halle saw even a trend reversal from the mid 2000s onwards (Figure 2.1.5). In 2005, Halle had slight gains from in-migration from suburban areas and other parts of eastern Germany (887 persons). The main reasons for that are the development of the university and the increase of student numbers (increase from 15,700 in 2002 to 17,900 in 2008). Stabilization does not affect all parts of the city. While one could speak of a recovery of some old built-up areas that are possibly already on the cusp of reurbanization, other, less attractive old built-up areas and most of the prefab areas continue to lose population. Urban shrinkage thus becomes more and more a consequence of the negative natural population development, although it is now at a more moderate level than in the 1990s. First and foremost the low birth rates are the reason for population decline, although they have also recovered from the “lowest-low levels” (Kohler et al. 2002) in the 1990s and are now up to the general German average.

The population development of single parts of the city is heterogeneous: while some parts of the city are stabilizing and even growing, others parts are constantly losing population. The diverging trends that were established during the second half of the 1990s have stabilized during the 2000s, although they have lost their high dynamics. Some parts of the inner city, preferably those with attractive old built-up stock, some districts with new built housing, as well as some outer parts of the city that were incorporated in the early 1950s and that benefit now from newly built housing, too, have recently gained population. Some inner-city areas (Paulus and Mühlweg district) are even said to undergo gentrification processes (Raschke and Schultz 2006, 55). The large housing areas (Halle-Neustadt, Silberhöhe), by contrast, continue to lose inhabitants as a result of the selective occupational and age structure of their inhabitants (see above), current processes of ageing in place (demographic ‘waves’) as well as housing market ‘regulation’ policies, i.e. a concentration of housing demolitions in these areas (see section 3.4. of this report).

But also here some districts are especially hit by shrinkage – e.g. the western part of Halle-Neustadt and Silberhöhe (estimation for 2025: Halle-Neustadt from 94,000 in 1989 to 30,000 and Silberhöhe from 40,000 to 6-7,000)<sup>6</sup>; others, like the northern part of Halle-Neustadt, have stabilized. The old built-up areas in the inner city have recently seen a ‘renaissance’ after decades of decay and dilapidation during GDR time and the early 1990s. They are divided into a ‘growth belt’ in the northern part

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<sup>6</sup> This information bases on an interview with representatives of the urban planning unit of Halle in October 2009.

of the inner city (Giebichenstein, Paulus district, northern city centre and so-called “old city”) and the slightly shrinking part of the southern inner city with building stock from pre-war times and the 1920s and 1930s (districts Gesundbrunnen, Damaschke Street). In the outer parts of the city – similar to the adjacent suburbs – there is a strong population growth due to suburbanization and newly built housing (owner-occupied housing in single family houses and multi-storey buildings, e.g. in the districts Heide-South and Büschdorf).

In Halle 8,938 foreigners were registered in 2008, which was a share of 3.9 per cent of the total population. Recently, the percentage of foreigners saw a slight decrease in all districts of the city. The share of persons with ‘migration background’ is estimated to be considerably higher than the number of registered foreigners since this also includes German citizens and the population of German origin from eastern Europe, who are not counted as foreigners. The foreigners living in Halle stem from 130 countries, the biggest groups are formed by persons from Vietnam, Russia, Ukraine, Iraq and Turkey. The share of immigrants from Russia, Ukraine and Turkey underwent a slight but continuous increase during the last few years. 16.3 per cent of all foreigners were students (1,502 persons). High concentrations of foreigners are to be found in the inner city (7 per cent) as well as in Halle-Neustadt (6.4 per cent). Recently, more and more foreigners have moved to Halle-Neustadt. Almost 65 per cent of them leave Halle after five years or less. The share of unemployed persons among foreigners is twice as high as the urban average (HCC 2008c, 20-21).

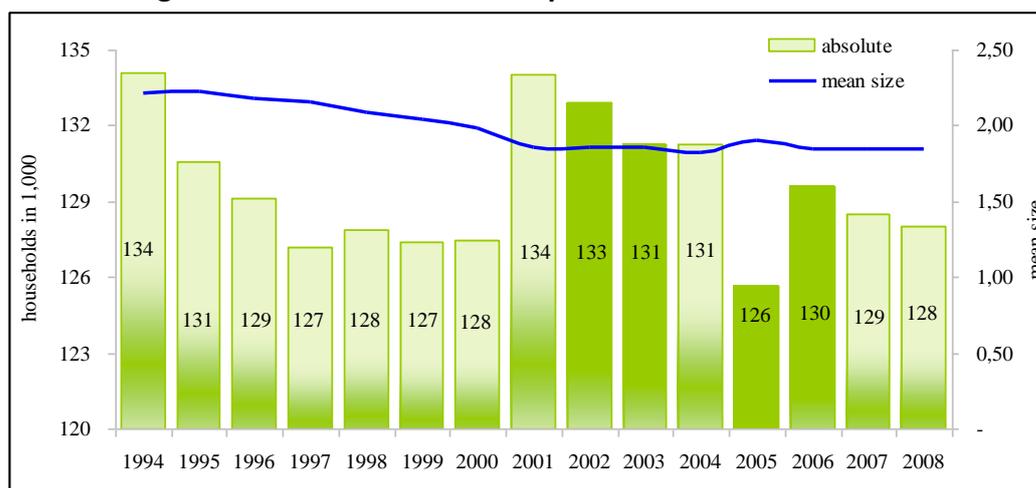
Population projections for Halle are difficult since recent changes are still too short-term to be able to serve for a robust forecast. There are different projections by the municipality, the University of Halle and other institutions. All projections forecast, however, a further population decline for the city that will probably have only about 205,000 inhabitants in 2015 (HCC 2008c, 16-17). A trend reversal, like in other eastern German cities such as Dresden, Leipzig, Potsdam, Erfurt, and Jena, is not realistic for Halle. A moderate decline has to be seen, however, as a positive scenario for Halle. Planning strategies are orientated to this scenario since all measures and instruments (e.g. local business development, housing policy, university development) should support such a development.

The negative balance of the natural population development has already become the determining factor for the negative population development and will become increasingly important in the future. The ‘blurred’ age structure, that is the dramatic decrease in women of child-bearing age as a potential generation of mothers, cannot be reversed in the mid-term even by improved labour market conditions and household incomes but at best attenuated. Additionally, student numbers, a fundamental source of in-migration today, are expected to decrease in the next years, too. At the level of urban districts, population projections forecast a heterogeneous development. However, recent trends partly contradict projections made at the beginning of the 2000s (HCC 2008c, 17). As far as age groups are concerned, all projections expect a further ageing of the population. The age groups until 45 years will decline, while the older age groups will increase and among them especially the very old-aged. Those developments will impact on the educational and

housing market as well as on the demand for special urban infrastructure. Possibly, ageing will impact 'positively' on the employment situation since the demand by starters on the labour markets and the young working-age population will decrease. This will also depend, however, on educational and qualification profiles that are demanded and offered.

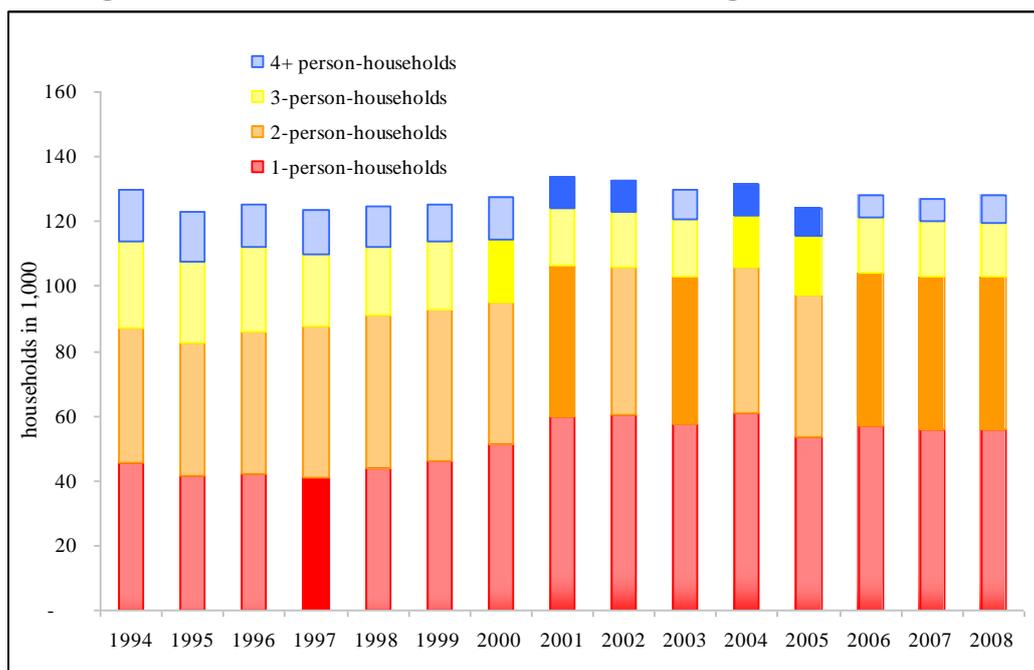
The number of households decreased from 134,000 in 1994 to 128,000 in 2008 (Figure 2.1.7)<sup>7</sup>. The more moderate decline in households in comparison with the population decline is due to downsizing: the mean household size decreased from 2.1 to 1.8. While the share of one-person households increased from 1994 to 2008 from 34 to 44 per cent, the share of 3+ households continuously decreased from 32 to 20 per cent (Figure 2.1.8). One-person households are expected to represent the majority of all households by 2010. Their share is the highest in the inner-city districts (>50 per cent; HCC 2008a, 63). Especially the share of family households will, by contrast, see a further decline. The mean household size will slightly decline from 1.84 (2008) to 1.77 (2015).

**Figure 2.1.7: Household development and mean size 1994-2008**



Source: UFZ database

<sup>7</sup> There is a certain increase in the number of households in 2001, which cannot be explained by the given data.

**Figure 2.1.8: Distribution of households according to size 1994-2008**

Source: UFZ database

Currently, the population losses of Halle increased again, compared with the decline of losses in the mid 2000s. The main reason for this development is the decline in student numbers. While the university was a main 'motor' of in-migration until the mid 2000s, this trend has now reversed. While out-migration did not increase, in-migration decreased. In 2006, Halle was the only large (>200,000 population) city in eastern Germany (7 cities in total) that faced a negative migration balance (HCC 2007d, 16). Projections see a further decline in household numbers for the future, varying from 122,000 to 126,000 (HCC 2008c, 22). The main reason for the further decline is, on the one hand, that the process of downsizing will stop in the near future. On the other hand, it is the cohorts with a lowest-low birth rate that will reach the age where an own household is founded. Even a further downsizing cannot balance this loss. Since the household development is directly related to the demand for housing, it is crucial to consider this knowledge for planning processes and the further shaping/ structure/ formation of urban restructuring processes (see section 3.4 of this report).

### *Summary*

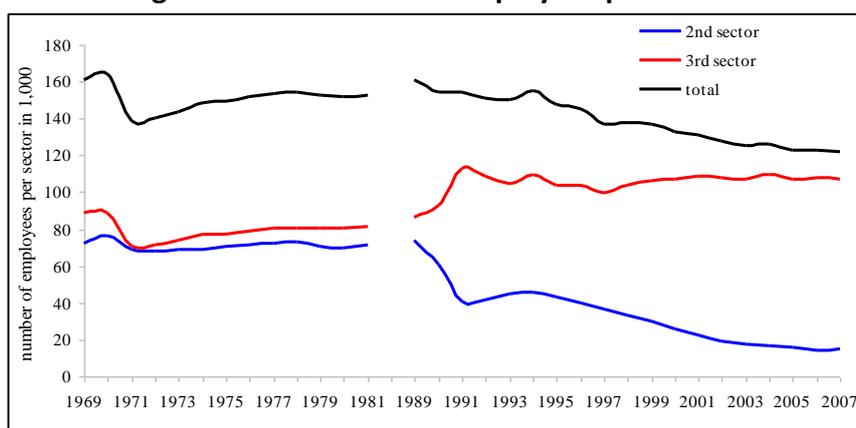
Halle (including Halle-Neustadt) underwent a 'bi-polar' population development during the GDR time: while the newly built part Halle-Neustadt saw a considerable growth until the late 1980s as a city populated mainly by industrial workers, the 'old' part of Halle faced population losses almost during the whole period of the GDR. Since 1990, both parts of city (which were formally re-unified) have faced significant population losses and represent one of the most prominent examples of large shrinking cities in eastern Germany. The main reasons for population decline were the westward job-related out-migration and the suburbanization, which had its peak time from 1994 to 1998. Recently, natural decline has become more and more important as a reason for further population losses that will occur in the next

decades. Today, there is still an out-migration to western Germany, the suburbanization plays only a marginal role, and in-migration has emerged as a new phenomenon; it is borne mainly by younger age groups like in Leipzig. The potential of this in-migration is, however, limited since the respective age groups will become smaller in the future. Especially hit by shrinkage are the large housing estates Halle-Neustadt and Silberhöhe due to selective out-migration, ageing in the location/ of the local population and due to the concentration of demolitions in these areas. Population losses, resulting housing vacancies and demolitions, as well as ageing as a consequence of selective outflows strengthen existing patterns of residential differentiation and segregation (see section 3.1 of this part of the report).

### ***Economic development***

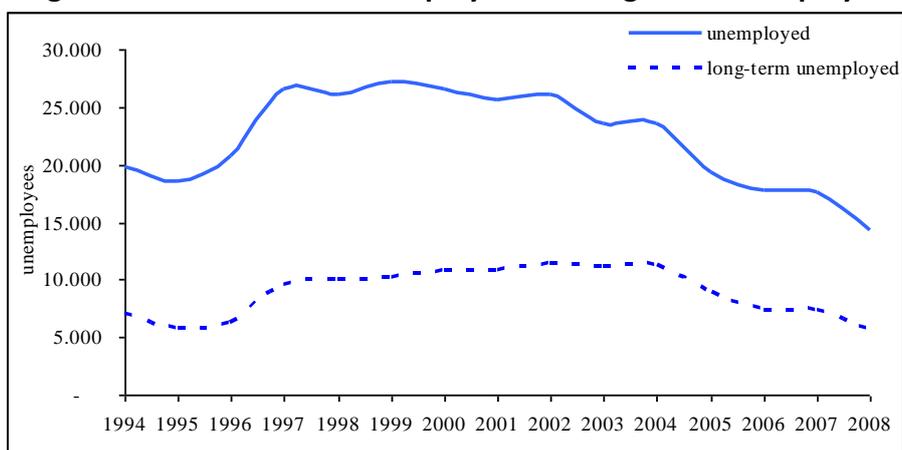
Although, in comparison to Leipzig, Halle had a less diversified industrial profile, it was one of the main industrial centres of East Germany for a long time. Since medieval times the city had been a centre of food-production (salt), later on brown coal mining, gas and energy production and machine building (railway cars and other metalworking industries, for example the big complex in Ammendorf) were added. In addition, Halle had an importance as a University town, with one of the oldest German universities and an administrative centre for the region (*Bezirk*/district of Halle). Decisive for Halle's economic profile, however, became the location of large-scale chemical industry in the region in the early decades of the 20<sup>th</sup> century. This orientation was pushed both by the National socialists and later on by the communist government, so that chemical industries became the main job suppliers for the region. The city reached its peak in terms of economic importance in the late 1960s when the government started an immense investment programme with the aim of expanding chemical industries in the "chemical triangle" (Halle, Leipzig, Bitterfeld) under the slogan "Chemistry gives bread and beauty" (see part C, chapter 2 of this report). As a consequence of this programme, industrial facilities as well as infrastructure and the housing stock were massively expanded in and around Halle. Moreover, the city became more closely connected to its hinterland, as this was the location of large-scale chemical facilities. Leuna, which was located 15-20 km south of Halle, thus produced nitrogen and petrochemical goods and provided around 30,000 jobs in the late 1980s. Buna, a plastic producer in close proximity, occupied another 18,000 and Bitterfeld, in the north, 20,000 jobs.

As with most East German cities, this industrial history was largely abandoned with the monetary union, reunification and privatisation in the early 1990s. The big companies were disintegrated and privatised – although with an extremely reduced number of employees. As a consequence industrial activities faced even more considerable losses than in Leipzig and one of the most intensively industrialised regions of Germany became totally deindustrialised. As Wallosek notes (Wallosek 2006: 48) the number of jobs related to industrial activities per 1,000 persons now is around 50, compared to an average of 114 in West German territorial states (which includes agrarian regions). Altogether about one quarter of all jobs have been lost since reunification.

**Figure 2.2.1: Number of employees per sector**

Source: UFZ database

As in Leipzig these immense job losses could hardly be absorbed by an upturn in the service sector. The consequence was massive unemployment, with unemployment rates peaking at 21 per cent at the turn of the millennium (the national average being around nine percent at the same time). Especially in the early 1990s unemployment was partly reduced by public job-creation measures, which in 1992 provided employment for one third of all unemployed, also early retirement programmes added to the relaxation of unemployment statistics. As these were successively reduced, unemployment increased in the course of the 1990s and only fell after 2005. The reduction of unemployment can be attributed to the recovery of the economy, as well to the Hartz IV welfare reforms that increased pressure on the unemployed.

**Figure 2.2.2: Number of unemployed and long-term unemployed**

\* All data relate to 31 December except 2009 where the date relates to 31 March.

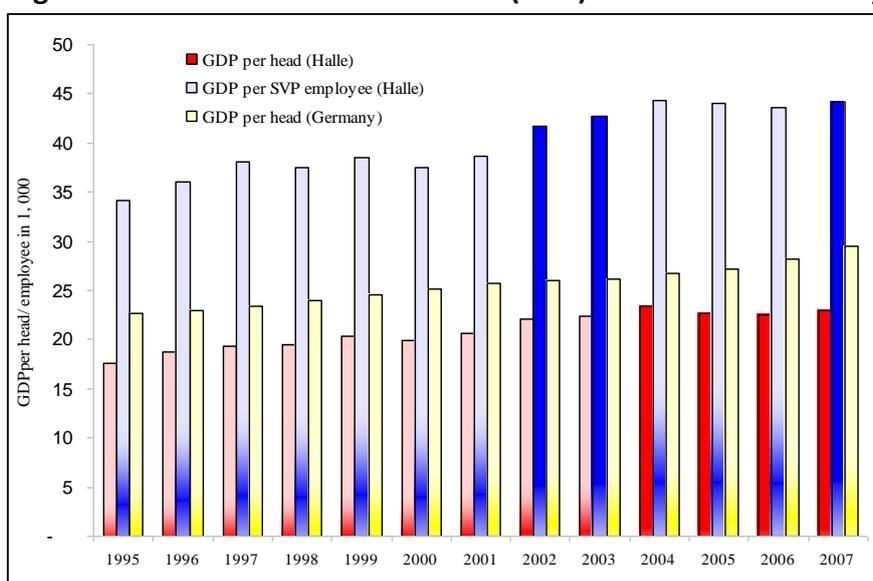
Source: UFZ database

In the long run, however, it is expected that population decrease and ageing will lead to a decline of the labour force potential and skill shortages. This trend could even be reinforced the ongoing selective out-migration of specialists that is caused by current low wages and a lack of career opportunities. Like in many East German cities the biggest employers are now local energy producers, the utilities company,

as well as the local public transport. Other important companies in the city include food industries (Halloren Schokoladenfabrik, Kathi Backmischungen and Coca Cola), a construction company, hydraulic engineering and logistics. Major service job providers are the computer producer DELL, which located its service- and distribution centre in Halle and numerous Call centres. Call centres especially have boomed in the last years, and for 2006 it was estimated that 3,800 jobs were provided by these.

Interestingly, the region around Halle has faced some signs of reindustrialisation in the last years with global players like Dow Chemical investing in modern chemical facilities with high value creation around Merseburg, or solar cell production in Bitterfeld. The immediate surroundings of Halle could thus stabilize economically, and this is partly reflected in Halle's unemployment rate, which went down to 13.7 per cent in 2008. However, this development is far from closing the mismatch between supply and demand on the labour market. Moreover, the wages paid in the newly emerging branches (both in industry and the service sector) are often very low and, as the city of Halle advertises, the costs of labour are only around two thirds of the west German average. Altogether, it can be summarized that Halle's economy suffered immensely after reunification and as a consequence the level of economic activities is notoriously low (see Figure 2.2.3). Thus, unemployment is a serious problem that affects wide sectors of the labour force.

**Figure 2.2.3: Gross Domestic Product (GDP) in Halle and Germany**



Source: UFZ database

Despite all efforts to attract new investments, the GDP per capita in Halle is lower than the German average. The city and its region are not able to close the gap between the local level of GDP and the national average. The reasons for that are related to the fact that the regional economy is too weak and that there are too little innovative enterprises and R&D activities in the region.

### ***Settlement system***

Until 1990 Halle consisted formally of two parts – the ‚old town‘ and Halle-Neustadt, the prefab city built in the 1960s-1980s. In 1990, the two parts were unified – and Halle’s ‚new‘ territory and number of inhabitants considerably enlarged. Together with Leipzig, the conurbation forms one of the most densely inhabited regions of eastern Germany (see part C section 1 of this report). Like Leipzig, Halle saw different phases of its settlement system development (see section 2.3 of part A of this report). From 1990-1993, there was a predominance of job-related out-migration to the western parts of Germany and an emerging commercial suburbanization in the surroundings of the city. From 1993-1999 Halle saw a massive suburbanization, both residential and commercial. With respect to its scope, however, it did, however, not reach the level of westward out-migration within the same period. From 1999-2003 the scope of suburbanization decreased but continued to remain on a high level. Only from 2003 onwards did it falls to low levels. From 2006 onwards, the city even re-gained population from its hinterland. Nevertheless, Halle continues to see a net outflow of population because of interregional out-migration that outweighs the gains from suburbia.

Like Leipzig, Halle saw a high dynamics of commercial and residential suburbanization as a result of the systemic change. The conurbation Leipzig-Halle represents the eastern German region with the highest dynamics of suburbanization (Kaiser et al. 2006, 215). The causes of suburbanization were the same as in the case of Leipzig: On the one hand, (western) investors were interested in suburban developments and in benefiting from diverse subsidies. A lack of coordinated regional planning and cooperation between the cities and surrounding municipalities eased a ‚wild phase‘ of early suburbanization in the first years of the 1990s. Most of the suburban municipalities also wanted to benefit from new tax revenues and offered land for commercial and residential developments (Figure 2.3.1). As a consequence, first shopping parks and residential stock (both detached and multi-storey housing) emerged. On the other hand, it was the poor housing conditions first and foremost in the old built-up areas of Halle’s ‚old part‘ that drove people to the new suburban housing developments (see the same section within part A of this report). Like in Leipzig, many of Halle’s old built-up areas had seen a long period of neglect and disinvestment during the GDR time, and it was rather this situation that worked as a push-factor than the suburban housing qualities that only ‚ostensibly‘ formed a pull factor. This was also the reason for the fact that the intense phase of urban-suburban migration lasted only a few years (1993-1999; see also Figure 2.3.2). The yearly maximum of suburbanization was reached in 1998 with 4,600 persons. Before and after that time period, interregional migration was (and is) more important for population losses in Halle. By and large, interregional out-migration has been more important for population decline in Halle than suburbanization.

In recent years, Halle has even seen a slightly positive migration balance with its hinterland which, on the one hand, clearly speaks of a decline of the importance of suburbanization but, on the other hand, cannot stop the overarching trend of

population decline. Friedrich (2006, 14) interprets the current situation as a kind of 'reprieve' for the city for the consolidation of its inner structures.

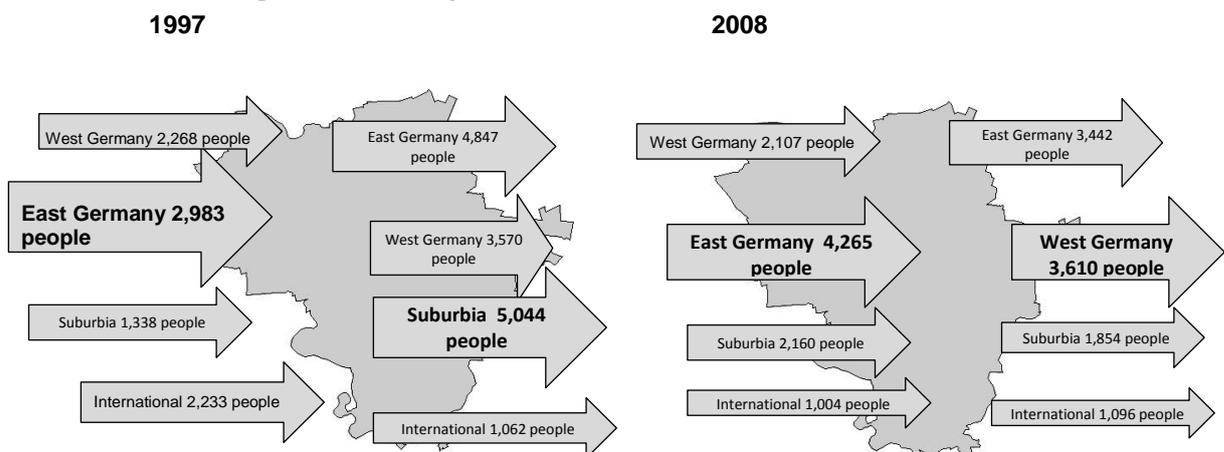
The dynamic suburbanization in the second half of the 1990s led to an upswing of the hinterland of Halle and, at the same time, to a deconcentration of workforce (not regarding at the overall decline in population and workforce as a consequence of interregional out-migration to the western parts of Germany). The negative consequences of this process mainly affected the city of Halle (HCC 2008c, 82). From 1993-2001, Halle lost about 37,000 inhabitants to the suburban zone (= residential suburbanization). In the district "Leipziger Land", the number of newly built single-family houses was between 1,000 and 1,400 per year from 1995-1998. The losses are also visible with respect to the 'suburbanization of jobs/workforce': while the number of employees in Halle decreased by 15 per cent from 1994-1998, in the district "Saalkreis" it increased by 28 per cent.

**Figure 2.3.1: Residential suburbanization** (left: single-family house next to Halle-Neustadt; right: multi-storey new build housing next to Halle-Silberhöhe)



Source: Johanna Ludwig

**Figure 2.3.2: Map with suburbanization directions**



Source: Johanna Ludwig (map) and UFZ database

**Figure 2.3.3: Commercial suburbanization (Halle Center Peissen)**



Source: Johanna Ludwig

In some hitherto rural districts between Halle and Leipzig as well as around Halle, new residential developments emerged; between 1993 and 2000, for example, about 20,000 people moved from Halle to the district „Saalekreis“. Until 2004, 28,600 persons moved to this district and the district „Merseburg-Querfurt“ (Raschke und Schultz 2006, 52). The numbers of inhabitants of these districts continuously rose in the 1990s, in some parts the increase was considerable (80-100 per cent, see Kaiser et al. 2006, 214). According to local scholars, these processes of deconcentration did not only lead to a population decline and rising housing vacancies in Halle; they led also to declining tax revenues for the municipal budget in Halle which was urgently needed to maintain the infrastructure for both the city and its hinterland (see section B.3.7 of this report).

In the first few years suburbanites came from both the old built-up areas and the large housing estates but soon, the majority came from the latter (HCC 2008c). The reason for that ‘shift’ is due to the fact that after the start of renovations in the old built-up parts of Halle, people started to move out from the housing estates to the newly refurbished old built-up flats there, too. It was mainly ‘consolidated families’ who left the city of Halle for suburbia – in most cases people in the middle age groups with older (dependent) children and two working parents. Some of them continued to work in the city (i.e. they are commuters) and used the infrastructure offered by the city which made the loss for the city even bigger (see above and Raschke und Schultz 2006, 52). On the contrary, there is also a section of inhabitants of Halle who further on live in the city but were lost as employees since they work in the shopping malls in suburbia (see section 2.2 of this report). A smaller part of inhabitants of the prefab housing estates also moved to new build housing complexes in the outer parts of the city – this means they remained within the territorial borders of the city. Later on, inhabitants of the prefab estates also started to move to the newly renovated old built-up areas in the inner city.

The residential suburbanization developed ‚hand in hand‘ with commercial developments that drew purchase power and a work force from the city of Halle although the planned numbers of newly employed persons was never realized. A good example for such a suburban commercial development that also brought about also residential suburbanization is the shopping mall “Halle Center Peissen” situated in the northeast of Halle. It was opened in 1993 and offers 36,000 m<sup>2</sup> sales area and

2,800 parking lots (Figure 2.2.3). Another development situated between the cities Halle and Leipzig represents the “Nova Eventis” (it was formerly called Saalepark) in the municipality Güntersdorf to the West of Merseburg. In 1989 the municipality had 424 inhabitants and most of them were rural people. In 2003, it had 1,194 inhabitants, and most of them were no longer rural people. „Nova Eventis“ has a shopping surface of 125,000 square metres (bigger than the whole inner city of Halle and one of the biggest in the whole of Germany, see Kaiser et al. 2006, 219) and a multiplex cinema. It saw a restructuring and modernization in the 2000s and represents now a complex mix of discount and higher class shopping, services and leisure.

The city of Halle is, in contrast to Leipzig, facing the problem that it did not succeed in enlarging its territory after 1989. There is a clear directive by the government of the federal country Sachsen-Anhalt that there will not be administrative enlargements of the urban territory of Halle against the vote of the affected municipalities. The surrounding municipalities, by contrast, are forced to form bigger units. Subsequently, the city has a very limited chance to get new tax revenues and to develop new territories at its outer boundaries for attracting business and investments. According to local stakeholders, the cooperation between Halle and its surrounding municipalities has been damaged by the conflicting interests concerning administrative reforms (see note 1). Since 2005 there has been a discussion about the formation of a special purpose association consisting of Halle and the 34 municipalities of two surrounding districts for a common regional planning association but there are doubts about whether such an association will come into play on a voluntary base (HCC 2008c, 82-83). Today, the relationships between Halle and its suburban zone are mainly characterized by the consequences of suburbanization: shopping parks, residential developments at the edge of rural settlements and commuters.

### **B.3. IMPACTS AND CONSEQUENCES OF URBAN SHRINKAGE**

#### ***B.3.1. Patterns of segregation and social cohesion***

*The specifics of Halle: 'postsocialist segregation' and housing market supply surplus*

To understand the development of socio-spatial differentiation and today's patterns of socio-spatial segregation in Halle<sup>8</sup>, one has to consider two facts:

- Halle's socialist past and its impact on segregation and
- the specifics of Halle's 'supply surplus' housing market.

During the period of state socialism, there was a low level of socio-spatial differentiation and segregation. From the late 1960s onwards, a part of the population of Halle moved to the new build housing estates of Halle-Neustadt; this mainly consisted of younger households with small children (Fliegner 2006, 84). The housing standard was higher in Halle-Neustadt than in most of the old built-up areas in the old city which suffered from progressing dilapidation. Generally, hence, the inhabitants of Halle-Neustadt were not only younger but also disposed of a higher education level and income than the dwellers of the old city. The same is true for Halle-Silberhöhe, the other big prefab housing estate south of the city centre. A high percentage of highly educated inhabitants and parts of the GDR scientific and technical intelligence lived here, too.

After 1989, the situation changed. As a consequence of population decline and an oversupply of flats due to renovation, newly built housing and increasing vacancies in the 1990s, Halle developed into a housing market with supply surplus (see also section 3.4. of this report). The emergence of housing vacancies led to falling rents/prices and a greater choice in terms of housing for a variety of residential groups. Subsequently, residential mobility increased and was at a higher level than in most West German cities (see part C of this report). Selective processes of out- and in-migration led to a differentiation of the socio-economic structure of Halle's population and a re-arrangement and strengthening of patterns of segregation. While some parts of the city (Halle-Neustadt, Silberhöhe, Heide-Nord, the prefab estates) have seen a constant process of out-migration of well-educated, young population, among them many families, in the last few years other parts have seen in the last years in-migration and social up-grading, mostly in the more attractive, meanwhile renovated pre-war inner-city areas as well as areas with newly built housing in the northwest of the city (Raschke and Schultz 2006, 55).

According to local researchers and stakeholders, processes of in- and out-migration were mostly in line with processes of social up- and downgrading as well as low and high shares of housing vacancies, respectively (see also section 3.4 of this report). While processes of differentiation remained moderate until the second half of the 1990s, they showed the highest dynamics during the second half of the 1990s and in the early 2000s. The recent years brought a consolidation of these patterns (HCC 2008c,

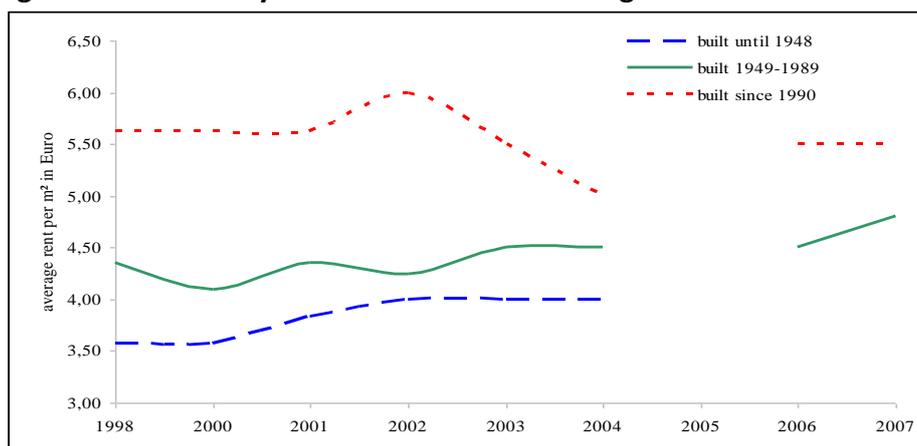
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<sup>8</sup> For the definition of processes of socio-spatial differentiation and patterns of socio-spatial segregation as a result of these processes see Rink (1997).

15; Harth 1997, 338-339 and 357). Today, residential segregation in Halle has reached a level where local stakeholders speak of a 're-arrangement' of social groups in the city.<sup>9</sup>

Housing costs in Halle are generally moderate due to the supply surplus (Figure 3.1.1). However this does not apply to all housing market segments: the highest costs are to be paid for post-1990 flats, the lowest for pre-1948 housing although in this segment the costs slightly increased until 2004. Housing in prefab housing built between 1948 and 1989 also became slightly more expensive; for this segment, housing costs had always been higher than for old built-up housing. While during the last few years the rents for low-price housing remained stable, they slightly increased for middle- and high-quality locations. This also increases the danger of exclusionary displacement of lower income groups from those areas. Like in Leipzig, Halle's housing market has seen a decrease in housing mobility in recent years (after 2004) both concerning housing mobility within the same district as well as between districts. This could be a further sign for a stronger segmentation of the housing market and a limitation of relocation opportunities for particular groups of residents not regarding at the overall supply surplus.

**Figure 3.1.1 Monthly net-rent in Halle according to date of construction**



Source: UFZ database

With respect to socio-spatial segregation, we understand supply surplus as a situation where there are more inhabitable dwellings than households available on the housing market. The supply is, subsequently, higher than the demand (Rink et al. 2010). Since most studies on socio-spatial segregation refer to the context of housing markets with demand surplus, the question about whether supply surplus changes processes of differentiation and patterns of segregation has been under-researched up to now. The few existing studies are contradictory in its assumptions or conclusions and say either that the segregation under the conditions of supply surplus at the city level is stronger or that it is – according to the same context – weaker. Some studies underline that the level of segregation of certain groups of population (low income households, unemployed, older people, migrants) is more pronounced in cities with housing vacancies and a declining population.

<sup>9</sup> See note 1.

*'Postsocialist' differentiation, re-arrangements and segregation*

Looking at the period from 1990 to today, socio-spatial differences between the urban districts of Halle districts have increased (Raschke and Schultz 2006, 53-56).

Residential segregation in Halle is – comparable to the situation in Leipzig – strong in its socio-economic dimension. Generally, the share of inhabitants who depend on social benefits increased considerably during the second half of the 1990s. In the areas with the highest out-migration rates, i.e. the prefab areas, two phases could be observed: as a result of selective out-migration during the 1990s, firstly, a population with above-average values of low income and unemployment remained ('filtering down'). Here, the proportion of households living on social benefits are – together with the industrialized southern and south-eastern parts of the inner city - the highest in the city (HCC 2008c, 23). Secondly, the social and labour market reforms of 2004 (Hartz IV) led to a consolidation and partial strengthening of differences between districts with higher and lower unemployment.

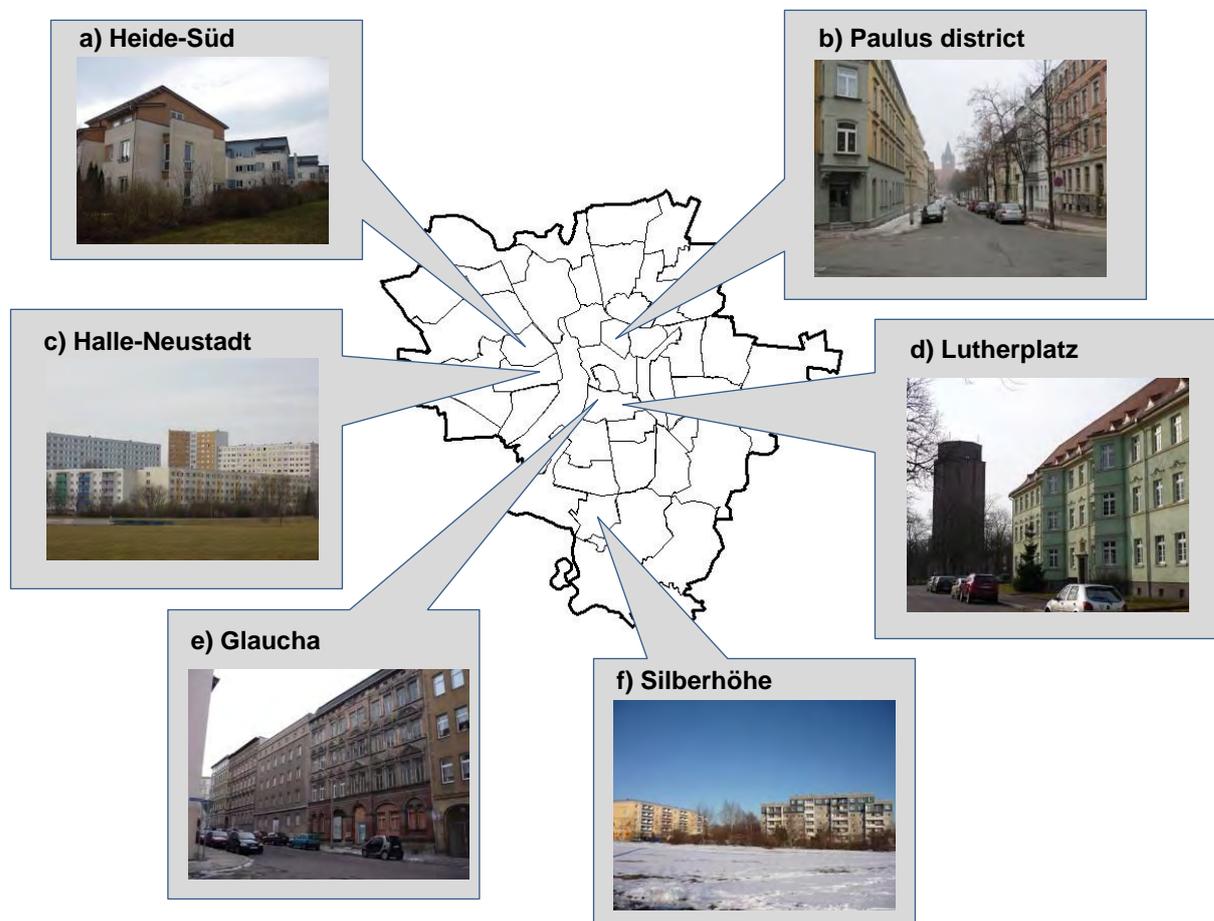
With respect to the district level, Halle's population became more segregated after 1989.<sup>10</sup> There are different processes of segregation to be observed: While, firstly, the northern and western parts of the inner city see processes of upgrading and an influx of better-off population (e.g. Paulus, Mühlweg, Giebichenstein district), the eastern and southern parts (e.g. Südstadt, Glaucha) have undergone processes of deterioration and show high vacancy rates. Generally, the large housing estates (e.g. Halle-Neustadt, Silberhöhe) are, secondly, characterized by selective out-migration, ageing in place and an increasing concentration of low-income households. Thirdly Halle-Neustadt continues to become more differentiated: while its northern part stabilizes, the southern part become more and more a focus of vacancies, demolition and home to low-income households. Outer districts and those with a predominance of post-1990 building stock (e.g. Heide-Süd) stock can be characterized as socially mixed without high concentrations of housing vacancies, better-off or low-income households.

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<sup>10</sup> See note 1.

**Figure 3.1.2: Districts of Halle**

The map shows the administrative borders of Leipzig's urban districts and some examples of districts mentioned in the text: a) Heide Süd; b) Paulus district; c) Halle Neustadt; d) Lutherplatz; e) Glaucha; f) Silberhöhe.



Source: Johanna Ludwig (map layout and photos except b)) and Dieter Rink (photo b))

Those areas that benefit from in-migration, i.e. the most attractive old built-up areas in the inner city and areas with newly built housing in outer parts of the city, see an above-average influx of better educated and higher income households. In this way, the differences between areas 'at the poles' are continuously increasing. Districts in the northern parts of the inner city with a valuable building stock of the *Gründerzeit* or Wilhelminian period or at least parts of them are undergoing gentrification processes (Glorius, 2006; Friedrich 2000). At the same time, the housing function in these areas is increasingly displaced by services like lawyer's offices, surgeries, real estate and tax adviser offices as well as offices of consultants, architects and artists. This is particularly the case for the northern district Giebichenstein of Halle.

Generally speaking, the trends of socio-economic segregation in Halle are assessed as indices for an increasing 'de-mixing'. The consolidation of some areas clearly leads to the (exclusionary) displacement of low income households into those areas where

they can find appropriate housing (see Marcuse 1985). The differences between stabilizing districts and those that are constantly losing population will probably increase in the next few years; 'problem areas' will continue to exist in the prefabricated areas but also in the eastern and southern parts of the inner city. It is mentioned as a prior challenge for urban planners, municipal policy and actors involved in the housing market. The same is true for the increasing share of the 'working poor' and other inhabitants with a 'precarious' income situation, among them increasingly migrants (HCC 2008c, 25).

Age-specific segregation patterns are partly in line with patterns of social segregation since the population of the prefabricated housing areas is strongly ageing due to the out-migration of younger households. Those who stay are to a significant extent the first generation dwellers and those who already have lived here for a long time and 'aged' together with the housing estates (ageing in place). Since the natural decrease will become more and more important as a source of population loss in Halle in the future, age-specific segregation could increase. Ethnic segregation does not play an important role in Halle since the number and shares of migrants is rather low (in 2008, the overall share of migrants was 3.9 per cent; see section 2.1 of this report). Their proportions are the highest in the inner city (about 7 per cent in 2006), in some inner-city neighbourhoods they even reached values of >10 per cent. During the 2000s, an influx of migrants to the southern part of Halle-Neustadt could be observed, too (share 2008: 9 per cent; HCC 2008c, 21).

#### *Impact of urban shrinkage on socio-spatial segregation*

According to our knowledge up to now, we conclude that there is an impact of supply surplus on the dynamics of residential segregation but not on all its dimensions. It is the strongest in the case of the socio-economic dimension (high vacancy rates are often in line with high shares of unemployed persons and low income population and vice versa), and visible also in its age-specific dimension (at least for the role of ageing in different parts of the city). Like in Leipzig, there is a certain 'postponement' of the impact of housing vacancies on re-arranging or changing patterns of residential segregation since the supply surplus with its consequences (low housing costs and greater choice) had to be there before a rise in residential mobility could start. Since Halle continues to lose population, it faces a twofold challenge: On the one hand, it has to cope with the consequences of urban shrinkage of the last two decades. On the other hand, it has to plan with further population losses what brings up questions of right-sizing and adaptation of supplies to decreasing and specifying demands. Last mentioned will get probably even stronger segregated over the city's territory in future than today. In the 2000s, the increasing segmentation of the housing market has led also in Halle to housing shortages in particular areas/segments whereas supply surplus remains in others (not supply surplus in all places!). Generally, the 'supply surplus' context represents a dynamic one: While the 1990s were the phase of re-arrangement of the housing market, the 2000s were the phase of a certain consolidation of patterns which had evolved in the late 1990s as well as and new restrictions (Rink et al. 2010; see the Leipzig related part A of this report).

### **B.3.2. Business and employment**

*Please note: With the aim of improving readability, this chapter discusses both the economic development of Halle as a causal factor for shrinkage, and the development of business in Halle as a consequence of shrinkage. Thus, chapters 2.2. and 3.2. go as one.*

### **B.3.3. Social infrastructure and education**

Urban shrinkage has an impact on the demand for social infrastructure: while it decreases in areas with population outflow and high shares of housing vacancies, it increases in stabilizing and growing areas, mainly due to selective in-migration (e.g. of young families to particular districts, see also sections 2.1 and 3.1 of this report). Subsequently, the distribution of much social infrastructures is characterized by areas of under- and oversupply across the city's territory. Urban shrinkage does not generally mean supply surplus. In the case of Halle it means – like in Leipzig - a selective pattern of district-related under- or oversupply. The main challenge for the municipality for the next years it will be to adapt the supply to the areas of demand.

The planning of the demand for social infrastructures faces considerable challenges due to population losses, decreasing birth rates, ageing and selective migrations. While in some areas (e.g. schools) the demand is decreasing due to smaller cohorts, in others (e.g. pensioners' care) it increases due to the progressing ageing of the urban population which is especially striking in Halle as a consequence of negative natural growth and selective (family) out-migration (HCC 2008c, 59). There are shifting demands for specific infrastructures in particular areas of the city. While at the edges of the city a thinning-out processes of infrastructures can be observed, they get more and more concentrated in inner-city areas. The adaptation of the offer of social infrastructures already started in the 1990s, at that time 'adaptation to decreasing demand or decreasing population development' was the synonym of 'urban shrinkage'.<sup>11</sup> The closure of social infrastructures was, however, not always due to a sinking demand but also to other issues such as technical conditions of the buildings and ownership issues (e.g. restitution, an issue that was especially important for kindergartens or so that were situated in inner-city villas or old built-up stock). The priorities of current planning are

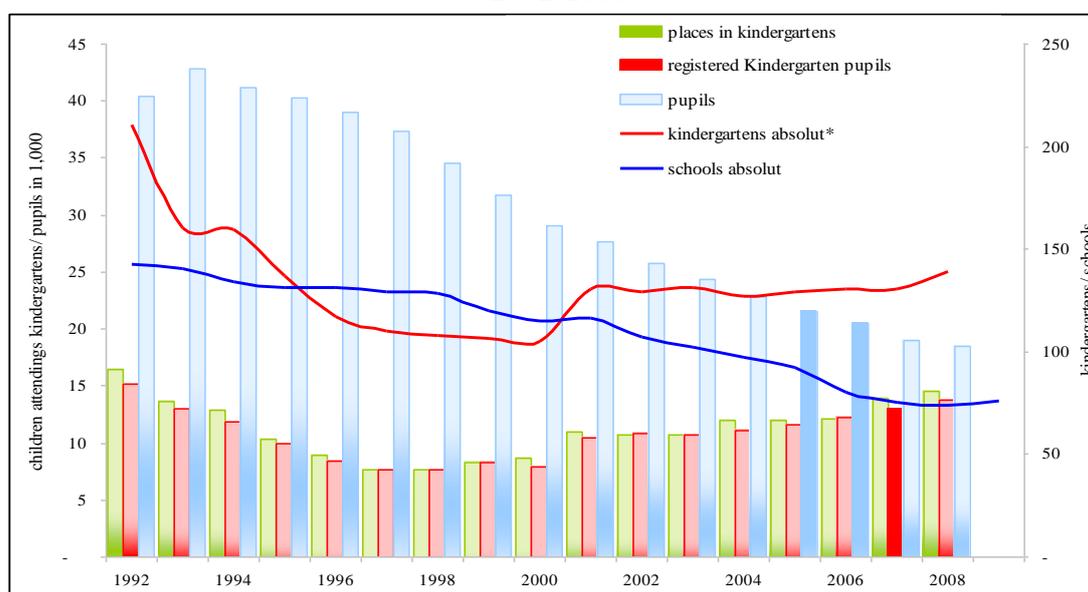
- to ensure the supply with social infrastructure at a lower quantitative level but also for all inhabitants which should be reached by a concentration of services and multiple use of locations;
- to provide services in all urban districts and to adapt the services to the groups of demand in particular neighbourhoods (e.g. characterized by large percentages of children in kindergarten or school age or old people; cf. HCC 2008c, 59).

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<sup>11</sup> See note 1.

The number of kindergartens decreased from 1992 to 2000 from 210 to 105. From 2001 until 2008, it increased from 130 to 139. Accordingly, the number of places offered decreased in the 1990s and increased again in the 2000s (2008: 15,000). The number of attendants was at 14,000 in 2008, it had always been lower than the number of offered places, a sign of a slight general oversupply. In other words: although many kindergartens have been closed since 1990, the city still disposes of a dense network of locations, and the demand is covered by the supply (Figure 3.3.1; HCC 2008c, 62-63). Due to stable (although low) birth rates in the future, the demand will remain stable for the next years but will probably decrease in the future due to the downsizing of young age groups. In the inner city, due to young immigration, there is an increasing demand for kindergarten places. Therefore, there is at the moment an undersupply in the north-western area of the inner city that cannot be covered by the existing services.

**Figure 3.3.1: Kindergartens and schools in Halle: number of places and attendants 1992-2008**



\* from 2001 including nurseries in primary schools

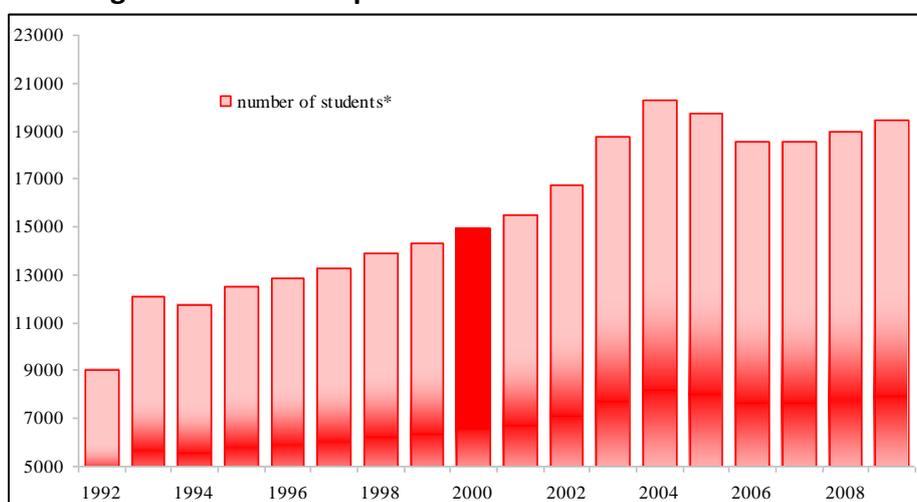
Source: UFZ database

Like in Leipzig, in Halle the number of pupils decreased, mainly due to a decrease of pupils and school enrolments, too, from 1992 to 2004 by 50 per cent from 42,000 to 23,000. Accordingly, the number of schools decreased from 1992 to 2008 from 142 to 74, the number of primary schools from 2000 to 2008 from 49 to 39 (Figure 3.3.1). The current strategy of urban planning of the city sees the challenge in providing a convenient supply of all pupils across the city's territory by different types of schools. The problem is not the overall number of pupils (which decreased) but the differing population density of the school districts and the objective of planning to create 'stable' school locations due to economic reasons. The network of secondary schools will be challenged by a decreasing number of pupils due to smaller cohorts in the next years. Out of 17 secondary schools that existed in 2004/5, only one half will remain in the near future (HCC 2008c, 60-61). The number of school enrolments, by contrast,

slightly increased during the last few years, from 1,250 in 2001/2 to 1,547 in 2008/9. This is due to young in-migration and a stabilization of birth rates in the 2000s.

The number of attendants of vocational schools has remained stable until the late 2000s. For the near future, there will be a decrease due to smaller cohorts, too. Halle represents an important university hub in eastern Germany (students mainly come from the federal countries Saxony-Anhalt, Saxony and Thuringia), the number of students gradually increased after 1994 and reached a maximum with 20,275 students in 2004. Since 2004, a restricted admission for particular subjects (*numerus clausus*) has been introduced gradually – which explains the slight decrease of the number of students until 2007. In 2008 and 2009, there was a slight increase again without reaching the maximum number of 2004. By end of 2009, Halle had 19,435 students (Figure 3.3.2).

**Figure 3.3.2: Development of number of students in Halle**



\* including Martin-Luther University Halle-Wittenberg, university of art and design and parts of the technical university of Merseburg

Source: UFZ database

The number of doctors increased from 1996 (750) to 2008 (1,750). Today the population is better supplied with medical care: the relation doctor/1,000 inhabitants increased from 1996-2008 from 3 to 8. The supply with general practitioners and medical specialists differs considerably between the urban districts. The best supply exists (still) in the large housing estates (HCC 2008a, 234 and 236).

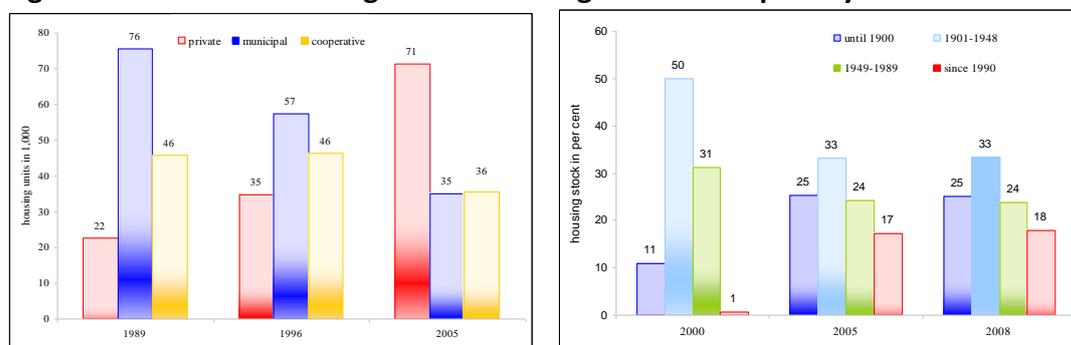
### **B.3.4 Housing**

Comparable to Leipzig, urban shrinkage is also perceived in Halle to be mainly a problem of the housing market, too. Subsequently, the discussion about 'shrinkage' got into the public debate with the first reports on housing vacancies (in 2000 after the report of the federal commission dealing with housing vacancies in eastern Germany, Kommission 2000). Until today, the housing market perspective is the predominating one when dealing with urban shrinkage in Halle, all the more because

of the fact that the city will continue to lose inhabitants in the future and the necessity of further demolitions of housing stock in the years to come. In contrast to the housing market perspective, and similar to the situation in Leipzig, others dimensions of urban shrinkage are possibly underestimated in their importance because of the predominance of the ‘vacancy issue’.

Compared to Leipzig, Halle’s housing market is characterized by a larger share of prefab houses (despite of demolitions, see also Breuste, J. and I. 2006, 173). In 2008, prefabs showed the largest share (33 per cent) while pre-1948 and post-1990 building stock had shares of about 25 (Figure 3.4.1 right). As in Leipzig, most houses are multi-family tenements. There is a high but decreasing share of multi-story housing; detached housing plays a role only in some outer districts of the city. Due to demolition activities in the large housing estates and newly built housing, the share of prefab housing decreased from 52 to 45 per cent from 1989 until 2006; the share of old built-up stock amounts up to 42 per cent. Although the share of owner-occupied housing has nearly doubled since the early 1990s, it was not more than 16.2 per cent in 2007 which means that the overwhelming majority of the housing stock is tenements. About half of the housing stock is municipal or cooperative property, the other half is privately owned. From 2000 to 2008, the stock of flats reduced by 9,000 flats (from 154,000 to 145,000). As demolitions have nearly exclusively taken place in municipal or cooperative properties this has also led to a rise in the share of private ownership in the housing market (Figure 3.4.1 left).

**Figure 3.4.1: Halle’s housing stock according to ownership and year of construction**



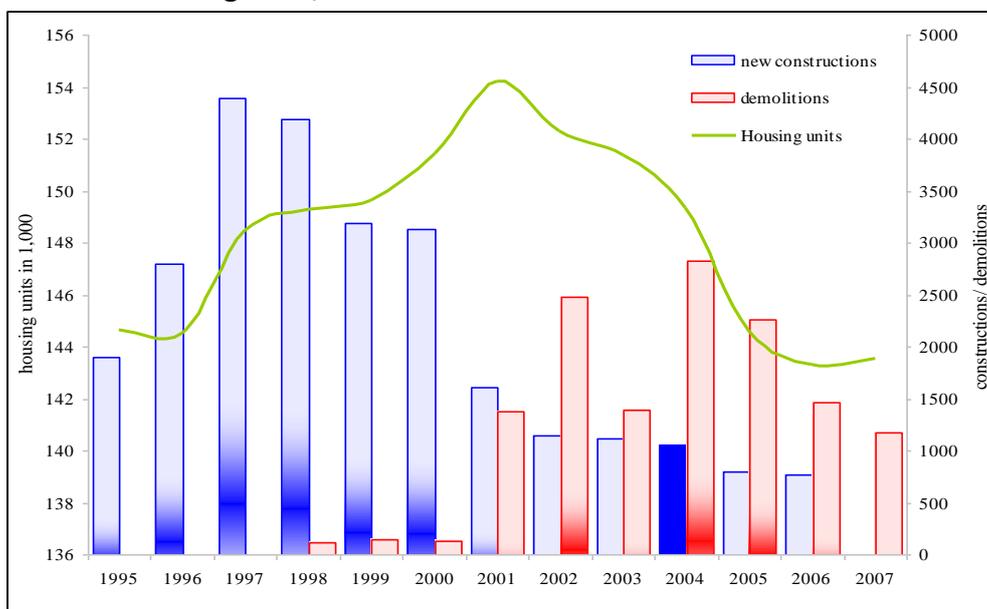
Source: UFZ database

Before 1990, housing conditions in Halle were fairly problematic. Although the overall housing stock has been massively expanded in the 1970s and 1980s, in Halle’s ‘old part’ as well as in Halle-Neustadt, housing shortage was still a problem. Moreover, the construction of prefab houses at the periphery occurred at the cost of maintenance in the inner-city. As large parts inner-city neighbourhoods were planned to be redeveloped, old building structures were neglected and thus lack of maintenance and vacancies were already an immense problem in the 1980s. Altogether, it is estimated that more than 10,000 apartments in the old built-up areas were vacant at that time (HCC 2008c, 35).

As in Leipzig, the situation changed decisively after 1990. Supported by massive subsidies both old buildings were renovated and new homes built, nearly half of

them outside but in close proximity to the city. With a decreasing population, the number of housing units was thus expanded by roughly 26,000 between 1995 and 2006 in Halle and its surrounding area (Figure 3.4.2 and Table 3.4.2). Especially the second half of the 1990s saw a ‘boom’ of newly built housing (both detached and multi-storey) in the city and its surroundings (HCC 2008c, 27). At the same time the population number decreased, and so did the number of households (see section 2.1 of this report).

**Figure 3.4.2: Housing units, new constructions and demolitions in Halle 1989-2007**



Source: UFZ database

**Table 3.4.2: New constructions in Halle and its surroundings 1995-2006**

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	1995-2006
<b>Halle</b>													
Units in one- or two-family houses	197	145	482	231	307	657	407	218	309	397	247	251	3848
Units in multi-family houses	835	1273	2143	1905	1324	1100	551	297	218	269	187	143	10245
<b>Total</b>	<b>1032</b>	<b>1418</b>	<b>2625</b>	<b>2136</b>	<b>1631</b>	<b>1757</b>	<b>958</b>	<b>515</b>	<b>527</b>	<b>666</b>	<b>434</b>	<b>394</b>	<b>14093</b>
<i>Share (%)</i>	54,5	50,7	59,9	51,1	51,1	56,2	59,3	45,1	47,4	64,2	54,1	51,0	54,1
<b>Suburban region</b>													
Units in one- or two-family houses	558	775	865	1541	1238	1160	596	580	544	n.a.	n.a.	n.a.	n.a.
Units in multi-family houses	303	602	895	506	325	211	61	46	41	n.a.	n.a.	n.a.	n.a.
<b>Total</b>	<b>861</b>	<b>1377</b>	<b>1760</b>	<b>2047</b>	<b>1563</b>	<b>1371</b>	<b>657</b>	<b>626</b>	<b>585</b>	<b>372</b>	<b>368</b>	<b>378</b>	<b>11965</b>
<i>Share (%)</i>	45,5	49,3	40,1	48,9	48,9	43,8	40,7	54,9	52,6	35,8	45,9	49,0	45,9
<b>Total</b>	<b>1893</b>	<b>2795</b>	<b>4385</b>	<b>4183</b>	<b>3194</b>	<b>3128</b>	<b>1615</b>	<b>1141</b>	<b>1112</b>	<b>1038</b>	<b>802</b>	<b>772</b>	<b>26058</b>

Source: UFZ database and authors' calculations

As in Leipzig, this led to high vacancy rates with the accompanying problems of devaluation, under maintenance and perforation of existing structures. While housing vacancies in the old built-up areas existed mainly because of under

maintenance, vacancies in the large housing estates developed in the second half of the 1990s due to out-migration and changing housing preferences in a situation of supply surplus (see section 3.4 of the Leipzig report). At the peak in 2003 more than 31,000 vacant flats, or one fifth of the whole housing stock, were counted (Table 3.4.3, HCC 2007d, 33). It is only very recently that Halle has faced a slight relaxation of the situation. Until 2008, the vacancies were reduced to 21,000 flats (14 per cent of the whole stock), nearly equally shared between private landlords and the municipal and cooperative companies. The reasons for this development are the intensive demolitions of vacant apartments on the one hand, and a reduced level of population losses on the other.

Like in Leipzig, not all parts of Halle are affected evenly by housing vacancies. While the more attractive old built-up areas have almost no vacancies, the industrialized eastern parts of the inner city face vacancy rates up to 25 per cent and more. In the prefabricated housing estates, vacancy rates could be reduced due to demolition. The development strategy of the city in 2008 concludes that hitherto demolitions did not finally release the problem of housing vacancies but only limited it to an “agreeable level” (HCC 2008c, 37) and that for the future further demolitions are unavoidable since household numbers and thus the demand will decrease (again) considerably after 2010. According to a municipal survey that was carried out in 2005, the current housing demand differs (and increasingly polarizes) due to age groups and life cycle phases: while young households prefer to live in old built-up stock, families prefer newly built housing. The older age groups are those who also show preferences to stay in prefabricated flats. Generally, the demand for prefabricated housing is weak. While in some housing segments there is a supply surplus, in others, especially in housing for low income households, there is a demand surplus, which is in line with the trends of impoverishment of parts of the population (see section 3.1 of this report and HCC 2008c, 34-35). As reurbanisation trends are much less pronounced than in Leipzig (see section 3.4 of part A of this report), more than 9,000 additional flats are planned to be demolished in Halle within the near future. Local scholars claim that further demolitions are the only possible solution to reduce the supply surplus in Halle (Breuste, J. and I. 2006; Fliegner 2006; see note 1).

**Table 3.4.3: Housing vacancies in Halle**

Date	1990***	1995	2001	2002	2003	2004	2005	2006	2007		
									total	Municipal housing companies	Other owners
Vacant flats	10,000	14,701	29,176	30,178	29,943	26,065	24,117	22,991	22,834	10,208	12,626
Per cent of total stock	0.7	10.1	19.3	20.0	20.7	17.2	16.7	16.0	15.9	15.4	16.4
Change total	n.a.	4,701	2,577	1,002	-235	-3,878	-1,948	-1,126	-157	-7,400*	56**
Change in %	n.a.	n.a.	9.7	3.4	-0.8	-13.0	-7.5	-4.7	-0.7	-42.0	0.4

\* related to stock in 2000;

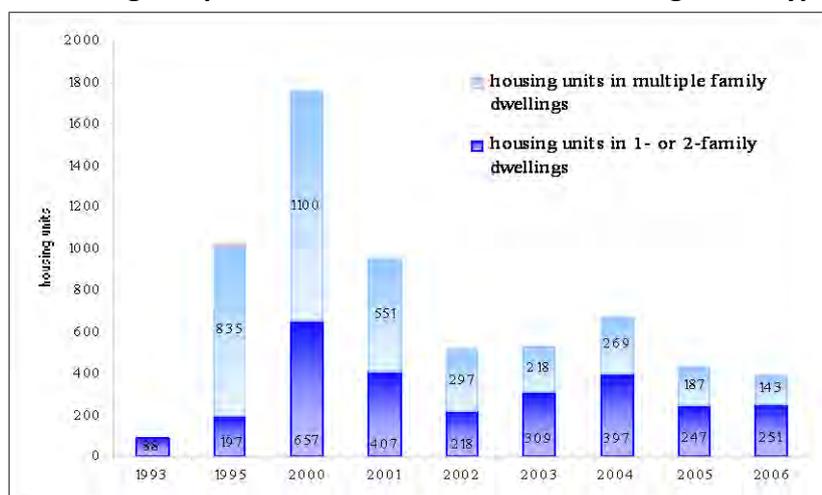
\*\* related to stock in 2002; \*\*\* related to old built-up stock, the percentage was calculated based on the housing stock of 1995 (145,554 housing units)

Source: UFZ database

In order to counter these high vacancies, Halle (like nearly all other East German municipalities) participated in the federal programme “Stadtumbau Ost” and undertook serious efforts to demolish vacant apartments. The programme considerably supported demolition activities and contributed to the decrease in housing stock (from 154,000 flats in 2000 to 145,000 in 2007). Further planning foresees on-going demolition activities; by 2015, 17,000 flats should be demolished (that means a further 8,000 after 2007). With respect to demolished housing, the number remained high during the last few years but they have slightly decreased after 2004 when with 2,688 flats the peak was reached (HCC 2007d, 20). Between 2001 and 2007 thus 9,118 housing units were demolished. 95 per cent of the demolitions were located in properties owned by the municipal company or housing cooperatives. In other words: demolitions are taking place almost exclusively in the large housing estates - only 4 per cent of the demolished flats were situated in old built-up stock (ibid., 22).

Regardless of the high vacancy rates and a decreasing population, the city of Halle continues to allocate land for building activities: In 2006, there was potential building area for 7,000 housing units, 66 per cent for detached housing and 33 per cent for multi-storey housing. 50 per cent of this potential building area already has planning permission. The number of building completions during recent years, however, remained at a very low level. While in the early 1990s, there were no constructions in the multi-storey sector at all, building completions were realized from 1994 to 2001 first and foremost in the multi-storey sector (Figure 3.4.3; HCC 2007d, 18). In the suburban zone, the same applies for new build detached housing. During the time period after 1989, there has been an increase in privately owned housing which, however, has remained at a very modest level up to present: In 2007, 3.7 per cent of all flats and 12.5 per cent of all houses were owner-occupied (16.2 per cent of owner-occupied housing in total). The increase was much higher in the suburban zone and the sector of detached housing.

**Figure 3.4.3: Building completions in Halle 1993-2006 according to the type of housing**

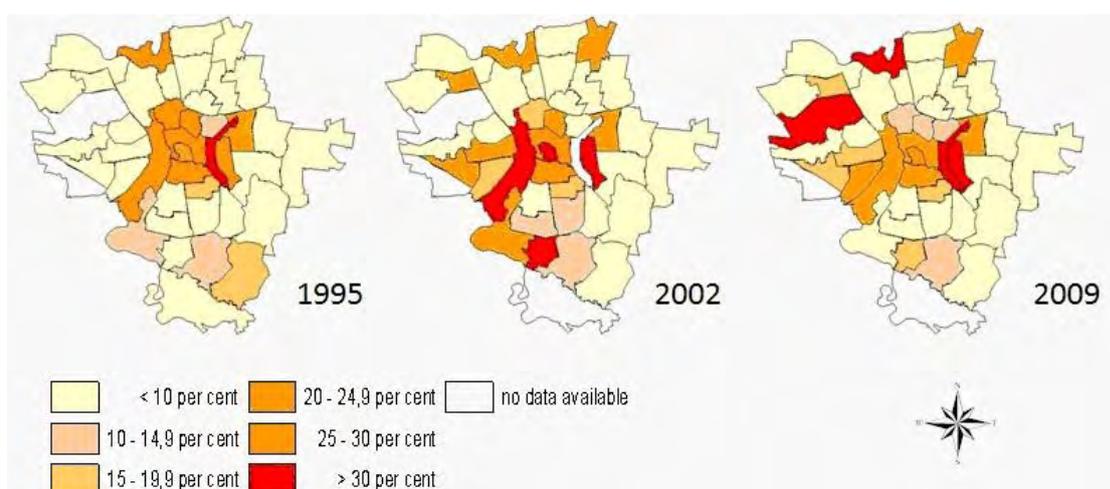


Source: UFZ database

Selective processes of out-migration and vacancy development have led to a segmentation of the housing market and have strengthened patterns of socio-spatial segregation that developed in the second half of the 1990s and consolidated in the 2000s (Raschke and Schultz 2006, 52; see section 3.1 of this report). From the mid 2000s onwards, housing mobility has decreased in Halle (HCC 2007d, 12). Like in Leipzig, urban districts especially hit by housing vacancies are also those with high rates of low income households and unemployed persons. Housing vacancies are concentrated in the prefab housing estates Halle-Neustadt (and there especially in the western part) and Halle-Silberhöhe as well as the eastern and south-eastern districts of the old built-up ring around the city centre (Figures 3.4.4, 3.4.5, 3.4.6; see also section B. 2.1 of this report).

Other areas are stabilizing; for instance it is the more attractive old built-up areas in the northern parts of the old built-up 'ring', areas with post-1990-developments and higher shares of detached housing in the outer parts of the city and also parts of Halle-Neustadt (its northern part). Here, vacancy rates have decreased in recent years and are partly below the city's average value. The population of Halle-Silberhöhe, a prefab district built mainly in the late 1970s and 1980s to the south of the old built-up city, by contrast, is expected to decrease to 15,000 inhabitants (from 38,000 in 1992) until 2010 and further down to 6-7,000 in 2025. It is planned to develop large forest areas on former plots of blocks; Halle-Silberhöhe will become a 'forest city' (Müller and Glorius 2008; see note 1). Nevertheless, and despite all demolitions, prefab housing areas will remain an important part of the local housing market of Halle (Breuste, J. and I. 2006, 173; see also Harth 1997, 345). Still, the larger part of housing vacancies is to be found in the inner city/old built-up stock (2007: 50 per cent of total), but the share of large housing estates is increasing (2007: 33 per cent of total) and soon the share will be balanced. While the focus of vacancies in the old built-up areas is in the northern and southern part of the inner city, in the large housing estates it is in Halle-Neustadt and the district of Silberhöhe (HCC 2007d, 53).

**Figure 3.4.4: Vacancy rates of Halle's districts 1995, 2002 and 2009**



*The map for 2009 shows a high vacancy rate for the north-western district Dölauer Heide which is due to the fact that there about half of very few buildings (one-family housing) are vacant.*

Source: UFZ database; map: Johanna Ludwig

**Figure 3.4.5: Housing demolition in a prefab housing estate**



Source: UFZ database

**Figure 3.4.6: Vacant old built-up housing**



Source: UFZ database

The living space per inhabitant increased – like in Leipzig – during the 1990; recently, this trend stopped (according to results of the municipal surveys). The increasing demand for 2-room flats corresponds with the rising share of one-person households. The demand for big flats increased up to the mid 2000s although the share of bigger households had already decreased considerably at that time – this is due to the fact that bigger households were extremely undersupplied with appropriate housing until 1989 and are still catching up today (HCC 2007d, 37). Independent of the size of the flat and the household type, the share of housing costs of the expenditures of households has considerably increased in Halle since 1989. For the future, there are coming up the following challenges for Halle' housing situation and market:

- Further demolitions are necessary, and for districts like Halle-Silberhöhe that are especially hit by shrinkage there will come up the debate will arise about minimum capacities that have to be maintained to keep them 'liveable'.
- There is the danger of a future undersupply of housing for low income households, a respective trend emerged first in the mid 2000s but will be (like in Leipzig, most probably, too) of bigger importance in the future. Currently, this segment shows the biggest demand surplus in Halle (HCC 2007d, 13-14).
- The construction of detached houses is the only case of new land consumption through housing in Halle. Forecasts foresee a decrease in this segment until 2015; afterwards a slight increase might occur again (HCC 2007d, 15).

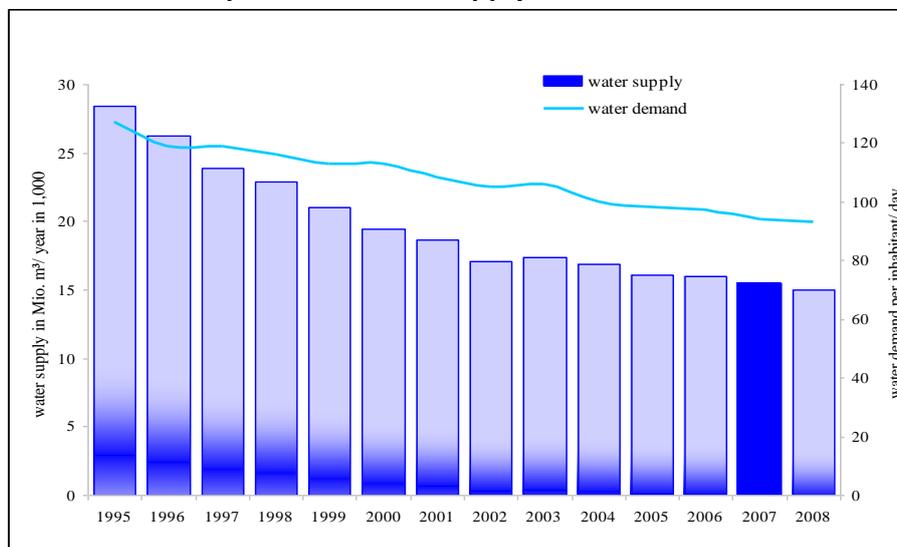
### B.3.5. Technical infrastructure

The consequences of population losses in Halle are not only widespread housing vacancies, but also a falling demand for water, as well as wastewater and garbage disposal, central heating and public transport. The essential parts of Halle's infrastructural grid have been built in a piecemeal manner for centuries in the old city of Halle, whereas they were planned and built following modernist paradigms in Halle-Neustadt only 40 years ago. As a consequence, infrastructural problems differ in some respects between the two halves of the city. Nevertheless, the common feature of Halle's infrastructure is an expansion of infrastructural amenities that goes together with a decrease in consumers. Thus, water demand has decreased from 13,3 Mio m<sup>3</sup> in 1995 to 7,9 Mio m<sup>3</sup> in 2008 (see Figure 3.5.1.); demand for central heating has gone down from 1,501 to 875 Gwh/year in the same period and residual waste has fallen from close to 270 kg/inhabitant in 2000 to 210kg/inhabitant in 2008 (HCC 2009a). At the same time, as a consequence of suburbanisation the infrastructural grid has been expanded. This has been most prominent in the case of the water network.

#### Water-network

Population losses, together with the collapse of large industrial customers and better technologies have reduced the overall consumption of water dramatically. Water demand in Halle has been nearly halved in the no more than one decade (see Figure 3.5.1.).

**Figure 3.5.1: Development of water supply and demand in Halle 1995-2008**



Source: UFZ database

At the same time, the overall grid has been slightly but continuously expanded from 1994 to 2004 (about 60 km), so that a falling water demand is met by an expansion of the supply network. This situation leads to numerous technical problems (Koziol 2004, 122-123) and presents a danger for the quality of water supply. However, in addition to technical problems, the adjustment of water-related infrastructure causes serious problems from an economic point of view. It generates high additional expenses, while revenues have declined (see part A of this report and

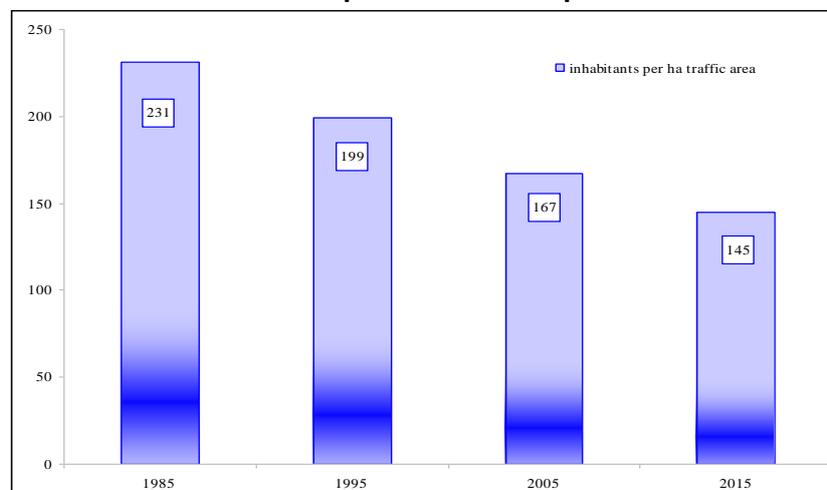
Naumann and Bernt 2009, Moss 2008).). Furthermore, the relation between fixed costs and revenues becomes problematic, because the overall water network has to be maintained for a falling number of consumers. As a result of these strains, the water suppliers are under pressure to increase fees, to postpone necessary investments, and to cut jobs.

In Halle, the situation is even complicated by the ongoing demolition programmes. Paradoxically, at least from an infrastructural point of view, demolitions are concentrated in prefab housing estates, hence the areas with younger, better maintained and less amortized networks, whereas inner city areas with significant maintenance backlogs are maintained. Moreover, the situation gets complicated by contradictions between infrastructural and economic logics in respect to the location of demolitions. Whereas connectivities play an immense role in piped networks, so that large-scale planning, instead of piecemeal incremental changes would be necessary from a technical point of view, properties are often fragmented and the willingness to cooperate in demolitions is different from owner to owner. Advantageous solutions in terms of infrastructure are therefore often practically impossible. Thus, “second best” and interim solutions have to be implemented with a tendency to worsen the mismatch between costs and revenues for the water-company. The water and wastewater supplier thus regularly calls for more coordination and long-term planning – with yet little success yet.

#### *Transport*

In the sector of transport the decreasing number of users leads to mismatch between existing infrastructures, as well as expenditures for maintenance and service and revenues. The number of passengers who used public transport per day decisively decreased immediately after 1989 until 1992; afterwards it remained more or less Table on a lower level. Altogether, the number of passengers per day fell from 320,000 in 1989, to 160,000 in 2008 – it thus decreased by 50 per cent. The resulting imbalance between existing space used for transportation and population Figures is shown in Figure 3.5.2.

**Figure 3.5.2: Number of inhabitants per hectare transportation area in Halle 1985-2015**



Source: UFZ database

The problem of oversized transportation structures is especially intensive in the prefab-areas of Halle, as these were built with especially spacious infrastructures in the 1970s and 1980s, and are now the neighbourhoods with the highest population losses in which demolitions are concentrated. In contrast to water networks and houses, deconstructing streets is made nearly impossible by numerous legal problems. Thus expenditures for maintenance and service (i.e. snow ploughing) remain on a high level even when streets are close to not being used anymore.

Another problem is the ongoing shift in the different parts of the modal split. Whereas in 1991 only 34 per cent of the transport in Halle was carried out by car, the share of transportation activities using individual motorized vehicles that transportation has increased to 45 per cent in 2005 (HCC 2007c: 72). This is, at least in part, caused by the impact of population losses and aging. The reason for this is that pedestrian traffic is not only individually less attractive with a growing age structure, but moreover, population decline and demolitions have led to a reduction of infrastructures and services, so that many ways cannot be handled on foot anymore. Again, this is especially problematic in prefab areas as these were built with a fairly centralised network of infrastructure and services. Pedestrian traffic thus declines strongly and is replaced by individualized motor traffic.

Public transport has not yet been reduced dramatically; nevertheless it is also burdened with a worsening of the balance between revenues and expenditures, as the number of passengers has continuously declined from 321,302 per day (1989) to 151,633 (2008). In some areas (e.g. the large housing estate Halle-Silberhöhe) demolitions of tenements have contributed to making public transport less attractive as they were conducted along existing rail lines, thus both reducing the number of potential passengers in close proximity and leaving wide, open areas for the way to the next station.

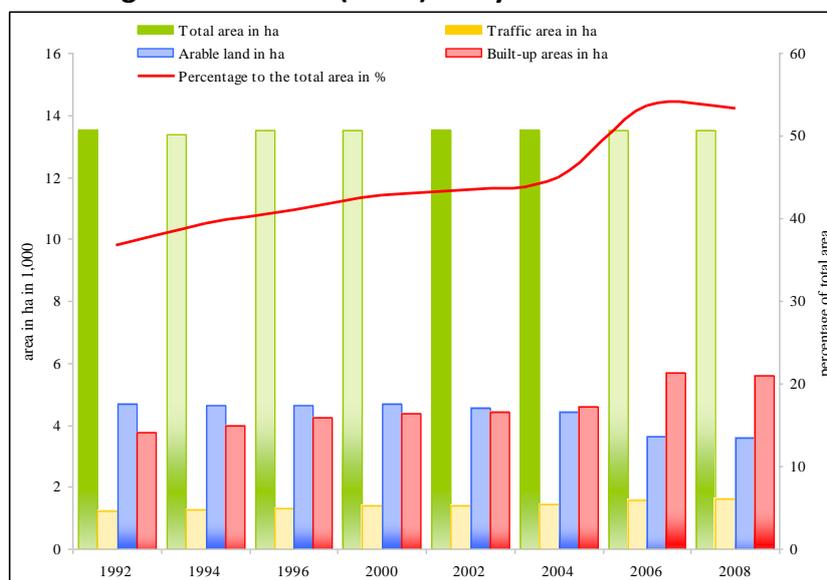
### ***B.3.6 Land use and environmental quality***

#### *New land uses in the city of Halle and the surroundings*

Like Leipzig, Halle is also a compact city, the city has a medieval part in the centre and is very densely built. The city experienced only little urban sprawl in the period after the Second World War, but was extended with a new big housing estate – Halle-Neustadt, an extreme densely built prefab housing estate for nearly 100,000 inhabitants. Whereas Halle-Neustadt grew in the period between the 1960s and the 1980s, the old town of Halle experienced serious decay and was partly demolished in the 1980s. The outcome was a fragmented land use-structure in the inner-city and a number of brownfields. During the 1990s, the creation of a number of small- and medium-scaled residential and commercial estates happened at the urban peripheries and in the wider surroundings. As a consequence the city sprawled despite of its population losses (see sections 2.1 and 2.3 of this report and Nuissl and Rink 2005). In contrast to Leipzig, Halle was neither able to regain the population through the incorporation of adjacent municipalities nor to force a reurbanization process. As Figure 3.6.1 shows, the land use structure changed over time. One can

observe an increase in built-up and traffic areas, whereas the share of arable land decreased. The changes of the built-up areas were remarkable especially in the time between 2004 and 2006 due to the rededication of former arable land. Since 2006 there has been a small decrease of built-up areas due to the process of restructuring and demolition in the city.

**Figure 3.6.1 Halle (Saale) – city area and land use**



Source: UFZ database

#### *Emergence of brownfields in the city*

As a consequence of the deindustrialisation process, a high number of brownfields emerged in the city. The largest number of these brownfields resulted from the breakdown of industry especially in the eastern parts of the city. These are especially industrial brownfields, but also include commercial and railway brownfields. Brownfields included 25 per cent of the total commercial area in the city in 2003 (254 ha) ranging from 2-75 ha and a 15-52 per cent share of the commercial area in total per district. For several years brownfields have appeared as a result of the demolition of houses in the inner city. In Halle the prefab housing estates like Halle-Neustadt or Halle-Silberhöhe are core areas of urban restructuring. But unlike in Leipzig there are also a number of housing brownfields also in inner-city old built-up districts (Figures 3.6.2 and 3.6.3).

In the course of urban restructuring, around 20 ha of brownfields have emerged since 2000 as a result of the demolition of housing (expert interview). Halle faces a high number of brownfields, but in contrast to Leipzig the city is not able to find new users for the open spaces. So many of them remain in a situation of decay and neglect and are becoming urban wilderness (Rink 2009). The city is trying to find new solutions for these areas; in the large housing estate *Halle-Silberhöhe* the city transforms the former built-up area successively into urban woodland. This is a low cost-strategy to produce new green spaces, but they are as well valuable for the inhabitants. The plan is not only to reduce the density of the built-up areas but to shrink the city from the peripheries to the city centre. The transformation process of

the district follows the leitmotif “forest town” *Silberhöhe* and designs the successive replacement of housing areas with forest within the next 15-20 years. Through stakeholder processes the inhabitants of *Silberhöhe* got involved in these restructuring and the leitmotif became highly accepted.

**Figure 3.6.2: Post-industrial brownfield**



Source: Johanna Ludwig

**Figures 3.6.3: Post-demolition brownfield**



Source: Dieter Rink and Johanna Ludwig

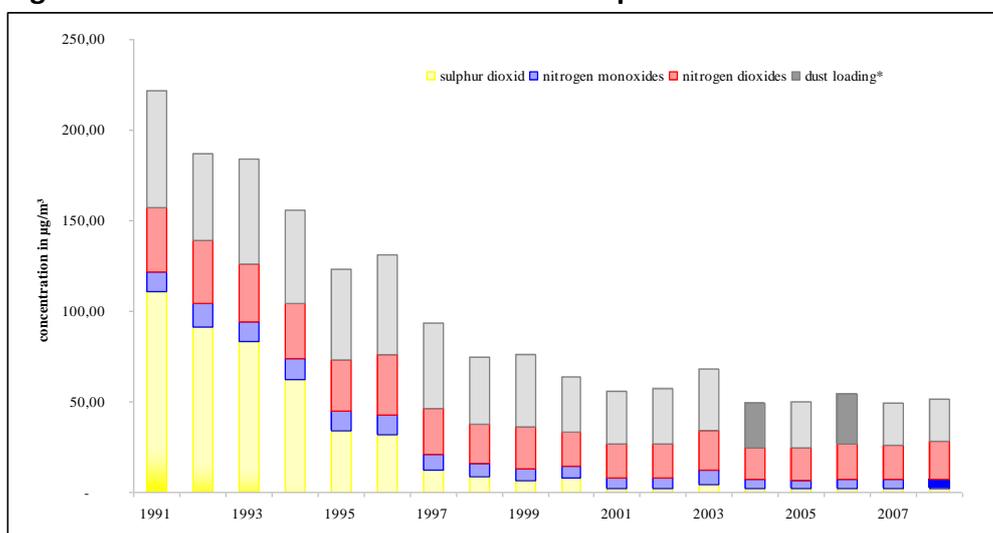
#### *Environmental quality*

The quality of the environment in Halle and the surrounding region was appalling during the lifetime of the GDR. Air pollution was severe due to the regional industries (especially the chemical, machine building and energy industries) and the Leipzig-Halle conurbation was one of the most badly polluted regions in Europe. The maximum air-pollution limits for almost all relevant chemicals were greatly exceeded. Nowadays, this problem has almost completely disappeared: The level of pollution significantly decreased due to almost complete deindustrialisation (Figure 3.6.4, see section 2.2 of this part of the report). At the same time, the structure of environmental loads changed significantly: Whereas today “classical” pollutants such as sulphur dioxides and particulate no longer cause severe problems, traffic-related pollutants such as benzene, soot, nitrogen oxide and ozone merit critical attention. This is also true for carbon dioxide, although emissions have decreased enormously since 1990 due to deindustrialisation and improvements in both the energy sector

and transport technologies. This relates to the considerable increase (“explosion”) in the motorisation rate in eastern Germany where the car traffic more than doubled after 1989. At the same time, noise pollution caused by traffic has become a problem in the residential areas along and close to the main roads.

Halle’s population benefitted as a whole from the decreasing pollution rates. The new environmental burdens caused by traffic have led to new foci of pollution on a small scale: it is mainly people living along the main transport axes who suffer from these new atmospheric loadings. This has led to two consequences: due to the supply surplus in housing, many flats along the main roads are vacant and quasi un-lettable because of the traffic and noise pollution. If they are inhabited, then it is by low-income households or social benefit recipients who have only a limited choice of where to live.

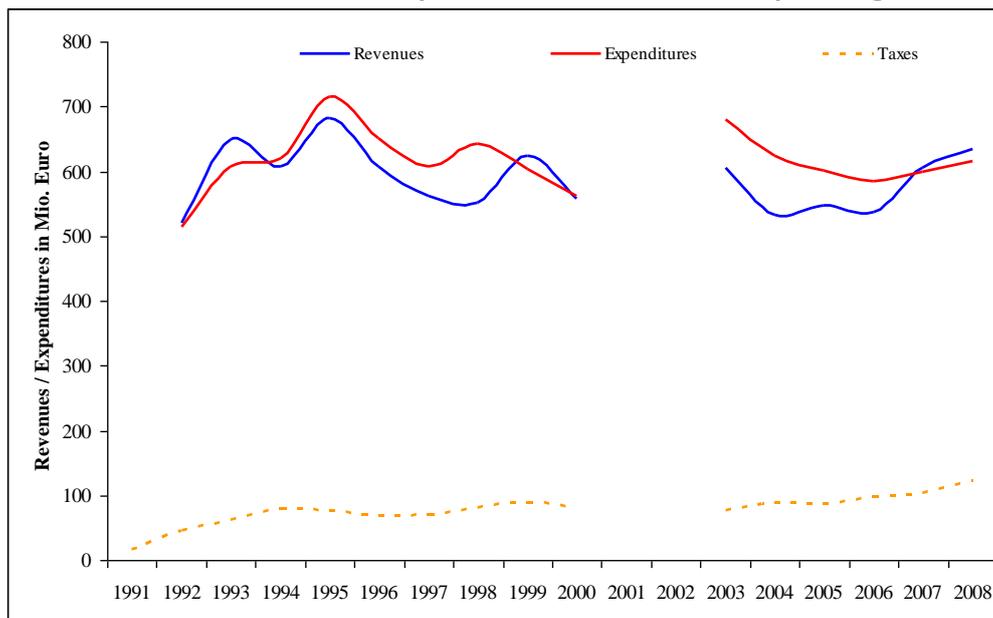
**Figure 3.6.4: Concentration of environmental pollutants in Halle 1991-2008**



Source: UFZ database (measuring point: city centre)

### ***B.3.7 Municipal finances and budget***

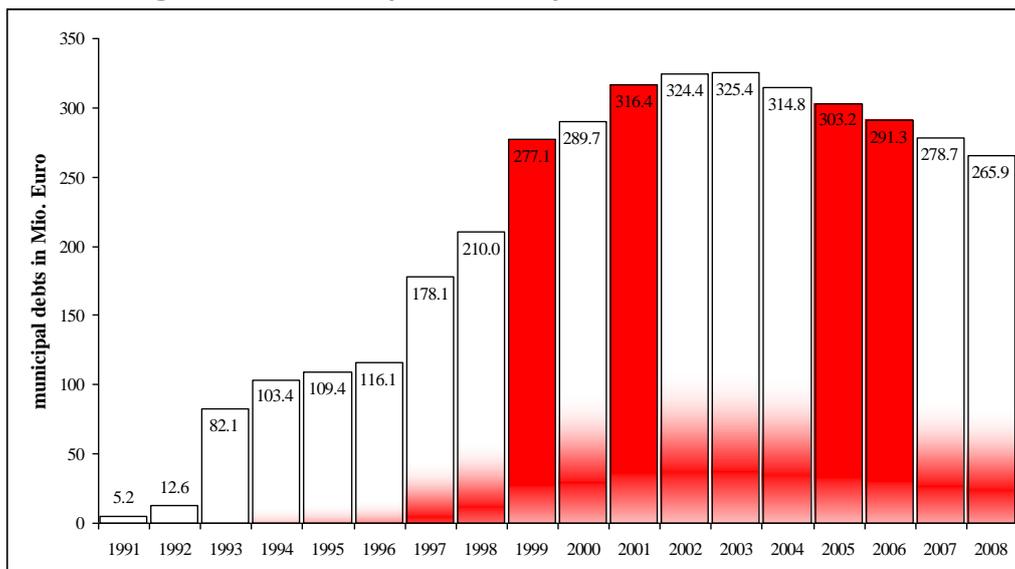
In Halle, data availability concerning municipal finances and budgets has proved to be more problematic than in Leipzig. In contrast to the Leipzig case study it is thus more difficult to give a detailed picture about the situation. The structure of the municipal budget in Halle is pretty much the same than as in Leipzig (see 3.7 of part A of this report). The most striking characteristic of the budget with respect to the revenue-situation is, that budget appropriations (by the federal government and the state of Saxony-Anhalt) from tax equalisation schemes are the most important source of revenue which makes up between a quarter and a third of the whole budget. At the same time autonomous municipal revenues have increased considerably, both as a consequence of economic recovery and a change in tax laws concerning business taxes (Figure 3.7.1). They make up about one fifth of the municipal revenues.

**Figure 3.7.1 Revenues, taxes and expenditures in Halle's municipal budget 1991-2008**

Source: UFZ database

However, incoming revenues hardly matched necessary expenditures during the analyzed period. Here, the biggest single items are personnel costs and social welfare. Despite immense wages increases in the period from 1991 until now, the City has managed to reduce the expenses for personnel. This has only been possible through a dramatic reduction of public service personnel, both through reorganization of existing administrations, outsourcing, and service-cuts. Expenditures for social welfare remain on a high level; they were particularly high in the early to mid-1990s when unemployment rates rocketed, and since the federal welfare reforms in 2003 when the obligations towards the unemployed were shifted from the federal state towards the municipalities.

All in all the city of Halle was able to stabilise the municipal budget on a level between 500 and 600 million Euro (see Figure 3.7.1). As neither tax equalisation schemes, nor additional subsidies were sufficient to close the gap between revenues and expenditures, in the early 1990s Halle started to take loans, primarily for infrastructural projects (hospitals, schools, the construction of streets and bridges and so on; Figure 3.7.2). At this time the necessity to go into debts was mainly justified by the immense backlog in nearly all sectors of public life. Infrastructural projects were financed using a mix of public grants, own revenues, and municipal loans. Similar to Leipzig, after 2003 Halle changed after 2003 towards a course of strong fiscal austerity and managed to reduce its liabilities (*ibid.*). As a consequence of this policy the debt-level is on a middle level and with a per-capita debt level of 1,152 Euro (in 2008) Halle ranges in the inter-municipal comparison not in the top group, but on a middle position.

**Figure 3.7.2 Development of dept level in Halle 1991-2008**

Source: UFZ database

The main characteristics of Halle's financial situation appear to be fairly similar to the situation in Leipzig and can be described as follows:

- Notwithstanding the system of financial equalisation and allocations of revenues, both autonomous taxes and funds received from upper levels of government are seriously affected by declining population numbers.
- At the same time expenditures remain on a high level. This is mainly due to an increase in social spending, as a consequence of the miserable economic situation and a number of additional tasks (like, for example, the adjustment of infrastructure or additional services for specific residential groups such as older people) that are caused by shrinkage.
- Thus, a structural gap between falling revenues and high expenditures emerges. Although Halle decreased expenditures with the help of strong politics of budgetary discipline, cuts on all sorts of spending and a reorganization of the administration, municipal efforts have proved to be unable to close this gap.
- As a consequence, Halle is in strong need of acquiring external resources to finance its projects. Within this context mainly three sources have been used: a) borrowing, b) participation in subsidy programmes from the federal country, federal government and EU, c) new financial instruments (Cross Border Leasing), often connected with high risks.

**B.4. ANNEX: DATABASE HALLE**

The following annex lists all data the Figures in the text of part B are based on.

**Figure 2.1.1: Population development of Halle (both parts) 1967-2008****Figure 2.1.2: Population development of Halle 'old part' and Halle-Neustadt 1967-2008**

Year	Halle core city*	Halle City	Halle-Neustadt	Halle total*
1967	265,985	265,985	12,645	278.630
1968	262,749	262,749	19,208	281.957
1969	259,957	259,957	27,898	287.855
1970	257,300	257,300	35,180	292.480
1971	254,452	254,452	43,040	297.492
1972	250,845	250,845	51,626	302.471
1973	245,681	245,681	60,379	306.060
1974	241,425	241,425	67,956	309.381
1975	237,349	237,349	74,871	312.220
1976	234,261	234,261	82,258	316.519
1977	231,480	231,480	89,268	320.748
1978	232,543	232,543	91,860	324,403
1979	232,297	232,297	93,140	325,437
1980	232,294	232,294	93,578	325,872
1981	232,396	232,396	93,763	326,159
1982	235,007	235,007	91,588	326,595
1983	236,139	236,139	91,510	327,649
1984	236,456	236,456	91,808	328,264
1985	235,377	235,377	92,660	328,037
1986	236,148	236,148	93,477	329,625
1987	235,350	235,350	93,931	329,281
1988	236,076	236,076	93,446	329,522
1989	230,834	230,834	90,956	321,790
1990	219,894	309,406	89,512	309,406
1991	n.a.	305,451	n.a.	305,451
1992	215,864	300,536	84,672	300,536
1993	211,938	295,741	83,803	295,741
1994	208,024	289,909	81,885	289,909
1995	202,883	282,349	79,466	282,349
1996	197,954	275,604	77,650	275,604
1997	194,867	267,776	72,909	267,776
1998	192,721	259,925	67,204	259,925
1999	191,093	253,224	62,131	253,224
2000	188,254	246,450	58,196	246,450
2001	186,114	241,710	55,596	241,710
2002	184,546	237,951	53,405	237,951
2003	186,093	238,078	51,985	238,078
2004	185,859	237,093	51,234	237,093
2005	185,666	235,959	50,293	235,959
2006	184,943	233,874	48,931	233,874
2007	184,684	232,267	47,583	232,267
2008	184,481	230,900	46,419	230,900

Source: HCC 1993a-2008a; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

**Figure 2.1.3: Natural population development and migration 1993-2007**

Year	Natural change	Migration balance
1993	-1,593	- 3,055
1994	-1,605	- 4,185
1995	-1,571	- 5,958
1996	-1,207	- 5,487
1997	-735	- 6,775
1998	-1,073	- 6,622
1999	-688	-6,366
2000	-614	-5,745
2001	-844	-4,047
2002	-772	-2,955
2003	-606	974
2004	-776	- 385
2005	-662	- 152
2006	-662	- 880
2007	-677	-1,159

Source: HCC 1993a-2008a; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

**Figure 2.1.4: In- and out-migration according to target region 1993-2008**

Year	Germany	Western Germany	International	Suburbia*
1993	726	-1,723	1,193	- 844
1994	-4,184	-1,135	784	-1,628
1995	-6,151	-1,288	1,242	-2,831
1996	-6,269	-1,301	1,715	-3,431
1997	-6,872	-1,302	1,171	-3,706
1998	-7,078	-1,945	1,014	-3,463
1999	-6,973	-2,289	921	-3,045
2000	-5,952	-3,160	639	-2,059
2001	-5,171	-3,671	1,106	-1,146
2002	-3,548	-2,589	919	-781
2003	778	-852	749	-202
2004	-616	-1,176	487	-358
2005	- 5	-1,062	445	150
2006	-688	-1,315	-105	185
2007	-752	-1,198	-151	57
2008	-374	-1,503	-92	306

Source: HCC 1993a-2008a; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

**Figure 2.1.5: In-migration according to target region 1993-2008**

Year	Germany	Eastern Germany	Western Germany	International	Suburbia
1993	5,103	2,334	2,164	1,690	605
1994	5,457	2,497	2,263	1,244	697
1995	5,433	2,359	2,305	2,356	769
1996	6,318	2,957	2,260	2,548	1,101
1997	6,589	2,983	2,268	2,233	1,338
1998	7,164	3,483	2,071	2,148	1,610
1999	6,893	3,362	1,993	1,644	1,538
2000	7,137	2,721	1,962	1,235	2,454
2001	7,231	2,930	1,953	1,627	2,348
2002	7,738	3,039	2,418	1,551	2,281
2003	10,699	5,097	3,219	1,431	2,383
2004	9,513	4,707	2,669	1,147	2,137
2005	8,293	3,924	2,142	987	2,227
2006	7,458	3,618	1,801	960	2,039
2007	7,829	3,735	2,079	1,062	2,015
2008	8,532	4,265	2,107	1,004	2,160

Source: HCC 1993a-2008a; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

**Figure 2.1.6: Out-migration according to target region 1993-2008**

Year	Germany	Eastern Germany	Western Germany	International	Suburbia
1993	4,377	959	3,887	497	1,449
1994	9,641	3,918	3,398	460	2,325
1995	11,584	4,391	3,593	1,114	3,600
1996	12,587	4,494	3,561	833	4,532
1997	13,461	4,847	3,570	1,062	5,044
1998	14,242	5,153	4,016	1,134	5,073
1999	13,866	5,001	4,282	723	4,583
2000	13,089	3,454	5,122	596	4,513
2001	12,402	3,284	5,624	521	3,494
2002	11,286	3,217	5,007	632	3,062
2003	9,921	3,265	4,071	682	2,585
2004	10,129	3,789	3,845	660	2,495
2005	8,298	3,017	3,204	542	2,077
2006	8,146	3,176	3,116	1,065	1,854
2007	8,581	3,346	3,277	1,213	1,958
2008	8,906	3,442	3,610	1,096	1,854

Source: Stadt Halle/Saale: Statistische Jahrbücher der lfd. Jahre; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

**Figure 2.1.7: Household development and mean size 1994-2008**

Year	Total	Mean size
1994	134,100	2,21
1995	130,600	2,22
1996	129,100	2,18
1997	127,200	2,15
1998	127,900	2,09
1999	127,400	2,04
2000	127,500	1,98
2001	134,000	1,86
2002	132,900	1,85
2003	131,300	1,85
2004	131,300	1,82
2005	125,700	1,90
2006	129,600	1,84
2007	128,500	1,84
2008	128,000	1,84

Source: HCC 1993a-2008a; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

**Figure 2.1.8: Distribution of households according to size 1994-2008**

Year	Households		Size of households			
	Absolute number	Mean size	One-person	2-person	3-person	4+ person
1994	134,100	2,21	45,500	41,800	26,400	16,400
1995	130,600	2,22	41,300	41,300	25,300	15,100
1996	129,100	2,18	42,200	43,500	26,300	13,500
1997	127,200	2,15	40,900	47,000	22,000	13,800
1998	127,900	2,09	43,900	47,300	20,900	12,700
1999	127,400	2,04	46,000	46,700	20,900	11,500
2000	127,500	1,98	51,200	44,000	19,200	13,100
2001	134,000	1,86	59,700	46,500	17,700	10,100
2002	132,900	1,85	60,200	45,900	17,000	9,800
2003	131,300	1,85	57,700	45,400	17,400	9,100
2004	131,300	1,82	60,700	45,100	16,100	9,400
2005	125,700	1,90	53,800	43,300	18,700	8,100
2006	129,600	1,84	56,800	47,300	16,900	7,200
2007	128,500	1,84	56,000	47,300	17,100	6,300
2008	128,000	1,84	56,000	47,200	16,300	8,500

Source: Stadt Halle (Saale (Hg.): Statistische Jahrbücher der lfd. Jahre; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

Figure 2.2.1: Number of employees per sector

Year	1st Sector	2nd Sector	3rd Sector	Year	1st Sector	2nd Sector	3rd Sector
1969	n.a.	72,116	88,415	1992	600	41,700	108,300
1970	n.a.	75,942	88,519	1993	800	44,700	104,600
1971	40	68,464	70,266	1994	600	45,600	109,100
1972	28	68,390	71,432	1995	500	42,800	104,000
1973	557	69,007	74,146	1996	800	40,000	104,000
1974	1,927	69,099	77,280	1997	800	36,500	99,400
1975	1,879	70,340	77,105	1998	800	32,800	103,800
1976	1,489	71,417	79,138	1999	800	29,500	106,200
1977	1,443	71,895	80,143	2000	700	25,700	106,700
1978	1,022	72,816	80,173	2001	600	22,000	108,600
1979	1,496	70,869	80,205	2002	500	19,300	108,100
1980	604	70,047	80,843	2003	500	17,400	107,200
1981	207	71,369	80,976	2004	400	16,700	109,300
1982	n.a.	n.a.	n.a.	2005	400	15,600	106,700
1989	862	74,239	86,201	2006	400	14,500	107,500
1990	862	60,920	92,749	2007	400	14,800	106,800
1991	700	40,800	113,200				

Source: IGNIS [Statistisches Landesamt Sachsen-Anhalt]; HCC 1993a-2008a; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

\* from 1990 onwards including Halle-Neustadt

Figure 2.2.2: Number of unemployed and long-term unemployed

Year	Unemployment	Long-term Unemployment
1990	14,166	n.a.
1991	27,393	n.a.
1992	23,469	n.a.
1993	22,791	n.a.
1994	19,833	7,141
1995	18,491	5,837
1996	20,657	6,326
1997	26,593	9,589
1998	26,129	10,006
1999	27,136	10,270
2000	26,607	10,827
2001	25,631	10,823
2002	26,062	11,397
2003	23,503	11,160
2004	23,621	11,280
2005	19,254	8,913
2006	17,819	7,323
2007	17,582	7,410
2008	14,354	5,717
2009	16,101	n.a.

Source: Langzeitarbeitslose 1998-2004 IGNIS; HCC 2007c: 14 (bis 2001 Statistisches Landesamt, ab 2002 Bundesagentur für Arbeit); HCC 1993a-2008a; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

**Figure 2.2.3: Gross Domestic Product (GDP) in Halle and Germany**

Year	Per inhabitant (Germany) in Euro	Per inhabitant in Euro (Halle)	Per SVP-employee in Euro (Halle)
1995	22,636	17,595	34,148
1996	22,909	18,759	36,001
1997	23,346	19,271	38,057
1998	23,960	19,422	37,449
1999	24,511	20,338	38,450
2000	25,095	19,893	37,547
2001	25,664	20,688	38,707
2002	25,984	22,098	41,668
2003	26,222	22,342	42,668
2004	26,798	23,406	44,401
2005	27,190	22,693	44,021
2006	28,229	22,577	43,652
2007	29,518	22,922	44,148
2008	30,392	n.a.	n.a.
2009	29,380	n.a.	n.a.

Quelle: HCC 1993a-2008a; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

**Figure 3.1.1 Monthly net-rent in Halle according to date of construction\***

	1998	2000	2001	2002	2003	2004	2006	2007
Until 1948	3,58	3,58	3,83	4,0	4,0	4,0	n.a.	n.a.
Since 1948	4,35	4,09	4,35	4,25	4,5	4,5	4,5	4,8
New constructions	5,62	5,62	5,62	6,0	5,5	5,0	5,5	5,5

Source: HCC 2007c

\*Data are given until 1999 in DM, afterwards in Euro.

**Figure 3.3.1: Kindergartens and schools in Halle: number of places and attendants 1992-2008**

Year	Places in Kindergartens	Registered Kindergarten pupils	Kindergartens absolute*	Pupils	Schools absolute
1992	16,418	15,199	210	40,386	142
1993	13,585	13,015	160	42,784	140
1994	12,860	11,895	159	41,140	134
1995	10,332	9,992	137	40,272	131
1996	8,887	8,419	117	38,979	131
1997	7,619	7,634	110	37,414	129
1998	7,701	7,701	108	34,504	128
1999	8,312	8,312	106	31,742	120
2000	8,651	7,915	105	29,047	115
2001	10,986	10,440	130	27,667	116
2002	10,693	10,797	129	25,811	107
2003	10,693	10,660	131	24,319	102
2004	11,986	11,098	127	22,839	97
2005	12,032	11,629	129	21,584	92
2006	12,067	12,297	130	20,470	80
2007	13,926	13,045	130	18,986	75
2008	14,580	13,739	139	18,460	74
2009	n.a.	n.a.	n.a.	n.a.	76

Quelle: HCC 1993a-2008a

\* from 2001 including nurseries in primary schools

**Figure 3.3.2: Development of number of students in Halle**

Year	Number of students*		Year	Number of students*
1992	9,015		2001	15,480
1993	12,106		2002	16,741
1994	11,711		2003	18,749
1995	12,519		2004	20,275
1996	12,884		2005	19,707
1997	13,277		2006	18,581
1998	13,894		2007	18,566
1999	14,288		2008	19,000
2000	14,948		2009	19,435

Quelle: HCC 1993a-2008a

\* 1993 the Technical University of Merseburg was integrated into the Martin Luther University of Halle-Wittenberg

**Figure 3.4.1: Halle's housing stock according to ownership ...**

Year	Housing units absolute	Private	Municipal	Cooperative
1989	144,701	22,732	75,567	45,808
1996	144,522	34,765	57,496	46,222
2005	144,584	71,393	34,988	35,599

**... and year of construction**

Year	2000	2005	2008
Until 1900	10.9	25.4	25.0
1901-1948	49.9	33.1	33.3
1949-1989	31.2	24.2	23.8
Since 1990	0.7	17.3	17.9

Source: HCC 1993a-2008a; HCC 2007c: 20

**Figure 3.4.2: Housing units, new constructions and demolitions in Halle 1989-2007**

Year	Housing units	New constructions	Demolitions
1995	144,613	1,893	n.a.
1996	144,522	2,795	n.a.
1997	148,449	4,385	n.a.
1998	149,256	4,183	116
1999	149,646	3,194	150
2000	151,443	3,128	135
2001	154,215	1,615	1,378
2002	152,263	1,141	2,485
2003	151,342	1,112	1,398
2004	149,346	1,038	2,832
2005	144,577	802	2,255
2006	143,307	772	1,463
2007	143,527	n.a.	1,170

Source: HCC 1993a-2008a; Staatliche Zentralverwaltung für Statistik Bezirkstelle/Kreisstelle Halle.

**Figure 3.4.3: Building completions in Halle 1993-2006 according to the type of housing**

Year	1- and 2-family houses	Multi-storey houses
1993	88	n.a.
1995	197	835
2000	657	1100
2001	407	551
2002	218	297
2003	309	218
2004	397	269
2005	247	187
2006	251	143

Source: HCC 2007c: 18

**Figure 3.5.1: Development of water supply and demand in Halle 1995-2008**

Year	Water supply in Mio. m <sup>3</sup> / year	water demand / inhabitant/ day
1995	28,446	127
1996	26,213	119
1997	23,848	119
1998	22,853	116
1999	21,016	113
2000	19,442	113
2001	18,694	108
2002	17,118	105
2003	17,332	106
2004	16,843	100
2005	16,117	98
2006	15,985	97
2007	15,471	94
2008	14,955	93

Source: UFZ database

**Figure 3.5.2: Number of inhabitants per hectare transportation area in Halle 1985-2015**

Year	inhabitants per ha traffic area
1985	231
1995	199
2005	167
2015	145

Source: HCC 2008c: 74

**Figure 3.6.1 Halle (Saale) – city area and land use**

Year	Total area in ha	Traffic area in ha	Arable land in ha	Built-up area in ha	Percentage to the total area
1992	13,507	1,218	4,662	3,751	36.79
1994	13,369	1,283	4,629	3,975	39.33
1996	13,497	1,312	4,627	4,226	41.03
1998	n.a.	n.a.	n.a.	n.a.	n.a.
2000	13,499	1,399	4,669	4,375	42.77
2002	13,500	1,419	4,537	4,436	43.37
2004	13,501	1,450	4,424	4,612	44.90
2006	13,502	1,576	3,638	5,663	53.61
2008	13,502	1,617	3,571	5,580	53.30

Source: State office for Statistics, Saxony Anhalt, 2009

**Figure 3.6.4: Concentration of environmental pollutants in Halle 1991-2008**

Year	sulphur dioxide in $\mu\text{g}/\text{m}^3$	nitrogen monoxides in $\mu\text{g}/\text{m}^3$	nitrogen dioxides in $\mu\text{g}/\text{m}^3$	dust loading $\mu\text{g}/\text{m}^3$ (PM10)*
1991	111,00	11,00	35,00	65,00
1992	91,00	13,00	35,00	48,00
1993	83,00	11,00	32,00	58,00
1994	62,00	12,00	30,00	52,00
1995	34,00	11,00	28,00	50,00
1996	32,00	11,00	33,00	55,00
1997	12,00	9,30	25,00	47,00
1998	8,70	7,30	22,00	37,00
1999	6,40	6,80	23,00	40,00
2000	7,70	6,90	19,00	30,00
2001	2,10	5,90	19,00	29,00
2002	2,10	6,00	19,00	30,00
2003	4,20	8,00	22,00	34,00
2004	2,10	4,90	18,00	24,00
2005	2,10	4,60	18,00	25,00
2006	2,10	5,00	20,00	27,00
2007	2,10	5,10	19,00	23,00
2008	2,10	5,20	21,00	23,00

Source: UFZ database

Measurement point: city centre (1991-1999); north of Halle's inner city (Paulus district) (2000-2008)

**Figure 3.7.1 Revenues, taxes and expenditures in Halle's municipal budget 1991-2008**

Year	Revenues in Mio. Euro	Expenditures in Mio. Euro	Taxes in Mio. Euro
1991	n.a.	n.a.	17,280
1992	520,910	513,910	45,970
1993	648,620	606,530	62,180
1994	607,310	619,750	78,330
1995	681,470	715,330	76,120
1996	606,230	651,320	69,050
1997	561,650	608,120	70,150
1998	550,880	643,410	81,120
1999	624,430	602,620	88,090
2000	557,500	562,570	80,300
2001	n.a.	n.a.	n.a.
2002	n.a.	n.a.	n.a.
2003	605,160	680,360	75,890
2004	532,190	623,770	88,190
2005	546,910	600,220	87,670
2006	535,800	583,560	98,170
2007	606,080	599,910	103,860
2008	633,170	615,390	122,400

Source: UFZ database

**Figure 3.7.2 Development of dept level in Halle 1991-2008**

Year	Municipal debts in Mio Euro
1991	5,240
1992	12,610
1993	82,100
1994	103,400
1995	109,380
1996	116,090
1997	178,120
1998	210,020
1999	277,060
2000	289,670
2001	316,420
2002	324,400
2003	325,390
2004	314,790
2005	303,220
2006	291,310
2007	278,660
2008	265,910

Source: UFZ database

## ***Part C – Trajectories and regional embedding***

### ***C.1. Trajectories of urban shrinkage of Leipzig and Halle: spatial-temporal patterns and dynamics***

#### *Leipzig and Halle*

Leipzig and Halle show two different trajectories of urban shrinkage, which are characterized by some overlaps according to historical, political and 'structural' reasons.

**Leipzig** represents an example of long-term shrinkage from 1966 onwards until the end of the 1990s. During the 2000s, the development turned into a stabilization with a slight 're-growth' but limited growth potential. During the GDR time Leipzig was neglected by governmental politics; the city did not benefit from the big investment programmes of the state for different economic sectors. Instead, it suffered from out-migration towards other regions of the GDR, mostly to the so-called 'industrial development towns' which emerged mainly in the northern and eastern parts of the country. Leipzig was the only large city (>200,000 inhabitants) in the GDR with a continuous long-term population decline. Since the end of the 1990s, Leipzig represents – in contrast – one of the most prominent examples of reurbanization in eastern Germany due to its function as a university city, location advantages and benefit from some big investments. To put it differently: while the city suffered from population loss at a time when many other cities in today's eastern Germany were expanding (1960s and 1970s), it has now stabilized and even sees a slight 're-growth' at a time when most of the eastern Germany cities and towns are facing population losses (end of the 1990s, 2000s). Leipzig was able to attenuate the consequences of deindustrialization (partly) by a growth of the tertiary sector, its university function and some big investments. It sells itself as a "service sector centre of European importance" and a multifunctional city.

Over time, the reasons for population decline changed. While Leipzig lost population during the late 1960s to 1980s due to poor housing and working conditions, as well as the environmental pollution, the losses from 1989 to 1998 were mainly due to job-related out-migration to the western parts of Germany and suburbanization, a phenomenon which did not exist in the GDR. From the 1990s onwards, the stabilization was borne mainly by a selective ('young') in-migration under the conditions of on-going negative natural growth and out-migration towards western Germany, as well as suburbia although at a low level. The future potential of this in-migration is limited since the cohorts of its drivers – the 20-40 age group – will decrease in the near future. Thus, at the moment, Leipzig sees a phase of stabilization or consolidation while expecting a new wave of population decline in some years' time when the household numbers will stop growing and the in-migrants will decrease in number.

Although Leipzig does not represent a shrinking city at the moment, there are two reasons for dealing with it in this respect: on the one hand, it has to cope with the consequences of long-term shrinkage, mainly with housing vacancies and supply surplus, underuse of urban land and infrastructures as well as stabilizing and declining neighbourhoods close to each other. The future will, on the other hand, bring a new wave of population loss and thus further the on-going need to demolish unused housing stock and further losses of municipal incomes (tax revenues) – and to think about how to ensure quality of life under the conditions of shrinkage.

**Halle's** trajectory of urban shrinkage differs from that of Leipzig. During the GDR time, Halle showed a 'bi-polar' development of its two parts: while the 'old' Halle – comparable to Leipzig - continuously declined from the 1960s onwards, the large housing estate town of Halle-Neustadt represented one of the most prominent examples of GDR industrial growth cities (comparable with Eisenhüttenstadt, Schwedt, Hoyerswerda). Halle-Neustadt's growth relates mainly to the 1960s and 1970s when the GDR sponsored a special investment programme to reconstruct the chemical industry. In this period of time, the 'old part' of Halle lost population to Halle-Neustadt, too. As a result of the state investment programme, the whole region including towns such as Leuna, Buna and Bitterfeld-Wolfen saw a significant growth. In the 1980s, when the programme had finished, Halle-Neustadt's rapid growth finished and Halle's two parts – commonly taken together – saw stagnation with a slight tendency towards population decrease. After 1989, deindustrialization and job-related out-migration (like in Leipzig) caused a massive population decline in both parts of Halle, which had been reunified in 1990. In the second half of the 1990s, suburbanization was also a main reason of population loss. Its impact, however, has decreased again after 2000. While the level of population loss declined during the 2000s, there is no trend reversal like in Leipzig. For the future, projections foresee a further decline on a moderate level, which will be mainly due to negative natural growth and ageing instead of out-migration (in any form). In contrast to Leipzig, Halle could still not find a new development strategy to replace its characteristics of being a 'declining former industrial centre' although it is also a university city with a diversifying tertiary sector.

The change of reasons for urban shrinkage in Halle is partly in line with what was described for Leipzig above. Whilst during the state socialist period, the 'old part' of Halle lost population due to poor housing conditions (like Leipzig), the new part (Halle-Neustadt) grew due to the settlement and enlargement of the chemical industry in the region and the high demand for flats by young and starter households. In this way, Halle-Neustadt developed a specific age and household structure (young families) which aged with the city and now represent a residual population of many empty nesters and pensioner households. The "after-1989" story of Leipzig and Halle is much the same, at least for the 1990s. The difference lies in the fact that while Leipzig started to recover from the end of the 1990s onwards, Halle remained locked in the 'shrinkage trap', although population losses turned out to be at a more moderate level. In contrast to Leipzig, Halle did not reach the stage of reurbanization at least at the whole city level., There are similar differences between the urban districts like in Leipzig – while some (old built-up inner-city)

districts have stabilized in the last years, others, among them the parts with the large housing estates Halle-Neustadt and Halle-Silberhöhe, will be faced with further dramatic shrinkage processes, also in the future. This means that housing demolitions and coping with the underuse of urban infrastructures and land will remain top priority issues for Halle's urban planning for the decades to come too.

**Both cities and their region** are characterized by historical and political processes or events that considerably impacted on the population development. While Leipzig was one of the fastest growing large cities in Germany during the period of industrialization at the end of the 19<sup>th</sup> century and saw a constant growth until 1933 (urban planners at that time expected the city's population to soon exceed one million inhabitants), Halle-Neustadt was one of the most prominent examples of an industrial growth city during the GDR period.

The neglect of the urban fabric and infrastructure as well as the environmental damage caused by the surrounding industries led to a decrease of the attractiveness of Leipzig and the 'old part' of Halle during the state socialist period of the GDR. As a result, both cities constantly lost inhabitants: Leipzig 14 per cent from 1950 to 1989 and Halle even 20 per cent (see also Kress 2008).

Population decline was reinforced and accelerated by the breakdown of state socialism in 1989. It is important to say at this stage that it was not the systemic change that initiated population decline, neither in the case of Leipzig nor in the case of Halle. Even the new part of Halle, Halle-Neustadt, saw a population stagnation during the 1980s (-0.8 per cent change). The 1990s represented, however, the decade of the most massive and rapid population losses for both cities (in both cases 20 per cent losses in 10 years). Job-related out-migration was 'accompanied' by a break-down in fertility (the so-called lowest-low fertility, see Kohler et al. 2002) and a rapidly progressing ageing of the population. Some scholars even spoke about a "demographic revolution" with respect to these developments (Mau and Zapf 1998). Apart from that, both cities suffered from an artificially sponsored suburbanization which drew population to the adjacent municipalities and led to increasing deconcentration of population and land use. The simultaneousness of shrinkage of the core city, suburbanization and further land consumption was coined to be typical for eastern German urban regions after 1989 (Nuisl and Rink 2004). While the period of suburbanization was relatively short in both cases and slowed down to a low level already by end of the 1990s, the westward out-migration remains an issue for both Leipzig and Halle. The negative natural growth has become more and more important as a reason for population losses since the drivers of in-migration belong to decreasing cohorts.

According to the geographer Herfert (2007), Leipzig represents one of the few 'islands of growth' within eastern Germany (with up to 1.5 per cent population growth per year) while Halle represents a 'shifting region' (*Übergangsregion*, with up to 1.5 per cent population decline per year). According to his research, Halle is not a 'shrinking region' since it does not show a population decline >1.5 per cent per year anymore. In both cases, the supply surplus in housing, the resulting vacancies and housing demolitions represent the most severe consequences and problems related

to urban shrinkage. Renovation of housing went hand in hand with increasing vacancies. Thus, the 'visible' success of well-preserved neighbourhoods was often in contrast to their abandonment and rising supply surplus (Steinführer et al. 2009). Although the scope of housing vacancies was downsized by demolitions, it still remains a structural problem for both cities (and here mainly for particular 'focus' districts), all the more since new waves of population decline are foreseen for the future.

The consequences of systemic change for the two cities have to be assessed 'ambivalently': while the change brought, on the one hand, rapid and comprehensive deindustrialization, related job losses and the development of a society of 'welfare recipients', the transfer of money from western Germany led, on the other hand, to enormous investments and a significant improvement of living quality (housing, services, environment, etc.). Both Leipzig and Halle benefitted after 1990 from the 'balance-oriented' policy of Germany and the cohesion policy of the EU. Transfers of money continue to play a big role for the municipal budgets of both cities – it is not clear what will happen if the transfer payments stop in 2019. Even though Halle benefitted to a lesser extent from big investments its labour market is more stable and the unemployment rate lower than that of Leipzig. The situation concerning the debt level is similar: Leipzig has a much higher level of debt than Halle. Despite the enormous transfers and some large investments the development of both cities is far from being self-contained. In addition, the cities and the region are dependent on continuing transfers. Due to the risky financial transactions (esp. cross border leasing contracts) the cities are exceptionally vulnerable to the ups and downs of the international finance market. This makes all efforts of the austerity policy of the recent years more than questionable. It is not impossible that in the end an intensified policy of cuts and closures will happen.

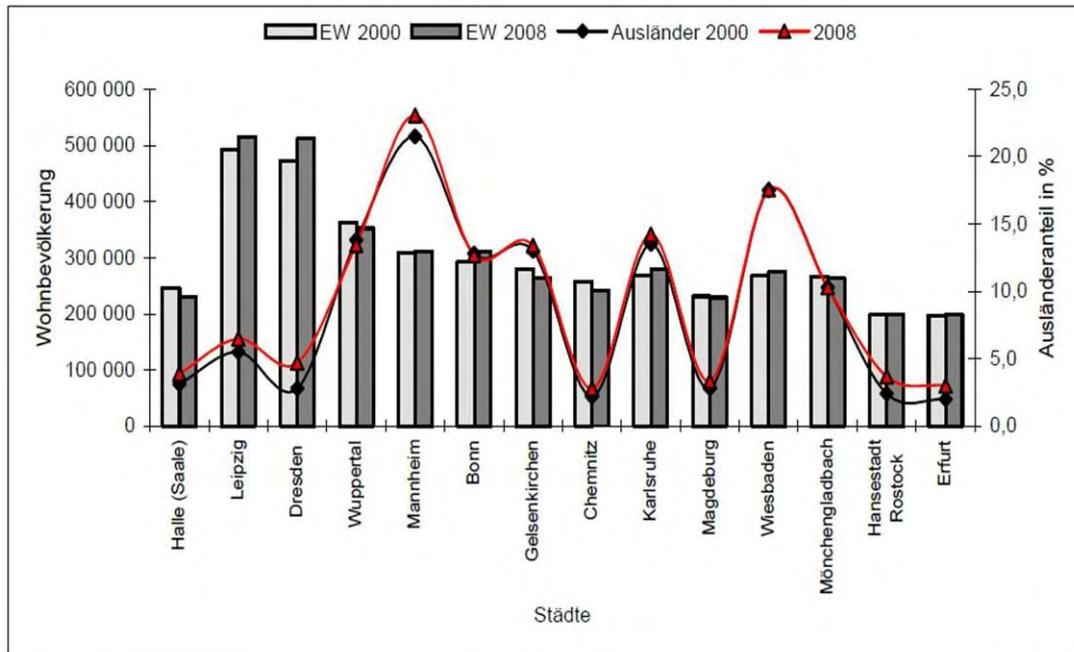
Although both cities have lost their function of being the capital of a state during GDR time - Leipzig to Dresden (capital of Saxony) and Halle to Magdeburg (capital of Saxony-Anhalt)- , Halle suffers more from that functional loss than Leipzig. Concerning the rivalry of both cities to attract investment, Leipzig (as the bigger city) has been more successful during the last 20 years.

#### *The national context*

In comparison with other large German cities, Leipzig and Halle both show common and diverging trends/patterns. Looking at the population development from 2000-2008 (Figure 1.1), it becomes obvious that Leipzig - also like the Saxon capital Dresden – represents a resurging city characterized by a slight increase of the population; another example for this trend is Erfurt. Halle, by contrast, represents an example of a shrinking city like Magdeburg, Chemnitz but also Wuppertal and Gelsenkirchen in the western part of Germany. To put it differently: urban shrinkage is not restricted to eastern Germany although it has its focus there, and not all eastern German large cities are shrinking although the growing ones represent the exceptions rather than the rule. Urban shrinkage in the western regions of Germany mainly hits old-industrialized cities in the Ruhr area and other regions.

In-migration to the eastern German cities is led mainly by young age groups but not much by migrants from other countries – the figure shows that the share of foreign migrants in all eastern German cities is considerably lower than in western German cities.

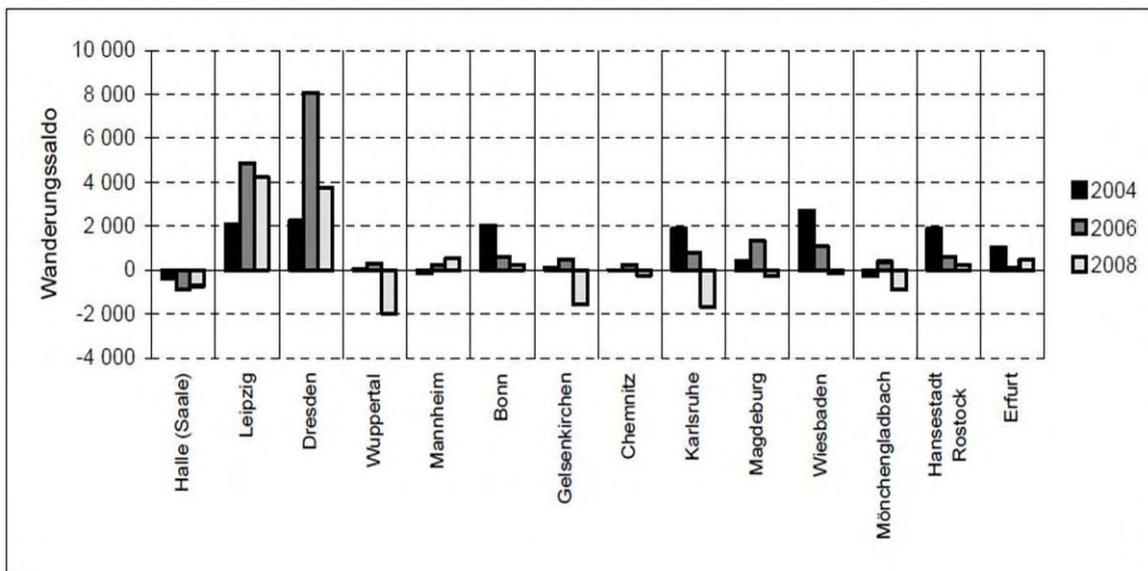
**Figure 1.1: Population development and share of migrants in selected large German cities 2000 and 2008**



Source: HCC 2008a

Looking at the migration balance from 2004-2008 (Figure 1.2), Leipzig and Dresden represent the winners of young in-migration throughout the mid and late 2000s. They differ in this respect significantly from all other cities listed in the table, whether in eastern or western Germany. Other eastern German cities, such as Erfurt, Rostock or Chemnitz, show rather static migration balances but no (real) shrinking trend anymore. Halle represents, by contrast, a shrinking trend throughout the whole reported period and differs from all other eastern German examples. For the very recent past (2008), its numbers are rather similar to the situation in western German cities like Gelsenkirchen, Wuppertal or Mönchengladbach.

With respect to a general assessment, it is the same as above: urban stabilization and shrinkage are diversely distributed across the German urban landscape. Whilst there was a significant difference between eastern (shrinking) and western (growing or stable) cities during the first half of the 1990s, this situation changed during the second half of the 1990s and the 2000s where population decline has also 'reached' many western German core cities that had won from in-migration from eastern Germany in the past (Prigge and Schwarzer 2006, 130).

**Figure 1.2: Migration balance in selected large German cities 2004, 2006 and 2008**

Source: HCC 2008a

### C.2. Region Leipzig-Halle

The industrial region around the cities of Halle and Leipzig (Figures 2.1 and 2.2) became known after the First World War as the “central German industrial area” or just “central Germany” (*Mitteldeutsches Industriegebiet, Mitteldeutschland*). The chemical industry, alongside mining and the production of energy, had a key role in the region. These industrial branches connected the twin cities of Halle and Leipzig in the first instance with each other, and with their outer metropolitan areas to form an industrial conurbation. The large industrial complexes that started to appear in the area surrounding the regional hub cities interlinked with one another, making Halle and Leipzig during the 1920s and 1930s the administrative and service sector centres of a dynamically developing growth region. During this time the region - together with the wider sphere - was, by today’s standards, a dynamic high-tech area with a strategic importance for the German economy.

Agglomeration during this time led to the formation of monopolies and state combines, above all in Leipzig, and Leipzig became the headquarters of the Central German Brown Coal Syndicate, the Riebeck Konzern, and the Kreditanstalt (credit institution). An industrial conurbation came into being that extended across the major cities of Leipzig and Halle, Leipzig Land, and the Saalkreis, as well as the administrative districts of Borna, Altenburg, Delitzsch, Eisleben, Bitterfeld, Merseburg, Weißenfels, Hohenmölsen, and Zeitz. It consisted of the metropolitan conurbations of Halle and Leipzig with their peripheral zones and major industrial subareas such as, and particularly, Bitterfeld-Wolfen, the Geiseltal, Zeitz-Weißenfels, and Borna-Meuselwitz, which had monostructural economies from the beginning. The Leipzig-Halle airport, which was opened in the late 1920s, symbolized the

region's simultaneous joint development. The infrastructural linking of the regional hub cities was spurred on in the 1930s with the construction of the highway (Autobahn) between Halle and Dresden and the beginning of the building of the Elster-Saale Canal.

With the founding of the GDR there was a shift in economic orientation to building East German primary industry. This was the reason that the central German industrial area was needed once more - this time owing to the self-sustaining situation and policies of the GDR - as a supplier for raw materials and energy. Because of this, the brown coal/energy/chemicals complex in the raw-material-poor GDR once again gained strategic importance. In the 1950s and 1960s it was able to profit from the chemistry program "chemistry brings bread, prosperity, and beauty" and attracted substantial investments. For this reason one simply spoke of the "chemical triangle" (*Chemiedreieck*, Rink 2005).

In the wake of the oil crisis there was even an unplanned renaissance of brown coal, instead of its planned phasing out. Opencast mining technology, power stations, and a large part of the lignite chemical plants, were not, however, modernized but run on a shoestring. This is one of the key reasons for the rapid, comprehensive, and far-reaching deindustrialization process after 1990. Extensive coal mining, wear and tear, as well as the lack of filtering systems had devastating consequences for the landscape and the environment in the entire region. The "chemical triangle" became a synonym for the destruction of nature and ecological/ environmental damage. During the period of systemic change and the dissolution of the GDR, the region then made for media sensation as an "ecological disaster area" (Mühlenberg and Kurt 1991). The mass protests that took place during the collapse of state socialism in 1989–90 were fed, to a considerable degree, by the dissatisfaction with working and living conditions in the region.

Economically speaking, the deindustrialization process left its mark mainly on the years immediately after German unification. The enormous shrinking process associated with this was, however, underestimated, first in regard to its magnitude and then in regard to its consequences. Between 1990 and 1993 more than 80 per cent of all industrial jobs were cut in an unprecedented process of factory closures and mass layoffs (Rink 2005). There are even a number of formerly industrial small cities that are today completely without any economic basis. The region unravelled as a result of this deindustrialization process; in principle, all that remained were detached localities. Brown coal mining shrunk tremendously; and it is now only the supplier for a newly built power station in Lippendorf. Apart from that, only leftovers remained from the chemical industry as "extended workbenches" (suppliers) for global businesses such as Bayer in Bitterfeld. However, with the aid of jobs from job creation schemes ambitious ecological redevelopment projects were implemented in the 1990s, for instance the redevelopment of the former industrial areas belonging to the ORWO photographic film factory in Wolfen, the Bitterfeld chemical combine, or the Espenhain brown coal refining plant. An even more extensive project and one that is more visible within the landscape is the redevelopment of a multitude of strip mines which, after they are flooded, will constitute a real lake district.

Thus the former industrial region will be transformed, in parts, into a local recreational area. With regard to urban planning, the development in the region in the years since the breakdown of state socialism is characterized primarily by the suburbanization of trade, industry, and housing, as well as the redevelopment of dilapidated city centres. Immediately after 1989 many investors and developers arrived in the region and bought up building sites, planned residential parks and projects, and restituted valuable real estate. The first thing to happen was the appearance of shopping malls in the surrounding areas of the larger-sized cities; these were symbols and showcases of the west as well as landmarks of incipient suburbanization. This is particularly pronounced along the Halle-Leipzig axis, roads 6 and 181 and the A14 highway, for instance. The most striking example is the Saale-Park—with its 170,000 square meters, it is one of the largest malls in Germany. Following quickly after the malls were the generously designated industrial areas, which in smaller cities and communities in particular have often remained unused “illuminated meadows”. Various logistics firms also settled along the Halle-Leipzig axis. The reopening, modernization and expansion of the Leipzig-Halle airport also meant the creation of a more competitive intercontinental airport. Now the airport is an important hub for the German logistic supplier DHL with day-long air-traffic.

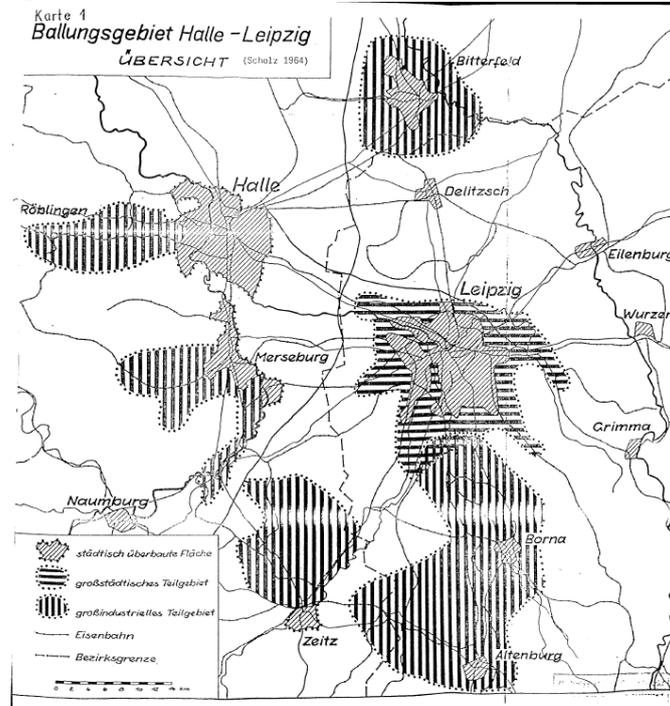
Because of these developments, the cities of Halle and Leipzig grew even closer together despite having adopted different paths to development. The transformation process has resulted in a reinforcement of regional differences, whereby small industrial towns within the region have been more severely affected than the two large cities of Halle and Leipzig. The question as to whether there is a future for the region as a whole is difficult to answer at present. Rather it would seem that Leipzig alone, with its function as a regional centre, its fully developed infrastructure, and its movement towards reindustrialization, has future prospects once shrinkage is a thing of the past. The region, however, at the present time, no longer has a common identity: the “chemical triangle” has dissolved. Right now it seems that the situation has reached a transitional stage: the cities and districts of the region are still relatively well provided for and are generally profiting from the boom years of “Aufbau Ost” (Rink 2005). Since 1997, Leipzig and Halle form part of the metropolitan region *Halle-Leipzig-Sachsendreieck*, a fact that, however, has not brought about too many effects for the cities and their region up to present (HCC 2008c, 81). They find themselves taking a breather between two migration waves - just before the consequences of the drop in birth-rate threaten, or achieve, the closings of more institutions and infrastructures. The paths to development between reurbanization and disurbanization will then diverge from one another even more (Herfert 2002).

**Figure 2.1: Satellite photo of Leipzig and Halle**



Source: Thomas Arndt (based on Google earth)

**Figure 2.2: The industrial conurbation Leipzig-Halle**



Source: Bischoff et al. (1995)

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