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Urban Shrinkage in Halle, Germany

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The governance of Shrinkage within a European Context

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Urban shrinkage in Halle, Germany

Research report

D4 Comparable research report

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The views expressed are the authors' alone and do not necessarily correspond to those of other Shrink Smart partners or the European Commission. Comments and enquiries should be addressed to: Prof. Dr. Dieter Rink, Helmholtz Centre for Environmental Research – UFZ, Leipzig, Germany. Tel: +49 341 2351744. Email: dieter.rink@ufz.de

Preface

This document represents a research outcome of the 7 FP project “Shrink Smart – The Governance of Shrinkage within a European Context” (May 2009 – April 2012). It summarizes information and data with respect to urban shrinkage, its characteristics and dynamics over time in the city of Halle. The report covers in general the time period between the late 1980s (to consider also the situation in the late GDR time) and today. It mainly uses municipal data; moreover, official planning documents and other reports issued by the city of Halle are used as well as scientific literature. The report represents, despite its embedment into the project logics of Shrink Smart, a stand-alone document which can be used independently from other project documents and deliverables.

It is the aim of project Shrink Smart to study the role of policies and governance systems in different types of shrinking urban regions. It is based on comparative case studies from seven urban regions throughout Europe with a focus on shrinking urban regions in eastern and southern Europe that will provide a basis for analyzing different trajectories of shrinkage, understanding main challenges for urban planning and elaborating alternatives for urban governance.

This research report was published first and foremost for the following reasons:

- to make the research results of the project accessible to a wider audience,
- to provide a collection of data and information on urban shrinkage in Halle in English language and
- to offer research evidence for a further discussion on shrinkage and its consequences in Halle.

Leipzig, January 2011

The authors

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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 many other eastern German large cities) 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). In recent years, also in Halle, the migration balance with the suburban hinterland 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 or Dresden. 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.

Halle did not stabilize after 2000; the city continues to lose population and will do so also in the future although at a more moderate level (according to prognoses). On 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'.

Before 1989, the city already had to deal with housing vacancies due to bad conditions; in the late 1970s and early 1980s, the city carried out a larger-scale demolition and reconstruction activities in the inner city. With respect to urban shrinkage, it is the housing market perspective that is the most important 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, although its rates are supposed to become more moderate, 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 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. 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. 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).

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 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). 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 the neighbouring Leipzig, for example.

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. Halle did not stabilize after 2000; the city continues to lose population and will do so also in the future although at a more moderate level.

Figure 1.0.1: 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

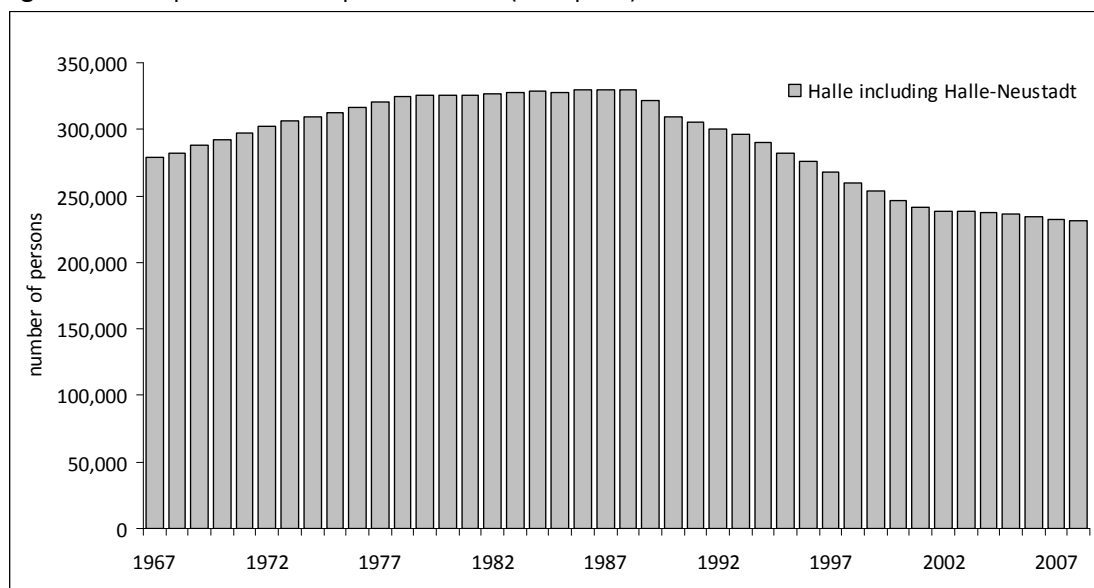
Materials and methods

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 Halle 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.

2.1 Demographic development

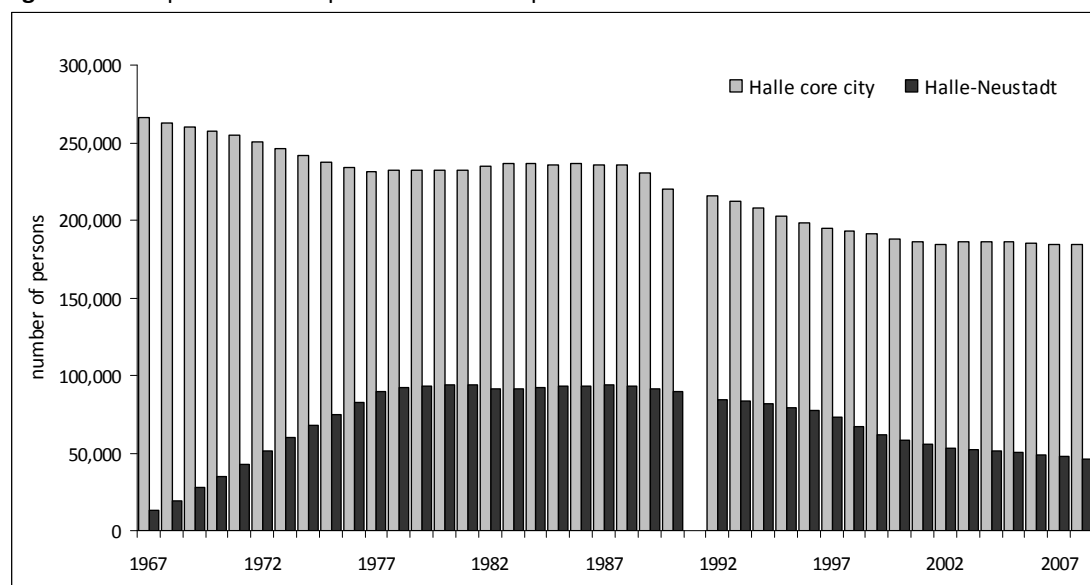
Halle (including Halle-Neustadt) reached its peak population with 329,625 inhabitants in 1986 (Figure 2.1.1). During the last years of the GDR time, it already lost population – about 30,000 until 1990. Halle’s shrinkage also did not start with the systemic break-up in 1989/90. The part of ‘old Halle’ 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 to 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

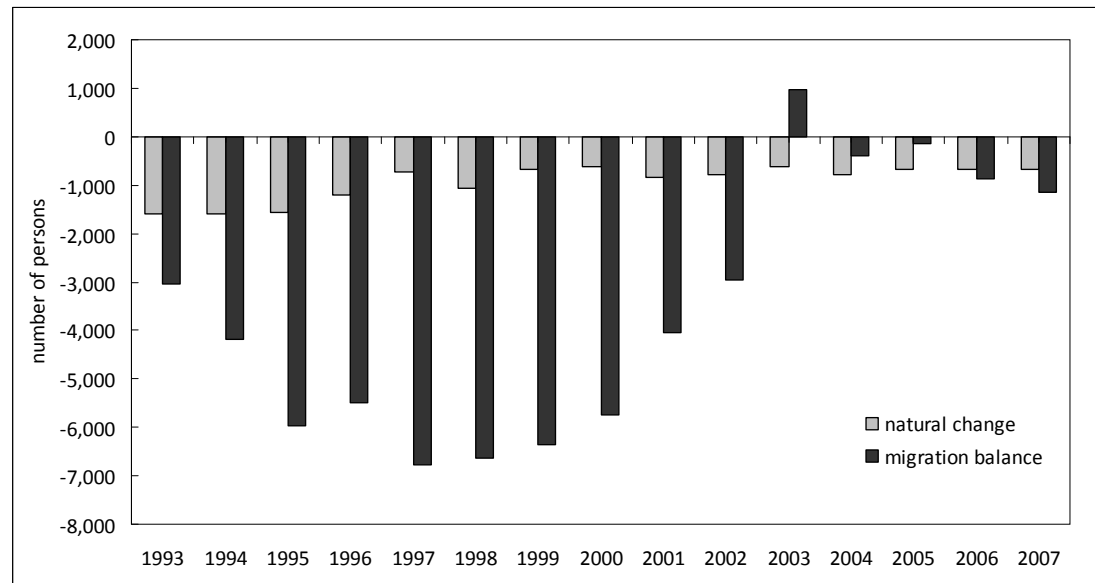
Figure 2.1.2: Population development of Halle 'old part' and Halle-Neustadt 1967-2008



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 to 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

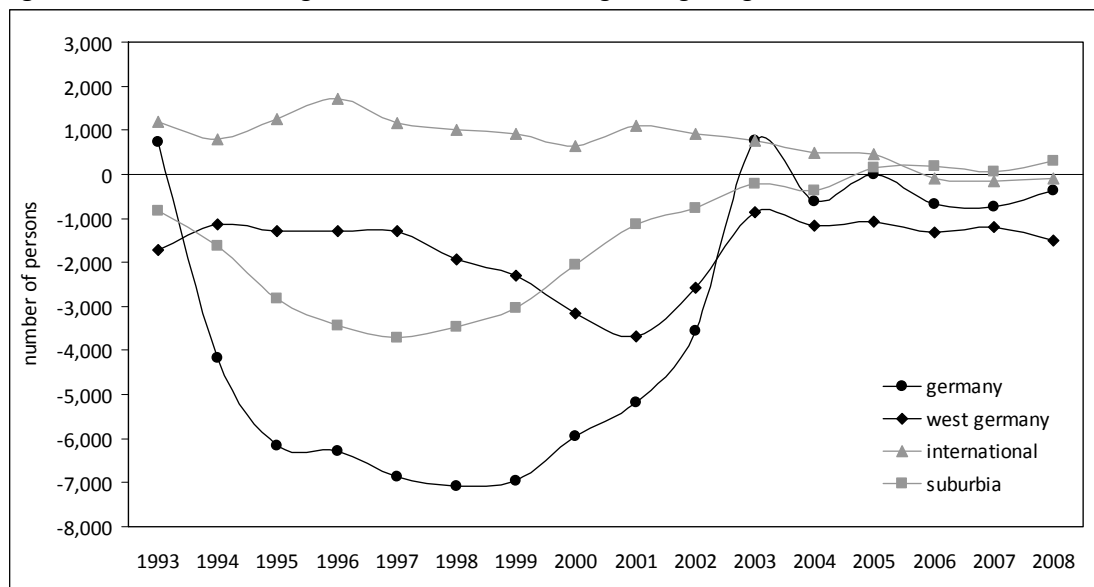
	1989*	1996	2000	2008
Share of people 0-14	19.2	13.5	11.1	10.8
Share of people 15-65	66.3	71.8	71.9	66.2
Share of people 65 and older	14.5	14.7	17.1	23.1
Youth dependency rate (0-14/15-64, per cent)	28.9	18.8	15.4	15.6
Age dependency rate (65+/15-64, per cent)	21.8	20.5	23.7	33.4
Index of ageing (65+/0-14, 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

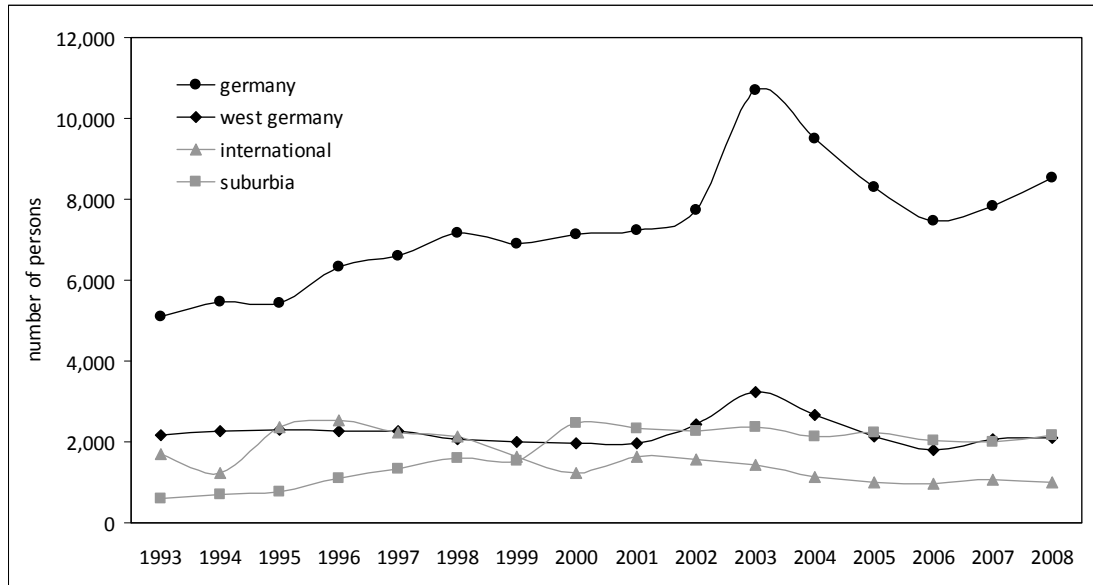
Apart from in- and out-migration at the total city level, Halle also saw shifts of intra-urban migration. While during the first half of the 1990s it was mainly the (dilapidating) pre-war housing areas of the core city that lost population, population decline became more and more important for the prefab 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 2000s, 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 to 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 1993-2008 according to target region



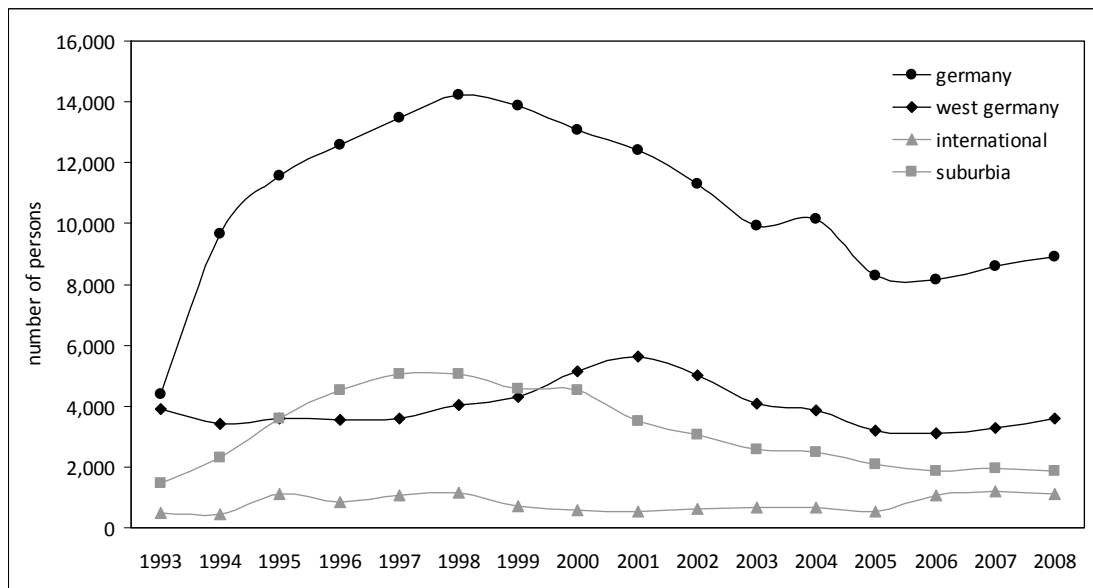
Source: UFZ database

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



Source: UFZ database

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



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, 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)¹; 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 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

¹ This information bases on an interview with representatives of the urban planning unit of Halle in October 2009.

(owner-occupied housing in single family houses and multi-storey buildings, e.g. in the districts Heide-South and Büschdorf).

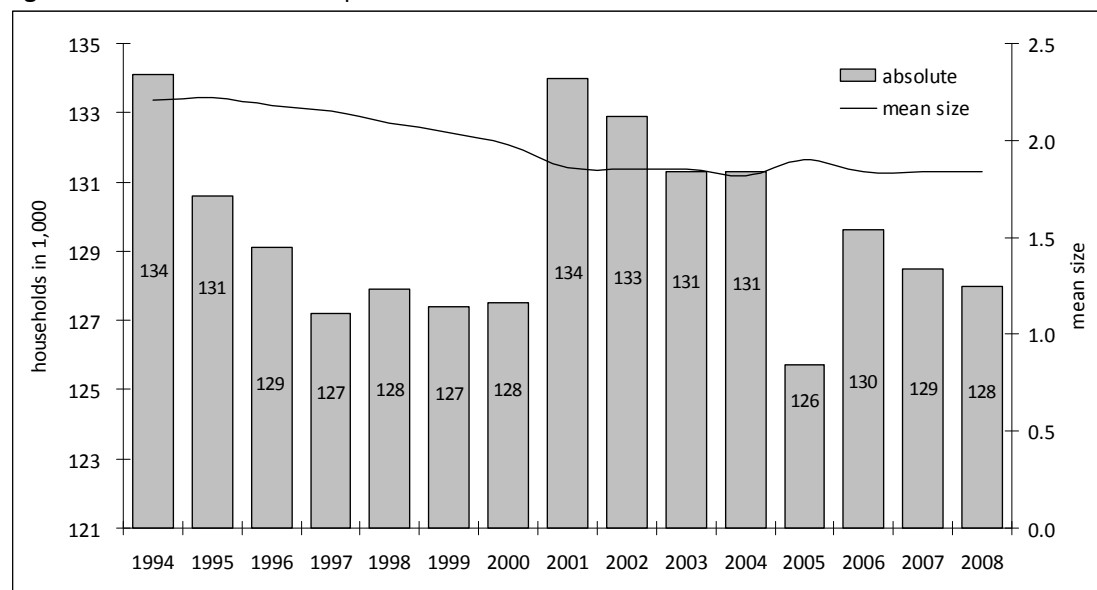
In Halle 8,938 foreigners were registered in 2008, which was a share of 3.9 per cent of the total population. Recently, the percentage of foreigners saw a slight decrease in all districts of the city. The share of persons with 'migration background' is estimated to be considerably higher than the number 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 (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)². 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

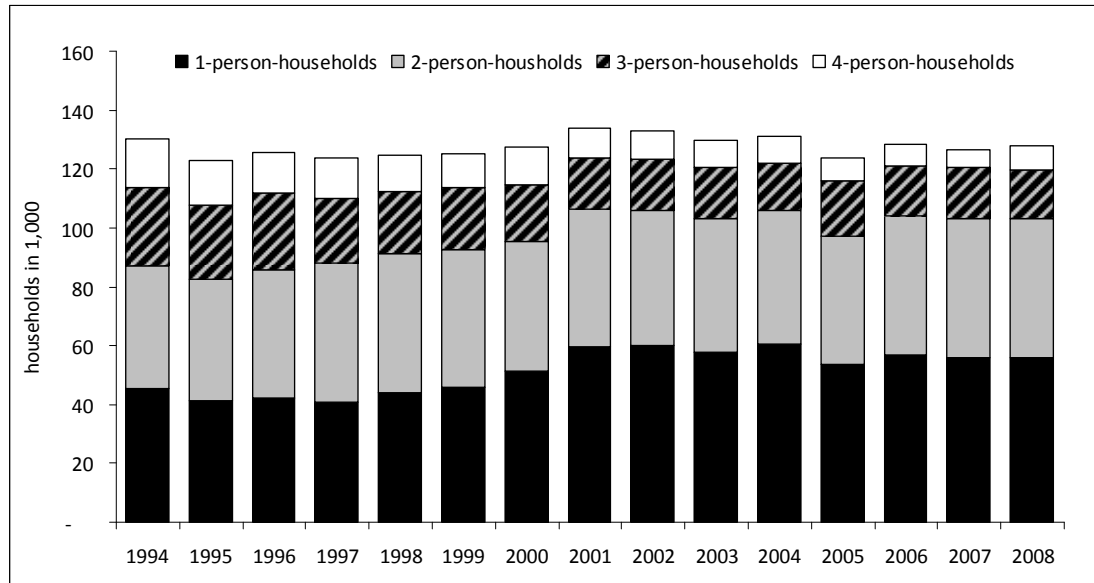


Source: UFZ database

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 2007c, 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 of urban restructuring processes (see section 3.4 of this report).

² 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

Summary

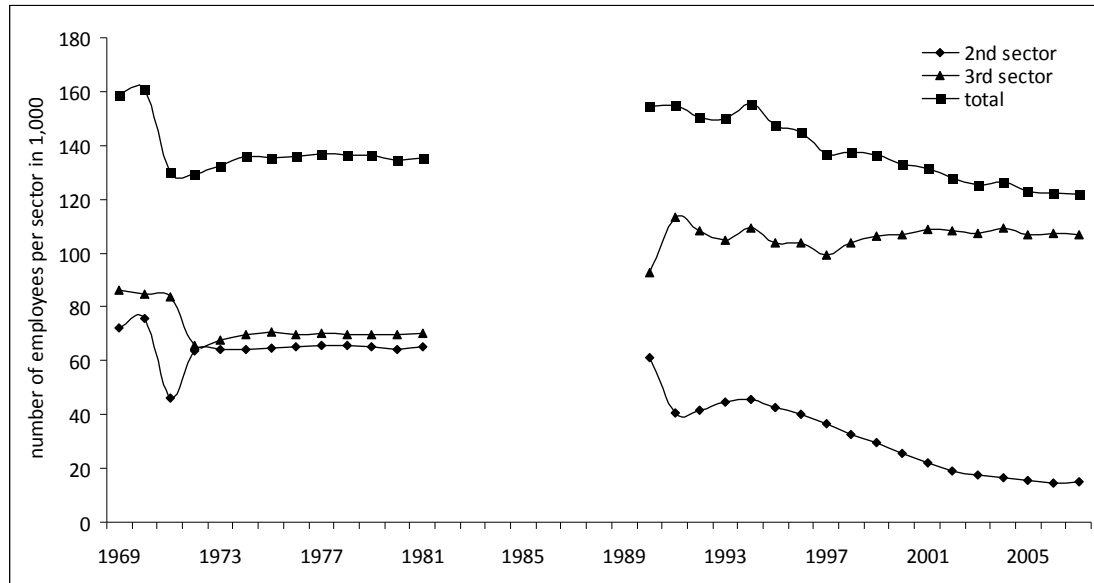
Halle (including Halle-Neustadt) underwent a ‘bi-polar’ population development during the GDR time: while the newly built part Halle-Neustadt saw a considerable growth until the late 1980s as a city populated mainly by industrial workers, the ‘old’ part of Halle faced population losses almost during 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. 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 Halle-Silberhöhe due to selective out-migration, ageing in place 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 report).

2.2 Economic development

Although, in comparison other large cities such as Dresden or 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 20th 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". 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 considerable losses and one of the most intensively industrialised regions of Germany became totally deindustrialized. 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 has been lost since reunification.

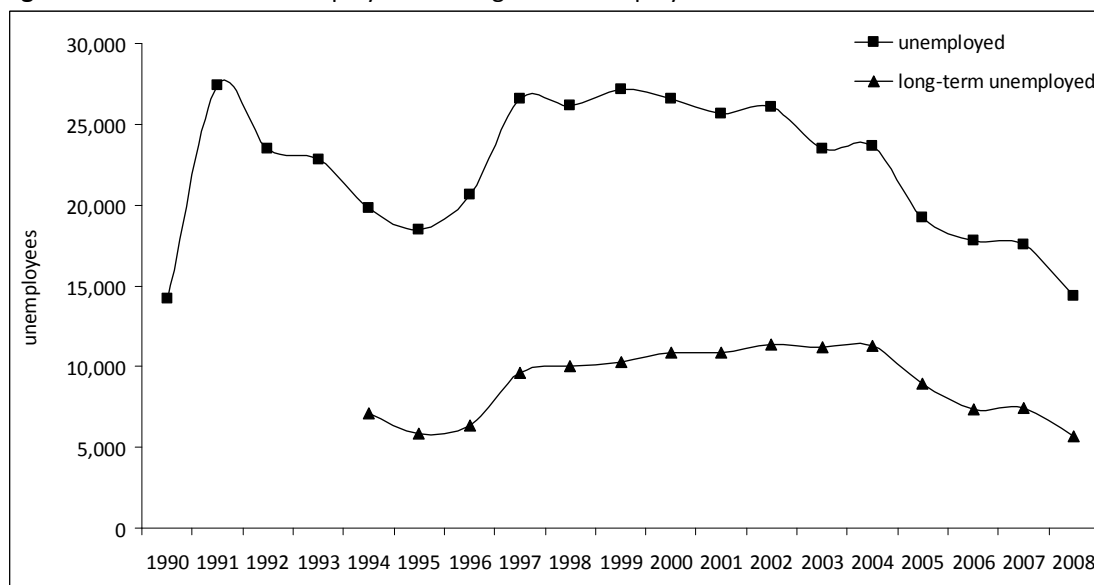
Figure 2.2.1: Number of employees per sector 1969-2007



Source: UFZ database

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 per cent 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 2003 – 2005 welfare reforms (*Hartz IV*) that increased pressure on the unemployed.

Figure 2.2.2: Number of unemployed and long-term unemployed 1990-2008

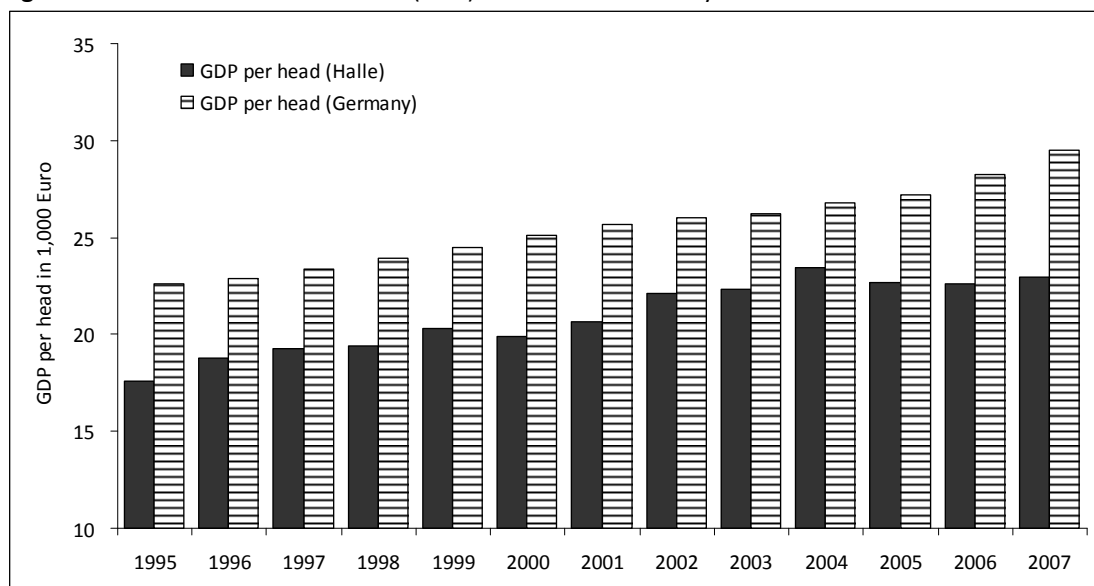


Source: UFZ database

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 1995-2007



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.

2.3 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. Halle saw different phases of its settlement system development. 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 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 medium 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.

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, 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. 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.

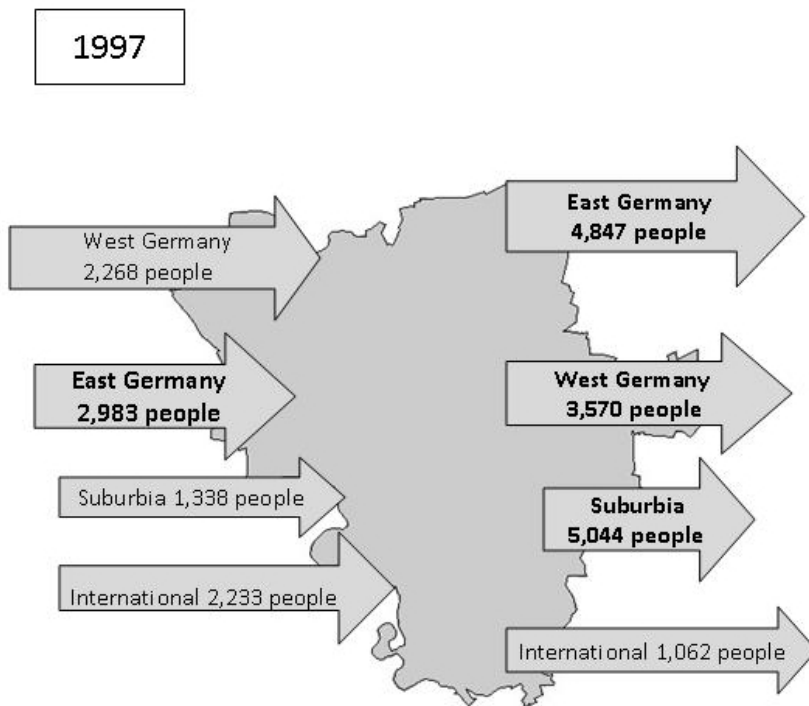
The dynamic suburbanization in the second half of the 1990s led to an upswing of the hinterland of Halle and, at the same time, to a deconcentration of workforce (not regarding at the overall decline in population and workforce as a consequence of interregional out-migration to the western parts of Germany). 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 "Saalkreis", 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)



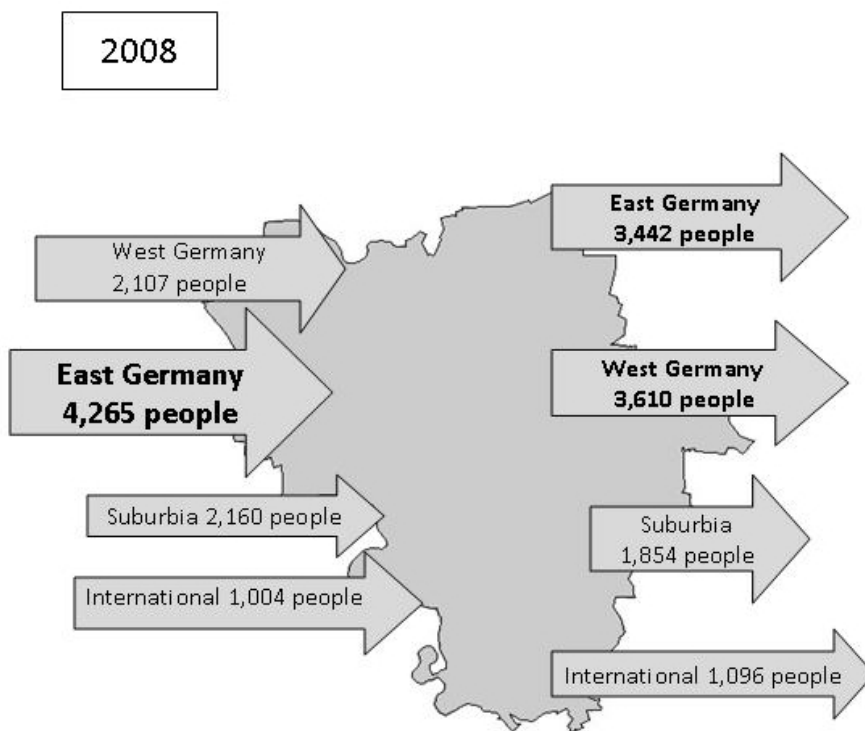
Source: Johanna Ludwig

Figure 2.3.2: Pathways of suburbanization around Halle 1997



Source: Johanna Ludwig (map) and UFZ database

Figure 2.3.3: Pathways of suburbanization around Halle 2008



Source: Johanna Ludwig (map) and UFZ database

Figure 2.3.4: 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 m² sales area and 2,800 parking lots (Figure 2.2.4). 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 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.

3 IMPACTS AND CONSEQUENCES OF URBAN SHRINKAGE

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 Halle³, one has to consider two facts:

1. Halle's socialist past and its impact on segregation and
2. 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. 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).

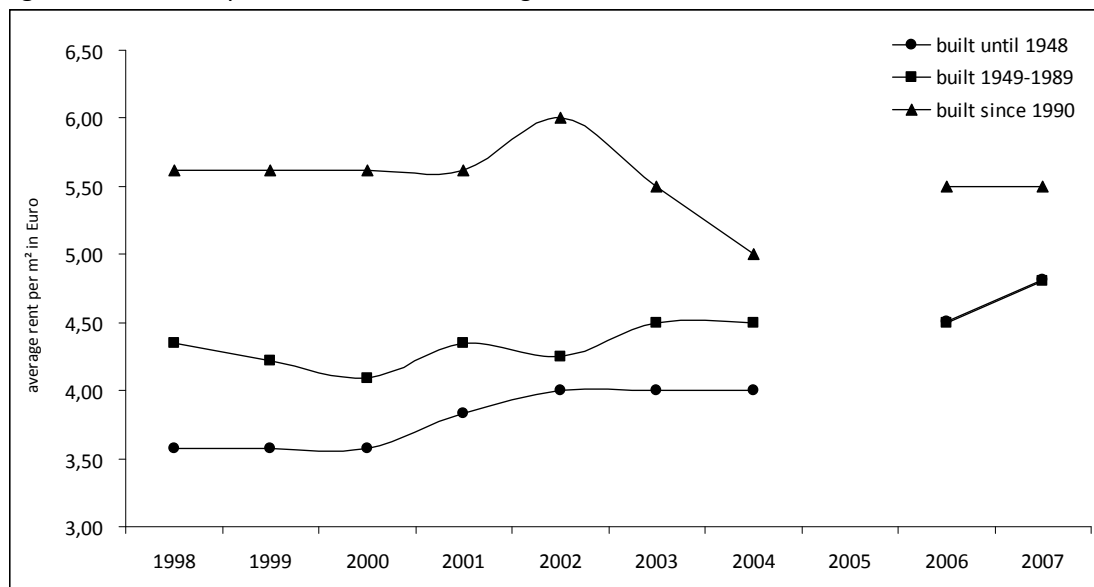
According to local researchers and stakeholders, processes of in- and out-migration were mostly in line with processes of social up- and downgrading as well as low and high shares of housing vacancies, respectively (see also section 3.4 of this report). While processes of differentiation remained moderate until the second half of the

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

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, 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.⁴

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. 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 1998-2007



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

⁴ See note 1.

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.

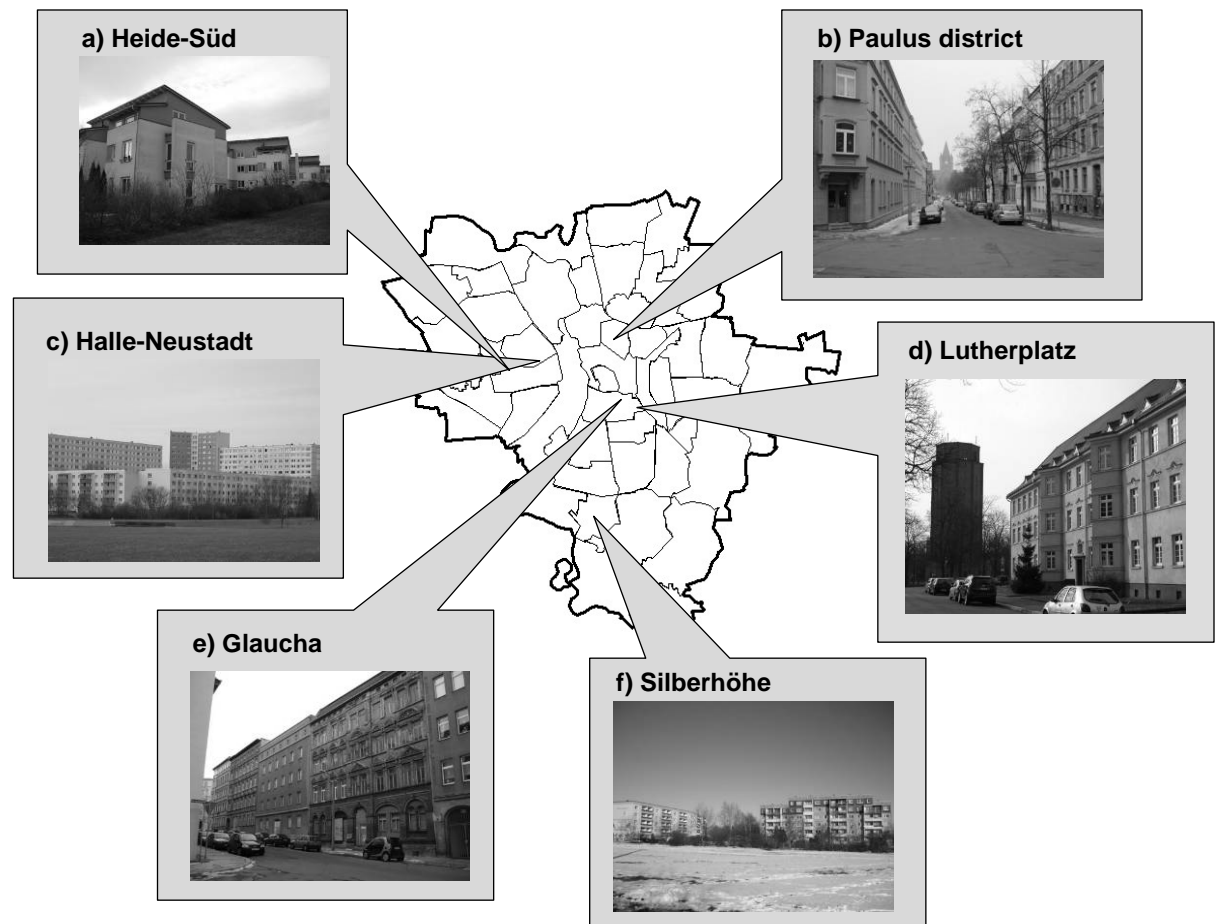
'Postsocialist' differentiation, re-arrangements and segregation

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 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 is – 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 1989.⁵ 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 becomes 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.

⁵ See note 1.

Figure 3.1.2: Districts of Halle – The map shows the administrative borders of Halle’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 prefab 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 prefab 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 losses 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). 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).

3.2 Business and employment

This document follows the logics of the research of Workpackage 2 of the 7 FP EU project Shrink Smart which was mentioned in the introduction. In the project, the local economic development is discussed as a cause for urban shrinkage; local business and employment represent an arena of impact of urban shrinkage. With the aim to improve readability of this report, chapter 2.2 of this document 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. Subsequently, chapters 2.2 and 3.2 go as one.

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 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'.⁶ 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:

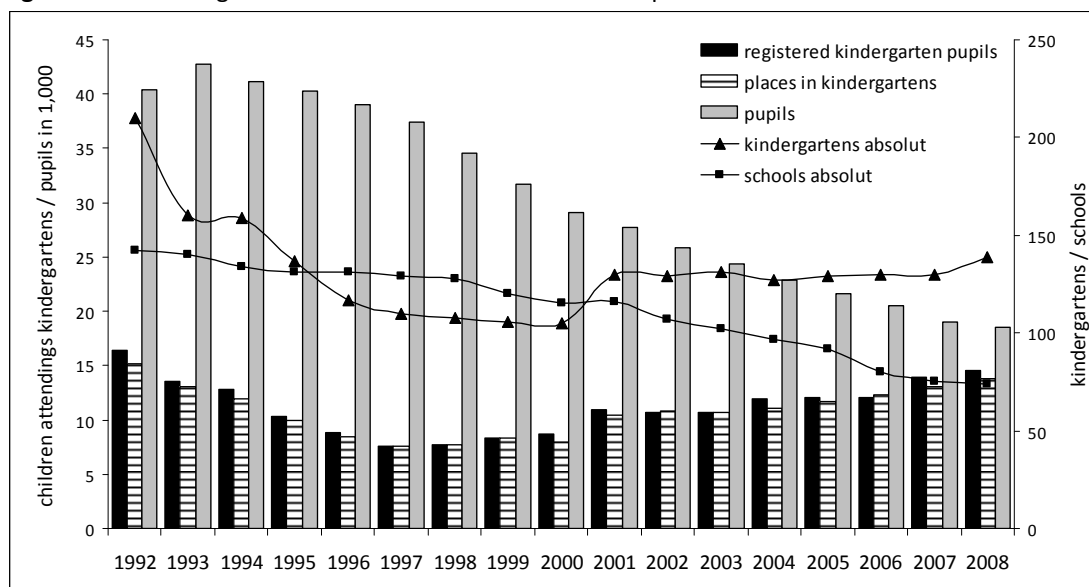
- to ensure the supply with social infrastructure at a lower quantitative level but also for all inhabitants which should be reached by a concentration of services and multiple use of locations;

⁶ See note 1.

- 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).

The number of kindergartens decreased from 1992 to 2000 from 210 to 105. In 2001, the numbers of kindergartens and nurseries of primary schools were statistically merged so that a direct comparison of trends is no longer possible. 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 in-migration, 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



Note: From 2001 including nurseries in primary schools

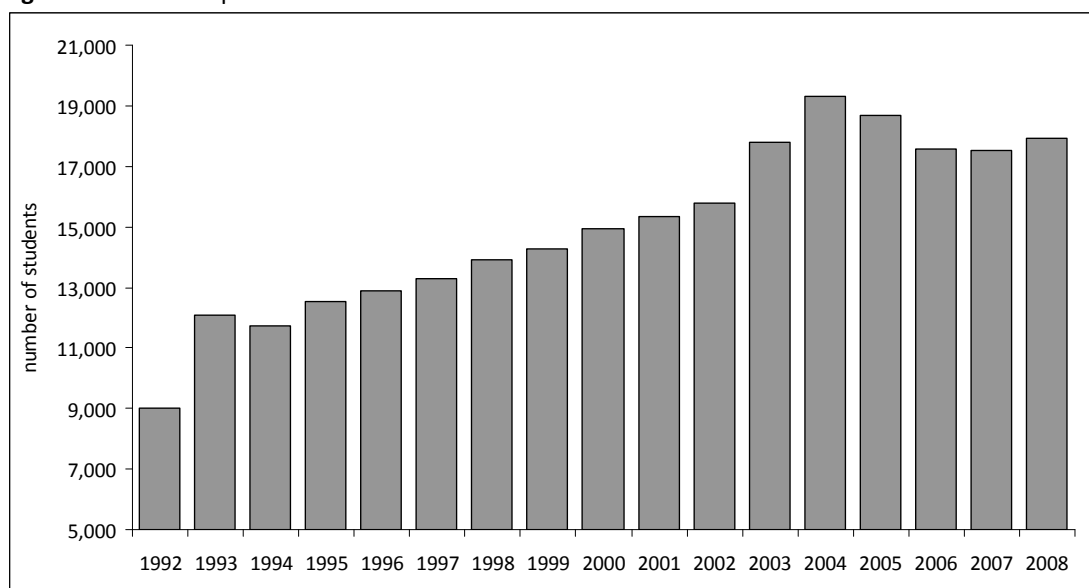
Source: UFZ database

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 1992-2008*



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

Source: UFZ database

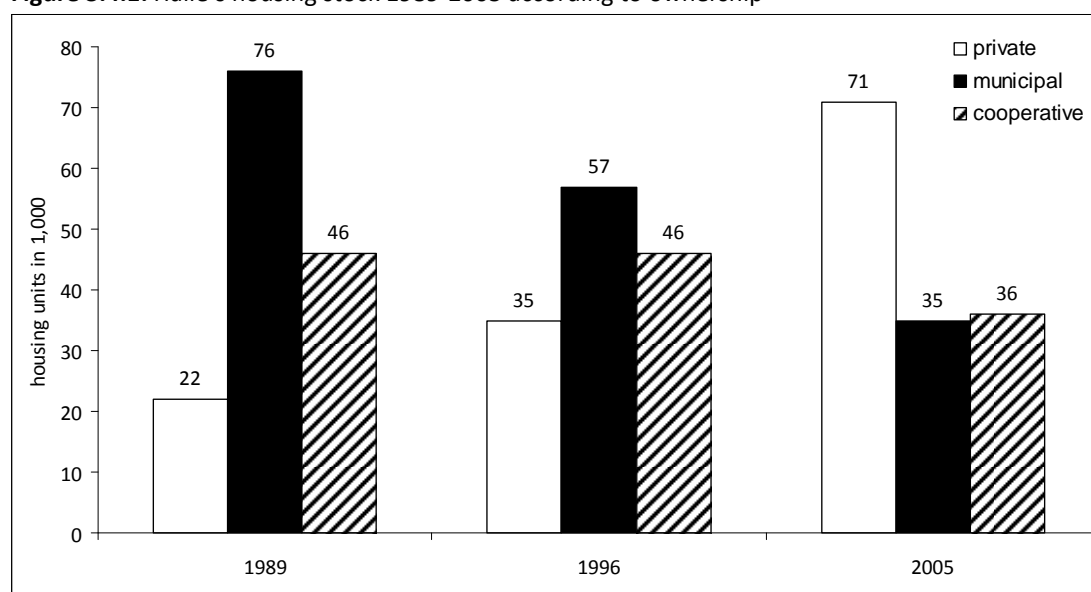
The number of doctors increased from 1996 (750) to 2008 (1,750). Today the population is better supplied with medical care: the relation doctor/1,000 inhabitants increased from 1996 – 2008 from 3 to 8. The supply with general practitioners and medical specialists differs considerably between the urban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

3.4 Housing

Urban shrinkage is 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, other dimensions of urban shrinkage are possibly underestimated in their importance because of the predominance of the 'vacancy issue'.

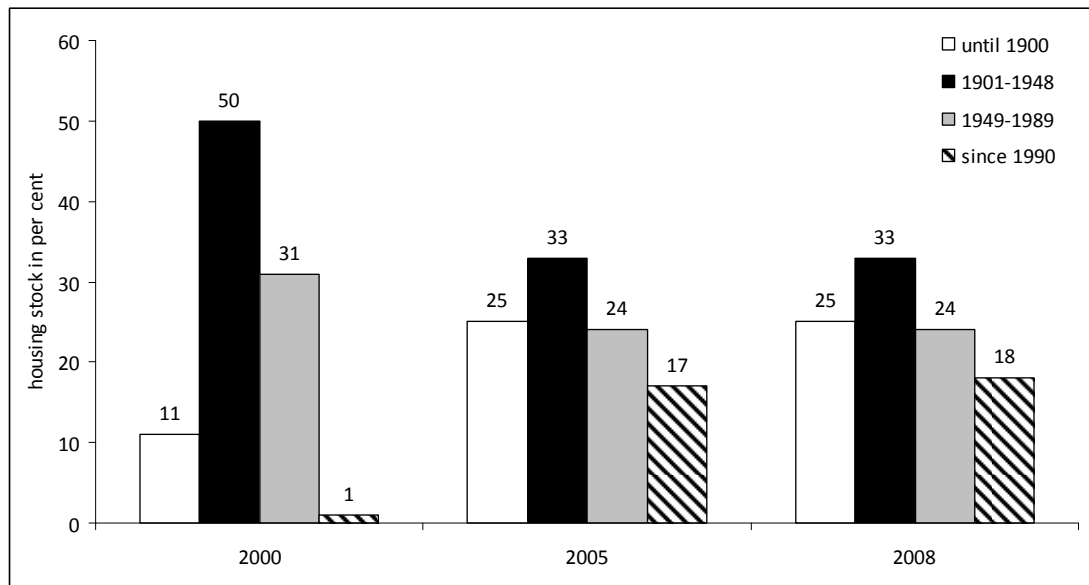
Compared to Leipzig, Halle's housing market is characterized by a larger share of prefab houses (despite of demolitions, see also Breuste, J. and I. 2006, 173). In 2008, prefabs showed the largest share (33 per cent) while pre-1948 and post-1990 building stock had shares of about 25 (Figure 3.4.1 right). 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).

Figure 3.4.1: Halle's housing stock 1989-2005 according to ownership



Source: UFZ database

Figure 3.4.2: Halle's housing stock 2000-2008 according to year of construction

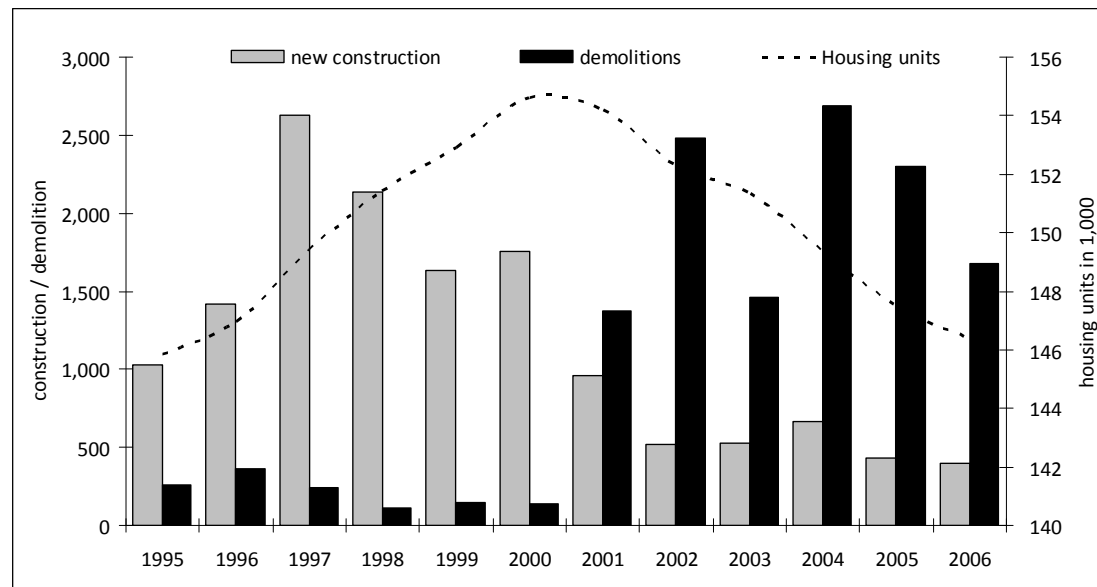


Source: UFZ database

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).

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 3.4.3 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 3.4.3: Housing units, new constructions and demolitions in Halle 1995-2006



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
Halle													
Units in one- or two-family houses	197	145	482	231	307	657	407	218	309	397	247	251	3,848
Units in multi-family houses	835	1,273	2,143	1,905	1,324	1,100	551	297	218	269	187	143	10,245
Total	1,032	1,418	2,625	2,136	1,631	1,757	958	515	527	666	434	394	14,093
<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
Suburban region													
Units in one- or two-family houses	558	775	865	1,541	1,238	1,160	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.
Total	861	1,377	1,760	2,047	1,563	1,371	657	626	585	372	368	378	11,965
<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
Total	1,893	2,795	4,385	4,183	3,194	3,128	1,615	1,141	1,112	1,038	802	772	26,058

Source: UFZ database and authors' calculations

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. 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 2007c, 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.

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 prefab 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 prefab flats. Generally, the demand for prefab 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 reurbanization trends are much less pronounced than in cities such as Leipzig and Dresden, 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 1990-2007

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 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	14,475	1,003	-235	-3,878	-1,948	-1,126	-157	-7,400*	56**
Change total	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)

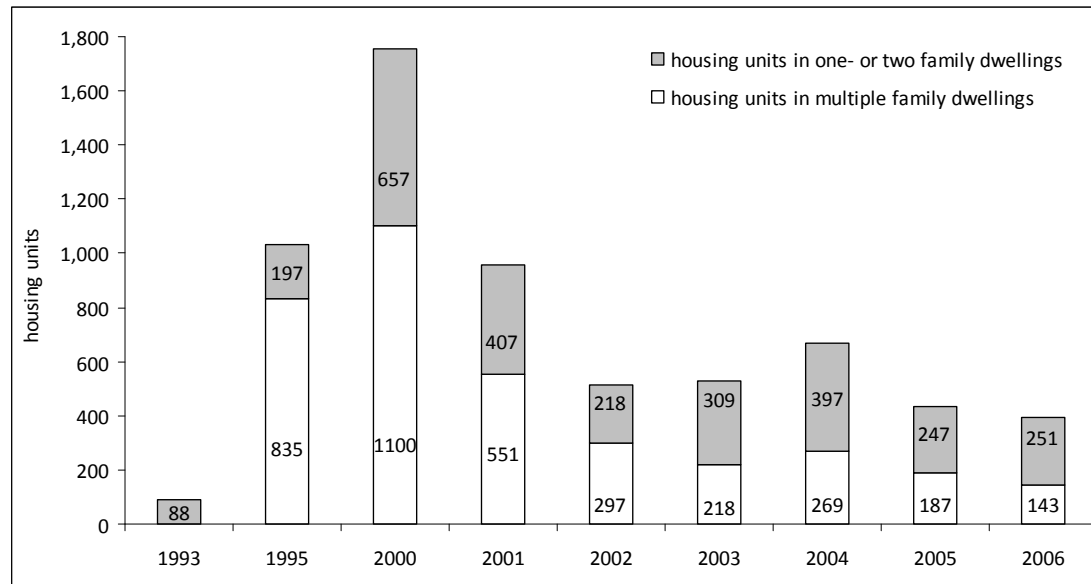
Source: UFZ database

In order to counter these high vacancies, Halle (like nearly all other East German municipalities) participated in the federal programme of urban restructuring (*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 2007c, 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 3.4.4; HCC 2007c, 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 3.4.4: Building completions in Halle 1993-2006 according to the type of housing



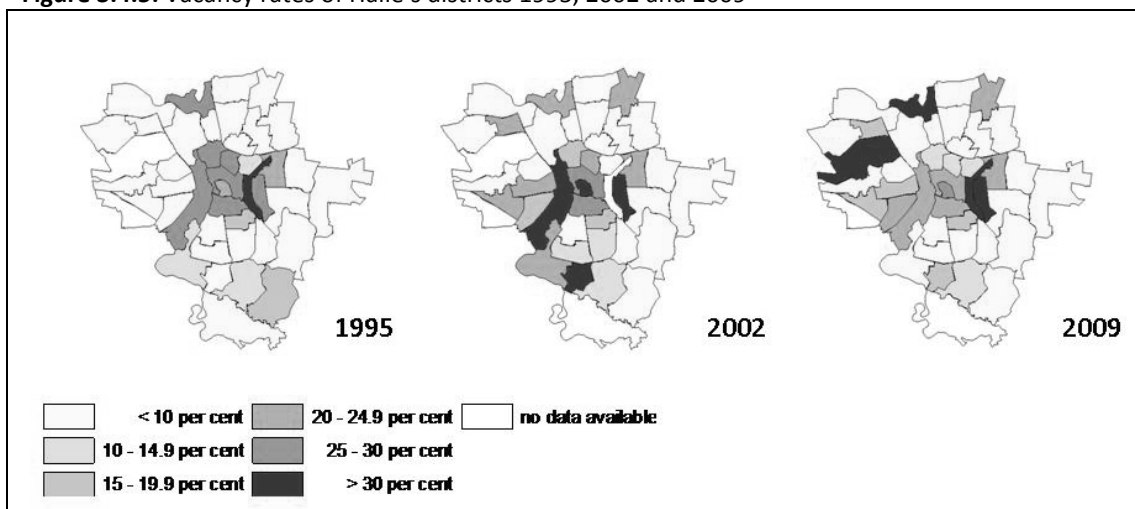
Source: UFZ database

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 2007c, 12). 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 prefabricated 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 3.4.5, 3.4.6, 3.4.7; 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 prefabricated 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, prefabricated 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 2007c, 53).

Figure 3.4.5: Vacancy rates of Halle's districts 1995, 2002 and 2009



Note: 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 3.4.6: Housing demolition in a prefab housing estate



Source: Dieter Rink

Figure 3.4.7: Vacant old built-up housing



Source: Johanna Ludwig

The living space per inhabitant increased 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 2007c, 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 of bigger importance in the future. Currently, this segment shows the biggest demand surplus in Halle (HCC 2007c, 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 2007c, 15).

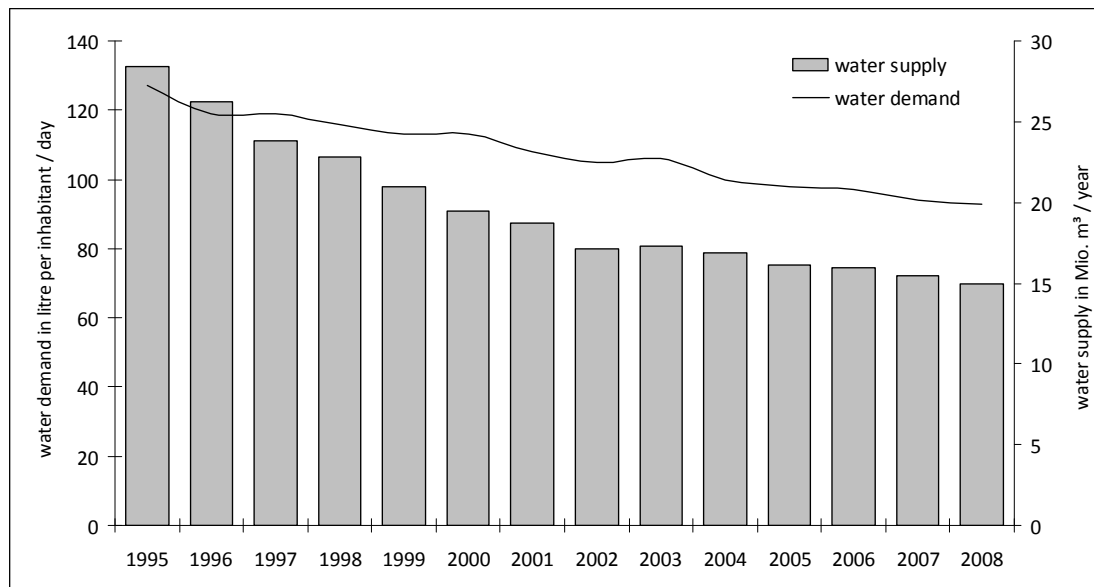
3.5 Technical infrastructure

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 m³ in 1995 to 7,9 Mio m³ 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 2008a). 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

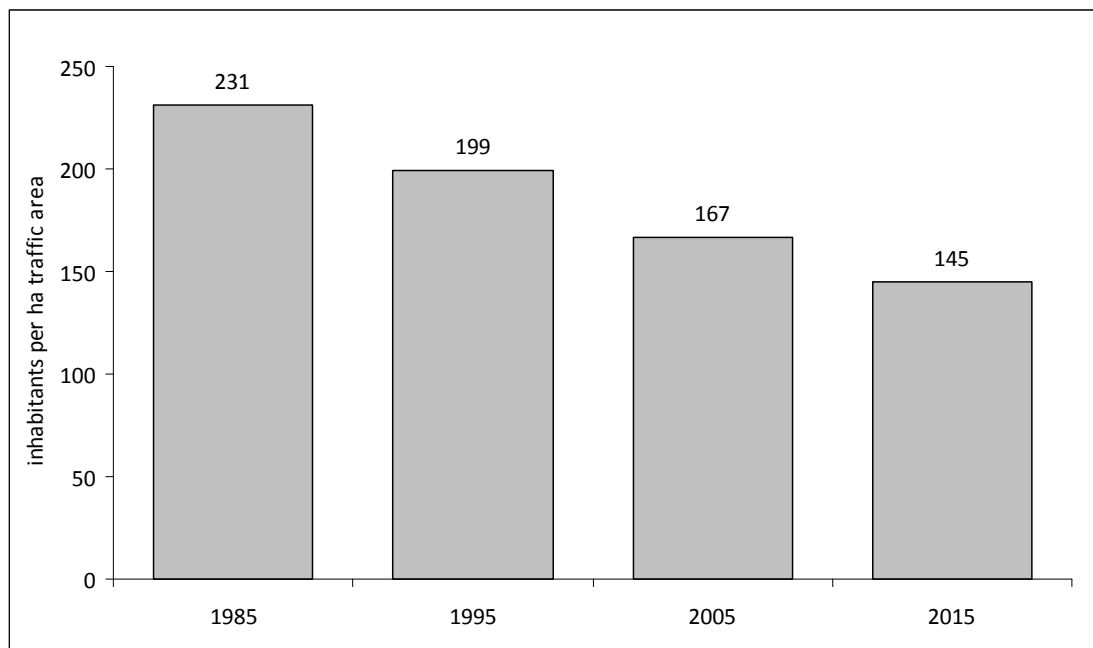
At the same time, the overall grid has been slightly but continuously expanded from 1994 to 2004 (about 60 km), so that a falling water demand is met by an expansion of the supply network. This situation leads to numerous technical problems (Koziol 2004, 122-123) and presents a danger for the quality 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 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 stable 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.

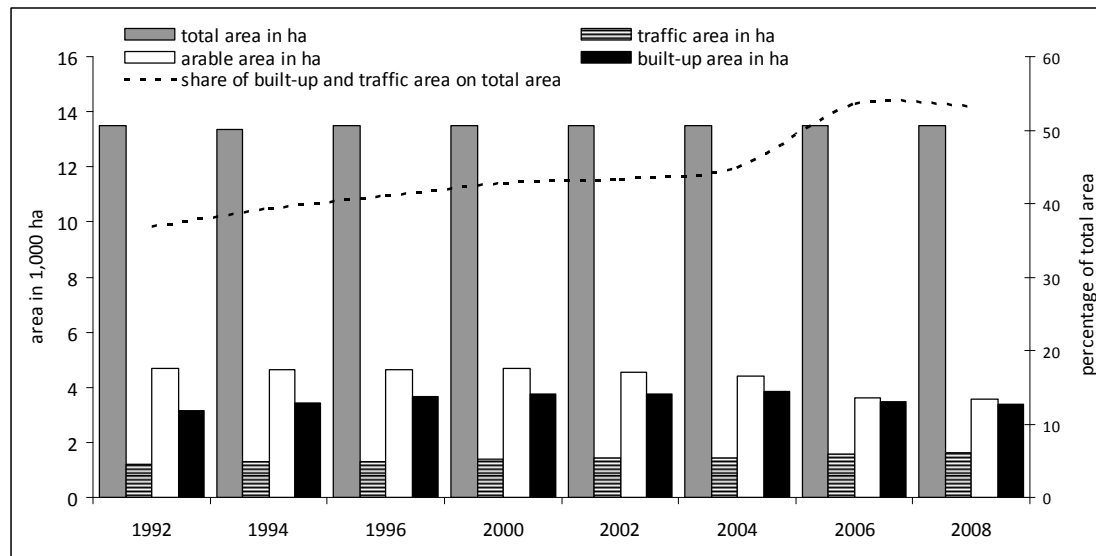
Public transport has not yet been reduced dramatically; nevertheless it is also burdened with a worsening of the balance between revenues and expenditures, as the number of passengers has continuously declined from 321,302 per day (1989) to 151,633 (2008). In some areas (e.g. the large housing estate 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.

3.6 Land use and environmental quality

New land uses in the city of Halle and the surroundings

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 Nuisl and Rink 2005). 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 1992-2008



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 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



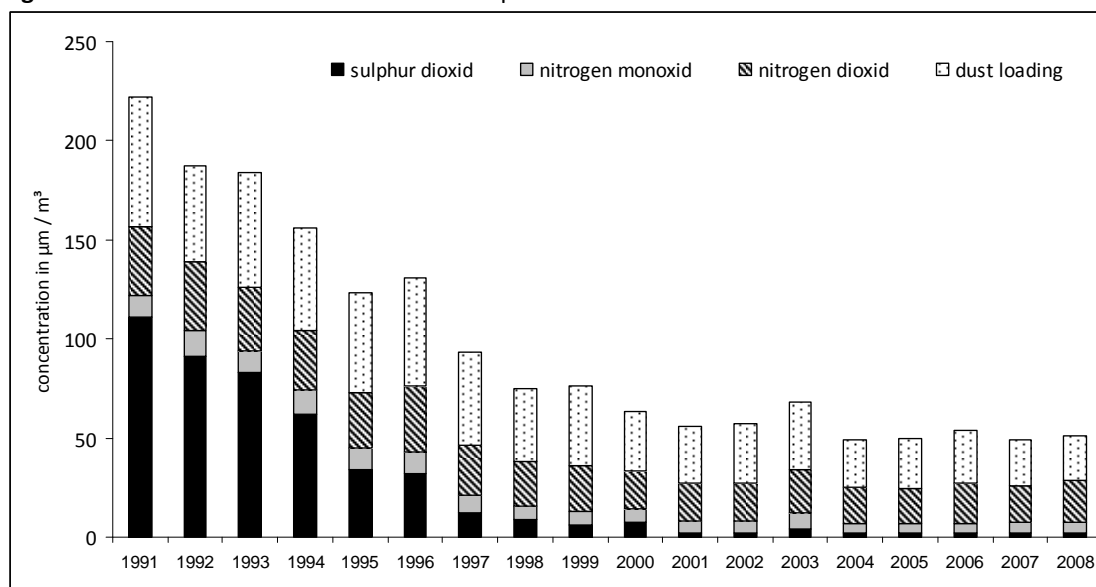
Source: Dieter Rink

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 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

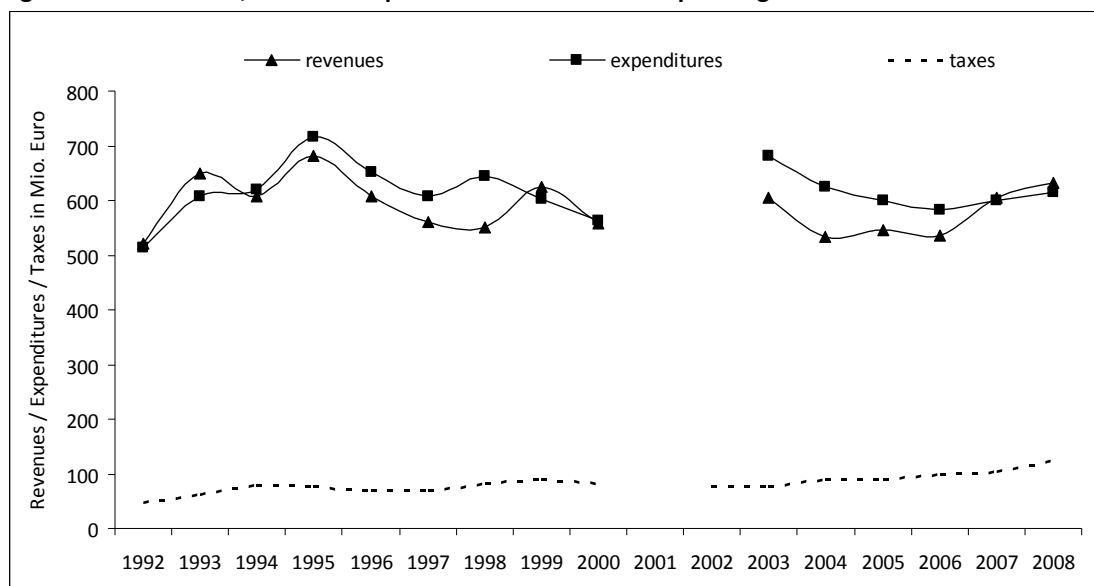


Source: UFZ database (measuring point: city centre)

3.7 Municipal finances and budget

In Halle, data availability concerning municipal finances and budgets has proved to be very problematic. 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. 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 1992-2008



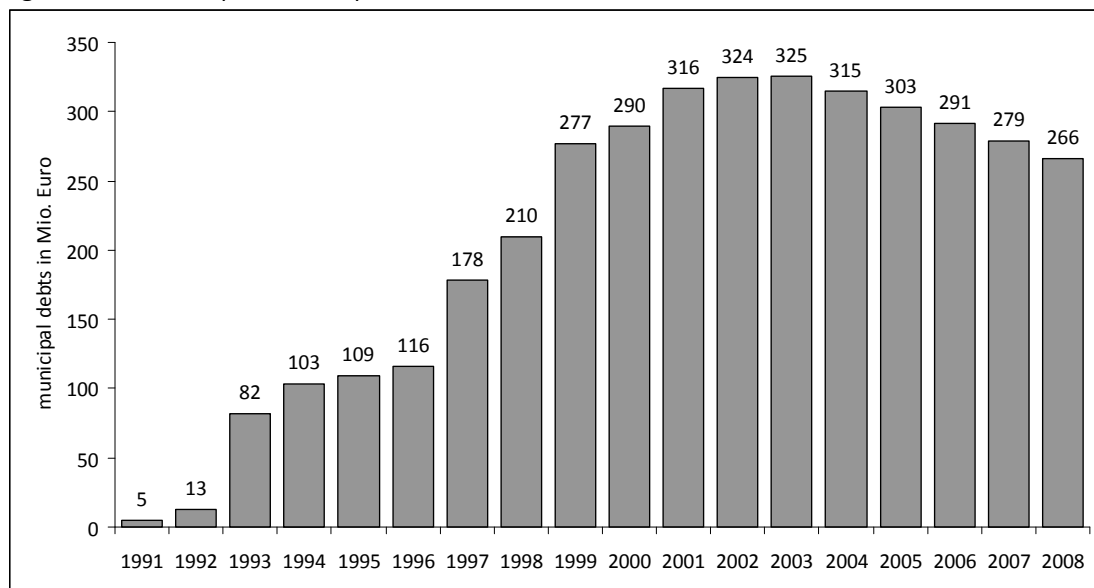
Source: UFZ database

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. After 2003 Halle changed 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 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.

4 ANNEX: DATABASE HALLE

The following annex lists all data the figures in the text of.

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 1993-2008 according to target region

Year	Germany	Western Germany	International	Suburbia
1993	726	-1,723	1,193	- 844
1994	-4,184	-1,135	784	-1,628
1995	ww6,151	-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 1993-2008 according to target region

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 1993-2008 according to target region

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 1969-2007

Year	1st Sector	2nd Sector	3rd Sector
1969	n.a.	72,116	88,415
1970	n.a.	75,942	88,519
1971	40	68,464	70,266
1972	28	68,390	71,432
1973	557	69,007	74,146
1974	1,927	69,099	77,280
1975	1,879	70,340	77,105
1976	1,489	71,417	79,138
1977	1,443	71,895	80,143
1978	1,022	72,816	80,173
1979	1,496	70,869	80,205
1980	604	70,047	80,843
1981	207	71,369	80,976
1982	n.a.	n.a.	n.a.
1989	862	74,239	86,201
1990	862	60,920	92,749
1991	700	40,800	113,200

Year	1st Sector	2nd Sector	3rd Sector
1992	600	41,700	108,300
1993	800	44,700	104,600
1994	600	45,600	109,100
1995	500	42,800	104,000
1996	800	40,000	104,000
1997	800	36,500	99,400
1998	800	32,800	103,800
1999	800	29,500	106,200
2000	700	25,700	106,700
2001	600	22,000	108,600
2002	500	19,300	108,100
2003	500	17,400	107,200
2004	400	16,700	109,300
2005	400	15,600	106,700
2006	400	14,500	107,500
2007	400	14,800	106,800

from 1990 onwards including Halle-Neustadt

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

Figure 2.2.2: Number of unemployed and long-term unemployed 1990-2008

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

Source: Langzeitarbeitslose 1998-2004 IGNIS; HCC 2007c: 14 (until 2001 Statistisches Landesamt, since 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 1995-2007

Year	GDP er inhabitant (Germany) in Euro	GDP per inhabitant (Halle) in Euro
1995	22,636	17,595
1996	22,909	18,759
1997	23,346	19,271
1998	23,960	19,422
1999	24,511	20,338
2000	25,095	19,893
2001	25,664	20,688
2002	25,984	22,098
2003	26,222	22,342
2004	26,798	23,406
2005	27,190	22,693
2006	28,229	22,577
2007	29,518	22,922
2008	30,392	n.a.
2009	29,380	n.a.

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

Figure 3.1.1 Monthly net-rent in Halle 1989-2007 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

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

Source: HCC 2007c

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

from 2001 including nurseries in primary schools.

Source: HCC 1993a-2008a

Figure 3.3.2: Development of number of students in Halle 1992-2008

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

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

Source: HCC 1993a-2008a

Figure 3.4.1: Halle's housing stock 1989-2005 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

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

Figure 3.4.2: Halle's housing stock 2000-2008 according to year of construction

	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 3.4.3: Housing units, new constructions and demolitions in Halle 1995-2006

Year	Housing units	New constructions	Demolitions
1995	144,613	1,032	263
1996	144,522	1,418	360
1997	148,449	2,625	245
1998	149,256	2,136	116
1999	149,646	1,631	150
2000	151,443	1,757	135
2001	154,215	958	1,378
2002	152,263	515	2,485
2003	151,342	527	1,460
2004	149,346	666	2,688
2005	144,577	434	2,297
2006	143,307	394	1,677

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

Figure 3.4.4: 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 ³ / 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: IGNIS [Statistisches Landesamt Sachsen-Anhalt]; HCC 1993a-2008a

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 1992-2008

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	111.0	11.0	35.0	65.0
1992	91.0	13.0	35.0	48.0
1993	83.0	11.0	32.0	58.0
1994	62.0	12.0	30.0	52.0
1995	34.0	11.0	28.0	50.0
1996	32.0	11.0	33.0	55.0
1997	12.0	9.3	25.0	47.0
1998	8.7	7.3	22.0	37.0
1999	6.4	6.8	23.0	40.0
2000	7.7	6.9	19.0	30.0
2001	2.1	5.9	19.0	29.0
2002	2.1	6.0	19.0	30.0
2003	4.2	8.0	22.0	34.0
2004	2.1	4.9	18.0	24.0
2005	2.1	4.6	18.0	25.0
2006	2.1	5.0	20.0	27.0
2007	2.1	5.1	19.0	23.0
2008	2.1	5.2	21.0	23.0

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

Figure 3.7.1 Revenues, taxes and expenditures in Halle's municipal budget 1992-2008

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: HCC 1993a-2008a

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: HCC 1993a-2008a

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