DERREG

Developing Europe's Rural Regions in the Era of Globalization

SEVENTH FRAMEWORK PROGRAMME

CASE STUDY CONTEXTUAL REPORT 4

Direktionsbezirk Dresden

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1. Introduction

1.1 Location and Geography

The “Direktionsbezirk” Dresden (from now ‘DB Dresden’) is one of three Direktionsbezirke together with Leipzig and Chemnitz which form the Free State of Saxony (*Freistaat Sachsen)*, in eastern Germany (figure 1). DB Dresden is classified as a NUTS 2 statistical region. The DERREG case study area corresponds to the four territorial districts of DB Dresden (see figure 2), but excludes the cities of Dresden, Hoyerswerda and Görlitz. DB Dresden is located in the east of Saxony and has international borders with Poland to the East and the Czech Republic to the South, with this border region of the three countries previously forming the historical central European region of Silesia. The historic state of Saxony has lain at the heart of German-speaking Europe throughout the past millennium and was part of the German Democratic Republic (GDR) during communist rule (1949–1989), before being re-established as a Land in the federal republic following German reunification.

With an area of 7,931 km², DB Dresden comprises lower lying heath and pond landscapes in the north of the region, rising to mountainous terrain in the south. This characteristic sequence of the Saxon landscape is bisected by the Elbe river valley, flowing from the south to the north-west through the Dresden Basin and the city of Dresden and carving the mountainous landscape of Saxon Switzerland out of the region’s sandstone.

Figure 1: Location of the Free State of Saxony in Germany (left). Source: Wikipedia Commons.
Figure 2: Division of Saxony into DB Chemnitz, DB Leipzig and DB Dresden, which are further subdivided into 10 districts. Source: Wikipedia Commons.

In 2006, the population for the whole of DB Dresden was 1,662,482, whilst the DERREG Dresden case study region (without the cities of Dresden, Hoyerswerda and Görlitz) included just under two-thirds of this population at 1,060,400. The NUTS 2 region of DB Dresden is categorized by Eurostat as ‘intermediate rural’, with 76.9% of its territory falling within this classification[1]. This gives a population density of 209.3 persons per km², or 154.1 km² for the case study region without the main urban centres. This latter figure is the third highest across DERREG case study regions after Saarland, Germany, and the Westerkwartier in the Netherlands.

[1] Source: EU Rural Development Report 2008

The main population centre in DB Dresden is the city of Dresden (which is also the capital city of the Free State of Saxony) with 512,234 persons in 2008 or 30% of the regional population, followed by cities of Görlitz (56,461) and Hoyerswerda (41,458). These three cities are excluded from the DERREG case study, and within the case study area the largest towns are Bautzen (41,161), Pirna (39,751), Radebeul (33,300), Zittau (29,898) and Meißen (27,856), followed by a large number of smaller towns with a population between 5,000 and 20,000 residents. Only 5.9% of DB Dresden's population are classified as living in 'predominantly rural' areas by Eurostat.

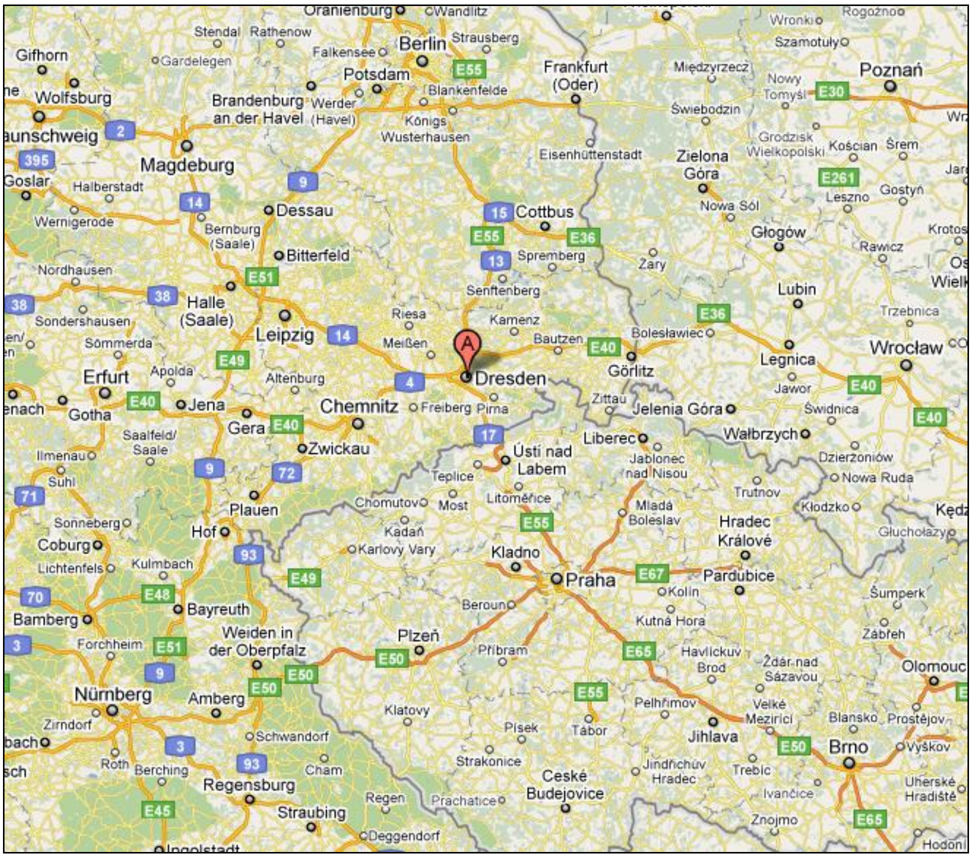

Figure 3: Transport connections from DB Dresden. Source: Google Maps.

The Dresden case study region is characterized by a well developed road network with three federal motorways crossing the region (BAB 4: Aachen-Eisenach-Dresden-Görlitz-Wroclaw, BAB 13: Dresden-Berlin and BAB 17: Dresden-Prague) providing connections to the cities of Saxony (Leipzig, Chemnitz) as well as other major German cities including Berlin (2 hours by car) and also the Czech Republic (BAB 17) and Poland (BAB 4). The region also possesses a dense minor road network so that towns and villages are fairly accessible. The whole Saxon railway network covers about 2,700 km and includes high-speed tracks as well as local public transport systems and similarly interconnects the main urban centres of Saxony (Dresden-Leipzig-Chemnitz) with other parts of Germany and European countries. The concentration of regional transport links in Dresden city thus gives the NUTS 2 region of DB Dresden a high score of 170,000 on ESPON's accessibility index; however, scores are considerably lower for the non-metropolitan NUTS 3 level districts comprising this.

DB Dresden is landlocked, but the Elbe River is the second most important waterway of Germany. It connects the case study region with the Czech Republic and the major German seaport of Hamburg. Dresden International Airport offers non-stop flights to several European countries (currently: Russia, Bulgaria, Turkey, Cyprus, Greece, Hungary, Poland,

Italy, Austria, Switzerland, Spain, Portugal) as well as North-Africa (Tunisia) and to nine destinations in Germany. Whilst, the nearby Berlin airports (Berlin-Schönefeld / Berlin-Tegel) provide a greater range of international and long-haul destinations, handling 21.1 million passengers in 2008.

1.2 Government and Politics

Saxony is one of sixteen *Länder* or federal states which make up Germany. Currently five of these states are divided into 22 *Regierungsbezirke*, an administrative sub-division roughly equivalent to a province in other European countries. On August 1st 2008, Saxony restructured its districts (*Landkreise*) and changed the name of its *Regierungsbezirke* (Chemnitz, Dresden and Leipzig) to *Direktionsbezirke*. Saxony has its own parliamentary legislature, the *Landtag* of Saxony, based on the Constitution of the Free State of Saxony from 1992 and headed by a Minister-President. At the regional government level, each *Direktionsbezirk* has a governing authority named the *Landesdirektion* ('Land Management').

Since 2008, Direktionsbezirk Dresden has been divided into four administrative districts/counties and the city of Dresden, where formerly there were 8 rural districts and three city districts (figure 4). This administrative reorganisation also altered the territories of the statistical units used in the NUTS hierarchy. As such, where data quoted in this report for the case study region predates 2008 it relates to the eight rural pre-2008 Landkreise (NUTS 3 regions) (as indicated in table 1); but for data since 2008, the case study region relates to the four new Landkreise of Bautzen, Görlitz, Meißen and Pirna. Where data is quoted for 'DB Dresden', this is for the whole NUTS 2 region, including the city districts.

	NUTS1	**NUTS2**	**NUTS3**	**LAU1**	**LAU2**
Pre-2008	Saxony	Dresden (*Regierungsbezirk*)	Landkreis Bautzen (district) Landkreis Meißen (district) Niederschlesischer Oberlausitzkreis(district) Landkreis Riesa-Großenhain (district) Landkreis Löbau-Zittau (district) Landkreis Sächsische Schweiz (district) Weißeritzkreis (district) Landkreis Kamenz (district) ***Not included in case study:*** Dresden, Kreisfreie Stadt (city) Görlitz, Kreisfreie Stadt (city) Hoyerswerda, Kreisfreie Stadt (city)	Same as NUTS 3	201 municipalities
Post-2008	Saxony	Dresden (*Direktionsbezirk)*	Landkreis Bautzen (district) Landkreis Görlitz (district) Landkreis Meißen (district) Landkreis Sächsische Schweiz-Osterzgebirge (district) ***Not included in case study:*** Dresden, Stadt (city)	Same as NUTS 3	204 municipalities

Table 1: Hierarchy of administrative/statistical units for DB Dresden pre-2008

Each of the post-2008 districts is governed by its own administrative centre (city of Bautzen/district Bautzen, city of Görlitz/district Görlitz, city of Meißen/district Meißen and city of Pirna/district Saxon Switzerland-Eastern Ore Mountains). Every district is subdivided into several municipalities which are the smallest administrative entities (LAU-2). In total, DB Dresden covers 204 municipalities.

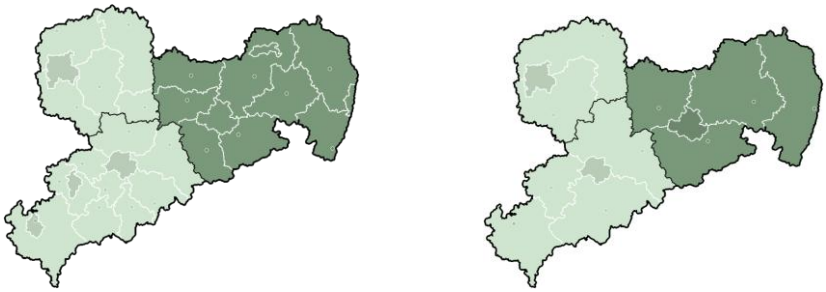

Figure 4: The administrative sub-division of DB Dresden, pre-2008 (left) and post-2008 (right). Source: Wikipedia Commons.

Since elections in 2009, the Free State of Saxony has been governed by a coalition of the centre-right Christian Democratic Union of Germany (CDU) and the liberal Free Democrat Party (FDP). This replaced a previous coalition of the CDU and the centre-left Social Democrats (SPD), following gains by the FDP in the elections. The CDU won all the constituency mandates in the DB Dresden, including the gain of the Hoyerswerda constituency from the left-wing *Die Linke* party (which incorporates the former Communists). The conservative political bias is repeated in local government, with the CDU emerging as the largest party in Meißen and Saxon Switzerland *kreise* in elections in 2009, and as the second largest grouping behind Independent candidates in Bautzen and Görlitz (table 2). Left-leaning parties achieved only around a fifth of the vote in all four districts. There is some local political concern about growing support for the far-right National Democratic Party of Germany (NPD), which has 19 representatives in local government in the case study region, and which polled 7% of the vote in the case study region in the 2009 Landtag elections (compared with 5.6% across all of Saxony). The decline in support for mainstream democratic parties and concurrent increasing visibility of extreme right-wing associations and parties in rural society has been identified as an important local issue and, in particular, the recruitment of young people by the NPD.

District	CDU	Ind	DIE LINKE	SPD	FDP	GRÜNE	Others
Bautzen	34.3	35.1	12.1	6.9	7.8	1.3	2.5
Görlitz	31.1	41.8	12.8	5.1	5.0	1.7	2.6
Meißen	35.7	29.9	13.2	8.3	8.2	1.2	3.5
Saxon Switzerland/Eastern Ore Mountains	37.4	32.7	12.4	5.0	6.5	2.1	3.7

Table 2: Results of the local election by districts, June 2009 (in percent). Source: Statistical bureau of the Free State of Saxony

2. The Regional Economy

2.1 Economic History

The economic history of the Dresden case study region is closely connected to its topographic situation and the occurrence of natural resources. Fertile soils along the river plains saw the first dense settlement structures developing in the Elbe valley of Dresden from the 6th Century AD, with the historic Lusatian region along the Saxony-Poland border becoming the focus for the region's agricultural sector. Later, the discovery of silver and tin ores in the Erzgebirge (Ore Mountains) range along what is now the German-Czech border led to the development of so-called "Mountain Cities" (Altenberg, Schmiedeberg, Glashuette) in the 15th century. The commercial relevance of mining declined in the middle of the 16th century, while the production of textiles developed as a second economic pillar and, later,

porcelain and glass manufacture were established in parts of the region (e.g. in Meißen) during the 18th century.

The period of industrialization started in Saxony in the year 1835, with the textile industry in the Ore Mountains and Upper Lusatia and mechanical engineering in Bautzen and Neukirch experiencing rapid economic growth. This led to massive increases in energy consumption and the beginnings of brown coal mining in Upper Lusatia, with open-cast mining intensified in the 1970s during the regime of the GDR. Under Soviet occupation following WWII, most economic sectors in the in the Dresden case study region were collectivised, including agriculture, whilst energy production, textiles and engineering remained the most important industries even in the Socialist era. After German reunification in 1990, a transformation of the regional economy occurred alongside wider social change, with deindustrialisation, falling levels of production and high unemployment causing mass out-migration to former West German regions. Rural regions were particularly badly affected by the deep economic depression impacting across the former eastern Germany. The depression continued into the mid-1990s when economic growth and restructuring steadily resumed, with the main focus of this growth being the service sector.

This trend is reflected in the Dresden case study region, where the GVA of the service sector increased by around 30% between 1995 and 2005, while the industrial sector declined by 11% over the same period (figure 5). However, industry has shown signs of growth in recent years, with the sectoral GVA increasing slightly since a low in 2003. Whilst making up a significantly smaller proportion of the regional economy (only 1.7% of the 2005 total), the GVA of the agricultural sector also declined by just under 30% since 1995. The balance between service and industrial sector employment reflects a similar trend since 2000 (figure 6), with figures for the DB Dresden NUTS 2 region showing employment in public, financial and other services (including tourism and hospitality) collectively increasing from 466,700 to 499,600 between 2001 and 2007 and accounting for two-thirds of regional employment. Industrial sector employment has been relatively stable over the same period, before increasing to a high of 162,200 in 2007.[2]

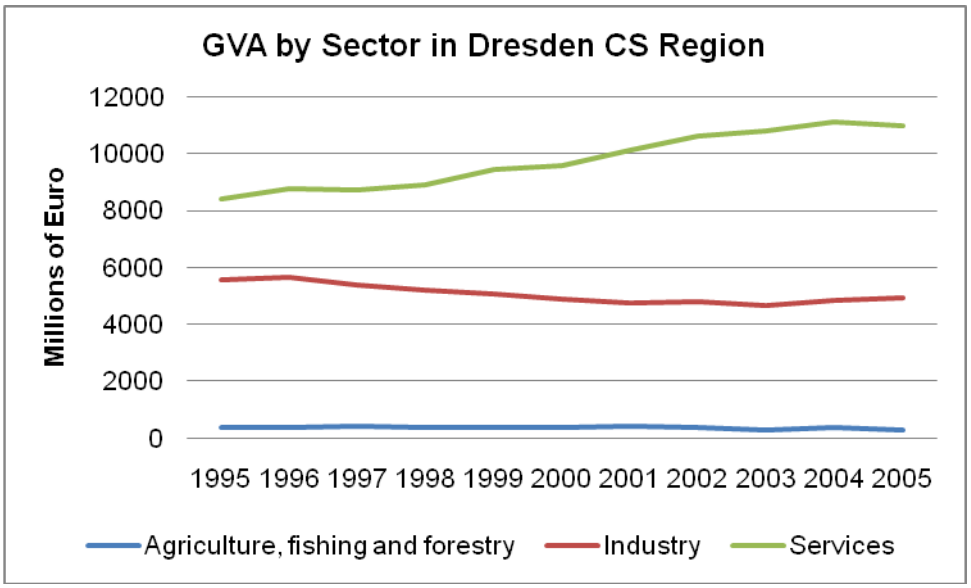

Figure 5: Gross Value Added (GVA) by sector in Dresden case study region, 1995-2005
Source: Eurostat

[2] Source: Eurostat

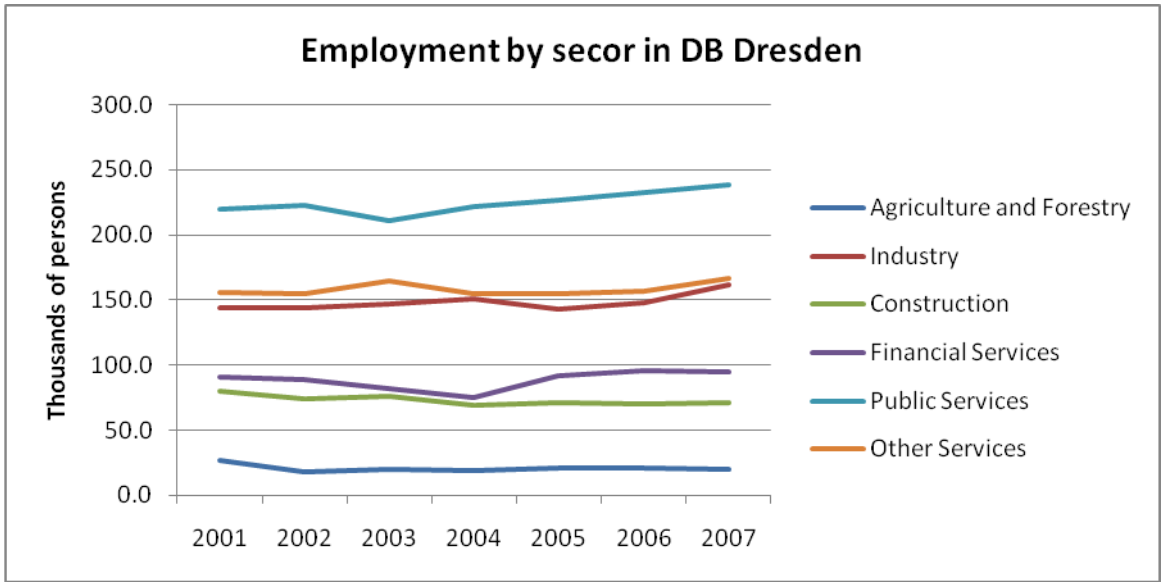

Figure 6: Employment by sector in DB Dresden NUTS 2 Region, 2001-2007
Source: Eurostat

This steady economic recovery since the mid-1990s has seen the average GDP per capita across the Dresden case study region NUTS 3 districts increase by 28%, from €13,800 in 1995 to €17,675 in 2006. This latter figure gives Dresden the fifth highest GDP amongst the ten DERREG cases study regions but is 24% lower than the Saarland case study in Western Germany and 25% below the EU average.[3]

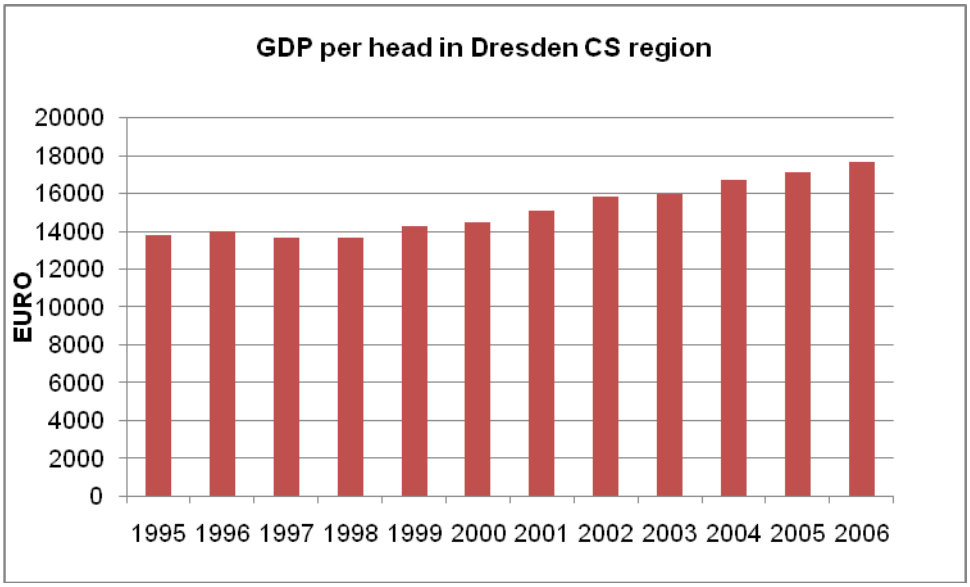

Figure 7: Gross Domestic Product (GDP) per head of capita in the Dresden case study region, 1995-2006. Source: Eurostat

2.2 Present Economic and Employment Structure

The service sector is currently the most important area of activity in the Dresden economy, as measured by employment and contribution to GVA. Services contributed 67.8% of regional GVA in 2005, compared to 30.4% from industry and only 1.7% from agriculture, and

[3] Source: Eurostat

employed 66% of the working population in 2007, with the remaining 31.0% in industry (including construction) and 2.7% in agriculture.[4]

Despite the dominance of the service sector, industrial employment remains higher than the German national average of 29.8% and has increased slightly from a 30.3% share of the regional total in 2005. These recent signs of industrial growth may be related to a developing high-tech sector, with a particular focus on the production of renewable energy technologies (e.g. photo-voltaic) around Dresden and in the former mining areas in Upper Lusatia. Additionally, Saxony has an established microelectronics sector based predominantly to the north of Dresden city and dubbed 'Silicon Saxony' which pre-dates German reunification. While heavy industry suffered in the economic depression following the collapse of the Soviet bloc, the microelectronics sector recovered (with state support) and expanded during the subsequent two decades, now employing more than 30,000 people.[5] Pharmaceutical production and mechanical and electrical engineering are also strong industrial sectors based around Dresden city, for example the Sächsisches Serumwerk Dresden (Saxon Serum Plant, Dresden), owned by GlaxoSmithKline, is a world leader in vaccine production. Tourism is a growth business sector and particularly in rural areas, such as the lake district of Lusatia (*Lausitz*).

The employment rate among the active population (aged 16-64) of DB Dresden was 66% in 2006, the fourth highest amongst the DERREG NUTS 2 scale regions. Yet despite recent signs of economic growth, unemployment remains extremely high in DB Dresden at 115,900 or 13.3% of the active population in 2007 and the figure for the Dresden case study region is higher still at 15.5%. This represented a decrease in recent years after peaking at 19.7% in 2004, yet still remains the highest unemployment rate across all the DERREG case study regions. Within DB Dresden there are geographical variations amongst administrative districts, with the highest rates in 2007 found in Löbau-Zittau (17.1%) and Niederschlesischer Oberlausitzkreis (16.8%), both of which form the border with Poland, and compared to a lower rate of 11.6% in Dresden city. Youth unemployment (aged 15-24) in DB Dresden is also the highest across DERREG NUTS 2 regions at 19.5%, leading many young and highly skilled persons to leave the case study region in search of better job opportunities.[6]

Dresden city is the largest employment centre in DB Dresden and the primary focus for commuting within the region. Only 3.4% of the economically active population commute to work outside the region, with the cities of Chemnitz and Leipzig within Saxony, and Berlin and Cottbus in Brandenburg to the north, main destinations for this activity. The largest employers in the region are similarly concentrated around the administrative and educational functions of Dresden city (e.g. local government, universities, hospitals), as well as companies involved in 'Silicon Saxony's' semiconductor industry (e.g. GlobalFoundries, Infineon Technologies, ZMD and Toppan Photomasks). Large employers outside Dresden in the case study region are located in several smaller towns, including Görlitz and Bautzen, as detailed in table 3.

[4] Source: Eurostat
[5] Source: http://www.silicon-saxony.de/en/index_mikro.html
6 Source: Eurostat

Name	*Location*	*Sector*	*Employees*	*Ownership*
Bombardier Transportation DWA Deutsche Waggonbau GmbH	Görlitz	vehicle and machinery construction, transport	2,200	Bombardier Group (Canada)
Sachsenmilch AG	Leppersdorf	food production, dairy factory	780 (in 2007)	Müller Group (Germany)
Vodafone GmbH - Kundenbetreuungszentrum Bautzen	Bautzen	communications	(> 500)	Vodafone (UK)
Siemens AG - Power Generation Görlitz	Görlitz	machinery construction	(> 500)	Siemens (Germany)
Vattenfall Europe Generation AG & Co. KG	Boxberg	energy production	1,200	Vattenfall (Sweden)
Wacker Chemie AG - Werk Nünchritz	Nünchritz	Chemical industry, production of chemicals	930 (in 2008)	German limited company (AG)
BGH Edelstahlwerke GmbH	Freital	metal processing and production	720	German limited liability company (GmbH)
Klinik Bavaria Rehabilitations KG	Kreische	health service	(> 500)	Privately owned (Germany)
SSL Maschinenbau GmbH	Eibau	machinery construction	190	German limited liability company (GmbH)

Table 3: Major employers in the Dresden case study region

The labour force of DB Dresden is almost evenly balanced between manual (49.3%) and non-manual (50.7%) occupations (2007 figures), but is geographically differentiated. Non-manual occupations form of the majority of employment in Dresden city, whilst manual occupations are in the majority in the case study area. Only Meißen, of the eight pre-2008 districts in the case study area, had a majority of non-manual workers in 2007. The highest proportions of manual workers were found in Weisseritzkreis (59.7%) and Loebau-Zittau (59.4%).

The initial transition to privatisation following reunification created difficult economic conditions across eastern German regions. At the moment of reunification, the Eastern German economy was organised in large state-owned production facilities with a below-average productivity and excessive manpower. Politicians and economists were convinced that a complete rupture and reordering was necessary in order to develop a system of competitive companies in Eastern Germany[7]. A central body within this process of privatisation was the *Treuhandgesellschaft*, a state-owned agency founded during the reunification with the purpose to administer the break-up and privatisation of large-scale state combine of the former GDR. In 1990, the *Treuhandgesellschaft* was responsible for the future of 8,500 companies and 4 million employees. Between 1991 and 1999, more than 1,400 companies went bankrupt; others were split into smaller production units and sold as management buy-outs or to Western German and foreign investors.

Beer (2001)[8] states that some branches of the economy were reordered successfully within the first 10 years after reunification (e.g. automotive, electronics, metal processing, wood processing, foods, printing and publishing), others had to be subsidised due to their capital

[7] Beer, Siegfried (2001): Die Entwicklung ostdeutscher Industriebranchen seit der Wiedervereinigung – eine Zusammenfassung überarbeiteter und aktualisierter Branchenskizzen. In: IWH Discussion Papers, No. 150, August 2001. Available at: http://www.iwh-halle.de/d/publik/disc/150.pdf
[8] Ibid

intensity (e.g. mechanical engineering, chemical industry) which led to the start of recovery, while others had to be completely abandoned (shipbuilding, railway vehicles, textile & leather, jewellery). By 2001, it was the automotive and the foods sector that had mainly sustained the economic recovery of Eastern Germany. After this period of post-socialist transition, the impacts of globalisation became more dominant in the Eastern German economic development. Future sectors such as renewable energies, logistics, and micro electronics became more important. Furthermore, the service sector developed continuously. However, the speed of East German convergence to West German levels of GDP, unemployment rate, manufacturing output, wages, etc. is rather slow. Thus, the process of catching-up will still last some more decades[9].

In 2008, there were a total of 64,468 registered enterprises in DB Dresden. Just under one-third of these were located in Dresden city and with the remaining 43,685 distributed across the four post-2008 NUTS 3 districts of the case study region (Bautzen, 12,432; Meissen, 10,368; Sächsische Schweiz – Osterzgebirge, 10,745; and Goerlitz, 10,140). The breakdown of these 43,685 enterprises by sector of the economy is indicated in Table 4 below and in terms of size, the vast majority are micro enterprises with between 0-9 employees (90.9%), 7.4% are small to medium sized enterprises (10-49 employees) and only 1.7% employ 50 workers plus.

	Number	**%**
Mining	51	0.1%
Manufacturing	4047	9.3%
Energy	102	0.2%
Water supply and waste management	274	0.6%
Building and construction industry	8309	19.0%
Commerce, maintenance and car repair	9035	20.7%
Transport and storage	1705	3.9%
Hotel and restaurant industry	3122	7.1%
Information and communication	638	1.5%
Financial and insurance business	841	1.9%
Estate business	2466	5.6%
Freelance, scientific and technical services	3878	8.9%
Other economical services	1983	4.5%
Education and teaching	677	1.5%
Health and social services	3196	7.3%
Art, entertainment and recreation	808	1.8%
Other services	2553	5.8%
Total	43685	100.0%

Table 4: Businesses in Dresden case study region by economic sector, in 2008[10]

In 2006, business start-ups in DB Dresden exceeded business closures by 24%, at 17,158 compared to 13,823, leading to a net gain of 3,335 businesses. Roughly a third of these new businesses were concentrated in Dresden city, whilst 1,887 were distributed across the case study region as illustrated in Figure 8 below:

[9] Aumann, Bernd & Rolf Scheufele (2009): Is East Germany Catching Up? A Time Series Perspective. In: IWH Discussion Papers No. 14, August 2009.
[10] Source: Statistisches Landesamt des Freistaates Sachsen 2009

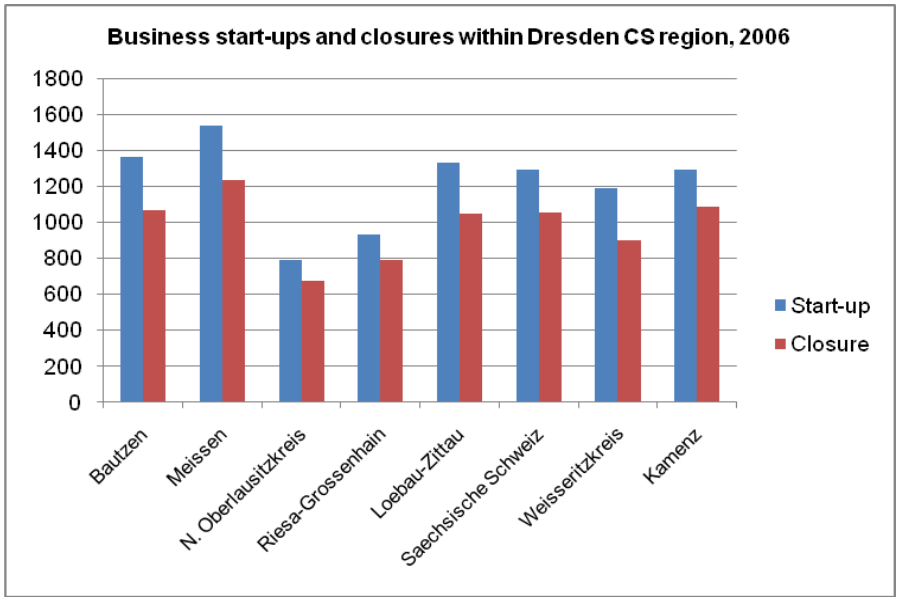

Figure 8: Business start-ups and closures by NUTS 3 district in Dresden case study region, 2006. Source: Statistisches Landesamt des Freistaates Sachsen

However, the following year saw the beginnings of the financial crisis in Europe which may have contributed to a fall in the annual rate of new business start-ups in the case study region while business closures increased slightly, leading to a net gain of just 632 new businesses across the 8 districts. Over a third of this growth was concentrated in the district of Meissen with the economies of the other districts relatively stagnant.

2.3 Rural Primary Industries

As previously noted, the marginal role of agriculture in the economy of the Dresden case study region has further contracted since the mid-1990s, from €393 million (or 2.7% of regional GVA) in 1995 to €280 million (1.7% of regional GVA) in 2005. Employment in the agricultural sector across DB Dresden similarly fell from around 26,800 full-time equivalent workers in 2000, to 20,200 in 2007, comprising just 2.7% of total employment.

In 2005, there were 2,880 farms in DB Dresden which was a small 2.4% decrease on the number in 2000.[11] The spread of these farms in terms of size is fairly even, with around one-third with holdings of less than 5 hectares, just over one-third with holdings between 5-50 hectares and just under one-third with holdings of more than 50 hectares of utilised agricultural area. However, the average farm size in 2005 was 126.6 hectares which is the highest across DERREG NUTS 2 regions and suggests the legacy of agricultural collectivisation in former East Germany with a small number of very large farms, with an even greater mean farm size in neighbouring DB Leipzig of 172.3 hectares. The age range of farm owners is also fairly evenly distributed, with the largest proportion of 30% between 45 and 55. However, the ownership of farms is more visibly gendered, with over five male farm owners to every one female.[12] Just under 40% of farm owners had some other form of gainful activity, suggesting the diversification of some smaller farms into areas such as tourism, selling farm produce and handicrafts and renewable energy, while larger farms in the region have been able to remain economically competitive through agricultural production alone.

[11] Source: EU Rural Development Report 2008
[12] Source: Eurostat

In 1997, agricultural land covered 54% of the territory of the Dresden case study region (sum of rural NUTS 3 regions). This area declined by 11% over the following decade, from 406,533 hectares to 360,709 hectares in 2007.[13] The land is generally of good quality, with only 28% classified as 'less favoured areas' in 2005 according to Eurostat. In particular, the Elbe Valley region is known for its fertile soils and mild climate which have facilitated intensive agriculture, including numerous vineyards along the *Sächsische Weinstraße* (Saxony Wine Road) which is one of thirteen 'Quality wine regions' in Germany. The vineyards are very tightly geographically concentrated within a 40 kilometre band primarily between Dresden and Meissen, and occupy only a very small percentage of the total regional land use. However, viticulture is a growth industry, with the area cultivated as vineyards increasing by 30% over a 10 year period, from 325 hectares in 1997 to 426 hectares in 2007.

Figure 9: Vineyards surrounding the city of Meißen in the Elbe Valley.
Source: Wikipedia Commons

Aside from wine, the region's main agricultural products are cereal crops, dairy products and livestock. Arable land accounted for 30% of land use in the Dresden case study region in 2007 and cereal production (particularly wheat and barley) is an important part of the economy, with 41,900 tonnes of cereal crops produced in 2003 (although this was only 1.6% of Germany's total national output). Livestock production is also regionally significant with pig and cattle farming the largest sectors, although Saxony as a whole contributes only 2.4% of Germany's pig population and 3.8% of cattle in 2003.[14]

Forests and woodland comprised almost one-third (32%) of regional land use in 2007, covering 241,061 hectares mostly in the mountainous areas to the south of the region.[15] Forest ownership in the DB Dresden NUTS 2 region is diversified. In 2007, 135,125 hectares (53.1 percent) of the forest land were in possession of private persons, 75,902 hectares (29.8 percent) in possession of the Free State of Saxony, 17,868 hectares (7.0 percent) in possession of the German Federal Republic, 16 576 hectares (6.5 percent) in possession of

[13] Statistical Office of the Free State of Saxony Statistical Yearbook 1998, 2003, 2008
[14] Source: Eurostat
[15] Saxon State Ministry of the Environment and Agriculture (ed.): Forestry Reports (2008: p14)

municipalities, 7,445 (2.9 percent) in possession of the church and 1,714 hectares (0.7 percent) in possession of the Treuhand agency[16]. In the year 2007, felled forests in Saxony reached the total number of 1,716,331 m^3. During the time period 1998-2002, an area of about 2,400 hectares were reforested or afforested in the Dresden case study region. Between 2003 and 2008 this area amounted to about 1,900 hectares. Afforestation in the Dresden case study region is closely connected to recultivation of former coal mining areas.

Mining was traditionally a major industry in the economy of eastern Saxony. Mining for minerals in the Ore Mountains drove the settlement and development of the region from the sixteenth century, but was already in decline by the mid nineteenth century, prompting diversification into other industries. Lignite and brown coal mining in the districts adjacent to the Polish border developed in the early twentieth century, and became particularly important during the Communist era. However, economic change and environmental pressures have forced the severe contraction of this industry over the last twenty years. Today, there is only one operational open cast coal mine in DB Dresden, at Reichwalde in Görlitz district, which nevertheless covered 2% of the case study territory in 2007. Other decommissioned mines have been reclaimed for recreation and nature conservation.

2.4 Tourism

Tourism has been encouraged as a growth sector for rural areas in DB Dresden beyond a traditional focus on Dresden city, the Elbe valley and Elbe Sandstone Mountains (including the Saxon Switzerland National Park). In particular, the former mining areas of the Lausitz region (Lusatia) in north-eastern Saxony, bordering Poland are being redeveloped with the aim of attracting both domestic and international tourist visitors. This was the coal and energy centre of the GDR, with millions of tons of brown coal mined and processed. Following reunification, 17 strip mines were closed at the beginning of the nineties causing mass unemployment but also leaving behind an empty landscape of mining craters and unused industrial buildings. These former brown coal pits are in the process of being flooded by the federally-owned redevelopment company Lausitz and Central-German Mining Administration Company (Lausitzer und Mitteldeutsche Bergbau-Verwaltungsgesellschaft – LMBV), and is to be completed by 2015. The intention is to create a landscape of lakes and ponds with a surface area of 14,000 hectares of water and interconnected by navigable canals (figure 11).[17]

Indeed, there have been signs of growth in the tourist sector of DB Dresden as a whole in recent years, with the total number of tourists increasing by 38% between 1998 and 2007, from 2,167,392 to 2,993,369 annual visitors. Visitor numbers in 2007 were slightly down on the peak in 2006, when tourism was boosted by the football World Cup. Almost 9 in 10 tourists to the DB Dresden region in 2007 were from within Germany, although the number of international tourists had increased by 81% in the period since 1998.

The tourist infrastructure in the rural Dresden case study region has yet to show signs of significant growth, with the number of hotels actually showing a slight 6% decrease between 2000 and 2007, while other types of tourist establishments experienced a small 5% increase. Similarly, the total number of bed places available in the case study region in 2006 was 48,873 which again was a small increase of 6.5% since 2000. However, there are spatial variations within this trend, with bed places in the (pre-2008) NUTS 3 districts of Sächsische Schweiz, Weißeritzkreis and Kamenz increasing between 2000 and 2006 by 9%, 14% and 32%, respectively, while Meißen and Löbau-Zittau both saw small decreases of less than 1%.[18]

[16] Staatsministerium für Umwelt und Landwirtschaft: Forstbericht 2003, 2008.
[17] Source: http://www.goethe.de/kue/arc/dos/dos/sls/zup/en5045388.htm
[18] Source: Eurostat

Figure 10: Tourist visitors to DB Dresden NUTS 2 region, 1998 to 2007.
Source: Eurostat

Figure 11: Landscape of the Lausitz lakeland region.
Source: http://www.goethe.de

2.5 International Integration

Data on foreign direct investment is only available at the national level and shows other EU member states to be the major investors in Germany. The small neighbouring countries Netherlands and Luxembourg as well as the large EU economies France, the UK and Italy invested the most. Also other European countries such as Switzerland and Russia have considerable investments in Germany. Finally, also the so-called tax havens such as Jersey, Guernsey and Lichtenstein are financially more intertwined with the German economy than it is the case for the new accession states Poland, Czech Republic or Hungary. Major other contributions come from the United States and Japan. This indicates that the globalisation triad Japan-USA-EU has still not lost its importance in the global integration, whereas China's FDI stock in Germany is still relatively small.

FDI in Germany	**2008** **in Million €**
EU	**482,735**
Netherlands	165,181
Luxembourg	91,159
France	68,825
UK	52,606
Italy	33,531
Austria	18,102
Spain	10,790
Poland	267
Czech Republic	180
Hungary	48
other Europe	**64,302**
Switzerland	53,873
Russia	4,304
Jersey	1,920
Lichtenstein	759
Guernsey	288
Africa	**1,104**
North America	**73,060**
USA	70,117
Central America	**9,507**
South America	**211**
Asia	**22,168**
Japan	14,398
China	537
Oceania	**1,074**
Australia	1,063

Table 5: Foreign Direct Investment in Germany in 2008.
Source: Federal Bank of Germany[19]

Statistical data on a sub-national level for FDI is not available. Only the Saxon economic development agency indicates that in Saxony companies from 20 different countries have invested a total sum of 10 billion €. Among these, the United States are the home country of the largest group of investors[20]. The chip producers AMD and Infineon settled in the so-called *Silicon Saxony*, in Dresden; the automotive companies BMW and Porsche invested

[19] Available at: http://www.bundesbank.de/statistik/statistik_zeitreihen.php?open=aussenwirtschaft; own calculation
[20] Source: http://www.invest-in-saxony.net/

into facilities in Leipzig, Volkswagen in Dresden and Chemnitz/Zwickau; the logistics global player DHL transferred the European air hub from Brussels to Leipzig's airport, next to logistics companies like Deutsche Post and Schenker. Furthermore, Dow Chemical, the World's second chemical corporation, invested in former GDR-facilities in Böhlen, near Leipzig. So, incoming investment seems to be an indicator of increasing integration of Saxony into the world markets. No data is available for outward investment from Saxon companies. Yet, it could be reasonably supposed that outward investment is still small, as equity bases of Saxon companies are still weak and companies in Saxony are predominantly dependent branches of multinational business groups.

However, foreign trade balance data is offered on the level of the Free State of Saxony. In 2009, the ten largest consumers of Saxon products and services were mainly EU member states – with Poland being the most important partner. Also China, the United States, and Malaysia were major buyers.

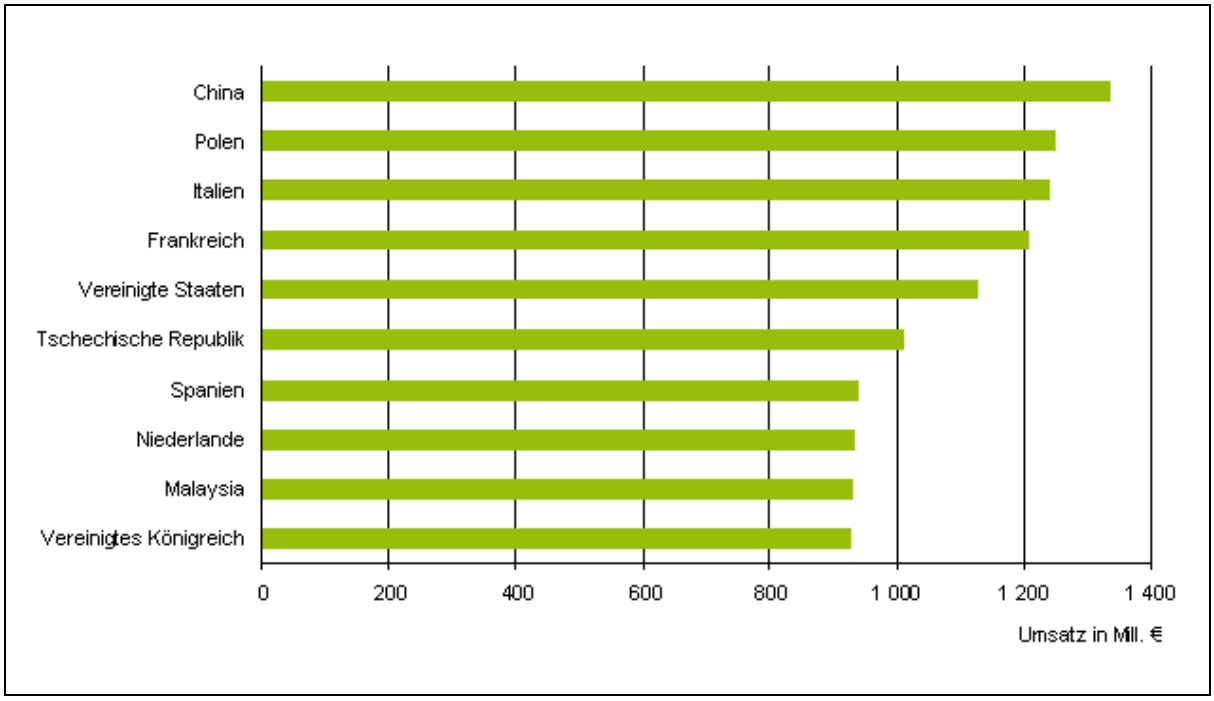

Figure 12: Most important export partners of Saxony in 2009; turnover in million €[21]

Concerning imports, the Saxon economy bought mainly from its neighbouring country Czech Republic. As a large share of imported products consists of natural resources, Russia is amongst the top three import partners as well as the United States. The leading Asian economies of Japan and China rank among the top ten import partners, based on the import of semi-finished and finished goods.

[21] Source: http://www.statistik.sachsen.de/21/12_03/12_03_01_grafik.gif

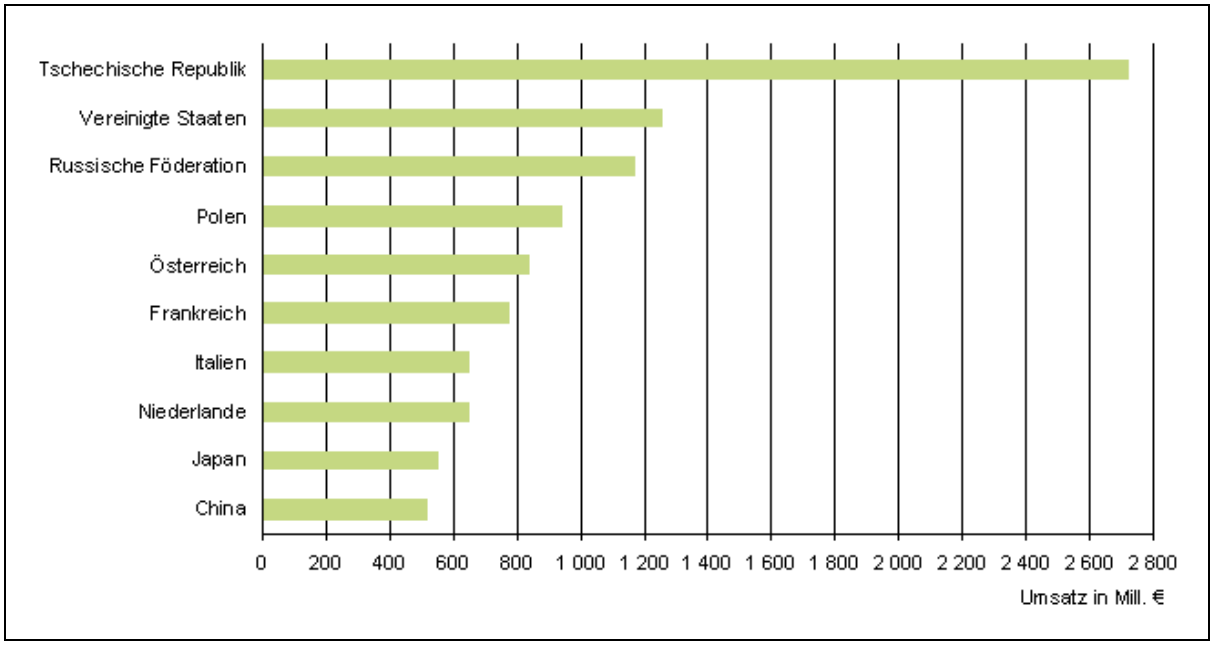

Figure 13: Most important import partners of Saxony in 2009, turnover in Million €[22]

3. Population and Migration

3.1 Population Development

The population of DB Dresden decreased considerably during the decade or so following German reunification, with the loss of 117,240 persons or 6.6% of the population between 1995 and 2008. The trend of population decline was particularly pronounced in the rural municipalities, where the population fell by 7.8% between 1995 and 2006 (table 6).

	1995	1998	2000	2002	2004	2006	2008
DB Dresden	1763956	1747721	1724703	1695745	1674343	1662482	1646716
Case study region	1150000	1168600	1128300	1103000	1082800	1060400	--

Table 6: Population of DB Dresden and Dresden CS Region, 1995-2008. Source: Eurostat

Rural depopulation is account for in part by a natural fall in the population, with the death rate having consistently exceeded the birth rate in the case study region over this period, but has been exacerbated by high rates of out-migration. Between 1997 and 2007, a total of 345,521 people moved from the case study region to destinations outside Saxony, whilst only 293,146 people migrated in from outside Saxony. This resulted in a net loss of 52,375 persons, or approximately 4.5% of the 1997 population. There are, however, some fluctuations in these trends over time. In-migration declined from peaks at around 30,000 arrivals in 1997 and 1998, to fluctuate between 25,000 and 27,000 for the following 9 years. Whereas out-migration peaked at more than 32,000 annual departures between 2000 and 2002, with the largest net population decrease of 12,296 people occurring in 2001 (figure 14).

[22] Source: Source: http://www.statistik.sachsen.de/21/12_03/12_03_02_grafik.gif

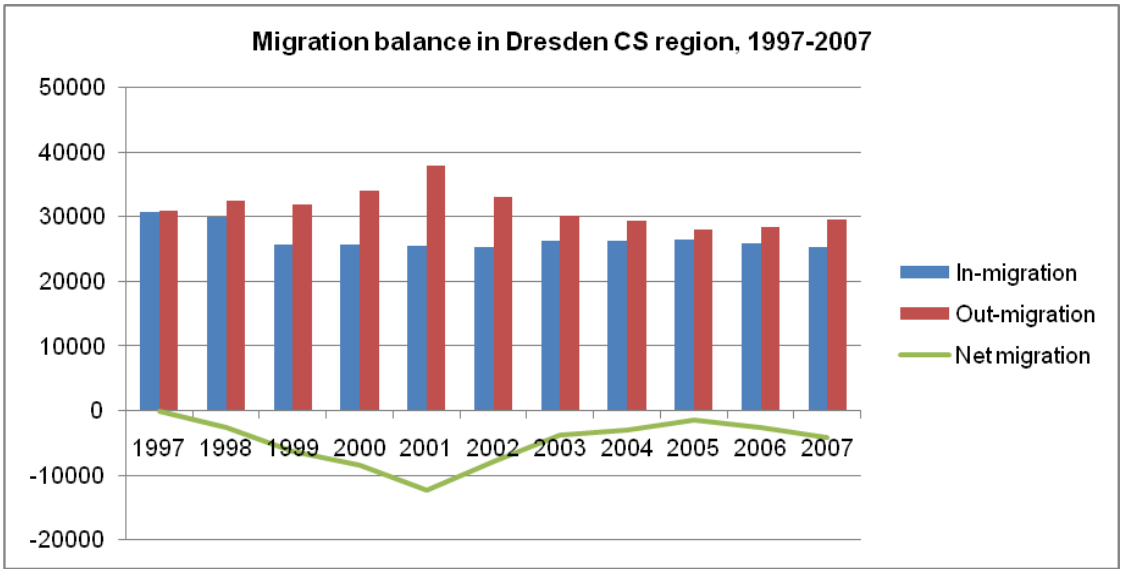

Figure 14: Migration to/from Dresden case study region from/to outside Saxony, 1997-2007.
Source: Statistical Office of the Free State of Saxony 1998-2008

Over half (58.7%) of the 29,553 people who migrated from the case study region to outside of Saxony in 2007 moved to länder in the former West Germany plus Berlin, whilst 16.2% moved to other regions in the former East Germany. However a quarter of the out-migrants emigrated out of Germany. Similarly 28% of in-migrants to the case study region from outside Saxony in 2007 were international migrants, yet this was markedly down from a peak of 42% in 1997, and perhaps reflects the greater willingness of Germans to move (back) into the former GDR as economic conditions have improved. Nonetheless the continuing high degree of international migration, in and out of the region, reflects its border location adjacent to Poland and the Czech Republic.

3.2 Demographic and Household Characteristics

The median age of residents in DB Dresden is 41, which is the highest across DERREG NUTS 2 regions. In the Dresden rural case study region, 12.6% of the population are aged over 70 which is the third highest proportion across DERREG case study regions after Galicia in Spain and Saarland also in Germany, while a further 13.1% are aged between 60 and 69, the second highest proportion after Galicia (figure 15). Only 13.2% of the population are aged under 15 which, again, is the second lowest figure for that age bracket across the case study regions after Galicia. This increasing elderly population - especially in rural parts of the case study region – is presenting ongoing challenges in terms of service delivery (e.g. medical care, food supply, mobility, social infrastructure etc.).

The balance of male and female populations in DB Dresden has shifted very slightly over the last decade, from 1.06 women to every man in 2000, to 1.04 in 2008. This larger female population may reflect the economic out-migration of workers following the collapse of the region's male-dominated heavy industries such as mining during the 1990s, while women also tend to generally live longer within an ageing population. However, lately there is a strong over-representation of women among the younger out-migrants from the region. It could thus be expected that the gender balance will change in favour of men.

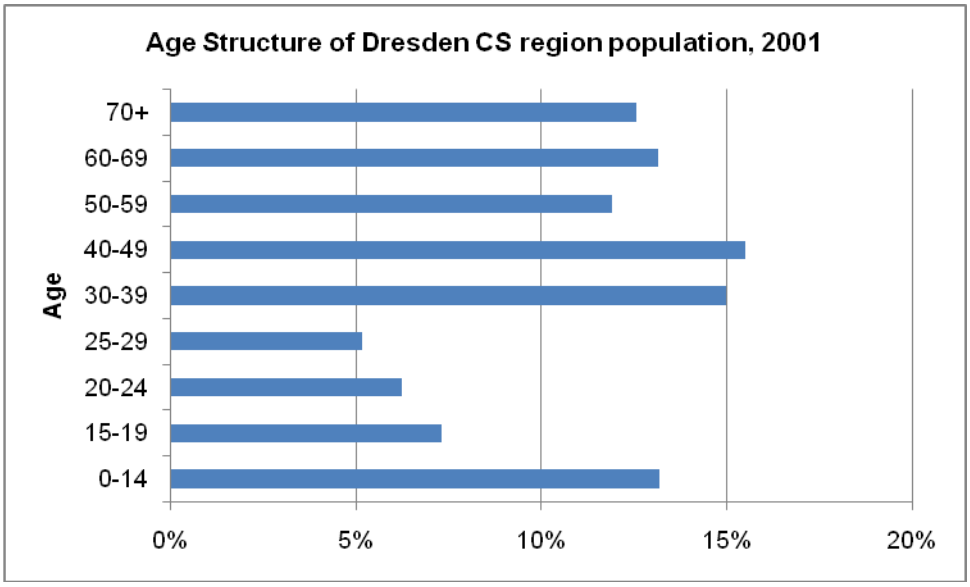

Figure 15: Age Structure of Dresden Case Study Region population, 2001.
Source: Eurostat

In the Dresden case study region, 35% of private households were single occupancy, 39% were two-person and 26% were three-person plus, according to the 2007 German census. The number of single person households is greater still in Dresden city compared to the rural case study region, at over 50%.

Property prices in the case study region have fluctuated in the past decade as shown in table 6 below; reaching a peak average value of €29.67 per metre squared in 2003 before falling sharply by 34% the following year. Prices stabilised at around €25 per m² between 2005 and 2007 prior to the potential impact of the global economic crisis which began in later 2007. Though detailed analysis are still missing there are hints that property prices have decreased after the recent crisis in the segment of detached housing (in rural areas) whereas prices are increasing for apartments in urban agglomerations[23].

€/m²	2001	2002	2003	2004	2005	2006	2007
Median value of residential property for sale in region.	23.32	24.75	29.67	19.54	25.52	25.20	25.23

Table 7: Median value of residential property for sale in Dresden case study region, 2001-2007
Source: Statistical Office of the Free State of Saxony 1998-2008

3.3 Non-national Residents

Historically, the population of Saxony was shaped by the arrival of Slavic settlers from the east around the 6th century AD who displaced the former Germanic inhabitants. The medieval eastward migration and settlements of Germans from 'Old-Germany' and the Flemish Netherlands in 11th and 12th century raised the population density and reshaped the former Slavic settlements. Germans again became the majority in the region and the Slavic population was largely assimilated except for in Lusatia, where a Slavic tribe - the Sorbs – has preserved its ethnical identity, culture and language until today. Currently, there are

[23] http://www.welt.de/finanzen/immobilien/article3692183/Wohnungspreise-in-Deutschland-sinken-rasant.html
http://www.forwarddarlehen-vergleich.de/blog/immobilienmarkt-entwicklung-deutschland-2010/

around 65,000 Sorbs living in the east of Saxony (Upper Lusatia) and in the south of Brandenburg (Lower Lusatia) who are guaranteed cultural autonomy by both states.

	Case study region	City of Dresden	City of Görlitz	City of Hoyerswerda
Foreign population absolute 31.12.1998	21,003	16,356	1,205	619
Foreign population in % 31.12.1998	1.84	3.42	1.88	1.14
Foreign population absolute 31.12.2008	18,060	23,841	2,012	637
Foreign population in % 31.12.2008	1.75	4.65	3.56	1.62
Foreign population absolute change 1998-2008 in %	-14	46	67	3

Table 8: Foreign population in the DB Dresden 1998-2008
Source: Statistical Office of the Free State of Saxony; own calculations

As table 8 indicates, the case study region continuously lost foreign population in the decade between 1998 and 2008. This is largely due to the more rapid emigration of foreigners from the case study region, while the German population is shrinking slower. In the consequence, the share of foreigners only reached 1.75 per cent. Within the DB Dresden the growth in foreign population concentrates on the larger urban agglomerations, with Dresden offering more employment than the rural towns and villages. The high growth rate of foreign population in the City of Görlitz has to be interpreted as an effect of the German legal regulations for incoming Asylbewerber (asylum seekers) and Spätaussiedler (Russians of German ethnicity). These two groups are distributed all over Germany by Federal institutions according to an algorithm based on national population and tax revenues. Within the case study region, there has been a trend of out-migration of non-nationals from the rural villages and towns towards the big urban agglomerations in the DB Dresden or to more distant destinations.

The advent of the 2004 EU expansion caused a lot of concerns among the German population, and especially among the East German population in the border regions such as the DB Dresden. According to an analysis of the Hamburger Weltwirtschaftsarchiv (HWWI, 2006)[24], this was partly due to the populism in the media which argued for a danger of rising unemployment and sinking wage levels in Germany. On the other hand, it was based on the factual experience that 80% of immigration from the Eastern European accession states to the EU15 targeted Germany and Austria due to the geographical proximity. Politicians reacted to the public fear by the implementation of a regulation to limit the personal free movement for the accession state's citizens. This regulation is still works until May 2011.

This means that there were no dramatic immigration impacts of the EU expansion in Germany. Only the UK, Ireland and Sweden allowed personal free movement for the accession state's citizens. According to the HWWI (2006), this led only to marginally rising influx of Eastern Europeans, whereas immigration already existed on the basis of bilateral agreements before the 2004 expansion. The same holds true for Germany and the DB Dresden. According to the Saxon State Ministry for Social Affairs (2009),[25] the largest immigrants' groups are the Vietnamese (a heritage of former GDR bilateral treaties), the Russians (amongst them a large share of ethnically Germans) and the Polish. So, the Polish have always been - as well as the Czech and Slovakian immigrants – important immigrant groups to the Freestate of Saxony (see also section 3.1). However, the more prosperous

[24] HWWI (2006): Die EU-Osterweiterung und die Arbeitnehmerfreizügigkeit: Sind längere Zugangsbeschränkungen sinnvoll für Deutschland? In: Focus Migration, No. 4, July 2006. http://www.hwwi.org/uploads/tx_wilpubdb/KD04_freizuegigkeit.pdf

[25] Saxon State Ministry for Social Affairs (2009): Rahmenbedingungen von Migration und Integration im Freistaat Sachsen ab 1990. Working Paper of the OPEN project. http://www.soziales.sachsen.de/download/Migration_Sachsen.pdf

regions in Germany attract far more immigrants than the DB Dresden. Thus, immigration is only a marginal phenomenon and the 2004 EU expansion did not affect the case study area where the share of migrant population is constantly low at a level of 2 percent. According to the Federal Office for Migration and Refugees (2008)[26], Saxony already had a negative migration balance in 2008, with 19,065 foreigners leaving the Free State against 17,127 foreigners arriving.

4. Environment and Sustainable Development

4.1 The Regional Environment

The environment of the Dresden case study region is characterised by the typical North-South sequence of the Saxon landscape, with relief features ascending along this axis. The northern part of the region is comprised by lower lying heath and pond landscapes of the Lusatian (*Lausitz*) Lakeland, rising to more hilly landscape and mountainous terrain further south. This characteristic sequence of the Saxon landscape is bisected by the fertile Elbe river valley of Dresden city and the carved deep valleys of the Elbe Sandstone Mountains which form part of Saxon Switzerland. This area lies between the higher mountain ranges of the Ore Mountains (*Erzgebirge*) and the Zittau Mountains (*Zittauer Gebirge*) where the highest mountains are Hochwald (749 m) and Lausche (791 m) in the Zittau Mountains and the Kahleberg (905 m) in the Eastern Ore mountains.

Most of the rural case study region is classified by the European Environment Agency as a composite landscape combining arable land, some broad-leafed and coniferous forests, and built up settlements, with a secondary landscape of broad-pattern intensive agriculture. The area around Dresden city is dominated by artificial landscape type. In 2007, nearly 50% of the case study region's territory was agricultural land including 218,000 hectares of arable land, 58,000 of permanent grassland and 426 hectares of vineyards. Forests and woodlands cover 241,000 hectares, or 32% of total land area, and built up areas 77,000 hectares (10%). This distribution of land area has changed since 1997, with an 11% decrease in this total agricultural land area offset by increases in forests, built up areas and a small increase in water bodies from 2.4% to 2.6% of the land area.

The increase in water bodies is accounted for by the intentional flooding of the former mining area of the Lausitz region (Lusatia) to create a landscape of lakes and ponds comprising an area of 14,000 hectares (figure 16). This includes, for example, the *Berzdorfer See* which is situated at the southern city boundary of Görlitz near the Polish border. The artificial lake was created out of a former lignite mine and when completed by mid-2010, the planned surface of the lake is expected to be about 10 km² making it one of the largest lakes in Saxony. The creation of the Lakeland landscape has been an attempt to address the severe environmental impact of the large-scale mining operations promoted under the region's former Communist regime, which produced approximately 300 million tons of brown coal per year and devastated over 1000 square kilometres of land.[27] The air quality in Saxony as a whole improved from the mid-1990s as many heavy industrial plants were decommissioned or modernised, with levels of sulphur dioxide and nitrogen oxide both significantly reduced.

[26] Federal Office for Migrants and Refugees (2008): Migrationsbericht 2008. http://www.bamf.de/cln_101/SharedDocs/Anlagen/DE/Migration/Publikationen/Forschung/Migrationsberichte/migrationsbericht-2008,templateId=raw,property=publicationFile.pdf/migrationsbericht-2008.pdf

[27] Source: http://www.ecoworld.com/energy-fuels/lausitz-coal-country-reinvents-itself.html

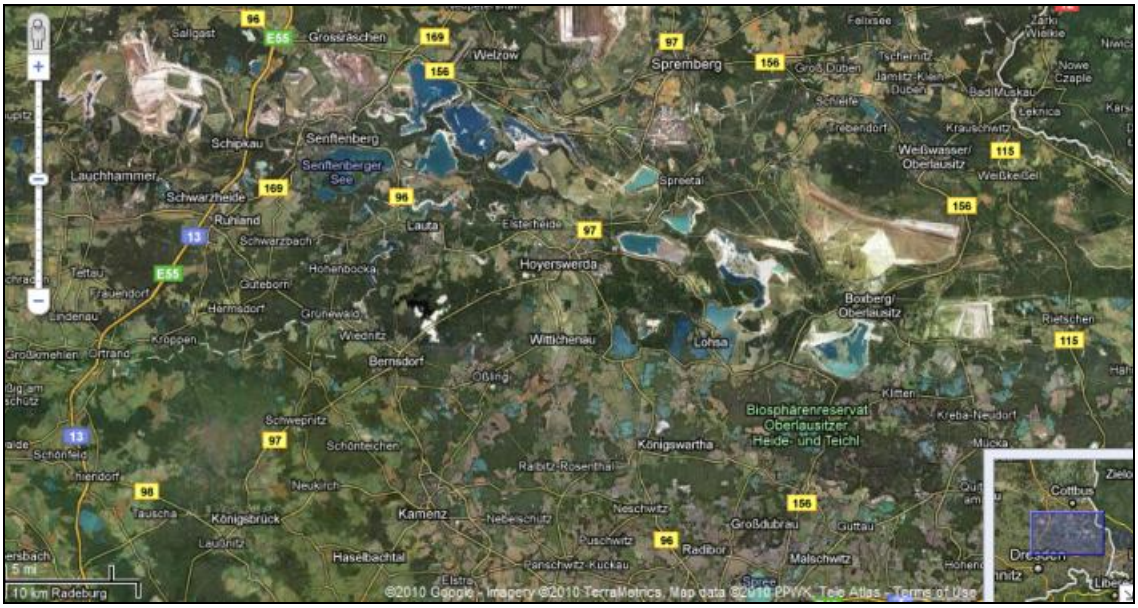

Figure 16: Aerial view of the Lusatian (*Lausitz*) Lakeland region.
Source: Google Earth

4.2 Protected Areas

Several areas of the Dresden case study region have been afforded environmental protection based on both national and international designations. The Sächsische Schweiz (Saxon Switzerland) National Park, lying 30km from Dresden city, is the German part of the Elbe Sandstone Mountains which are also comprised of the Bohemian Switzerland National Park (České Švýcarsko) in the Czech Republic. The Sächsische Schweiz was designated as a German National Park in 1990 covering an area of 93 km² and is comprised of a fissured and rocky canyon landscape carved out of sandstone and covered by various forest microclimates based on varying altitude, making it a popular tourist and recreational area for hiking and rock climbing (figure 17).

Figure 17: Landscape of the Sächsische Schweiz National Park. Source: http://www.saechsische-schweiz.de/

The Upper Lusatian Heath and Pond Landscape was designated as a UNESCO biosphere reserve in 1996, covering an area of over 300 km² extending from Kamenz in the west to Neisse River in the along the Polish border in the east. The biosphere reserve is characterized by a vast diversity of habitats varying extremely in a relatively small area. For instance, ponds are located right next to sandy dunes and temperate forests, while climatic variations have produced rich species diversity including otters, toads and bats. The Sorbic culture and language are also maintained in the designated area by approximately 10,000 inhabitants (in 1996).[28] Although not included in the case study region, the city of Dresden and the Elbe Valley was formerly a UNESCO World Heritage site until 2009 when it was dropped from the list following the controversial building of a road bridge across the Elbe.

There are additionally 270 internationally recognised Natura 2000 Special Protection Areas designated across the whole state of Saxony, covering a total 169,000 hectares. The Zittau Hills (the German side of the Lusatian Mountains) lying within the case study region is designated as one of 98 official German nature parks and there are a further 85 German nature protection areas in the DB Dresden NUTS 2 region covering 32,149 hectares[29].

4.3 Sustainable Development

Sustainable development has formed a major tenet of post-Communist regional development policy in DB Dresden, although much of this has been focused around the Dresden city region. Following the decommissioning of the region's large scale strip mining facilities from the mid-1990s, a major structural transition is occurring towards the development of renewable technologies and energy production. Germany is a world leader in the production of photovoltaics with exports worth €2.4bn in 2007 and, thanks in part to government subsidies, much of this production has been focused in the former industrial regions of eastern Germany. With existing competencies in microelectronics, the Dresden city region has rapidly developed as a key location in the development and manufacture of photovoltaic technologies for solar energy through companies such as VON ARDENNE Anlagentechnik GmbH and SOLARWATT AG. There is also a hydroelectric plant, Niederwartha, located on the Elbe River north-west of Dresden with a capacity of 120 MW.

A major renewable energy cluster has also developed around the former mining town of Freiberg, around 30km from Dresden and just across the administrative border of DB Chemnitz, with companies leading developments in solar heating systems and the gasification of coal, biomass and waste.[30] There is one remaining operational open-cast mining facility in the region, Nochten/ Reichwalde in Upper Lusatia, which produces about 18 million tons of brown coal per year (2008 data) and supplies the one carbon fuelled power station in the region at Boxberg.

The German Sustainability Strategy contains a goal of '20% organically-farmed land by the year 2010' and thus sustainable agriculture is an important tenet of regional development strategies.[31] There are 107 certified organic farms in the NUTS 2 region of DB Dresden in 2007, representing approximately 3.7% of total farms, and comprising 11,600 hectares of certified organic land which similarly amounts to 3.2% of the total agricultural land in DB Dresden.[32] This is the highest proportion of organic land across comparable DERREG NUTS 2 regions.

[28] Source: http://www.unesco.org/mabdb/br/brdir/directory/biores.asp?mode=all&code=GER+12
[29] Source: Sächsisches Staatsministerium für Umwelt und Landwirtschaft (ed.) (2007): Umweltbericht 2007, Dresden.
[30] Source: http://www.renewableenergyfocus.com/view/3354/former-east-germany-gains-solar-boost-/
[31] Source: http://www.bundesregierung.de/Webs/Breg/EN/Issues/Sustainability/sustainability.html
[32] https://www.regionalstatistik.de

The free state of Saxony has several types of mineral water with a European Protected Designation of Origin (PDO), as well as being recognised as a quality wine region. Several local food marketing schemes are also important within the rural case study region, including the promotion of fish ('Lausitzer Karpfen') from the Lusatian lake region as a local brand, with associated events such as 'Lusatian fish-weeks'. Similarly, the city of Pulsnitz in Bautzen district promotes itself to tourists as the "City of lebkuchen", a locally produced type of gingerbread with a long tradition in the area.

4.4 Environmental Issues

Climate protection and protective measures to respond to climate change have been important environmental issues in the case study region during the last years. The Free State of Saxony developed a so-called 'Integriertes Klimaschutzkonzept' (integrated concept for climate protection). This concept combines measures of climate protection and adoption to climate change especially in the fields of regional forestry, agriculture and water management.

Connected with discussions about climate change, water has become an important topic. Besides a lack of water during periods of drought in the summer months, floodings resulting from intense rain are an issue of concern. Since the flood disaster in the year 2002 with 21 dead persons and damages into the billions, flood protection has a very high priority. A lot of measures have been initiated to improve the protection along rivers by dams and dikes holding back the water. These measures include flood warning systems developed in co-operation with Polish and Czech neighbouring regions as well as the establishment of a Saxon Flood Centre (*Landeshochwasserzentrum*). The Saxon Flood Centre is responsible for flood information and early warning for all main rivers in Saxony. It provides relevant flood information directly to each authority with flood defence responsibilities as well as to any third parties (private persons) with particular risk of flooding[33].

A further important environmental issue that has been discussed in the context of climate protection during the last years is the improvement of energy efficiency and an increased utilization of renewable energies. Main aim is the realisation of regional solutions of energy supply based on renewable energies. Already existing examples in the case study region are the 'Ökologische Modellstadt Ostritz' (energy city Ostritz), the 'Klimaschutzkommune Herrnhut' (climate protection municipality Herrnhut) and the 'Bioenergiegemeinde Radibor' (bioenergy municipality Radibor).

In October 2000, the EU Water Framework Directive (WFD) was finally adopted. The WFD stipulates that all bodies of water should be in a good condition by the year 2015. To reach this goal, plans for water resource management had to be worked out for all European river areas until the year 2009. Consequently, a lot of regional actors from the case study region such as the Offices for the Environment were engaged in the implementation of the WFD[34].

In recent years, the share of built-up areas increased significantly in the case study region from 8.6 percent (1997) to 10.3 percent (2007). This building activity was realized on brown fields only at a low percentage; instead arable land was used for building houses and infrastructure. Consequently, the total amount of arable land was reduced with negative influences on the local water regime, microclimate, ecological balance and agricultural enterprises struggling for their existence. Besides, a lot of agriculturally used areas are endangered by water erosion. In order to reduce soil erosion the Free State of Saxony initiated several support programmes such as the programme 'Umweltgerechte Landwirtschaft' (environmentally compatible agriculture).

[33] Source: http://www.umwelt.sachsen.de/umwelt/wasser/en/index.html
[34] Source: http://www.umwelt.sachsen.de/de/wu/umwelt/lfug/lfug-internet/wasser_11682.html

The return of wolves to the case study region is an environmental issue with high presence in local and regional media. In order to reduce conflicts between wolves and the local population the Free State of Saxony established a so-called 'Wolfsmanagementplan' (wolf management system).

The topic of 'brown coal mining' (figure 18) remains an issue of environmental predominance in the north-eastern parts of the case study area (Upper Lusatia). Natural space will be destroyed also for the next decades due to a continuation of mining activities. Although a lot of efforts are made by the mining operator VATTENFALL AG to cultivate these areas after exploitation, the original state of the environment cannot be restored. Especially the phases of lowering and raising the ground-water level are causing large-scale effects on the regional environment. The continuation of coal mining in Upper Lusatia evokes resistance of regional and international environmental activists.

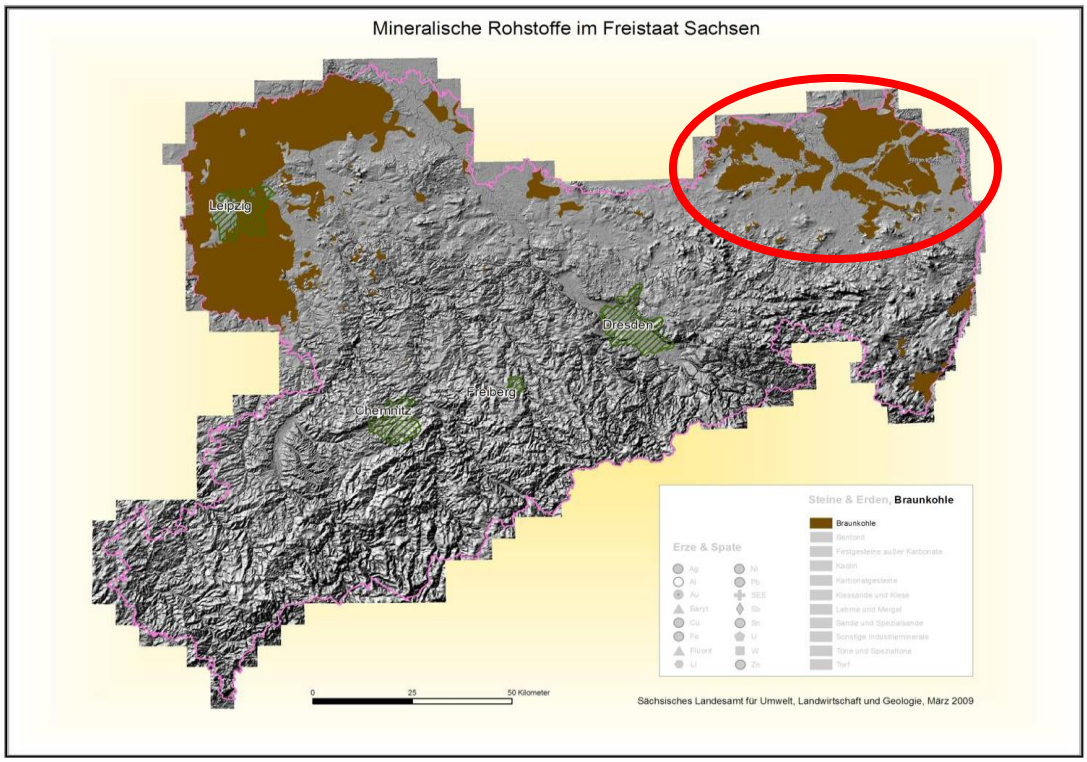

Figure 18: Deposits of brown coal in Saxony
Source: http://www.umwelt.sachsen.de

5. Regional Development and Innovation

5.1 Regional Development Programmes

The Free State of Saxony has benefited from European Union Structural Funds since German reunification in 1991. According to EU regional policy, Saxony was eligible for support as a high priority 'Objective 1' region (where GDP per capita is below 75% of the EU average) for the funding periods 1994-1999 and 2000-2006, receiving about €10 billion from the European Union over this period. During the 2000-2006 round of structural funds, the DB Dresden NUTS 2 region received €1.51 billion from the European Regional Development Fund. For the 2007-2013 Structural Funds programme, the Free State of Saxony continues to be recognised as a less developed region in Europe, now termed 'Convergence regions'. However, within Saxony the Leipzig region will phase out from this type of funding whilst Dresden and Chemnitz remain high funding priorities (figure 19).

Figure 19: Map of German 'Convergence regions' (dark red) and 'Phasing-out regions' (light red) in the 2007-2013 EU Structural Funds programme. Source: http://ec.europa.eu/

During the period 2007-2013, the Free State of Saxony is allocated €4 billion from EU structural funds (with the European Regional Development Fund contributing €3.046 bn and the European Social Fund (ESF) €0.8 bn), with Dresden and Chemnitz regions receiving €3.18 billion of this. Part of this funding allocation comes from the national Operational Programme 'Transport infrastructure of the Federal Republic of Germany', whilst a further share of these funds comes through transnational programmes with the Czech Republic and Poland. The case study region has also actively engaged with the EU's LEADER+ (2000-2006) and LEADER (2007-2013) schemes in implementing rural development policy, with several local action groups forming across the administrative districts (see table 9).

In addition to the LEADER local action groups, the Dresden case study region has many active civil society groups concerned with issues including civil participation and community development e.g. *Perspektive Netzwerkstelle Patchwork Plus* (encouraging the involvement of young people and small businesses/companies in local projects in Upper Lusatia) and environmental protection e.g. *Naturschutzbund Deutschland* (Nature and Biodiversity Conservation Union, which has eight subgroups in the region).

In terms of state-led regeneration initiatives being implemented in the region, the *Gemeinschaftsaufgabe "Verbesserung der Agrarstruktur und des Küstenschutzes"* (joint task scheme "Improving agricultural structure and coastal preservation") is jointly promoted and funded by both federal and state governments in addition to EU funding. The scheme is tasked with ensuring German agriculture and forestry are competitive in the common market of the European Community and coastal protection improved, with a new four-yearly plan introduced in 2010. While focused specifically in Saxony, *SMWA Programm Gründungs- und Wachstumsfinanzierung* (Programme for business start-ups and entrepreneurs) was initiated by the Saxon State Ministry for Economic Affairs and Labour offering loans and financial subsidies for entrepreneurs in the region.

Group	Municiplaities/ Districts	Date Formed	Thematic priority	Population covered
2000-2006				
Westlausitzer Heidebogen	17 municipalities in the districts Riesa-Großenhain and Kamenz	2001	Valorization of natural and cultural potentials	44,460
Oberlausitzer Heide- und Teichlandschaft	29 municipalities in the districts Kamenz, Bautzen and Niederschlesischer-Oberlausitzkreis	2002	European model for sustainable development	76,400
Sächsische Schweiz	21 municipalities in the district of Sächsische Schweiz	2002	Improvement of quality of living in rural regions	78,000
Osterzgebirge	21 municipalities in the districts Weißeritz (DB Dresden) and Freiberg (DB Chemnitz)	2002	Utilization of new knowledge and technologies	73,300
2007-2013				
Elbe-Röder-Dreieck	9 municipalities in the district of Meißen	2007		33,000
Lommatzscher Pflege	10 municipalities in the districts Meißen (DB Dresden) and Mittelsachsen (DB Chemnitz)	1998		35,780
Oberlausitzer Heide- und Teichlandschaft	17 municipalities and cities in the district of Bautzen	2002		86,400
Westlausitz	13 municipalities and cities in the district of Bautzen	2007		54,300
Zentrale Oberlausitz	11 municipalities in the district of Görlitz	2007		43,000

Table 9: LEADER Local Action groups in Dresden case study region

5.2 Regional Skills-base and infrastructure

Due in part to high levels of public funding invested in technology following reunification, the Dresden city area has developed as a hub for research and development across sectors including micro- and nanoelectronics, transport and infrastructure systems, photonic technology and bio-engineering. Dresden hosts many national and international research institutes, including three *Max Planck Institutes* (MPI) for scientific research, and these institutes are well connected with the city's universities and other academic institutes facilitating a highly skilled regional workforce. Notable amongst the city's universities are the *Technische Universität Dresden* (Dresden University of Technology) which was founded in 1828 and is among the oldest and largest universities of technology in Germany with almost 35,000 students.[35]

The two main universities within the case study region, the International Graduate School (IHI) in Zittau and the University of Applied Sciences Zittau/Görlitz (8 faculties; 3,800 students), are both located close to the border between Germany, the Czech Republic and Poland. With the admission of the latter countries into the EU in 2004, both institutes increasingly cater to international flows of students in the Neisse Euroregion. Several

[35] Source: http://tu-dresden.de/die_tu_dresden/portrait/

research institutes located within the case study region are concerned with economic development, including the Saxon Institute for Regional Economics and Energy, in addition to technology parks encouraging the formation of new businesses and entrepreneurial activity in former mining dominated areas e.g. *Lausitzer Technologiezentrum Hoyerswerda GmbH* (Lusatian Technology GmbH)

Investment in research and development activities in DB Dresden was €1.2 billion in 2005, the highest figure for NUTS 2 regions containing the DERREG case study areas, while the proportion of regional employment in R&D was the second highest after Oevre Norrland at 2.4%. Similarly, over 43,000 people were employed in hi-tech industries in 2007 which accounts for 5.7% of the regional workforce, the highest proportion across DERREG NUTS 2 regions. A focus for this hi-tech employment has been the Silicon Saxony association of around 300 companies including Technologies, Siemens and Nikon, many of whom are situated to the north of Dresden city. Despite this concentration of research and development activities in DB Dresden, the technological infrastructure in newly-formed (former East) German states as a whole, including Saxony, lags behind that of the states of the former West Germany, with 46.9% of the population of the former receiving broadband access compared to 70.2% of the latter.[36]

Much of this activity is focused around the Dresden city area and there are geographical variations in the educational and employment benefits experienced within the rural case study region. This is reflected in figures for educational attainment which show that 23.5% of the adult population of the DB Dresden NUTS 2 region have a tertiary qualification in 2006. However, within the case study region this figure is lower at 21.1%, while in the Dresden city NUTS 3 area it increases to 31.9% of the population.[37] In contrast, 51.6% of the case study region adult population have undertaken vocational training compared to 39% in Dresden city.

6. Summative Analysis

The contemporary economic, social and environmental situation of Direktionsbezirk Dresden is characterised by:

- A relatively urbanized population, with the rural case study districts containing a number of medium-sized industrial towns, in close proximity to the major city of Dresden, which serves as the region's capital.

- A geographical location that has shifted in significance through history, from relatively centrality within the German Empire, to a peripheral border position adjacent to Czechoslovakia and Poland after the Second World War, to a position of relative centrality within the European Union following German reunification and the expansion of the EU into Central and Eastern Europe.

- Relatively high accessibility with good transport links both domestically and internationally, including between Dresden and neighbouring rural districts, and to other large cities including Leipzig, Berlin, Chemnitz, Wroclaw and Prague.

- The legacy of Communist rule in the German Democratic Republic from 1948 to 1989, especially in terms of economic and industrial development and organization, as well as the legacy of economic and demographic adjustment following liberalisation and German reunification.

[36] Source: Statistisches Bundesamt (Hrsg.): Statistisches Jahrbuch 2008, S. 115
[37] Source: Statistisches Landesamt des Freistaates Sachsen: Microcensus 2005, 2006

- A regional economy that was traditionally driven by mining and heavy industry, both of which sectors have suffered considerable contraction since German re-unification and economic liberalisation, especially mining.

- The continuing importance of manufacturing industry as a major employer and contributor to regional GVA, and the high level of manual employment.

- A high rate of unemployment, especially in rural districts, and a disparity between recent economic growth in Dresden city and relative stagnation in adjacent rural districts.

- A growing tourism industry that is largely reliant on domestic visitors.

- A decreasing population with a consistently negative migration balance since the early 1990s, with out-migration by younger residents contributing to an aging demographic profile.

- A natural environment and landscape that includes the ecologically and scenically important areas of the Erzgebirge mountains, the Sachsische Schweiz national park and the Upper Lusatian Heath and Pond Landscape UNESCO biosphere, but also areas that have been scarred or contaminated by mining and industry and which are being reclaimed for recreation and nature conservation.

- Strong regional government at the *Länd* level (Saxony), with functions delegated to *kreise* and municipalities, but less clearly defined autonomy and authority at the scale of the *Landesdirektion* for DB Dresden. Consistent centre-right-led government at all levels of elected local and regional government in the case study region, but with notable minority support for both the far-left and the far-right.

- A growing renewable energy sector focused on former mining districts.

- Substantial investment of regional development funds since German reunification, from both the German government and the EU Structural Funds.

- A strong regional science and innovation system focused on the scientific and educational infrastructure of Dresden city and an expanding ICT cluster that is, however, largely concentrated on Dresden with limited reach into the rural districts.

As a region formerly within a communist state, DB Dresden has some commonalities with Alytus and Jihomoravský kraj among the other DERREG case study regions. Yet, the specificities of German re-unification, the attempted social and economic integration of the former East Germany with the west, and earlier incorporation into the EU have meant that the post-socialist trajectory has been very different for regions in the former GDR, such as DB Dresden, than for those in other ex-Soviet bloc countries. As such, the distinctly industrial character of its economic and landscape is arguably more significant as a factor in driving DB Dresden's development than its political-economic history. Accordingly, DB Dresden can be considered as having similarities with Saarland among the other DERREG case study regions, as a region with a declining but still significant industrial sector, including mining and heavy engineering, existing within the sphere of a dominant regional city. The DB Dresden can therefore be characterised as part of the '(post)-industrial countryside', with similarities not only to Saarland, but also to other German regions such as Detmold, and other regions in Europe including the East Midlands of England, the Nord department of France, and Piedmont.

The engagement of DB Dresden with globalization largely reflects its industrialised economy and its border location. Notable expressions of globalisation evident in Övre Norrland from our initial analysis include:

- Foreign investment, including takeovers of industrial plants by foreign firms such as Bombardier Transportation and Vattenfall.

- The export-orientation of many of the region's industries, with significant export trade in particular with China, Poland, Italy, France and the United States.

- The contribution of global economic competition and global environmental concerns (including climate change) as pressures in the dismantling of the eastern Saxony mining industry.

- The presence of asylum seekers and migrants of German-origin from the former Soviet Union, resettled in areas such as Görlitz by the German government according to a formulaic spatial distribution policy.

- The development of stronger cross-border ties and joint initiatives with Poland and the Czech Republic.

The nature of these global or transnational relations, together with the distinctive socio-economic character of the region, creates both opportunities and vulnerabilities for future regional development. The opportunities are presented by:

- The skilled workforce and industrial infrastructure of DB Dresden as critical factors for attracting foreign direct investment, especially as a central European production base for transnational corporations.

- The potential to extend the developing ICT cluster out from Dresden city to other parts of the region, including foreign-owned enterprises and export-oriented firms.

- The capacity to develop international tourism, including from neighbouring states, especially in terms of recreational tourism in the Erzebinger mountains and the newly created lakeland district.

- The development of the renewable energy sector and potentially ecosystem services, with the capacity for exports to neighbouring countries.

- The strengthening of cross-border ties with Poland and the Czech Republic and DB Dresden's newly-found centrality within the enlarged EU.

At the same time, however, our initial analysis suggests that regional development in DB Dresden is vulnerable to both global and endogenous pressures and challenges in a number of ways. These include:

- The risk of developing a branch-plant economy, vulnerable to disinvestment by foreign-owned corporations.

- Increasing competition in global markets for goods manufactured in DB Dresden, especially from China and south-east Asia.

- The danger of DB Dresden becoming a transit region en route to Central and Eastern Europe rather than consolidating its position as a bridge between the 'old' and 'new' states of the EU.

- The depletion of the region's skill base by ongoing out-migration.

- The challenge of distributing economic growth equitably through the region, not just in the growth pole of Dresden city.

- The environmental challenge of reclaiming land scarred and contaminated by mining and heavy industry, and the social challenge of sustaining former mining and single-industry towns.

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