CLIMATE CHANGE
32/2021

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Julian Schwartzkopff, Alexander Reitzenstein
E3G - Third Generation Environmentalism, Berlin office

Timon Wehnert, Jenny Kurwan, Jannis Beutel
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publisher:

German Environment Agency

For our Environment

Umwelt Bundesamt

CLIMATE CHANGE 32/2021

Ressortforschungsplan of the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection

Project: Structural change in coal regions as a process of economic and socio-ecological transformation – Scope for action for a just transition in light of climate policy objectives

Project No. (FKZ) 3716 41 113 0
Report No. FB000719/ENG

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Original: German

On behalf of the German Environment Agency

Imprint

Publisher:
Umweltbundesamt
Wörlitzer Platz 1
06844 Dessau-Roßlau
GERMANY
Tel: +49 340-2103-0
Fax: +49 340-2103-2285
buergerservice@uba.de
Internet: www.umweltbundesamt.de

/umweltbundesamt.de
/umweltbundesamt

Study performed by:
ifo Institut – Dresden
Einsteinstr. 3
01069 Dresden
GERMANY

E3G - Third Generation Environmentalism – Berlin office
Neue Promenade 6
10178 Berlin
GERMANY

Wuppertal Institut für Klima, Umwelt, Energie
Döppersberg 19
42103 Wuppertal
GERMANY

Study completed in:
November 2021

Edited by:
Section I 1.2 International Sustainability Strategies, Policy and Knowledge Transfer
Katharina Lenz

In cooperation with:
Section I 1.1 Fundamental Aspects, Sustainability Strategies and Scenarios, Sustainable Resource Use
Daniel Eichhorn
Section I 1.4 Economic and Social Environmental Issues, Sustainable Consumption
Dr. Benjamin Lünenbürger, Björn Bünger
Section V 1.2 Climate and Energy Strategies and Scenarios
David Pfeiffer

Publication as pdf:
http://www.umweltbundesamt.de/publikationen
ISSN 1862-4359

Dessau-Roßlau, January 2022

Abstract

This case study examines the structural change in Lusatia caused by the system change from a centrally planned economy to a market economy over the investigation period 1990-2015. Large-scale de-industrialisation was a characterising factor, which also greatly affected the Lusatian lignite economy. The case study describes the historical structural change process and analyses the structural policies that were implemented as a reaction to this process. Its objective is to make this knowledge available for future structural change processes in other (coal) regions. For this purpose, the case study categorises the structural policy interventions as "preserving", "reactive" and "forward-looking" and evaluates their (intended) impact by using the dimensions "economy", "social welfare", "ecology" and "regional identity".

The economic policy of the German federal government and the governments of the states involved has initiated various structural policy interventions over the course of time. For a long time, these interventions focussed on the economic region of "East Germany" as a whole and were not specific to Lusatia. Overall, the structural policy in Lusatia is considered as only modestly successful. In retrospect, the "Aufbau Ost" [reconstruction east; development of the East German states] policy (1990-1998) can be described as successful at least from an economic perspective. However, new structural patterns have developed, above all, in locations that were sufficiently attractive for external investors. In this respect, the structural policy was organised as an accompanying ("reactive") policy rather than as a (structure) forming policy. Today, Lusatia is still considered as being structurally weak.

The analyses in this case study show that particularly in the early 1990s, the policy was concerned with cushioning the negative impact of the transformation-related structural change on the labour market. It was only towards the end of the 1990s that this "reactive" structural policy was replaced with a structural policy that focused more heavily on supporting the structural adaptation processes (hence making it forward-looking). This policy was based above all on stimulating innovation and still continues today.

Using the impact dimensions developed by the project consortium, the structural policy interventions in Lusatia are primarily to be classified as serving the "economy" impact dimension and (at least until the end of the 1990s) as serving the "social welfare" impact dimension. This classification is also reflected in the societal discourse in the East German states and in Lusatia. The "ecology" impact dimension most likely played a part in the necessary renaturation measures in the areas affected by the closure of the lignite opencast mines or in the remediation of former industrial land. The "regional identity" did not play a part as an impact dimension in the structural policy programmes.

Kurzbeschreibung

Gegenstand der vorliegenden Fallstudie ist der durch den Systemwechsel von der Plan- zur Marktwirtschaft ausgelöste Strukturwandel in der Lausitz im Untersuchungszeitraum 1990-2015. Prägend war vor allem eine starke Deindustrialisierung. Hiervon war auch die Lausitzer Braunkohlewirtschaft in starkem Maße betroffen. Die Fallstudie beschreibt den historischen Strukturwandelprozess und analysiert die in Reaktion auf diesen Prozess umgesetzte Strukturpolitik mit dem Ziel, dieses Wissen für in Zukunft anstehende Strukturwandelprozesse in anderen (Kohle-)Regionen zur Verfügung zu stellen. Zu diesem Zweck kategorisiert die Fallstudie die strukturpolitischen Interventionen in „konservierend", „nachsorgend" und „vorausschauend" und bewertet ihre (intendierten) Wirkungen anhand der Dimensionen „Ökonomie", „Soziales", „Ökologie" und „regionale Identität".

Die Wirtschaftspolitik des Bundes und der beteiligten Länder entwickelte im Laufe der Zeit eine Vielzahl unterschiedlicher strukturpolitischer Interventionen. Dies geschah lange mit einem Fokus auf den Wirtschaftsraum „Ostdeutschland“ insgesamt und nicht spezifisch für die Lausitz. Die Strukturpolitik in der Lausitz wird insgesamt als nur mäßig erfolgreich bewertet. Die Politik des „Aufbau Ost“ (1990-1998) kann im Rückblick zumindest aus ökonomischer Sicht als erfolgreich bezeichnet werden. Allerdings haben sich neue Strukturmuster vor allem an solchen Standorten herausgebildet, die eine hinreichende Attraktivität für externe Investoren aufwiesen. Die Strukturpolitik war insoweit eher begleitend, nicht (struktur-)gestaltend ausgerichtet. Auch heute gilt die Lausitz noch als strukturschwach.

Wie die Analysen dieser Fallstudie zeigen, war die Politik vor allem in den frühen 1990er Jahren darauf bedacht, die negativen Auswirkungen des transformationsbedingten Strukturumbruchs auf den Arbeitsmarkt abzufedern. Erst gegen Ende der 1990er Jahre wurde diese „nachsorgende“ Strukturpolitik auf eine stärker auf die Unterstützung struktureller Anpassungsprozesse ausgerichtete (und damit vorausschauende) Strukturpolitik ersetzt, die sich vor allem auf die Innovationsförderung stützte und bis heute fortgeführt wird.

Legt man die vom Projektkonsortium entwickelten Wirkungsdimensionen zugrunde, so lassen sich die strukturpolitischen Interventionen in der Lausitz vor allem den Wirkungsdimensionen „Ökonomie“ und (zumindest bis zum Ende der 1990er Jahre) „Soziales“ zuordnen. Dies spiegelt sich auch in den gesellschaftlichen Diskursen in den ostdeutschen Bundesländern und in der Lausitz wider. Die Dimension „Ökologie“ spielte am ehesten bei den notwendigen Renaturierungsmaßnahmen in den von der Stilllegung des Braunkohletagebaus betroffenen Gebieten bzw. bei der Sanierung altindustrieller Flächen eine Rolle. Die „regionale Identität“ spielte als Wirkungsdimension in den strukturpolitischen Programmen keine Rolle.

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List of abbreviations

ABM	Arbeitsbeschaffungsmaßnahmen [job creation schemes]
AFG	Arbeitsförderungsgesetz [German employment stimulation act]
BBSR	Bundesinstitut für Bau-, Stadt- und Raumforschung [German Federal Institute for Research on Building, Urban Affairs and Spatial Development]
B'burg	State of Brandenburg
BDA	Bundesverband der Arbeitgeber [Confederation of German employers' associations]
BDI	Bundesverband der Deutschen Industrie [Federation of German Industries]
BMBF	Bundesministerium für Bildung und Forschung [German Federal Ministry of Education and Research]
BMWi	Bundesministerium für Wirtschaft und Energie [German Federal Ministry for Economic Affairs and Energy]
BTU	Brandenburgische Technische Universität Cottbus-Senftenberg [Brandenburg University of Technology Cottbus-Senftenberg]
BZ	Bautzen district
CB	Urban district of Cottbus
CCS	Carbon capture and storage
CDU	Christlich Demokratische Union Deutschlands [christian democratic union of Germany]
DGB	Deutscher Gewerkschaftsbund [German Trade Union Confederation]
DVS	Deutsche Vernetzungsstelle Ländliche Räume [German networking office for rural areas]
EE	Elbe Elster district
EEG	Gesetz für den Ausbau erneuerbarer Energien [German expansion of renewable energies act]
ERDF	European Regional Development Fund
EU	European Union
FDP	Freie Demokratische Partei [Geman free democratic party]
GA	Government accounting
GDP	Gross domestic product
GDR	German Democratic Republic
GR	Görlitz district
GRW	Gemeinschaftsaufgabe "Verbesserung der regionalen Wirtschaftsstruktur" [community task "improvement of the regional economic structure"]
GTB	Gewerkschaft Textil-Bekleidung [German textile and clothing industry trade union]
hh	households

IBA	International Building Exhibition
IG BAU	Industriegewerkschaft Bauen-Agrar-Umwelt [German construction, agriculture and environment industry trade union]
IG BCE	Industriegewerkschaft Bergbau, Chemie, Energie [German mining, chemical and energy industry trade union]
IG BE	Industriegewerkschaft Bergbau und Energie [German mining and energy industry trade union]
IG Metall	Industriegewerkschaft Metall [German metal industry trade union]
INKAR	Indikatoren und Karten zur Raum- und Stadtentwicklung [indicators and maps for spatial and urban development]
LAUBAG	Lausitzer Braunkohle AG [Lusatian lignite corporation]
LEADER	Liaison entre actions de développement de l'économie rurale [Links between activities for the development of rural economy]
LEAG	Brand of the corporations Lausitz Energie Bergbau AG [Lusatia energy mining corporation] and Lausitz Energie Kraftwerke AG [Lusatia energy power stations corporation]
LDS	Dahme Spreewald district
LMBV	Lausitzer und Mitteldeutsche Bergbau-Verwaltungsgesellschaft mbH [Lusatian and Central German mining management company], company founded to take part in the decision-making process and activities surrounding the regeneration of mining sites
LR	Lausitzer Rundschau [Lusatian review], local newspaper in Lusatia
OSL	Oberspreewald Lausitz district
PDS	Partei des Demokratischen Sozialismus [German party of democratic socialism]
R&D	Research and development
RDC	Regional development centres
SGB	Sozialgesetzbuch [German Social Security Code]
SME	Small and medium-sized enterprises
SPD	Sozialdemokratische Partei Deutschlands [social democratic party of Germany]
SPN	Spree Neiße district
T&R	Training and retraining
UVBB	Unternehmerverband Berlin-Brandenburg [Berlin-Brandenburg entrepreneurs‘ association]
UVS	Unternehmerverband Sachsen [Saxony entrepreneurs’ association]
VGR	Volkswirtschaftliche Gesamtrechnung [Government accounting]
WFBB	Wirtschaftsförderung Brandenburg [economic development agency Brandenburg]

Context and summary

The challenge of structural change in coal regions is a topic that has greatly grown in political importance both in Germany and around the world in recent years. The objective of climate neutrality, an imperative to fulfil countries' commitments under the Paris Agreement, does not only require the increased use of renewable energies but also a decrease in fossil fuel consumption. Irrespective of the question whether net zero emissions still permit a small amount of fossil fuels, the largest share of fossil fuels must be removed from the energy mix over the coming years and decades. Coal, as the most emission-intensive fossil fuel, is of particular importance in this regard. Therefore, in recent years the discussion about a phase-out of coal has intensified both domestically in Germany and internationally.

The discussion shows that the phase-out of coal and the associated structural change in coal regions is more than just a topic for energy policy. It is not only a question of how to ensure a safe supply of energy, if the generation of power from coal is phased out, but it also concerns **structural policy challenges**: What happens to the regions, the companies and the jobs, which today are still dependent upon coal? How can the phase-out be fairly structured in line with a "just transition"? Which societal measures are necessary in order to create a balance between those, who profit from the change (e.g., because renewable energies bring new jobs to the region) and those, who disproportionally bear the burden (e.g., because the jobs in coal mining are concentrated in a few districts and are then lost)?

These questions have been discussed in depth in Germany by a commission, which developed proposals for a coal phase-out and structural policy interventions for affected regions (Kommission "Wachstum, Strukturwandel und Beschäftigung" [Commission on Growth, Structural Change and Employment]). However, the coal phase-out and just transition processes have also been discussed and decided upon in many other European countries and in the European Union's (EU) Initiative for coal regions in transition. August 2020 saw an important milestone when Germany passed a law to phase out coal by 2038 at the latest. This was accompanied by support measures for coal regions. Other countries have also presented corresponding plans and objectives. But the exact form of a just structural change is still under discussion. In this debate, two perspectives are important:

- **Structural change in (coal) mining regions is not a new phenomenon**. Closure is and has always been an inseparable part of the business model of mining because at a certain point, a mine's reserves become exhausted or at least can no longer be competitively extracted. It is typical for mining regions that the phase of (often very fast) growth is followed by a phase of mine closures – accompanied by all its negative consequences and challenges for the region. Compared to previous processes, change is now additionally being driven by a climate policy motivation.
- The **phase-out of coal will not be the last structural change process** that will be necessary in the course of transforming the economic system towards climate neutrality. The new paradigm of the European Green Deal assumes that ambitious climate policy objectives are compatible with growth and prosperity. At the same time, it is not only about the coal industry, but also about **transformation approaches for all sectors of the economy.** For these processes, it will be helpful to ask, which lessons from the phase-out of coal can be transferred to other sectors of the economy – and where completely new approaches must be found.

At this juncture, the research project, in which context this case study has been compiled, started its investigation. With an interdisciplinary team consisting of five research institutes, findings from historical structural change processes in coal regions in Germany have been collated. The results are two case studies and a systematisation of the lessons from these processes:

- This case study examines the structural change in **Lusatia** after the system change from a centrally planned economy to a market economy. This system change was a structural change process that occurred very suddenly – a structural break. Within a few years of the sudden occurrence of the German reunification, the whole economic system of East Germany underwent a fundamental change. The massive decline in lignite mining was embedded in a general collapse of industry, not only in Lusatia but in many regions of East Germany.
- The second case study (Dahlbeck et al., 2021a) examines the **Ruhr area**, which in contrast to rural Lusatia is a very urban region where hard coal was extracted in underground mines (in contrast to lignite opencast mines in Lusatia). Alongside steel production, coal mining in the Ruhr area was the starting point of an industrial development of trans-regional to European importance. When hard coal became increasingly uneconomical, mining declined (relatively) slowly. This was supported by subsidies for decades so that it took a total of 60 years before the last mine was closed in 2018. Yet, even today the Ruhr area is one of the most densely populated and most industrialised regions of Germany.
- A third publication (Reitzenstein et al., 2021) categorises the **lessons** from the case studies in the context of technical, political, economic, social and cultural framework conditions and works out, which findings and experiences, depending on the context, can be helpful for other regions and sectors.

The objective of this detailed case study on structural change in Lusatia was to analyse the structural policy in the period 1990-2015, to reveal its economic and political framework conditions as well as to describe and as far as possible to evaluate its impact. No recommendations specific to the future of Lusatia have been extrapolated, but lessons have been sought that may be of interest to coal regions in Europe and in the rest of the world. Because structural policy must always be developed specific to the context, the experiences of Lusatia cannot be used as a blueprint and implemented in other regions in the exact same manner. However, the lessons from Lusatia could serve as an inspiration to other regions. This case study does not only present the successes of structural policy, but it also analyses the weaknesses. Therefore, the study communicates opportunities but also limitations for future structural policy interventions.

Definitions: Structural change, structural policy and impact dimensions

In economics, “structural change” is understood as the change in the structural composition of a statistically measured set (e.g., gross domestic product (GDP), employment). The term itself is neutral and should express that economic development does not occur in the same manner over all sectors and regions, but that it involves partial shifts on the various levels. Structural change may have endogenous or exogenous causes.

The authors understand "structural policy" to be interventions that are used to influence the structural change in a targeted manner. For the evaluation in the context of this case study, structural policy interventions were categorised according to their intended objective:

- **Preserving structural policy**: intends to impede or at least to delay structural change by preventing the contraction of the threatened sectors in order to avoid social distortions.
- **Reactive structural policy**: accepts the contraction of the sectors, however, the resulting social hardships are cushioned, e.g., through measures in labour market policy.
- **Forward-looking structural policy**: intends to anticipate future developments and to timely compensate the negative effects of the contraction by stimulating alternative (economic) structures. Selective technology policy measures may also be included in this category.

Furthermore, the case study examined the impact of the structural policy interventions according to the following dimensions:

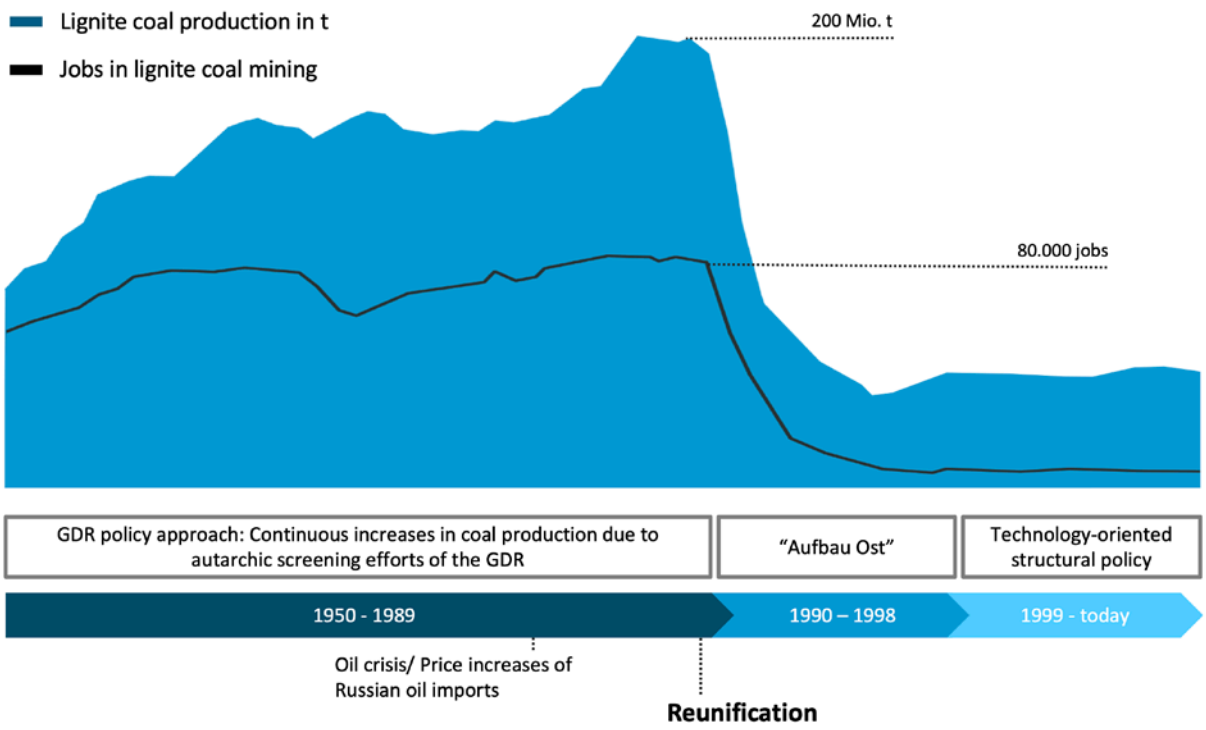
- economy,
- social welfare,
- ecology and
- regional identity.

Structural change in Lusatia

The structural change in Lusatia caused by the system change from a centrally planned economy to a market economy was primarily characterised by large-scale de-industrialisation because the existing (industrial) companies were no longer competitive in market conditions. The Lusatian lignite economy was greatly affected by this de-industrialisation. The number of employees shrank from 80,000 people at the end of the German Democratic Republic (GDR) to less than 8,000 people in the mid-1990s (see Figure 1). Numerous opencast mines and power plant sites were closed. For the majority of the employees, there were no re-employment opportunities in Lusatia because other sectors also heavily contracted in the course of the transformation[1] and at the same time, there was only a faltering start to establishing new companies and economic sectors.

[1] In the context of this case study, the term "transformation" describes the process of the political and economic system change in the East German states since 1989, changing from a centrally planned economy to a democracy and social market economy. In this regard, it is different to the definitions of "transformation" that are used in the context of the decarbonisation of the economy and the 2030 Agenda for Sustainable Development.

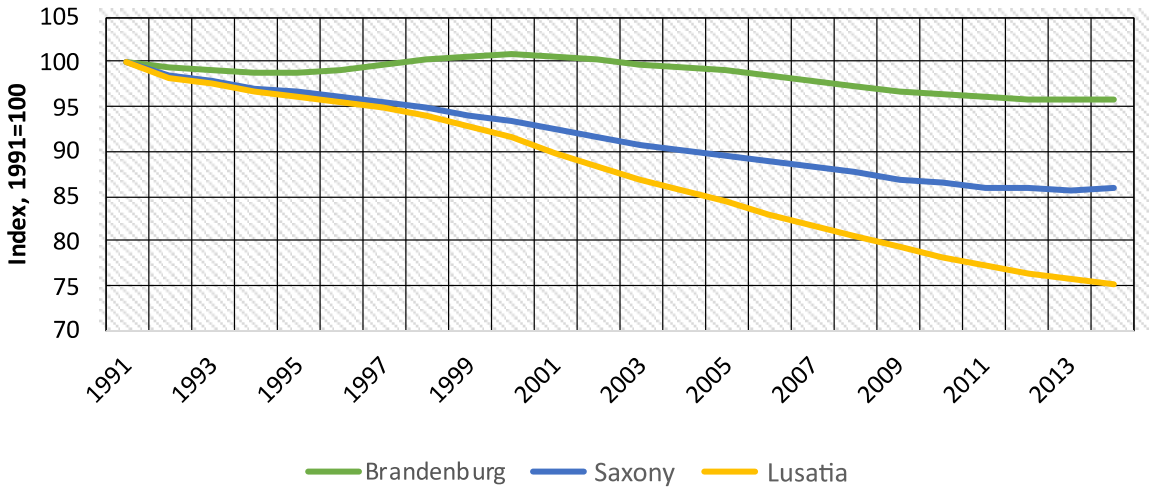
Figure 1: Employment and lignite extraction in Lusatia



Source: Statistik der Kohlenwirtschaft e.V. (2019), own presentation

With a few local exceptions, Lusatia was not one of the regions attractive to investors, meaning that today, the region is still considered as being structurally weak. Unemployment is higher than in the other East German states, the value added per capita outside of the lignite industry is clearly lower and even the migration of younger and well-educated population strata continues to be considerable in comparison to the demographic development (see Figure 2).

Figure 2: Demographic development in the regions of Lusatia 1991-2014



Source: GA of the German states, own calculations

Analysis of the structural policy interventions

Labour market

On account of the dramatic labour market situation after the German reunification, a core part of structural policy was to deploy active labour market policies to provide social flanking for the structural change caused by the transformation. Measures to reduce labour supply through early retirement, measures to qualify the labour force and measures to create jobs were of particular importance. The reduced working hours instrument was also deployed in order to cover a short-term reduction in demand for labour. In this regard, the labour market policy is to be classified primarily as a "**reactive structural policy".**

These measures made a considerable contribution to easing the labour market. Nevertheless, their success is to be assessed as inconclusive. Without doubt, their social policy function was important because many of the unemployed were difficult to integrate in the regular labour market due to the distortions of the transformation process. The measures considerably contributed to guaranteeing income and prevented the distribution of income being further stretched in the East German states and therefore also in Lusatia. However, if the primary objective of active labour market policy measures is regarded as being the transfer into regular employment, then it has largely failed. A series of evaluation studies on Arbeitsbeschaffungsmaßnahmen [job creation schemes] (ABM) concluded that the chances of employment barely improved or did not improve through participation in them.

For this rather negative assessment, the following reasons can be cited: On the one hand, the economic recovery lagged behind the initial optimistic forecasts so that demand for labour was weaker than expected; all in all, there were too few jobs. On the other hand, the expectations for a successful reintegration in the regular labour market were often justified with the stabilisation of the labour capacity and qualification. Due to the design of the ABM, it is often questionable in how far these aspirations could have been achieved. Specific funding conditions caused an inefficient, rather work-intensive manner of production in the ABM and there were incentives to deploy outdated technology. In addition, regular employment could have been supplanted by ABM at least in some individual sectors.

In this regard, it was logical that these "traditional" measures of the active labour market policy became increasingly restricted from the turn of the millennium and were almost completely replaced with other, more incentive-orientated instruments as a result of the labour market policy reforms ("Agenda 2010") in the second legislative term of the German federal government led by the Sozialdemokratische Partei Deutschlands [social democratic party of Germany] (SPD).

The active labour market policy made a positive contribution to the reactive structural policy intended to cushion social hardships. Yet, it did not really work as a future-orientated instrument to manage structural change.

Innovation and research funding

The funding of innovation and research (as an important part of a **forward-looking structural policy**) has greatly gained in importance in recent years. Therefore, the corresponding objectives are found in nearly all structural and regional economic programmes today.

A final evaluation of the innovation and research policy is very difficult at this current time. Lusatia in particular was considered only to a small extent in the previous measures by the German federal government and by the governments of the states, above all, because there was a lack of companies with innovative and knowledge-intensive products or services, which represent the starting point for this kind of support.

Investment and company support

The investment funding was the most important component in the overall strategy of the "Aufbau Ost" [reconstruction east; development of the East German states] policy. The objective of the investment funding was to encourage private investments and, in this regard, it is to be categorised as a "**forward-looking structural policy"**.

The mechanisms of the various investment funding programmes were by and large identical. By way of subsidies, the real capital costs were brought below the market level. Thus, it became possible to implement projects, which with their given viability would not have been implemented in East Germany, in the State of Brandenburg or in Lusatia. Hence, the investment funding aimed not only to encourage supra-regionally operating companies to invest in the region but also to increase the willingness to invest of companies already in the region. From these perspectives, the investment funding is to be considered as successful. Relevant impact analyses concluded that the investment funding has led to positive investment and employment effects, even though deadweight and displacement effects could not be ruled out. The investment funding within the sense of a forward-looking structural policy with the objective of establishing new, alternative economic structures is insofar to be evaluated positively. However, after a vigorous start, investment activity in the East German states underwent a large decline. A possible reason for it could be **the lack of a sufficient amount of profitable investment opportunities.**

Ultimately, an honest evaluation of this structural policy intervention must also consider that in part the investment funding simply led to a **relocation of production capacities**. Furthermore, it is to be critically regarded that the investment funding in the East German states contributed to **structural distortions**. Further points of criticism are possible habituation effects and the observable lacking establishment of permanent production structures.

The points of criticism led to a constant adaptation of the regulations and award criteria for the investment funding. A considerable characteristic of the new direction of the investment funding in the East German states, and in particular in the State of Brandenburg, was the departure from the principle of scattering of the funding in favour of an investment funding focussed on technology and future sectors.

Network support

Since the end of the 1990s, there has been a gradual change in the support strategy of the German federal government (and subsequently of the German states as well). It became increasingly clear that the insufficient convergence success was less a result of a lack of capital goods but primarily due to the insufficient technological performance capacity of many East German businesses. Alongside the instruments of direct innovation funding, the economic policy was therefore focussed more strongly on supporting a better networking of the businesses with each other or of the businesses with academic institutions (universities or non-university research institutes). This is also to be categorised as an element of the "**forward-looking structural policy**".

Also, in Lusatia, a series of such networks was and is supported by policies. However, experiences with "cluster policies" of this type have been rather sobering. Although in many cases, innovations have been initiated through innovation-orientated cluster policies, the establishment of long-term stable (institutionally secured) cluster structures has been the exception to the rule. One reason is that it is not easy to communicate to the participants which benefit they can gain from a long-term cooperation that is not topic-orientated.

The GRW (Gemeinschaftsaufgabe "Verbesserung der regionalen Wirtschaftsstruktur" [community task "improvement of the regional economic structure"]) funding programmes,

which were intended to support the formation of clusters, proved to be even less successful. Also in this regard, when public financing came to an end, it could generally not be replaced by private sources of finance.

Infrastructure

At the time of the German reunification, the infrastructure in the East German states was in a bad condition as a result of lacking investment during the GDR era. Consequently, at the start of the transformation process the East German infrastructure in particular was to be brought up to West German standards by way of demolition, modernisation and development.

In doing so, the infrastructure funding (as a component of a "**forward-looking structural policy**") also had an impact on the equalisation of living standards between East and West Germany, e.g., through the modernisation of the housing stock and shorter travel times to close-by conurbations. There was no infrastructure funding specifically for Lusatia. However, due to the great importance of mining in Lusatia, there was a special feature in the funding within the re-use of former opencast mine areas.

Renaturation

The conversion of the opencast mine sites used in the extraction of lignite was a topic of great importance. Thus, the results of the lignite opencast mine remediation contributed both to the improvement of "soft location factors" and considerably to the change in image and to viable future perspectives of the affected regions. In this regard, the remediation of the opencast mines made a positive contribution to the structural change. However, the resulting effects should not be overvalued. For example, in regard to long-term unemployment, it has been shown that the trend in the remediation areas is less favourable than the average trend in the States of Brandenburg and Saxony.

Impact dimensions of the structural policy interventions

The structural policy interventions in Lusatia can be classified primarily as serving the "**economy**" impact dimension and (at least until the end of the 1990s) as serving the "**social welfare**" impact dimension.
The "**ecology**" impact dimension most likely played a part in the necessary renaturation measures in the areas affected by the closure of the lignite opencast mines or in the remediation of former industrial land. However, it was not a structural policy intervention within the narrow meaning of the term. Furthermore, the ecological situation had already improved simply on account of the closure of many businesses during the transition to a market economy so that for this reason additional measures only received a small amount of attention.
"**Regional identity**" did not play any part at all in the structural policy programmes. Significant interventions focussed on the economic region of "East Germany" as a whole and they only paid little consideration to the specific features of the Lusatian coalfield. Such non-region-specific interventions differentiate the structural change in Lusatia from the structural change in the Ruhr area, which not only occurred at a clearly slower pace but was also shaped to a much greater extent by region-specific structural policy interventions, e.g., adaptation aid from the State of North Rhine-Westphalia.

Discourse Analysis

The great emphasis of the economic and social challenges in the various phases of the transformation process is also reflected in the societal discourse in the East German states and in Lusatia. The "Aufbau Ost" [development of the East German states] policy (see Figure 1) from approximately **1990 to 1998** was characterised by the dominance of labour market policy and social policy topics. Structural policy discourse primarily occurred with the objective of maintaining the structure. In particular at the local and state level, there was a very heavy **focus on maintaining existing industries** from the GDR era, such as coal mining and the production of glass, chemicals and textiles. Environmental policies did not have an explicit part to play in this phase. Facing the environmental destruction in the GDR, environmental protection was much rather regarded as an inherent component of the market economy and was considered alongside social issues, for example, in emphasising a "social and ecological market economy" as a societal objective.

In the following period from **1999 to 2015**, a phase of **technology-focussed structural policy** began (see Figure 1). The discourse around structural policy measures now became clearly more differentiated. Stakeholders no longer argued for jobs as an end in itself, but for **economically viable jobs**. The focus of the debate shifted more towards skill shortages and migration, which many stakeholders considered to be the central structural policy problem in Lusatia and in the State of Brandenburg. Stakeholders discussed opportunities to promote a region with a good quality of life that can keep its population and attract skilled workers. As a rule, it concerned the provision of public services, municipal finances as well as infrastructure and occasionally recultivation in the sense of creating an attractive landscape. In this context, the necessity of **innovation funding** was repeatedly emphasised by both the governing parties and the opposition parties at the state level.

In the discourse on the future of lignite, a clearly **different prioritisation of climate protection on the one hand and the social and economic concerns on the other hand was shown.** On the one hand, the disadvantages of the lignite industry were emphasised citing emissions, regional environmental damage and the bulldozing of villages, while on the other hand, arguments were made for the indispensability of lignite with the emphasis on security of supply, affordability of energy and jobs. For a long time, these arguments were used by the politicians at the state level to reject the German federal government's proposals to phase out coal.

The discourse analysis reveals that there was a certain **path dependency between the previous structural policy and neglecting to establish alternative diversified economic structures**.

In the discourse until 2015, the term "structural change" was primarily connected with the economic collapse after the system change and therefore mainly had negative connotations. However, some environmental groups and local initiatives, which demanded a stop to the expansion of opencast mines, were already using the term in a positive and future-orientated manner.

Conclusions

With the exception of individual settlement projects, there was no "Lusatia-specific" structural policy on the part of the German federal government or of the involved states (Brandenburg and Saxony). Instead, there was a multitude of different structural policy interventions, which focussed on the economic region of "East Germany" as a whole and only paid little consideration to the specific features of the Lusatian coalfield.

Overall, the structural policy in Lusatia is considered as only modestly successful. The "Aufbau Ost" [development of the East German states] policy (1990-1998) can in retrospect at least from an economic perspective be described as successful. However, new structural patterns have developed, above all, in locations that show sufficient attractiveness for external investors. In this respect, the structural policy was organised as an accompanying ("reactive") policy rather than as a (structure) forming policy. With a few local exceptions, Lusatia was not one of the regions attractive to investors meaning that today, the region is still considered as being structurally weak. Unemployment is higher than in the other East German states, the value added per capita outside of the lignite industry is much lower and even the migration of younger and well-educated population strata continues to be considerable. In this regard, the development of Lusatia since 1991 is an example of "passive redevelopment" that should not necessarily be emulated by other regions.

It was only towards the end of the 1990s that this "reactive" structural policy was replaced with a structural policy that focused more heavily on supporting the structural adaptation processes (hence making it forward-looking). This policy was based above all on stimulating innovation and still continues today. Safeguarding jobs was a priority of the Brandenburg economic policy. To the extent that there was a rather forward-looking structural policy, this policy followed passed-down conceptions about a centrally controlled predictability of regional economic structures for a long time. At the same time, strong tendencies arose for the concentration of funding on certain locations and sectors that were regarded as "developable". The objective was to expand existing sector focuses where possible ("strengthen strengths"), however, there was no objective to develop new sectors. Opportunities to facilitate a stronger diversification of existing monostructures by way of suitable structural policy measures were missed in this way. These opportunities would have been of great importance precisely for Lusatia, which has been shaped by mining. Instead, until a few years ago Lusatia's future was regarded as being that of an "energy region," which also included the continued existence of the lignite industry. For Lusatia not questioning the continued existence of lignite power generation meant that the establishment of other economic structures was neglected. From the beginning, the State of Saxony focussed rather on a market-driven modernisation strategy, which due to existing location advantages favoured especially the cities in the State of Saxony. A close coordination of the policies of the States of Brandenburg and Saxony could not be discerned at least during the investigation period.

From the authors' point of view, the lacking region-specific support is a shortcoming because the acceptance of structural policy interventions is also dependent upon how much such interventions take specific regional economic circumstances into consideration and therefore also make allowances for identity-establishing aspects.

The work on the case study revealed that when developing structural policy interventions, a complex framework of economic, social, ecological and also cultural impacts must be considered and must be integrated in the system of objectives – and that scientific evidence on how different interventions have impacted and continue to impact objectives other than economic objectives still needs to be obtained.

Einordnung und Zusammenfassung

Die Herausforderungen des Strukturwandels in Kohleregionen ist ein Thema, das in den letzten Jahren einen massiven politischen Bedeutungsgewinn erfahren hat – in Deutschland und international. Das klimapolitisch notwendige Ziel der Treibhausgasneutralität erfordert nicht nur eine stärkere Nutzung erneuerbarer Energien, sondern auch eine geringere Nutzung fossiler Energieträger. Ungeachtet der Detailfrage, ob Netto-Nullemissionen noch einen kleinen Rest von fossilen Energieträgern zulassen, muss (mindestens) der allergrößte Anteil der fossilen Energieträger in den nächsten Jahren und Jahrzehnten aus dem Energiemix genommen werden. Kohle als emissionsintensivster Energieträger ist hierfür von besonderer Bedeutung. Die Diskussion um einen Kohleausstieg nahm deshalb in Deutschland und international in den letzten Jahren an Fahrt auf.

Die Diskussion zeigt, dass der Kohleausstieg und der damit verbundene Strukturwandel in Kohleregionen nicht nur ein energiepolitisches Thema ist: Es geht nicht nur um die Frage, wie eine sichere Energieversorgung gewährleistet werden kann, wenn auf Kohleverstromung verzichtet wird, sondern auch um **strukturpolitische Herausforderungen**: Was passiert mit den Regionen, den Firmen, den Arbeitsplätzen, die bis heute von der Kohle stark abhängig sind? Wie kann der Ausstieg gerecht im Sinne einer "Just Transition" gestaltet werden? Welche gesellschaftlichen Maßnahmen sind nötig, um einen Ausgleich zu schaffen zwischen denen, die vom Wandel profitieren (z. B. weil erneuerbare Energien neue Arbeitsplätze in die Region bringen) und denen, die überproportional an den Lasten zu tragen haben (z. B. weil die Arbeitsplätze im Kohlebergbau in wenigen Landkreisen konzentriert sind und dann fehlen)?

Diese Fragen wurden in Deutschland intensiv von der Kommission "Wachstum, Strukturwandel und Beschäftigung" behandelt, die Vorschläge für strukturpolitische Interventionen für vom Kohleausstieg betroffene Regionen erarbeitete; sie werden aber auch international diskutiert – in vielen Ländern Europas und in der Coal-Regions-in-Transition-Initiative der Europäischen Union (EU). Als einen wesentlichen Meilenstein hat Deutschland im August 2020 ein Gesetz zum Ausstieg aus der Kohlenutzung beschlossen, das mit Unterstützungsmaßnahmen für die Kohleregionen flankiert wurde. Auch andere Länder haben entsprechende Pläne und Ziele vorgelegt. Aber wie ein sozialverträglicher Strukturwandel konkret gestaltet werden kann, wird weiterhin diskutiert. Zwei Perspektiven sind in dieser Debatte wichtig:

- **Strukturwandel in Kohle- und Bergbauregionen ist kein neues Phänomen**. Die Schließung ist und war schon immer untrennbar ein Teil des Geschäftsmodells im Bergbau: An einem bestimmten Punkt sind die Vorräte einer Mine erschöpft oder zumindest nicht mehr konkurrenzfähig abbaubar. Es ist typisch für Bergbauregionen, dass auf die Phase des (häufig sehr schnellen) Wachstums eine Phase der Minenschließungen folgt – mit all ihren negativen Folgen und Herausforderungen für die Regionen. Neu ist, dass der Wandel zusätzlich aus einer klimapolitischen Motivation heraus vorangetrieben wird.
- Der **Ausstieg aus der Kohlenutzung wird nicht der letzte Strukturwandelprozess sein**, der im Zuge einer Transformation des Wirtschaftssystems hin zur Treibhausgasneutralität nötig sein wird. Das neue Paradigma des European Green Deal geht davon aus, dass ambitionierte Klimaziele mit Wohlstandswachstum vereinbar sind. Dabei geht es nicht nur um die Kohleindustrie, sondern um **Transformationsansätze für alle Sektoren der Wirtschaft**. Für diese Prozesse wird es hilfreich sein zu fragen, welche Lehren aus dem Kohleausstieg auch auf andere Wirtschaftssektoren übertragbar sein können – und wo völlig neue Lösungsansätze gefunden werden müssen.

An dieser Stelle setzte das Forschungsprojekt an, in dessen Rahmen diese Fallstudie erarbeitet wurde: Mit einem interdisziplinären Team aus fünf Forschungsinstituten wurden exemplarisch Erkenntnisse aus historischen Strukturwandelprozessen in Kohleregionen in Deutschland zusammengetragen. Ergebnis sind zwei Fallstudien und eine Systematisierung von Lernerfahrungen aus diesen Prozessen:

- Die vorliegende Fallstudie behandelt den Strukturwandel in der **Lausitz** nach dem Systemwechsel von der Plan- zur Marktwirtschaft. Der Strukturwandelprozess dort erfolgte sehr kurzfristig – und kann als regelrechter Strukturbruch bezeichnet werden: Innerhalb weniger Jahre nach dem plötzlichen Ereignis der Wiedervereinigung erfuhr das gesamte Wirtschaftssystem Ostdeutschlands einen grundsätzlichen Wandel. Der massive Rückgang des Braunkohlebergbaus war eingebettet in einen generellen Zusammenbruch der Industrie, nicht nur in der Lausitz, sondern in vielen Regionen Ostdeutschlands.
- Die zweite Fallstudie (Dahlbeck et al. 2021b) betrachtet das **Ruhrgebiet**, welches im Gegensatz zur ländlichen Lausitz eine sehr urbane Region ist, in der anstatt Braunkohle im Tagebau Steinkohle unter Tage abgebaut wurde. Zusammen mit der Stahlerzeugung als Montanindustrie war die Kohlegewinnung im Ruhrgebiet der Ausgangspunkt einer industriellen Entwicklung mit überregionaler bis hin zu europäischer Bedeutung. In dem Maße, wie die Steinkohle immer unwirtschaftlicher wurde, ging der Bergbau (relativ) langsam zurück – über Jahrzehnte gestützt durch Subventionen, so dass es insgesamt 60 Jahre dauerte, bis 2018 die letzte Zeche geschlossen wurde. Dennoch ist das Ruhrgebiet auch heute eine der am dichtesten besiedelten und am stärksten industrialisierten Regionen Deutschlands.
- Eine dritte Veröffentlichung (Reitzenstein et al. 2021) ordnet die **Lernerfahrungen** aus den Fallstudien in die Kontexte technischer, politischer, wirtschaftlicher, sozialer und kultureller Rahmenbedingungen ein und arbeitet heraus, welche Erkenntnisse und Erfahrungen – kontextabhängig – für andere Regionen und Sektoren hilfreich sein können.

Ziel dieser detaillierten Fallstudie zum Strukturwandel in der Lausitz war es, die Strukturpolitik des Zeitraums 1990-2015 zu analysieren, ihre ökonomischen und politischen Rahmenbedingungen aufzuzeigen sowie ihre Wirkungen zu beschreiben und – so weit wie möglich – zu bewerten. Es wurden keine Empfehlungen spezifisch für die Zukunft der Lausitz abgeleitet, sondern nach Lernerfahrungen gesucht, die für Kohleregionen in Europa und darüber hinaus von Interesse sein können. Weil Strukturpolitik immer kontextspezifisch entwickelt werden muss und wirkt, können die in der Lausitz gemachten Erfahrungen nicht als Blaupause genutzt und eins zu eins auf andere Regionen übertragen werden. Die historischen Lernerfahrungen der Lausitz können aber anderen Regionen als Inspiration dienen. Diese Fallstudie präsentiert nicht nur Erfolge der Strukturpolitik, sondern analysiert auch deren Schwächen – und vermittelt damit einen Eindruck der Möglichkeiten und der Limitierungen für zukünftige strukturpolitische Interventionen.

Begriffsklärung: Strukturwandel, Strukturpolitik und Wirkungsdimensionen

Unter „Strukturwandel“ wird in den Wirtschaftswissenschaften die Veränderung der strukturellen Zusammensetzung eines statistisch gemessenen Aggregats (z. B. Bruttoinlandsprodukt (BIP), Beschäftigung) verstanden. Der Begriff selbst ist wertfrei und soll ausdrücken, dass wirtschaftliche Entwicklung nicht gleichförmig über alle Branchen oder Regionen hinweg verläuft, sondern mit Anteilsverschiebungen auf den verschiedenen Ebenen einhergeht. Strukturwandel kann endogene oder exogene Ursachen haben.

Unter „Strukturpolitik“ verstehen die Autoren Interventionen, mit denen der Strukturwandel gezielt beeinflusst werden soll. Für die Bewertung im Rahmen dieser Fallstudie wurden strukturpolitische Interventionen nach ihrer beabsichtigten Zielsetzung kategorisiert:

- **Konservierende Strukturpolitik**: Hier geht es darum, durch Verhinderung der Schrumpfung bedrohter Branchen den Strukturwandel aufzuhalten oder ihn zumindest zeitlich hinauszuzögern, um soziale Verwerfungen zu vermeiden.
- **Nachsorgende Strukturpolitik**: Hier wird die Schrumpfung von Branchen akzeptiert, aber daraus resultierende soziale Härten werden, z. B. durch Maßnahmen der Arbeitsmarktpolitik, abgefedert.
- **Vorausschauende Strukturpolitik**: Hier geht es darum, künftige Entwicklungen zu antizipieren und die negativen Auswirkungen des Schrumpfens einzelner Sektoren frühzeitig durch die Förderung alternativer (Wirtschafts-)Strukturen zu kompensieren. Auch selektive technologiepolitische Maßnahmen können hierunter subsumiert werden.

Darüber hinaus untersuchte die Fallstudie die Wirkungen der strukturpolitischen Interventionen entlang der Dimensionen:

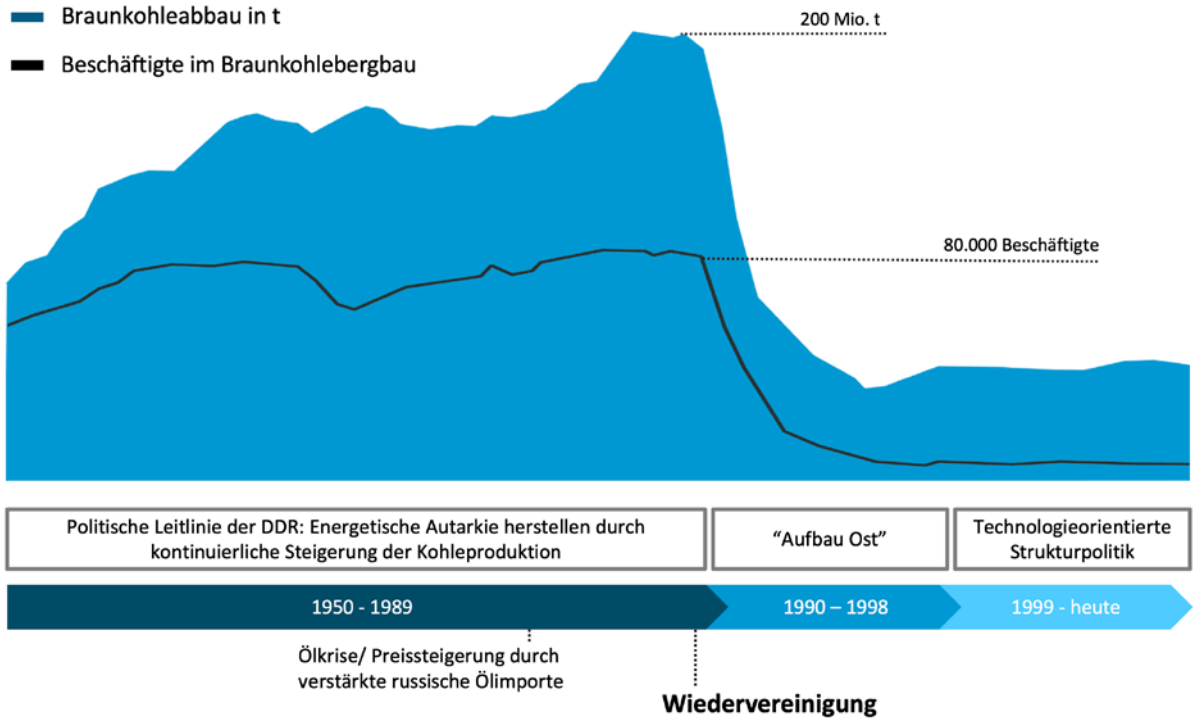
- Ökonomie,
- Soziales,
- Ökologie und
- regionale Identität.

Strukturwandel in der Lausitz

Der durch den Systemwechsel von der Plan- zur Marktwirtschaft ausgelöste Strukturwandel in der Lausitz war vor allem geprägt durch eine starke Deindustrialisierung, da die bestehenden (Industrie-)Unternehmen unter Marktbedingungen nicht länger wettbewerbsfähig waren. Hiervon war auch die Lausitzer Braunkohlewirtschaft in starkem Maße betroffen. Die Zahl der Beschäftigten schrumpfte von 80.000 Personen zum Ende der Deutschen Demokratischen Republik (DDR) auf weniger als 8.000 Personen Mitte der 1990er Jahre (siehe Abbildung 3). Zahlreiche Tagebau- und Kraftwerksstandorte wurden geschlossen und für einen großen Teil der Beschäftigten fanden sich in der Lausitz keine Wiederbeschäftigungsmöglichkeiten, da auch andere Branchen im Zuge des Transformationsprozesses[2] stark schrumpften und gleichzeitig der Aufbau neuer Unternehmen und Wirtschaftszweige nur stockend in Gang kam.

[2] Im Rahmen dieser Fallstudie bezeichnet der Begriff „Transformation“ den Prozess des politischen und wirtschaftlichen Systemwechsels in den ostdeutschen Bundesländern ab 1989 von einer Zentralverwaltungswirtschaft zu Demokratie und sozialer Marktwirtschaft. Er unterscheidet sich insoweit von den Transformationsbegriffen wie sie im Kontext der Dekarbonisierung der Wirtschaft und der 2030-Agenda für Nachhaltige Entwicklung verwendet werden.

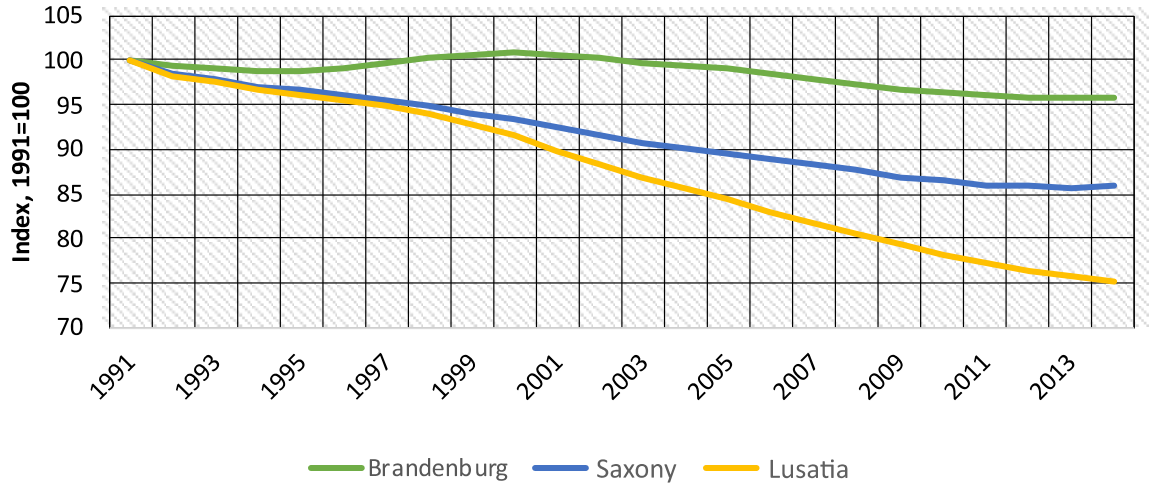
Abbildung 3: Beschäftigung und Braunkohleabbau in der Lausitz



Quelle: Statistik der Kohlenwirtschaft e.V. (2019), eigene Darstellung

Die Lausitz gehörte – von wenigen lokalen Ausnahmen abgesehen – nicht zu den für Investoren attraktiven Regionen, so dass die Region auch heute noch als strukturschwach gilt: Die Arbeitslosigkeit ist höher als in den übrigen ostdeutschen Bundesländern, die Wertschöpfung pro Kopf außerhalb der Braunkohlewirtschaft deutlich niedriger, und auch die Abwanderung jüngerer und gut qualifizierter Bevölkerungsschichten ist weiterhin erheblich im Vergleich zur Bevölkerungsentwicklung (siehe Abbildung 4).

Abbildung 4: Bevölkerungsentwicklung in den Regionen der Lausitz 1991-2014



Quelle: VGR der Länder, eigene Berechnungen

Analyse der strukturpolitischen Interventionen

Arbeitsmarkt

Aufgrund der dramatischen Arbeitsmarktsituation nach der Wiedervereinigung war die soziale Flankierung des transformationsbedingten Strukturwandels durch aktive Arbeitsmarktpolitik ein Kernbestandteil der Strukturpolitik. Besondere Bedeutung hatten Maßnahmen zur Reduzierung des Arbeitskräfteangebotes durch Frühverrentung, Maßnahmen zur Qualifikation der Arbeitskräfte sowie zur Arbeitsbeschaffung. Hinzu kam das Instrument der Kurzarbeit, um einen kurzfristigen Rückgang der Arbeitskräftenachfrage zu überbrücken. Die Arbeitsmarktpolitik ist insoweit primär als „**nachsorgende Strukturpolitik**“ einzuordnen.

Diese Maßnahmen trugen in erheblichem Maße zur Entlastung des Arbeitsmarktes bei. Ihr Erfolg ist jedoch ambivalent zur beurteilen. Die sozialpolitische Funktion war zweifellos wichtig, denn viele Arbeitslose waren aufgrund der Verwerfungen im Transformationsprozess kaum in den regulären Arbeitsmarkt integrierbar. Die Maßnahmen trugen in erheblichem Maße zur Einkommenssicherung bei und verhinderten ein noch weiteres Ausspreizen der Einkommensverteilung in den ostdeutschen Bundesländern und damit auch in der Lausitz. Sieht man das primäre Ziel aktiver arbeitsmarktpolitischer Maßnahmen allerdings im Übergang in reguläre Beschäftigung, dann haben diese weitgehend versagt. Eine Reihe von Evaluationsstudien zu Arbeitsbeschaffungsmaßnahmen (ABM) kommen zu dem Ergebnis, dass sich die Beschäftigungschancen durch die Teilnahme kaum oder gar nicht verbesserten.

Für diese eher negativen Befunde lassen sich inhaltliche Gründe anführen: Zum einen blieb die wirtschaftliche Erholung hinter den anfänglichen optimistischen Prognosen zurück, so dass die Arbeitskräftenachfrage schwächer ausfiel als erwartet; es waren also insgesamt zu wenig Arbeitsplätze vorhanden. Zum anderen wurden die Erwartungen auf eine erfolgreiche Reintegration in den regulären Arbeitsmarkt häufig mit einer Stabilisierung des Arbeitsvermögens und einer Qualifizierung begründet. Aufgrund der Ausgestaltung der Beschäftigungsmaßnahmen ist oft fraglich, inwieweit diese Ansprüche realisiert hätten werden können. So sorgten die spezifischen Förderbedingungen für eine ineffiziente, eher arbeitsintensive Produktionsweise in ABM, und es wurden Anreize gesetzt, eine veraltete Technologie einzusetzen. Hinzu kommt, dass zumindest in einzelnen Bereichen durch ABM reguläre Beschäftigung verdrängt worden sein könnte.

Insoweit war es durchaus folgerichtig, dass diese „klassischen“ Maßnahmen der aktiven Arbeitsmarktpolitik ab der Jahrtausendwende zunehmend eingeschränkt wurden und mit den arbeitsmarktpolitischen Reformen der damaligen zweiten Legislaturperiode der sozialdemokratisch geführten Regierung („Agenda 2010“) nahezu vollständig durch andere, stärker anreizorientierte Instrumente ersetzt wurden.

Im Sinne einer nachsorgenden Strukturpolitik zur Abfederung sozialer Härten leistete die aktive Arbeitsmarktpolitik einen positiven Beitrag. Als ein auf die Zukunft gerichtetes Instrument zur Bewältigung des Strukturwandels diente sie eher nicht.

Innovations- und Forschungsförderung

Die Innovations- und Forschungsförderung (als wesentlicher Bestandteil einer **vorausschauenden Strukturpolitik**) gewann vor allem in den letzten Jahren enorm an Bedeutung. So finden sich heute in fast allen struktur- und regionalökonomischen Programmen entsprechende Zielstellungen.

Eine abschließende Bewertung der Innovations- und Forschungspolitik ist zum jetzigen Zeitpunkt nur schwerlich möglich. Insbesondere die Lausitz wird bei den bisherigen

Maßnahmen von Bund und Ländern nur in geringem Umfang berücksichtigt, vor allem weil es an Unternehmen mit innovativen und wissensintensiven Produkten bzw. Dienstleistungen fehlt, die einen Ansatzpunkte für diese Förderung darstellen.

Investitions- und Unternehmensförderung

Die Investitionsförderung war der wichtigste Bestandteil in der Gesamtstrategie des „Aufbau Ost". Die Investitionsförderung verfolgte das Ziel, die private Investitionstätigkeit anzuregen und ist insoweit als „**vorausschauende Strukturpolitik**" einzuordnen.

Der Mechanismus der verschiedenen Investitionsförderprogramme war weitestgehend identisch. Durch Subventionierung wurden die realen Kapitalkosten unter das Marktniveau gesenkt. Somit wurde es möglich, Projekte zu realisieren, die bei gegebener Rentabilität nicht in Ostdeutschland, im Land Brandenburg oder in der Lausitz realisiert worden wären. Damit zielte die Investitionsförderung darauf ab, überregional agierende Unternehmen zu einer Investition in der Region zu bewegen, aber auch die Investitionsbereitschaft bereits ansässiger Unternehmen zu erhöhen. Unter diesen Gesichtspunkten ist die Investitionsförderung als erfolgreich zu beurteilen. Einschlägige Wirkungsanalysen kommen zu dem Ergebnis, dass die Investitionsförderung zu positiven Investitions- und Beschäftigungseffekten führte, auch wenn Mitnahme- und Verdrängungseffekte nicht ausgeschlossen werden können. Die Investitionsförderung im Sinne einer vorausschauenden Strukturpolitik, die das Ziel des Aufbaus neuer, alternativer Wirtschaftsstrukturen hat, ist insoweit als positiv zu bewerten. Allerdings war die die Investitionstätigkeit in den ostdeutschen Bundesländern nach stürmischem Beginn stark rückläufig. Ein möglicher Grund hierfür könnte das **Fehlen an hinreichend vielen rentablen Investitionsmöglichkeiten** sein.

Schließlich muss eine ehrliche Bewertung dieser strukturpolitischen Intervention auch berücksichtigen, dass die Investitionsförderung in Teilen lediglich zu einer **Verlagerung der Produktionskapazitäten** führte. Kritisch zu sehen ist weiterhin, dass die Förderung von Investitionen in den ostdeutschen Bundesländern zu **strukturellen Verzerrungen** beitrug. Weitere Kritikpunkte sind mögliche Gewöhnungseffekte und der beobachtbare, fehlende Aufbau von dauerhaften Produktionsstrukturen.

Die Kritikpunkte führten zu einer ständigen Anpassung der Regeln und Vergabekriterien in der Investitionsförderung. Ein wesentliches Merkmal der Neuausrichtung der Investitionsförderung in den ostdeutschen Bundesländern, und insbesondere im Land Brandenburg, war die Abkehr vom Gießkannenprinzip hin zu einer auf Technologie und Zukunftsfelder orientierten Investitionsförderung.

Netzwerkförderung

Seit Ende der 1990er Jahre vollzog sich ein allmählicher Wandel in der Förderstrategie des Bundes (und nachfolgend auch der Länder). Zunehmend wurde deutlich, dass die unzureichenden Konvergenzerfolge weniger auf einen Mangel an Sachkapital, sondern vornehmlich auf eine unzureichende technologische Leistungsfähigkeit vieler ostdeutscher Unternehmen zurückzuführen waren. Neben Instrumenten der direkten Innovationsförderung wurde die Wirtschaftspolitik deshalb verstärkt auf die Förderung einer verbesserten Vernetzung der Unternehmen untereinander bzw. der Unternehmen mit Wissenschaftseinrichtungen unterschiedlicher Art (Hochschulen und außeruniversitäre Forschungseinrichtungen) ausgerichtet. Auch dies ist als ein Element „**vorausschauender Strukturpolitik**" einzuordnen.

Auch in der Lausitz wurden und werden eine Reihe solcher Netzwerke durch die Politik unterstützt. Die Erfahrungen mit einer solchen „Clusterpolitik" sind allerdings eher ernüchternd.

Mit den innovationsorientierten Clusterpolitiken wurden zwar in vielen Fällen Innovationen angestoßen, langfristig stabile (institutionell abgesicherte) Clusterstrukturen sind daraus allerdings nur in Ausnahmefällen entstanden. Ein Grund hierfür ist, dass es den Beteiligten nicht ohne Weiteres zu vermitteln ist, welchen Nutzen sie aus einer auch langfristigen, nicht themenorientierten Zusammenarbeit ziehen können.

Als noch weniger erfolgreich erwiesen sich die auf Clusterbildung abzielenden GRW-Förderprogramme (Gemeinschaftsaufgabe „Verbesserung der regionalen Wirtschaftsstruktur"). Auch hier gelang es im Regelfall nicht, das Auslaufen öffentlicher Finanzierung durch private Finanzierungsquellen zu substituieren.

Infrastruktur

Die Infrastruktur in den ostdeutschen Bundesländern befand sich zum Zeitpunkt der Wiedervereinigung in einem schlechten Zustand, was aus den fehlenden Investitionen zu Zeiten der DDR resultierte. Demzufolge galt es zu Beginn des Transformationsprozesses insbesondere die ostdeutsche Infrastruktur durch Rückbau, Modernisierung und Ausbau dem westdeutschen Niveau anzupassen.

Die Infrastrukturförderung (als Bestandteil einer „**vorausschauenden Strukturpolitik**") entfaltet dabei auch eine Wirkung auf die Angleichung der Lebensverhältnisse zwischen Ost und West, etwa durch die Modernisierung des Wohnungsbestandes oder die kürzeren Fahrzeiten zu nahegelegenen Ballungszentren. Eine spezifische infrastrukturelle Förderung für die Lausitz existierte nicht, jedoch ergab sich aufgrund der hohen Bedeutung des Bergbaus in der Lausitz eine Besonderheit in der Förderung innerhalb der Nachnutzung von ehemaligen Tagebaugebieten.

Renaturierung

Ein Thema mit hoher Bedeutung ist die Wiedernutzbarmachung der durch die Braunkohlegewinnung beanspruchten Tagebaugebiete. So tragen die Ergebnisse der Braunkohletagebausanierung sowohl zur Verbesserung „weicher Standortfaktoren" bei als auch maßgeblich zum Imagewandel und zu tragfähigen Zukunftsperspektiven der betroffenen Regionen. In diesem Sinne trug die Sanierung der Tagebaue positiv zum Strukturwandel bei. Allerding dürfen die entstandenen Effekte nicht überbewertet werden. So zeigt sich, z. B. bei der Entwicklung der Langzeitarbeitslosigkeit, dass die Entwicklung in den Sanierungsgebieten ungünstiger verläuft als im Durchschnitt der Länder Brandenburg und Sachsen.

Wirkungsdimensionen der strukturpolitischen Interventionen

Die strukturpolitischen Interventionen in der Lausitz lassen sich vor allem den Wirkungsdimensionen „**Ökonomie**" und (zumindest bis zum Ende der 1990er Jahre) „**Soziales**" zuordnen.
Die Dimension „**Ökologie**" spielte am ehesten bei den notwendigen Renaturierungsmaßnahmen in den von der Stilllegung des Braunkohletagebaus betroffenen Gebieten bzw. bei der Sanierung altindustrieller Flächen eine Rolle. Hierbei handelte es sich aber nicht um strukturpolitische Interventionen im engeren Sinne. Zudem hat sich die ökologische Situation schon allein durch die Schließung vieler Betriebe während des Übergangs zur Marktwirtschaft verbessert, so dass zusätzliche Maßnahmen auch aus diesem Grund nur geringe Aufmerksamkeit erhielten.
Die „**regionale Identität**" spielte als Wirkungsdimension in den strukturpolitischen Programmen überhaupt keine Rolle. Maßgebliche Interventionen bezogen sich auf den Wirtschaftsraum „Ostdeutschland" insgesamt und haben nur wenig Rücksicht auf die Besonderheiten des Lausitzer Bergbaureviers genommen. Dies unterscheidet den Strukturwandel in der Lausitz vom Strukturwandel im Ruhrgebiet, der sich nicht nur in deutlich

geringerem Tempo vollzog, sondern in weit stärkerem Maße auch durch regionsspezifische strukturpolitische Interventionen, z. B. Anpassungshilfen des Landes Nordrhein-Westfalen, gestaltet wurde.

Diskursanalyse

Die starke Betonung ökonomischer und sozialer Problemlagen in den verschiedenen Phasen des Transformationsprozesses spiegelte sich auch in den gesellschaftlichen Diskursen in den ostdeutschen Bundesländern und in der Lausitz wider: Die Politik des „Aufbau Ost" (siehe Abbildung 3) von ca. **1990 bis 1998** war von einer Dominanz arbeitsmarktpolitischer und sozialpolitischer Themen geprägt. Strukturpolitische Diskurse wurden vor allem mit dem Ziel einer Strukturkonservierung geführt. Insbesondere auf der Lokal- und der Länderebene bestand ein sehr starker **Fokus auf dem Erhalt bestehender Industrien** aus der DDR-Zeit, wie z. B. Kohlegewinnung, Glas-, Chemie- und Textilproduktion. Umweltpolitische Themen spielten in dieser Phase keine explizite Rolle. Angesichts der Umweltzerstörung in der DDR wurde Umweltschutz vielmehr als inhärenter Bestandteil einer Marktwirtschaft gesehen und zusammen mit sozialen Belangen gedacht, wie beispielsweise bei der Betonung einer „sozialen und ökologischen Marktwirtschaft" als gesellschaftspolitischer Zielsetzung.

In der nachfolgenden Zeit von **1999 bis 2015** trat eine Phase der **technologiezentrierten Strukturpolitik** ein (siehe Abbildung 3). Der Diskurs bezüglich strukturpolitischer Maßnahmen wurde nun deutlich differenzierter. Akteure argumentierten nicht mehr für Arbeitsplätze als Selbstzweck, sondern für **wirtschaftlich rentable Arbeitsplätze**. Der Fokus der Debatte verschob sich mehr zu Fachkräftemangel und Abwanderung, die von vielen Akteuren als die zentralen strukturpolitische Probleme der Lausitz und des Landes Brandenburg eingeschätzt wurden und werden. Akteure diskutierten Möglichkeiten, für eine lebenswerte Region zu werben, die die Bevölkerung halten und Fachkräfte anziehen kann. In der Regel ging es hierbei um die Bereitstellung öffentlicher Dienstleitungen, kommunale Finanzen und Infrastruktur sowie gelegentlich auch um Rekultivierung im Sinne des Schaffens attraktiver Landschaften. In diesem Kontext wurde auch die Notwendigkeit der **Innovationsförderung** immer wieder betont – sowohl von Regierungsparteien als auch von der Opposition auf Landesebene.

In den Diskursen zur Zukunft der Braunkohle zeigt sich eine klar **unterschiedliche Priorisierung von Klimaschutz einerseits sowie sozialen und wirtschaftlichen Bedenken andererseits**. Auf der einen Seite werden mit den Emissionen, den regionalen Umweltschäden und der Abbaggerung von Ortschaften die Nachteile der Braunkohleindustrie hervorgehoben; auf der anderen Seite wird mit Betonung von Versorgungssicherheit, Bezahlbarkeit von Energie und Arbeitsplätzen für die Unentbehrlichkeit der Braunkohle argumentiert. Mit diesen Argumenten wurden vor allem von der Landespolitik bundespolitische Vorschläge zu einem Kohleausstieg lange Zeit abgelehnt.

Die Diskursanalyse verdeutlicht, dass eine gewisse **Pfadabhängigkeit zwischen bisheriger Strukturpolitik und der Vernachlässigung des Aufbaus alternativer diversifizierter Wirtschaftsstrukturen** besteht.

Der Begriff „Strukturwandel" wurde in den Diskursen bis 2015 vor allem mit dem wirtschaftlichen Kollaps nach dem Systemwechsel in Verbindung gebracht und war daher meistens negativ konnotiert. Einige Umweltgruppen und lokale Initiativen, die einen Stopp der Tagebauerweiterungen forderten, verwendeten den Begriff jedoch bereits positiv und zukunftsgerichtet.

Fazit

Von einzelnen Ansiedlungsvorhaben abgesehen, gab es weder vonseiten des Bundes noch vonseiten der beteiligten Länder (Brandenburg und Sachsen) eine „lausitzspezifische“ Strukturpolitik. Stattdessen gab es eine Vielzahl unterschiedlicher strukturpolitischer Interventionen, die sich auf den Wirtschaftsraum „Ostdeutschland“ insgesamt bezogen und nur wenig Rücksicht auf die Besonderheiten des Lausitzer Bergbaureviers nahmen.

Die Strukturpolitik in der Lausitz wird insgesamt als nur mäßig erfolgreich bewertet. Die Politik des „Aufbau Ost“ (1990-1998) kann zwar im Rückblick zumindest aus ökonomischer Sicht als erfolgreich bezeichnet werden. Allerdings bildeten sich neue Strukturmuster vor allem an solchen Standorten heraus, die eine hinreichende Attraktivität für externe Investorinnen und Investoren aufwiesen. Die Strukturpolitik war insoweit eher begleitend („nachsorgend“), nicht (struktur-)gestaltend ausgerichtet. Die Lausitz gehörte – von wenigen lokalen Ausnahmen abgesehen – nicht zu den für Investoren attraktiven Regionen, so dass die Region auch heute noch als strukturschwach gilt: Die Arbeitslosigkeit ist höher als in den übrigen ostdeutschen Bundesländern, die Wertschöpfung pro Kopf außerhalb der Braunkohlewirtschaft deutlich niedriger und auch die Abwanderung jüngerer und gut qualifizierter Bevölkerungsschichten ist weiterhin erheblich. Insoweit stellt die Entwicklung der Lausitz seit 1991 ein Beispiel für eine „passive Sanierung“ dar, die anderen Regionen nicht unbedingt als Vorbild dienen sollte.

Erst gegen Ende der 1990er Jahre wurde diese „nachsorgende“ Strukturpolitik durch eine stärker auf die Unterstützung struktureller Anpassungsprozesse ausgerichtete (und damit vorausschauende) Strukturpolitik ersetzt, die sich vor allem auf die Innovationsförderung stützte und bis heute fortgeführt wird. Vor allem vonseiten der brandenburgischen Wirtschaftspolitik wurde der Erhalt von Arbeitsplätzen in den Vordergrund gerückt. Soweit es zu einer eher vorausschauenden Strukturpolitik kam, folgte diese für lange Zeit tradierten Vorstellungen einer zentral gelenkten Planbarkeit regionaler Wirtschaftsstrukturen. Gleichzeitig ergaben sich starke Tendenzen zur Konzentration der Förderung auf bestimmte, als „entwicklungsfähig“ angesehene Standorte und Branchen. Ziel war es, bestehende Branchenschwerpunkte nach Möglichkeit auszubauen („Stärken stärken“), nicht aber, neue Branchen zu entwickeln. Die Möglichkeiten, durch geeignete strukturpolitische Maßnahmen auf eine stärkere Diversifizierung bestehender Monostrukturen hinzuwirken – was gerade für die bergbaulich geprägte Lausitz von enormer Bedeutung gewesen wäre –, wurde auf diese Weise vertan. Vielmehr wurde die Zukunft der Lausitz bis vor wenigen Jahren vor allem als „Energieregion“ gesehen, die auch den Fortbestand der Braunkohlewirtschaft einschloss. Den Fortbestand der Braunkohleverstromung nicht in Frage zu stellen, bedeutete für die Lausitz eine Vernachlässigung des Aufbaus alternativer Wirtschaftsstrukturen. Sachsen setzte von Beginn an eher auf eine marktlich getriebene Modernisierungsstrategie, was aufgrund bestehender Standortvorteile vor allem die sächsischen Metropolen begünstigte. Eine enge Abstimmung der Politiken von Brandenburg und Sachsen war zumindest im Untersuchungsraum nicht erkennbar.

Aus Sicht der Autoren ist eine fehlende regionsspezifische Unterstützung ein Manko, da die Akzeptanz strukturpolitischer Eingriffe auch davon abhängig ist, wie stark sie regionalökonomische Spezifika berücksichtigen und damit auch auf identitätsstiftende Belange Rücksicht nehmen.

Die Arbeit an der Fallstudie offenbarte, dass bei der Entwicklung strukturpolitischer Interventionen ein komplexes Gefüge aus ökonomischen, sozialen, ökologischen und auch kulturellen Wirkungen mitgedacht und ins Zielsystem integriert werden muss – und dass wissenschaftlich fundierte Erkenntnisse darüber, wie sich verschiedene Interventionen auf andere als ökonomische Zielsetzungen ausgewirkt haben und weiterhin auswirken, noch gewonnen werden müssen.

1 Introduction

1.1 Aim of the case study

Mining regions have always been affected by structural change.[3] As a rule, phases of economic growth were followed by phases of structural change, e.g., because the deposits were exhausted or they became economically unviable for various reasons. But the development paths were and are very different and the results range from "ghost towns", e.g., after the end of the so-called "gold rush" in the USA, to regions, which "reinvent themselves", e.g., the Pittsburgh region in the USA. In many of these cases, the structural change was accompanied by targeted policies.

The objective of the research project "Structural change in coal regions as a process of economic and socio-ecological transformation – Scope for action for a just transition in light of climate policy objectives" was to analyse historical structural change processes and on this basis to record experiences and to derive scopes for action for future structural change processes, which could be of interest for other countries in light of the international efforts to mitigate climate change.

Two case studies analysed the structural change processes in two very different German regions, which are closely linked to the decline of coal mining and consumption:

- in Lusatia and
- in the Ruhr area.

The analysis of the historical structural change in Lusatia (hereinafter: "Lusatia case study") examined the structural change on the Lusatian lignite field over the period from 1990 to 2015. The objective was to analyse the structural policy interventions[4] in Lusatia, to demonstrate their economic and political framework conditions as well as to describe and as far as possible to evaluate their impact.[5]

1.2 Definition of terms: Structural change and structural policy

In economics, "**structural change**" is understood as the change in the structural composition of a statistically measured set (e.g., gross domestic product (GDP), employment). The term itself is neutral and is intended to express that economic development does not occur in the same manner over all sectors and regions, but that it involves partial shifts on the various levels. Referring to sectors, it is about changes in the sector structures and when referring to regions, it is about the different developments in the individual regions of a larger economic area. The structural changes in sectors and regions are not to be looked at independently of each other because sectors are not evenly distributed around the area due to regionally different location conditions or historical coincidences. If a branch of industry grows more strongly than another, it favours that specific region where this industry is of great importance. The causalities can have an impact in both directions. Therefore, shifts in the sector structure (e.g., through sector-specific technological advances) not only influence the affected regions in different ways, but

[3] It is not only mining regions that are subject to structural change processes, but any region whose economic structure substantially changes. A clear example is seen in port cities, such as Hamburg or Bilbao, which transformed from industrial centres to modern cities with culture and service industries.

[4] See Chapter 1.2 on the differentiation between the terms "structural change" and "structural policy" or "structural policy interventions".

[5] In the context of this case study, the term "transformation" describes the process of the political and economic system change in the East German states since 1989, changing from a centrally planned economy to a democracy and social market economy. In this regard, it is different to the definitions of "transformation" that are used in the context of the decarbonisation of the economy and the 2030 Agenda for Sustainable Development.

changes to the regional location conditions (e.g., through the expansion of infrastructure) can also change the sectoral composition. Insofar, sectoral and regional structural change processes are to be observed together.

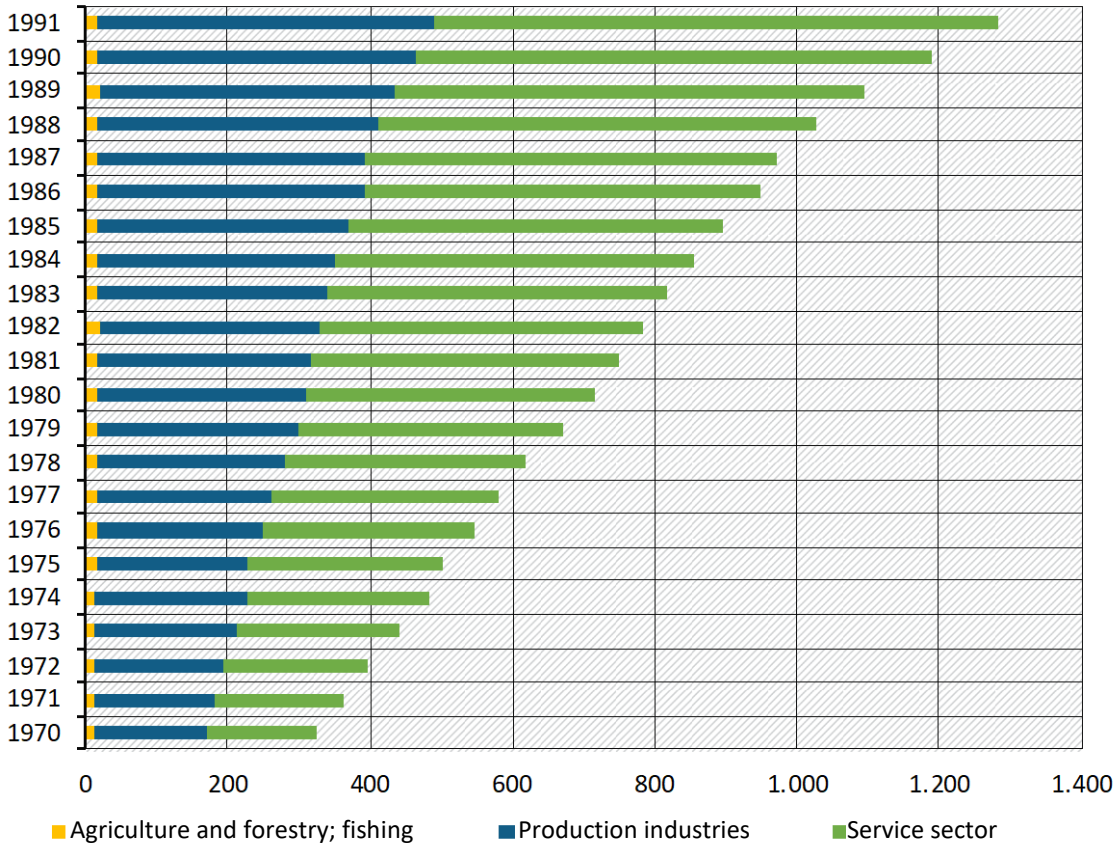
Structural change can have endogenous or exogenous causes, whereby the lines between them are fluid. Endogenous changes to the sector structure are regarded as part of economic development. On the supply side, they could be caused, e.g., by productivity advancements that are different across sectors as a result of sector-specific innovations. This category also includes scarcity-induced changes in the price of individual production factors, which are deployed to a different extent in the different sectors subject to the technology used. On the demand side, structural change can be caused by a shift in the demand, for example, on account of changed consumer preferences. Subsequently, there are shifts in the relative prices of goods and as a result, there are changes in the allocation of resources, whereby some sectors grow faster than others.

Exogenous causes of changes in sector structures are, e.g., changes in the legal or institutional framework (e.g., energy transition), economic policy interventions (e.g., subsidies for individual economic sectors) or shifts in the international division of labour (e.g., due to economic policy activities abroad).

Excursus: Central features of the historical structural change in Germany

The empirical picture for Germany shows that over the past decades there has been a massive shift in the sectoral structures in favour of the service sector, which today accounts for nearly 70 % of the (nominal) gross value added (see Figure 5). It occurred primarily at the expense of the production industries, i.e., in industry in the broader sense, whose share has fallen from 50 % to approximately 30 %. However, this pattern, also known as the "three sectors hypothesis" (Fourastié, 1949), masks huge shifts within individual sectors. For example, within the manufacturing industry, particular sectors that are labour-intensive (such as the textile and clothing industry as well as the shoe industry) have lost much of importance under the influence of globalisation, while human-capital-intensive sectors (such as machine manufacturing, vehicle manufacturing, electronics industry and the chemical industry) were able to gain in importance. A shift towards business-related services has been recorded in the service sector. It has led to a change in the regional growth centres in Germany. In particular, service-orientated conurbations (e.g., Frankfurt am Main or Munich) have developed favourably.

Figure 5: Gross value added in million euros, West German states 1970-1991



Source: German Federal Statistical Office, Fachserie 18 Reihe 1.5. retrieved 04.05.2018

Structural change leads to economic and/or socio-political challenges, if the speed of the structural changes surpasses the readiness or ability to adapt of the stakeholders concerned (Polanyi, 1978). Such challenges occur in particular when the structural shifts do not only involve relative changes in share but involve a complete contraction in individual sectors or regions. In this case, production factors (e.g., regarding qualification, technological expertise, capital equipment) are devalued, which can involve the temporary or permanent loss of income for the parties concerned. On a socio-political level, these adaptation difficulties become problematic, in particular in the case of long-term unemployment of people, who have no chance of re-employment in the profession they trained for. For this reason, processes of structural change can lead to loss of wealth in regions affected, even though they can be macroeconomically wealth-increasing. This is particularly the case when in addition to the immediate economic effects, negative social implications also occur. This is one of the reasons that the public's perception of structural change is often negative.

Since time immemorial, politicians have attempted to influence structural change by way of various measures. Therefore, the authors understand "**structural policy**" to be interventions, with which the structural change is to be purposefully influenced. They are not limited to the field of economic policy in the more narrow sense but can also include measures, e.g., from competition, social or education policy. In principle, structural policy interventions either have equalising objectives (e.g., supporting structurally weak regions) or growth-orientated objectives (e.g., support of particularly dynamic sectors). The applied structural policy instruments range from direct fiscal incentives (e.g., by way of differentiated taxes and

subsidies) and foreign trade interventions (e.g., customs) to infrastructure measures (e.g., motorways).

Interventions, which have an economic structural impact "only" as a side effect, are in this case study not counted as structural policy within its narrower meaning. State interventions in collective wage agreements (e.g., by way of a declaration of the general application of collective wage agreements or through the introduction of a minimum wage) are also not counted as structural policy in this case study, although such interventions often have a structural impact. Therefore, this case study only briefly touches on them.

For the evaluation in the context of this case study, structural policy interventions are categorised according to their intended objective:

- **Preserving structural policy**: intends to impede or at least to delay structural change by preventing the contraction of the threatened sectors in order to avoid social distortions.
- **Reactive structural policy**: accepts the contraction of the sectors, however, the resulting social hardships are cushioned, e.g., through measures in labour market policy.
- **Forward-looking structural policy**: intends to anticipate future developments and to timely compensate the negative effects of the contraction by stimulating alternative (economic) structures. Selective technology policy measures may also be included in this category.

1.3 Methodological approach

In the analysis of the structural change and the structural policy in Lusatia, various qualitative and quantitative methods of empirical social and economic research have been deployed.

In the analysis of the structural change, a quantitative analysis of selected indicators showing developments in the lignite industry, population, labour market and economy has been carried out. In order to be able to evaluate the trends in Lusatia, the data for Lusatia was, as far as the data situation allowed, compared to the corresponding data from the States of Brandenburg and Saxony. In order to illustrate the regional nature of the structural change, data is also shown on the district level where possible.

Building upon the analysis of the structural change, in the following chapters the various structural policy interventions are first presented and then evaluated using already existing evaluation studies. The "Lusatia case study" covers the period from 1990 to 2015 and is structured according to the structural policy phases of 1990-1998 and 1999-2015, which are defined in Chapter 3. A specific feature of the "Lusatia case study" is that the analysed process of the structural change is not limited to the Lusatia region nor to the coal industry. After the collapse of the political and economic system of the German Democratic Republic (GDR) and the reunification with the Federal Republic of Germany, there was not only a large-scale collapse of the lignite industry, which had previously been dominant, but other branches of industry also dwindled. The economy in Lusatia actually had to be rebuilt from ground up within a few years – a specific factor in comparison to the Ruhr area, where the transition from the mining economy to the new structures stretched over a period of around 60 years. In addition, there were no industrial policy measures specific for the Lusatian coalfield from either the German federal government or the involved States of Brandenburg and Saxony. Rather, the industrial policy of the last 25 years has been characterised by the necessity of overcoming the system collapse in all East German states. As a result, an analysis with regard to the regional political specifics of the Lusatian coalfield has its limits.

The impacts of the structural policy interventions are classified according to the dimensions of

- economy,
- social welfare,
- ecology and
- regional identity.

Since during the investigation period, the policy and its interventions primarily followed economic and social objectives ("equalisation of living standards"), the "ecology" and "regional identity" impact dimensions often only played a subordinate role and were therefore often not explicitly examined in the existing evaluations. As a result, mainly qualitative, but no quantitative, statements in this regard are possible.

Furthermore, a frame and discourse analysis was carried out, in order to better understand the emergence of structural policy interventions in the socio-political context. Frames are the interpretation schemas that societal groups use to categorise and interpret societal discourse fragments and events (Creed, Langstraat, and Scully 2002; Goffman 1974). A list of the identified frames is attached in the appendix. The analysis of these frames provided information for the assessment of the questions who supported which structural policy approaches and for which reason. It represented an important basis, in order to evaluate the possible relevance of the experiences for other regions in the later stages of the research project.

The analysis of the structural policy discourse in Lusatia was faced with the challenge that there was almost no secondary literature that explicitly addresses it. Therefore, the respective chapter refers almost exclusively to primary sources, such as newspaper articles, press releases and position papers. In particular, for the 1999-2015 phase, the analysis is based on a comprehensive screening of relevant articles from the Lausitzer Rundschau [Lusatian review] newspaper (hereinafter: LR). 102 articles were collected for the 1990-1998 phase and 42 articles for 1999-2015. LR was selected because it is the only daily newspaper with a clear relationship to Lusatia and continuous coverage throughout the investigation period. Known biases, such as a fundamentally favourable view of the coal industry, are limited for one thing by the fact that questionable points were examined in a targeted manner in interviews and in a validation workshop, and for another thing by the fact that the articles themselves are not assessed but rather the statements and opinions of relevant stakeholders, who appear in them. These communication activities were then categorised according to the frames used. Even in the case of potentially biased representations, the stakeholders' fundamental lines of argument can generally be identified and then be recorded separately from any editorial colouring by LR.

Both the analysis of the structural policy interventions and the frame and discourse analysis were supported by interviews with experts. The objective was to verify the insights gained from literature and to supplement them where applicable. The experts were selected primarily on account of their comprehensive knowledge of the structural policy in Lusatia and because they could make statements about the past phases. Attention was paid to select experts with different backgrounds in terms of work and experience (politics, administration, industry). The interviews were structured according to an interview guide, recorded and documented.

In order to better understand why which structural policy interventions were initiated in which phase and how they worked, it is recommended to look at the three analysis parts of this case study (structural change, interventions and discourse) together.

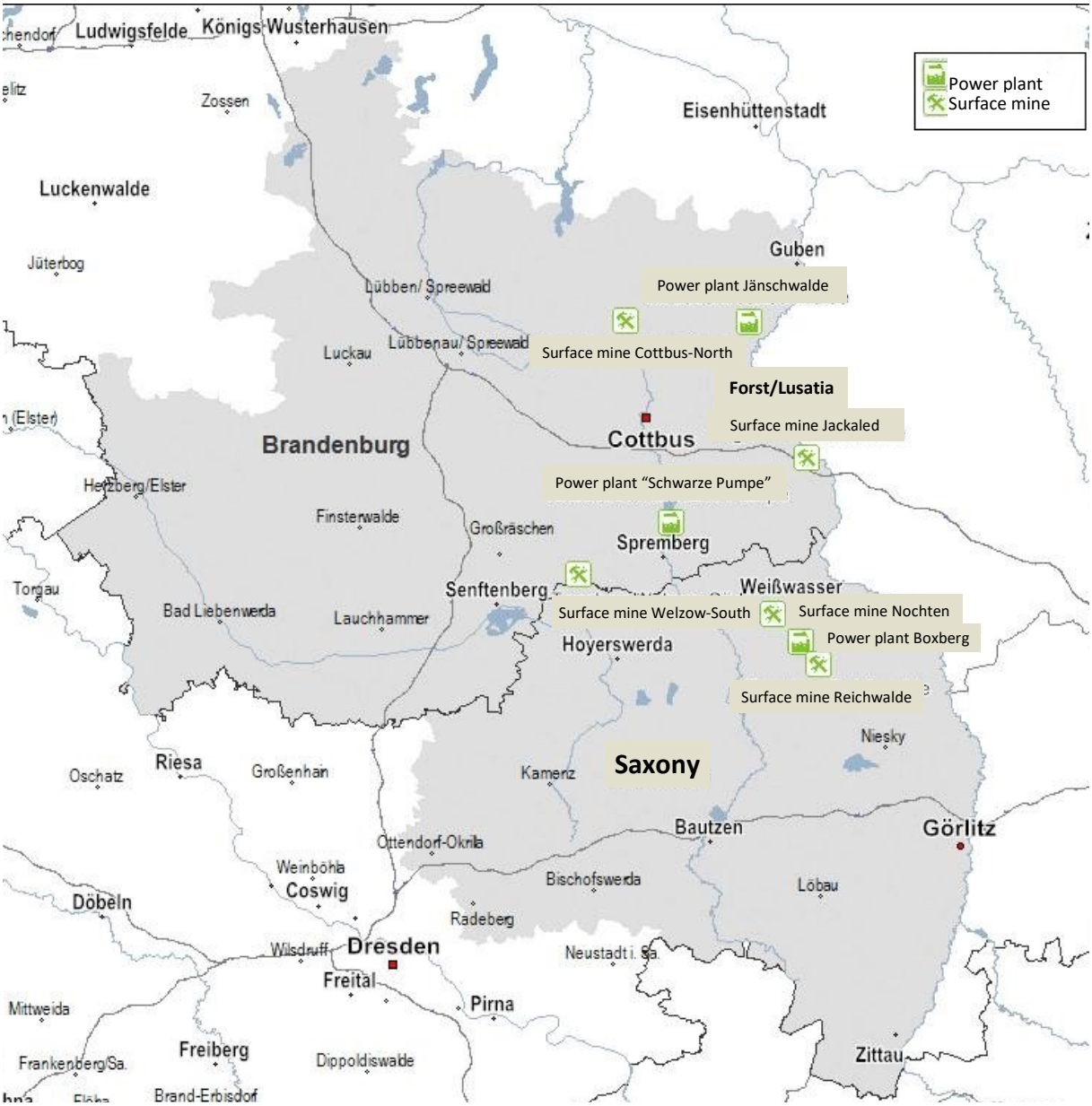
2 Structural change in Lusatia

2.1 Historical overview

The Lusatian lignite field extends across the south-east of the State of Brandenburg and the north-east of the State of Saxony.[6] After the Rhine coalfield, it is the second largest lignite field in Germany. The deposits in Lusatia contain a geological reserve of approximately 11.7 billion tons (see BGR, 2016). The four remaining lignite opencast mines in Nochten, Reichwalde, Welzow-Süd and Jänschwalde mined 62.3 million tons of lignite in 2016, of which approximately 94 % was used to generate electricity and heat. Including the employees in the lignite-fired power stations, there were still around 8,300 employees working on the coalfield in 2015 (see Kohlestatistik, 2017). Furthermore, depending on the estimation method, there are between 7,000 and 12,000 jobs indirectly dependent on lignite. Irrespective of the exact number, lignite's economic importance, in particular for the core area of the Lusatian coalfield (the Spree-Neiße district and the urban district of Cottbus), remains very high. Until recently, Vattenfall AG (since 2016 Lausitz Energie Bergbau AG and Lausitz Energie Kraftwerke AG, LEAG) was the biggest taxpayer in the region.

[6] In this case study, the **Lusatia region** is defined according to the conventional, historically developed definition and encompasses the districts of Oberspreewald Lausitz (OSL), Spree Neiße (SPN), Elbe Elster (EE) and the urban district of Cottbus (CB) in the State of Brandenburg and the districts of Görlitz (GR) and Bautzen (BZ) in the State of Saxony; sometimes, the southern part of the Dahme Spreewald (LDS) district is also counted as Lusatia. In contrast, the **Lusatian lignite field** is more narrowly defined, although it does extend over all involved districts with focal areas in the Spree Neiße district and the urban district of Cottbus. Since regional data more specific than at the district level is unavailable, the following empirical presentation includes all Lusatian districts in full with the exception of the Dahme Spreewald district.

Figure 6: Districts and urban districts of Lusatia, opencast mines and power stations



Source: ifo Institute, own presentation

Even before the industrialisation of the region, lignite was mined in numerous small local pits and used as domestic fuel. As early as 1789, lignite was found in Lauchhammer (today in Oberspreewald Lausitz district). In 1815, the first lignite shaft was sunk (see Heitmann, 2010). Initially, lignite mining only served the energy demand of the textile and glass industry in Lusatia that became established in the course of industrialisation. From the end of the 19th century, lignite mining took on a structure-determining scale. In 1882, the "Louise" briquette factory was opened close to Domsdorf (today in Elbe Elster district). In 1911, the first lignite-fuelled high-performance power station in Germany was opened in Zittau (today in Görlitz district). Lignite mining in underground mines was increasingly replaced by mining from opencast mines. To this end, large machines were increasingly used for the large-scale movement of overburden. In 1924, the principle of technological opencast mining was achieved by the construction of the world's first overburden conveyor bridge at the "Agnes" pit in Plessa, State of Brandenburg (today in Elbe Elster district) (see Heitmann, 2010). This development was linked to a great expansion of the transport infrastructure in order to enable transportation

between the opencast mines, coal-fired power stations and customers. The number of employees greatly increased, as did the regional population in Lusatia, and there was also a change in the settlement structures. Lignite mining in Lusatia received a further boost due to the use of the lignite as a raw material in the chemical industry. From 1936, the development of the chemical industry for lignite-based fuel production was accelerated (see Karlsch and Stokes, 2003). In 1936, 34 million tons of coal were mined from the Lusatian lignite field. In the context of the Nazi policy of self-sufficiency, mining was increased to almost 60 million tons by 1944 (see Kohlestatistik, 2017). After the Second World War, the mined amount sank dramatically for a temporary period, among other reasons due to the removal of the existing machine stock in order to pay reparation debts to the Soviet Union.

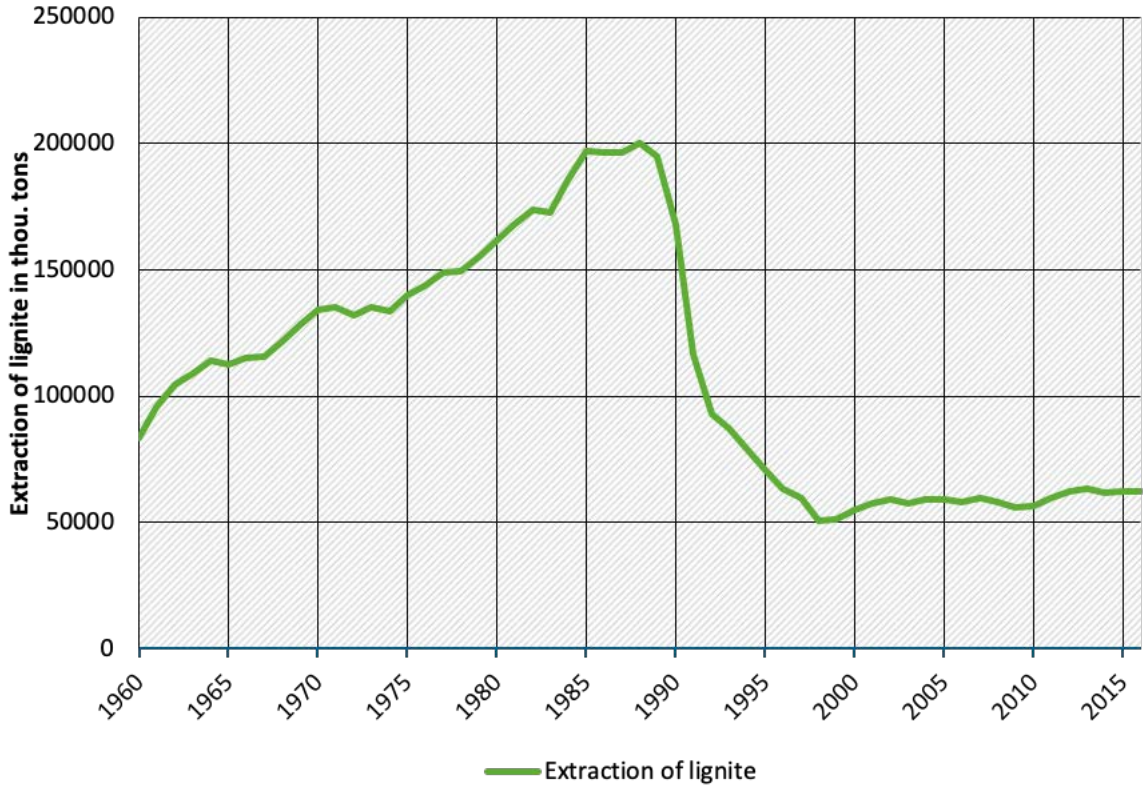
During the GDR era, lignite was of paramount importance for the national economy in the context of the centrally planned economy striving to be self-sufficient. Lignite served both as a fuel and as a raw material in the metal and chemical industries. In 1960, lignite amounted to 87.5 % of the GDR's primary energy consumption. By 1985, the share of lignite in the GDR's energy mix fell to approximately 70 %, in exchange the industrial use of lignite as a raw material increased. In 1986, 311 (196) million tons of lignite was mined in the GDR (on the Lusatian coalfield), which corresponded to one quarter of the annual global yield. Thus, the GDR was by far the biggest lignite miner in the world (for the figures see Kahlert, 1988).

From 1968 onwards after the reconstruction and nationalisation of the plants and equipment, company-like lignite combines were formed encompassing a multitude of large opencast mines, briquette factories, coking plants, degassing plants, power plants and also the necessary equipment workshops (see Heitmann, 2010). The Senftenberg lignite combine was established in the Lusatian coalfield. Up until 1989, it operated 17 opencast mines, 23 briquette factories and several power stations on the coalfield. In 1980, the biggest lignite refining company in the world, the "Schwarze Pumpe" gas combine (in Hoyerswerda, today in Bautzen district), employed approximately 15,000 workers (see Pietschmann, 2016). From the start of the 1980s, lignite gained even more economic importance for the GDR national economy than before. As a result of the increasing prices for Soviet crude oil, which the GDR could not finance, there were more efforts towards a self-sufficient energy supply. Since lignite was the only significantly available raw material for energy generation in the GDR, the energy policy changed and returned (almost) exclusively to lignite. Therefore, the amount of lignite mined in the Lusatian coalfield increased from 134 million tons in 1970 to 162 million tons in 1980, reaching its height in 1988 at over 200 million tons. In the same period, the number of employees at lignite opencast mines increased from approximately 54,000 in 1970 to almost 80,000 in 1988 (see Kohlestatistik, 2017).

The extraordinarily high level of self-sufficiency in regard to meeting the energy demand could only be achieved at high economic and ecological costs. The geological conditions in Lusatia (as also in other GDR coalfields) placed tight restraints on the further economisation of lignite mining. The high transport costs and the insufficient replacement investment in the coal-fired power stations made it more expensive to use lignite as a fuel. Therefore, the share of investment in the energy and fuel economy amounted to approximately one quarter of the annual total investment in the GDR industry. The provision of energy in the GDR was therefore much more expensive than in other industrialised nations (see Kahlert, 1988). These high and uncompetitive costs for energy provision were the core reason for the structural change in the lignite industry and its associated sectors immediately after the German reunification.

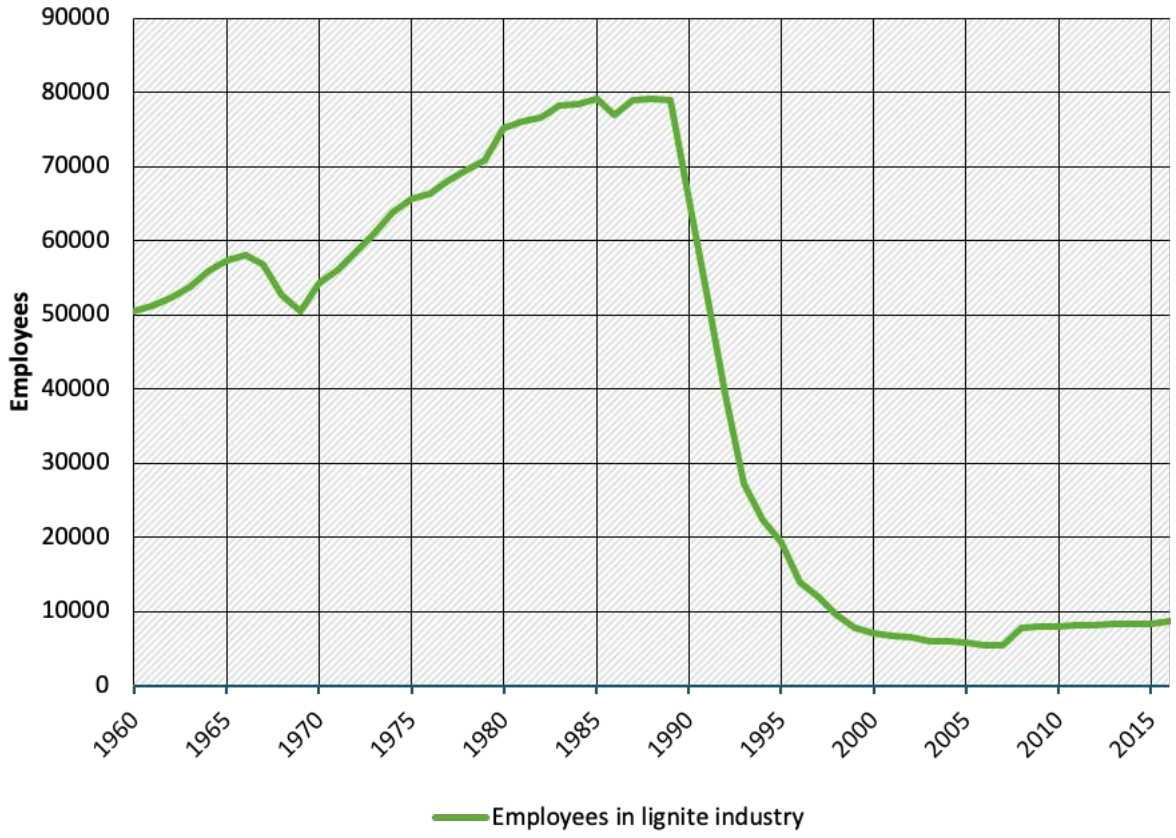
From 1991, numerous opencast mines and briquette factories in Lusatia were closed, while others were privatised by the Treuhandanstalt [trust agency; a privatisation agency] and continued to operate. Therefore, the Senftenberg lignite combine became "Lausitzer Braunkohle AG" [Lusatian lignite corporation] (LAUBAG) and the "Schwarze Pumpe" [black pump] gas combine became "Energiewerke Schwarze Pumpe AG" [energy plants black pump corporation] (ESPAG). Direct employment in the lignite industry dropped from approximately 80,000 employees to approximately 8,000 employees in just a few years (see Figure 8). By 2000, the annual amount of lignite mined had dropped to approximately 55 million tons and has been consistent since then (see Figure 7). Figure 7and Figure 8 clearly show how dramatic the development was, in particular the fast contraction of the lignite industry.

Figure 7: Extraction of lignite in thousand tons 1960-2016 (Lusatian coalfield)



Source: Statistik der Kohlenwirtschaft (2017)

Figure 8: Employees in lignite industry 1960-2016 (Lusatian coalfield)



Source: Statistik der Kohlenwirtschaft (2017), from 2008, it included employees in power stations for the general public supply

After 2010, lignite power generation in Germany, and therefore also in Lusatia, was again placed on the agenda in the context of the discussion about a stronger climate protection. Although the introduction of climate levies for coal-fired power stations could not be forced onto the advocates of continued lignite power generation, it was the start of the politically desired phase-out of lignite power generation. In the German federal government's Climate Action Plan 2050 from autumn 2016, it reads: *"It will only be possible to meet the climate target if the coal-fired electricity production is gradually reduced."* (Federal Government, 2016, p. 35). In 2020, the legislators decided that by 2038 coal-fired electricity production should be phased out in Germany. It is therefore certain that after the structural change in the 1990s, Lusatia is now heading towards a second structural change. The first steps in this direction were bindingly decided in 2016 (see Strommarktgesetz [electricity market act], 2016) and have already been partially implemented. Thus, of the Jänschwalde power station in Lusatia the F block (on 01.10.2018) and the E block (on 01.10.2019) with a total of 1,000 megawatts were converted into spare capacity; other power plant closures are planned for the coming years. In return, comprehensive structural aid was designated for the coalfield.[7]

[7] See Strukturstärkungsgesetz Kohleregionen [German coal regions structural improvement act] (https://www.bgbl.de/xaver/bgbl/start.xav#__bgbl__%2F%2F*%5B%40attr_id%3D%27bgbl120s1795.pdf%27%5D__1600087546025) and the Kohleausstiegsgesetz [German coal phase-out act] (https://www.bgbl.de/xaver/bgbl/start.xav#__bgbl__%2F%2F*%5B%40attr_id%3D%27bgbl120s1818.pdf%27%5D__1597306032644).

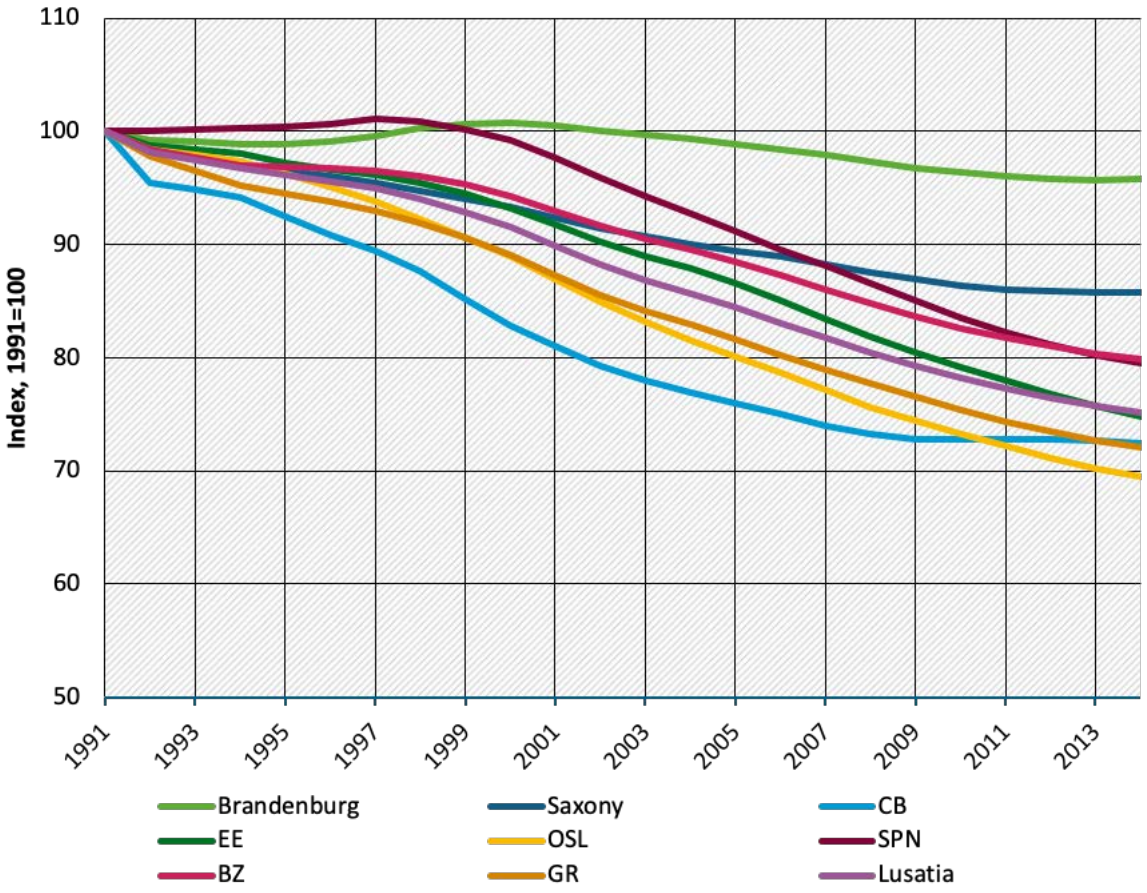
2.2 Time series of selected structural data[8]

2.2.1 Demographic development

Compared to the State of Saxony (and the State of Brandenburg, which however profited from migration to the areas surrounding Berlin), Lusatia is characterised by a clearly less favourable demographic development. All districts in Lusatia are affected (Figure 9). The population decline in the Spree Neiße district started later because this district experienced suburbanisation processes from Cottbus.

While the population in the State of Saxony has by and large remained constant since 2010, the population decline in Lusatia has continued unrelentingly. The immigration of refugees since 2015 has not been able to stop this trend.

Figure 9: Demographic development (1991=100)

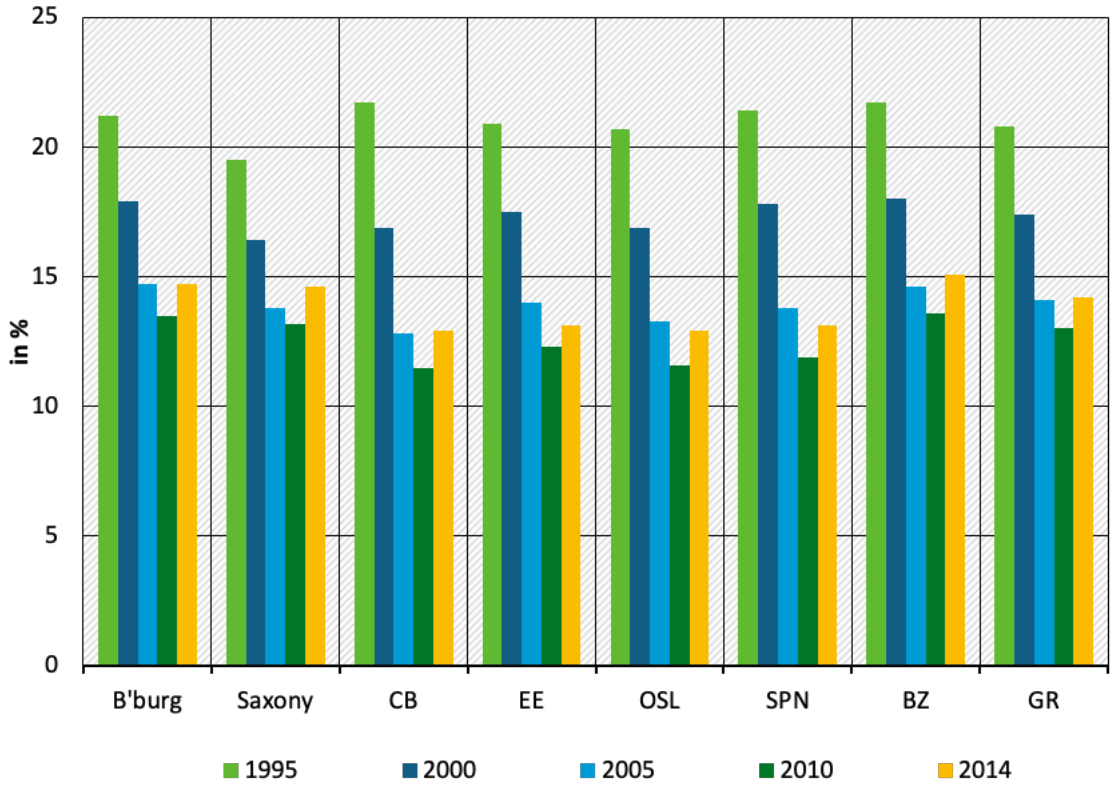


Source: GA of the German states, own calculations

8 The following empirical information reflects the status of data in 2017.

The share of the population under the age of 18 has sharply dropped everywhere compared to the figures from the mid-1990s and it has only somewhat stabilised since 2005 (Figure 10).[9] The share of the population older than 65 years has increased sharply. Apart from the districts of Spree Neiße and Bautzen (consequences of suburbanisation), all Lusatian districts have a share of older inhabitants that is above average for the respective state (Figure 11).

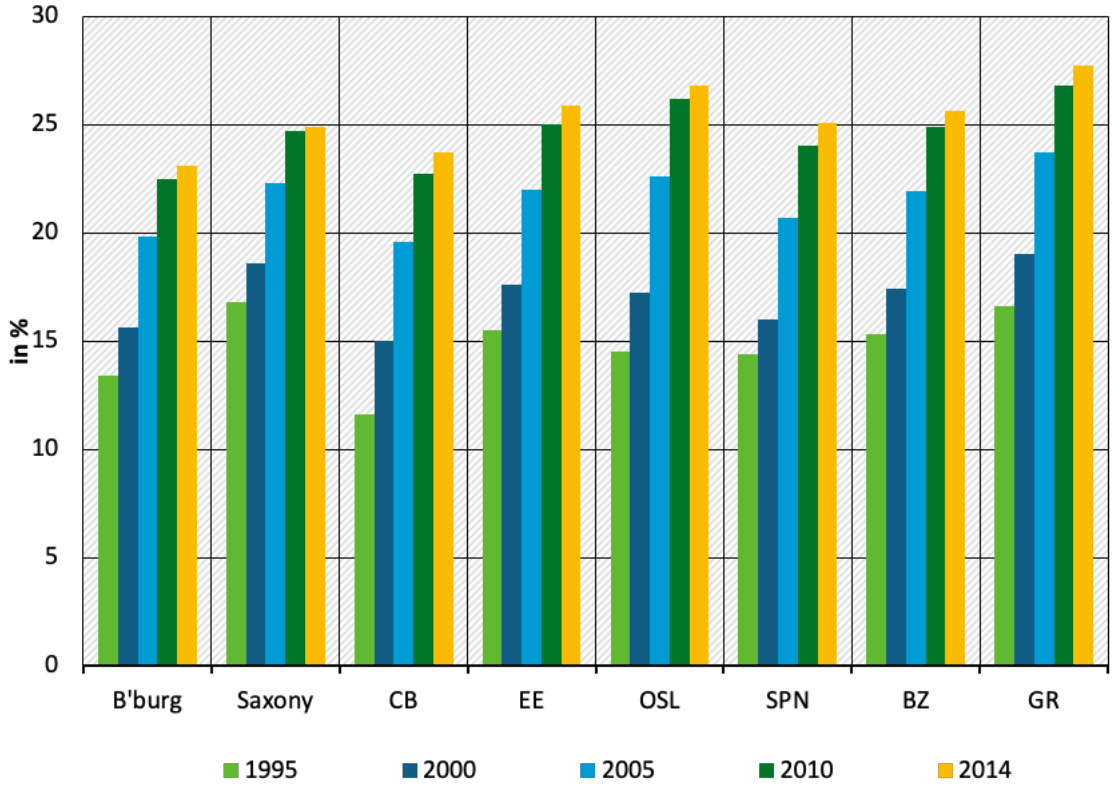
Figure 10: Share of population under 18 years



Source: INKAR

[9] The age group classification follows the data in the underlying statistics from the Bundesinstitut für Bau-, Stadt- und Raumforschung [German Federal Institute for Research on Building, Urban Affairs and Spatial Development] (BBSR) and therefore deviates from the method used in the "Ruhr area case study".

Figure 11: Share of population over 65 years

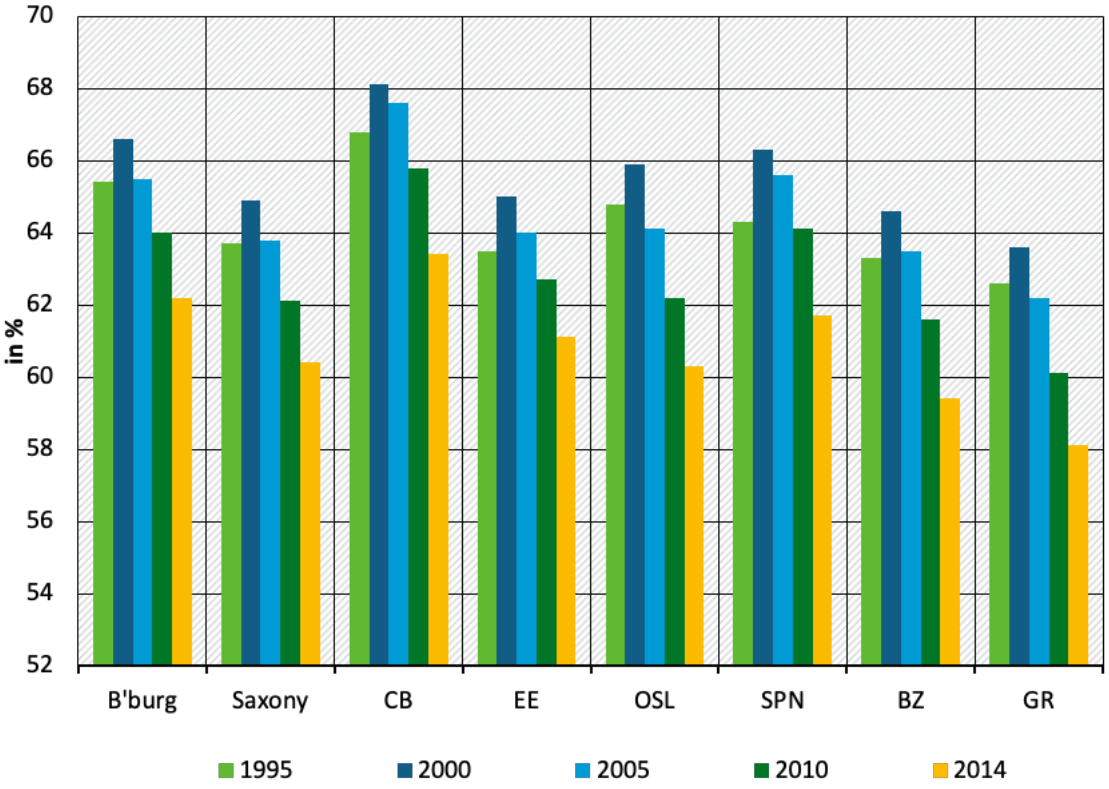


Source: INKAR

The large-scale migration has led to a clear reduction in the share of population capable of working (here: 18-65) (Figure 12). In addition, this trend was amplified by the decline in births at the start of the 1990s meaning that the decline in this age group has once again accelerated since 2010.

Within Lusatia, the two districts in the State of Saxony show the lowest share of population capable of working.

Figure 12: Share of population capable of working (18-65 years)

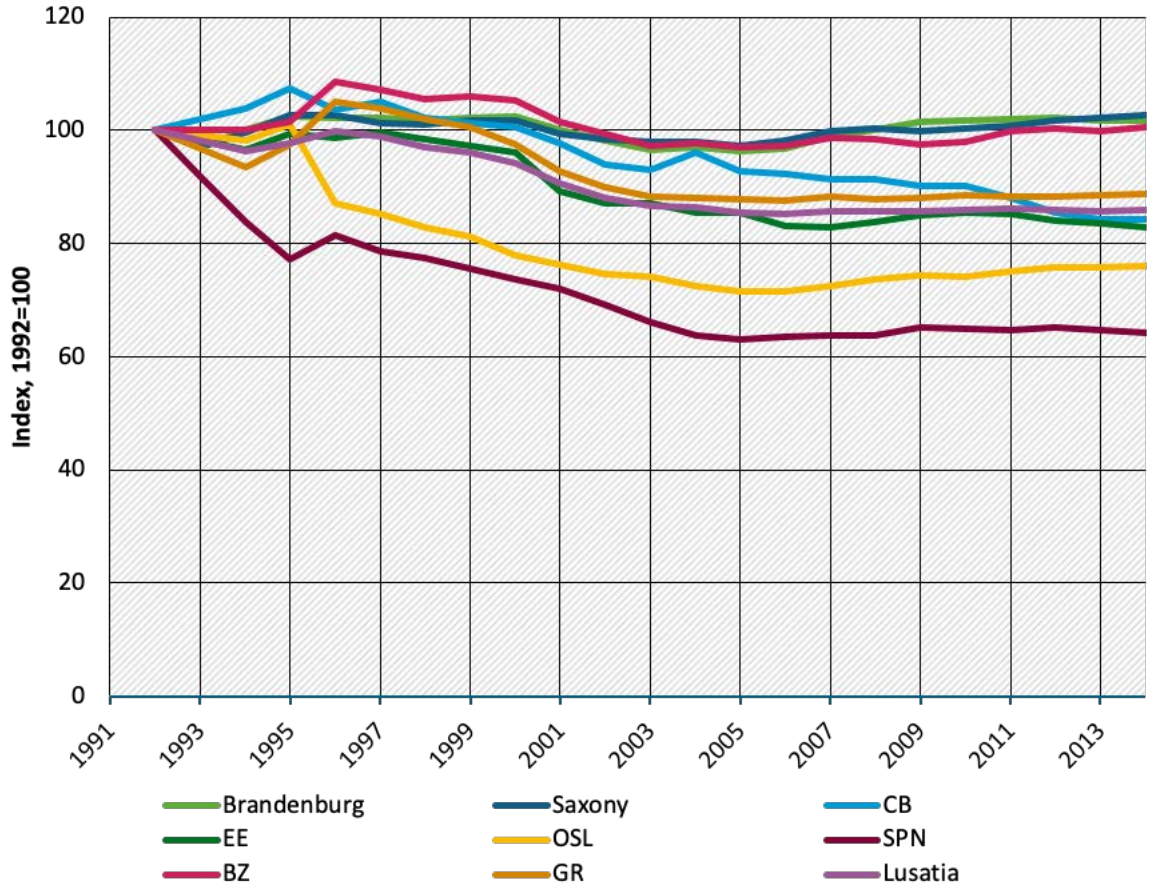


Source: INKAR

2.2.2 Labour market development

Since the end of the 1990s, the employment rate in Lusatia has developed less favourably than in the two comparison regions. Above all, the Oberspreewald Lausitz and Spree Neiße districts present an unfavourable employment trend (Figure 13).

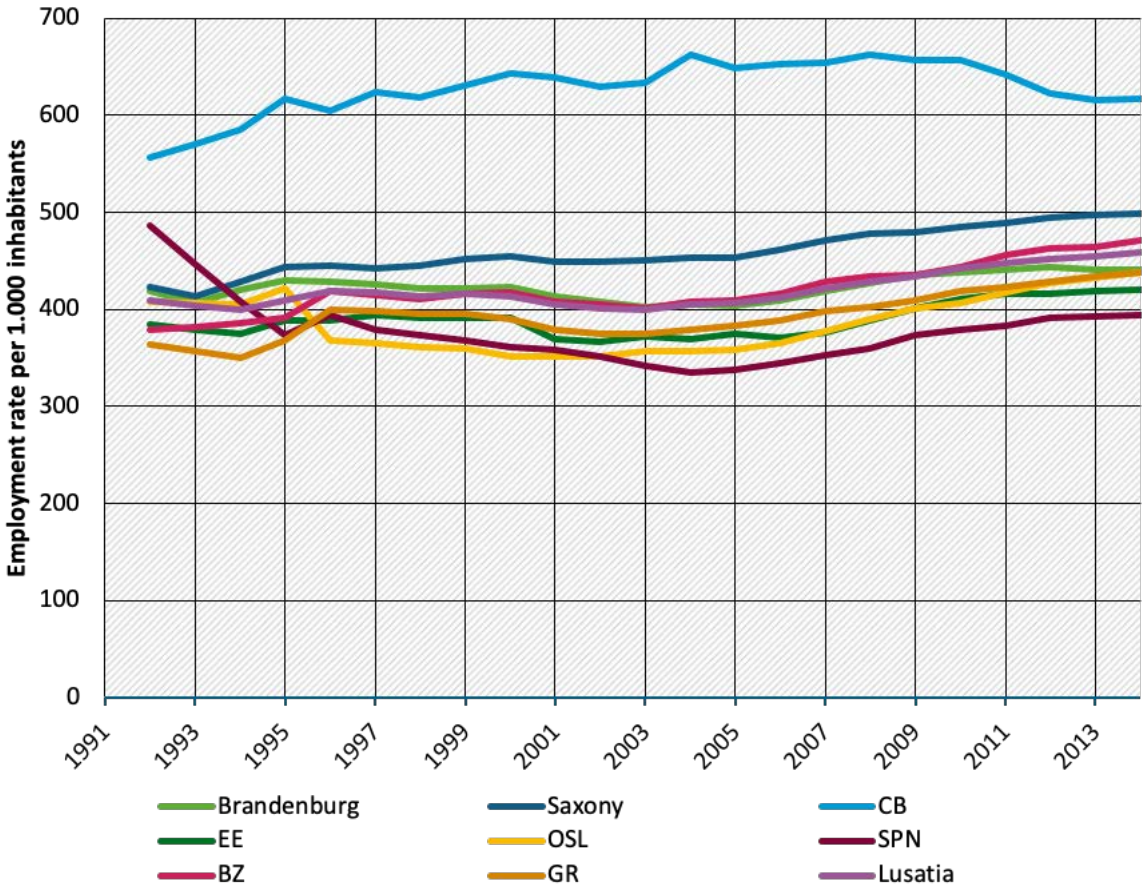
Figure 13: Development of the employment rate overall (1992=100)



Source: GA of the German states, own calculations and estimations

Even when calculated per inhabitant (a value that is admittedly distorted as a result of influxes of commuters being counted at the place of work; this distortion applies in particular to the urban district of Cottbus), the provision of jobs in Lusatia is less favourable than, for example, in the State of Saxony as a whole (Figure 14). The figure for the State of Brandenburg cannot be used as a comparison because many employees from the State of Brandenburg work in (the State of) Berlin.

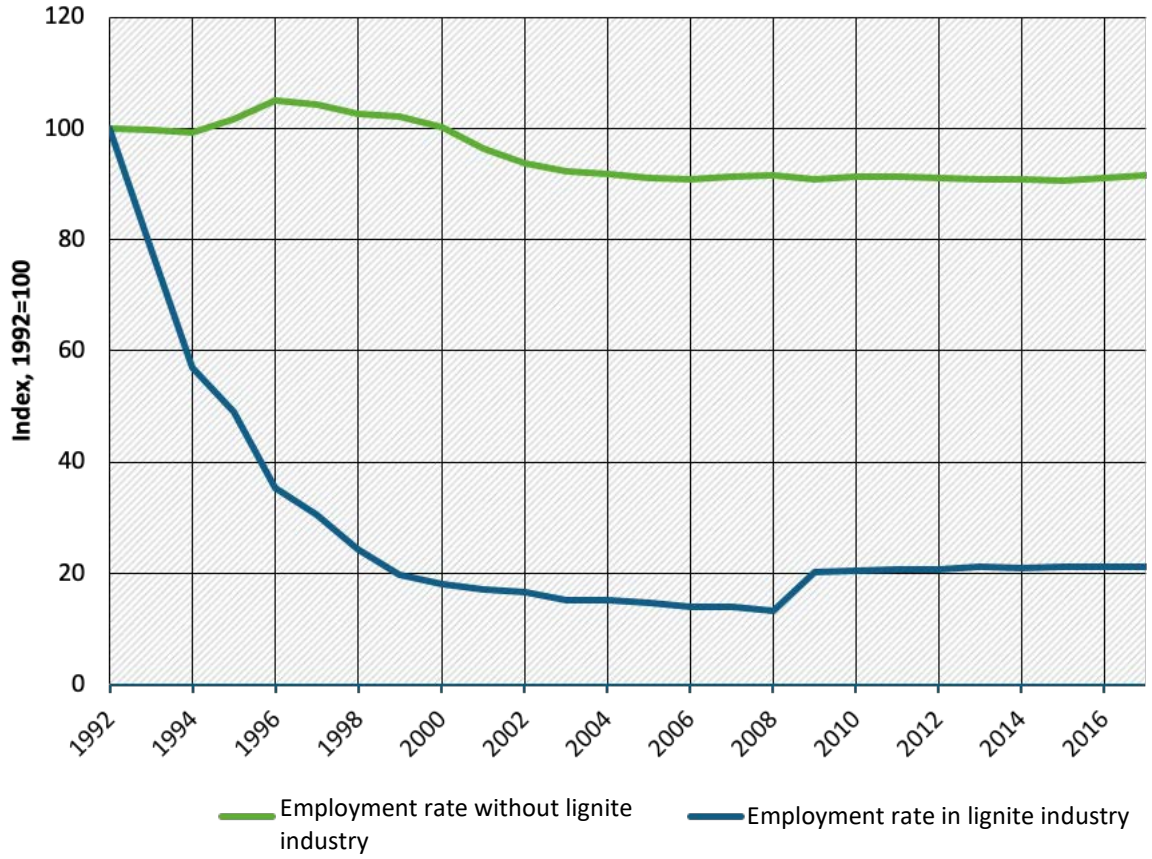
Figure 14: Development of the employment rate per 1,000 inhabitants



Source: GA of the German states, own calculations and estimations

As Figure 15 shows, the decline in employment in the coal industry was offset to a considerable extent through the creation of new jobs in other branches. From 1992, the number of people employed in economic sectors outside of the coal industry remained largely constant and it has only slightly dropped since the end of the 1990s. However, these figures are independent of the structural change in the coal industry.

Figure 15: Development of employment rate in Lusatia (1992=100)

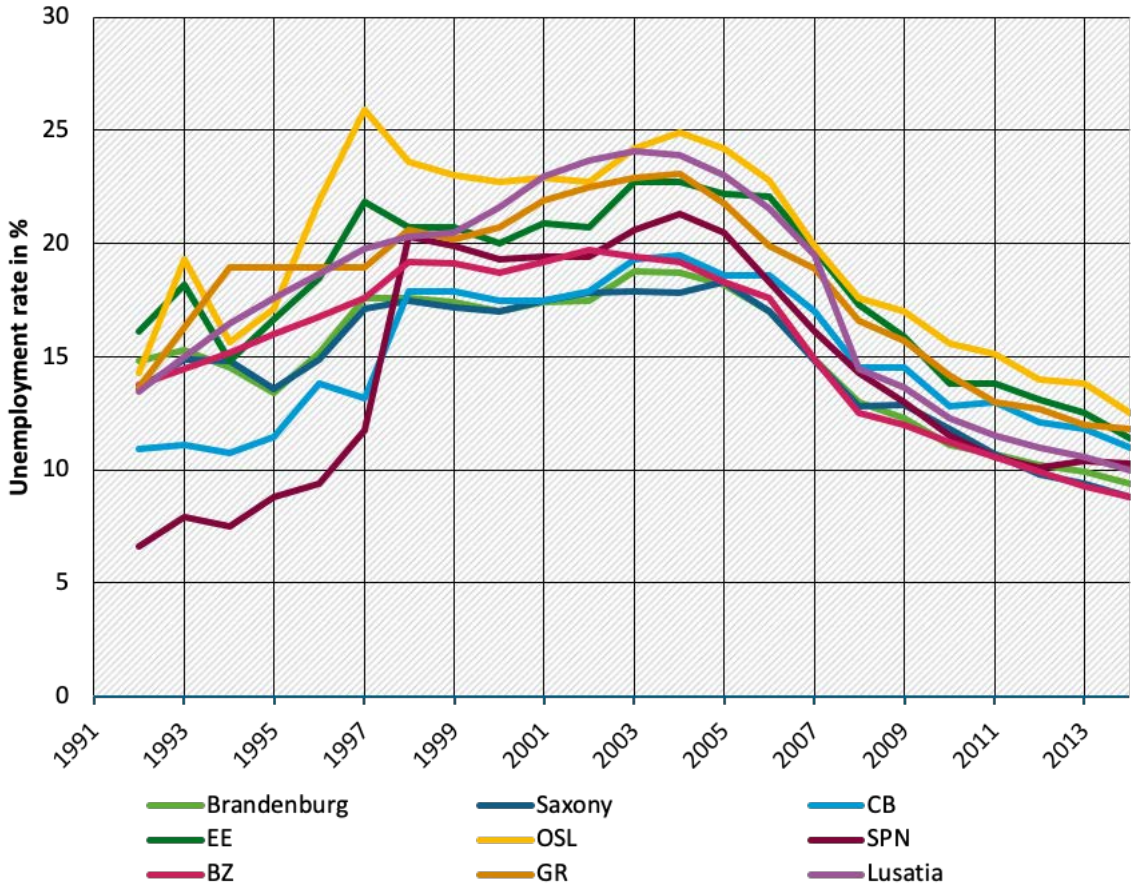


Source: GA of the German states, own calculations and estimations

Unemployment has developed in a much less favourable fashion in Lusatia than in the States of Brandenburg and Saxony as a whole. A convergence with the respective state averages has only been observed since around 2005 (Figure 16).

Within Lusatia, unemployment in the Spree Neiße district and in Cottbus (i.e., in the heart of the lignite industry) increased but only at a later point in time. The delayed increase was a result of the huge amount of Arbeitsbeschaffungsmaßnahmen [job creation schemes] (ABM) in the redevelopment of closed businesses (including lignite mines and power stations); a process, which did not end until the end of the 1990s.

Figure 16: Development of the unemployment rate



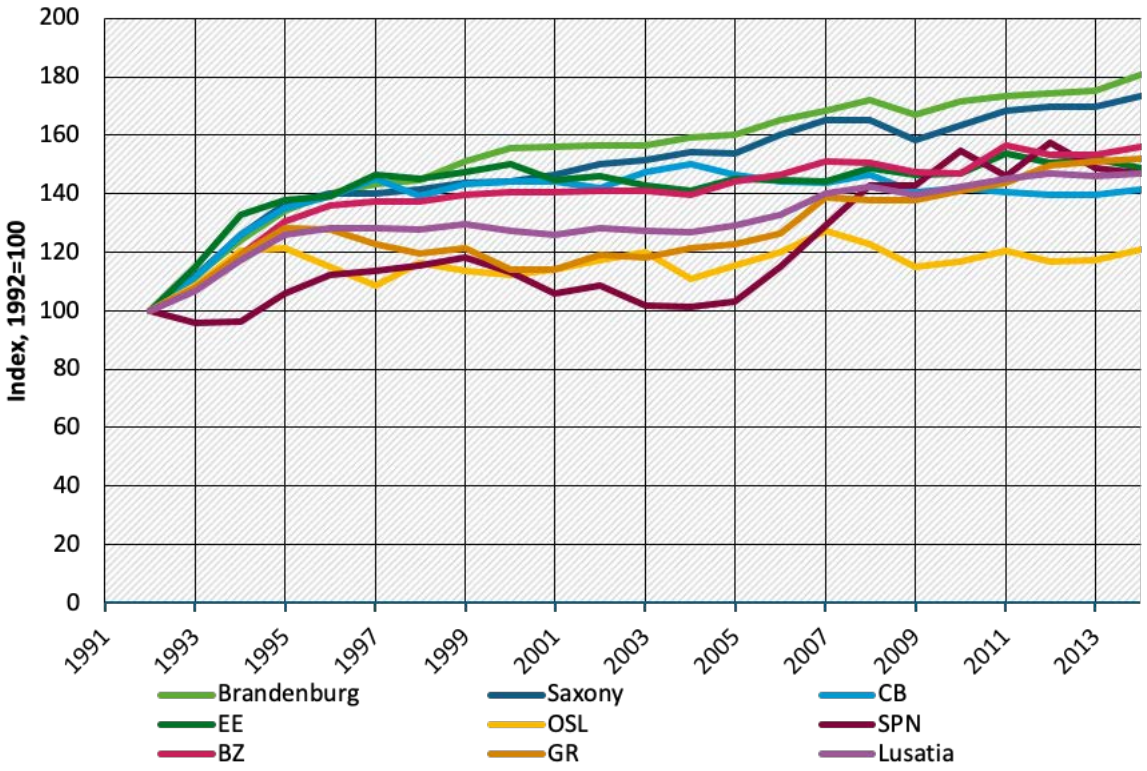
Source: INKAR, German Federal Employment Agency, own calculations and estimations

2.2.3 Economic situation and development

In the period from 1991 to around 2005, the real economic growth in Lusatia (and in its districts) clearly lagged behind the respective figures for the States of Brandenburg and Saxony. Only after that can a (temporary) recovery be recorded (Figure 17).

Within Lusatia, the two Saxony districts showed a similar rate of growth to the State of Saxony as a whole. In contrast, the Brandenburg districts lagged behind the dynamic of the State of Brandenburg as a whole.

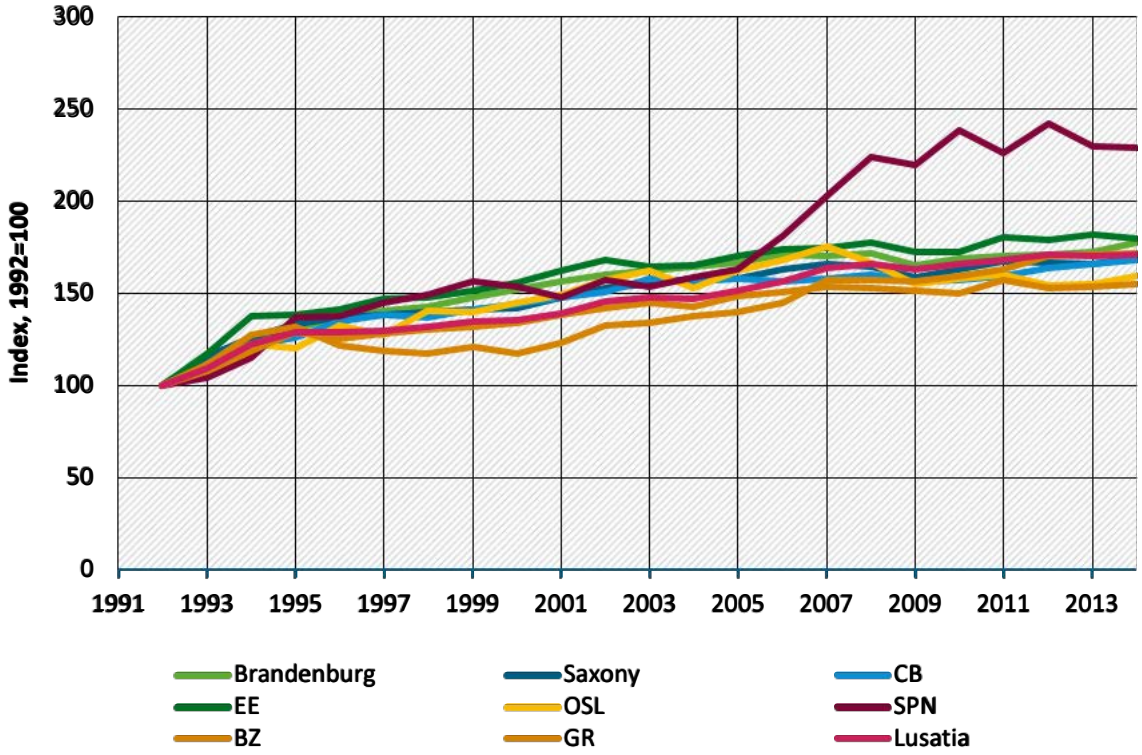
Figure 17: Development of the gross domestic product adjusted for inflation (1992=100)



Source: GA of the German states, own calculations and estimations

The development of the real GDP per employed person (productivity) was clearly weaker in Lusatia than in the States of Brandenburg and Saxony. Between 1995 and 2005, there was no aggregate increase in productivity (Figure 18).

Figure 18: Development of the gross domestic product adjusted for inflation per employed person (1992=100)

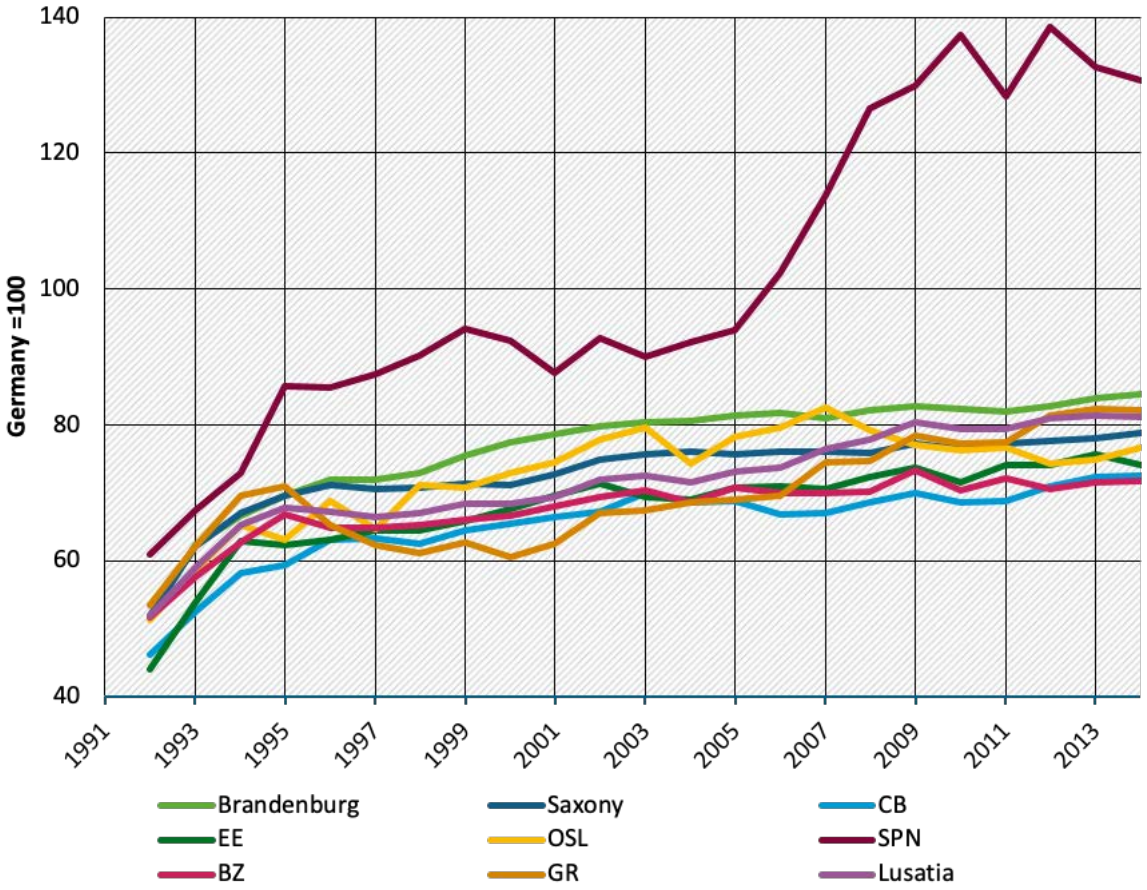


Source: GA of the German states, own calculations and estimations

Within Lusatia, above all the increase in GDP per employed person in the Spree Neiße district is noticeable. The sole reason for this increase was the statistically recorded development in productivity in the mining and energy sectors. However, there also appears to be a lack of clarity in the inflation adjustment in the energy industry because the rise in energy taxes was not calculated by the official statistics.

Measured against the all-Germany average, the (nominal) GDP per employed person in Lusatia is nearly the same as in the States of Brandenburg and Saxony overall (current status: approximately 80 % of the all-Germany level; Figure 19). The only exception is the Spree Neiße district with a much higher than average GDP per employee. However, it reflects the considerable extent of the increase in the production price for lignite or rather electricity, which rose sharply between 2005 and 2010. In addition, the nominal GDP is shown in regard to the market price, i.e., including the balance from goods taxes and subsidies. The increase in productivity in the Spree Neiße district is therefore exaggerated.

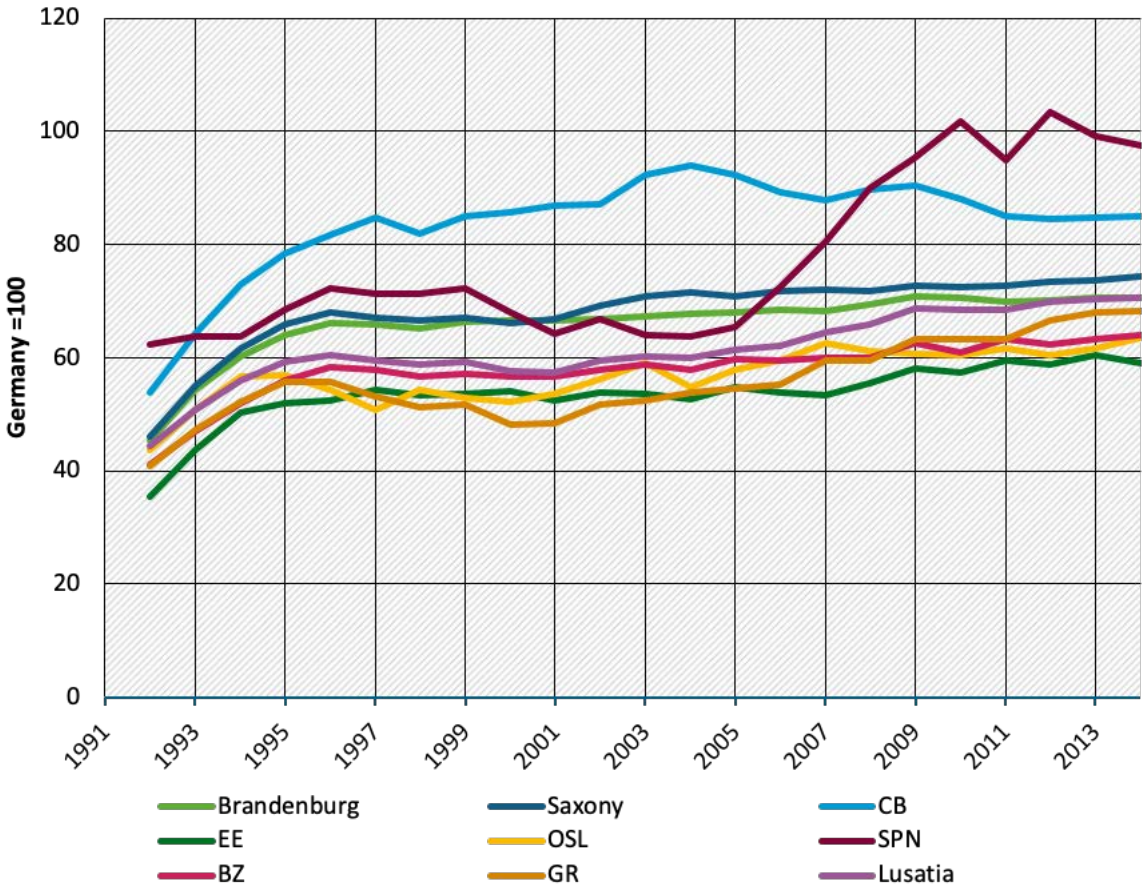
Figure 19: Development of the nominal domestic product per employed person (Germany=100)



Source: GA of the German states, own calculations and estimations

In the case of GDP per inhabitant, Lusatia is not considerably different to the States of Brandenburg and Saxony. Measured against the all-Germany average, a level of approximately 70 % of the West German level was achieved (Figure 20). In particular since 2005, Lusatia has been able to clearly catch up, driven by the favourable development in the Spree Neiße district.

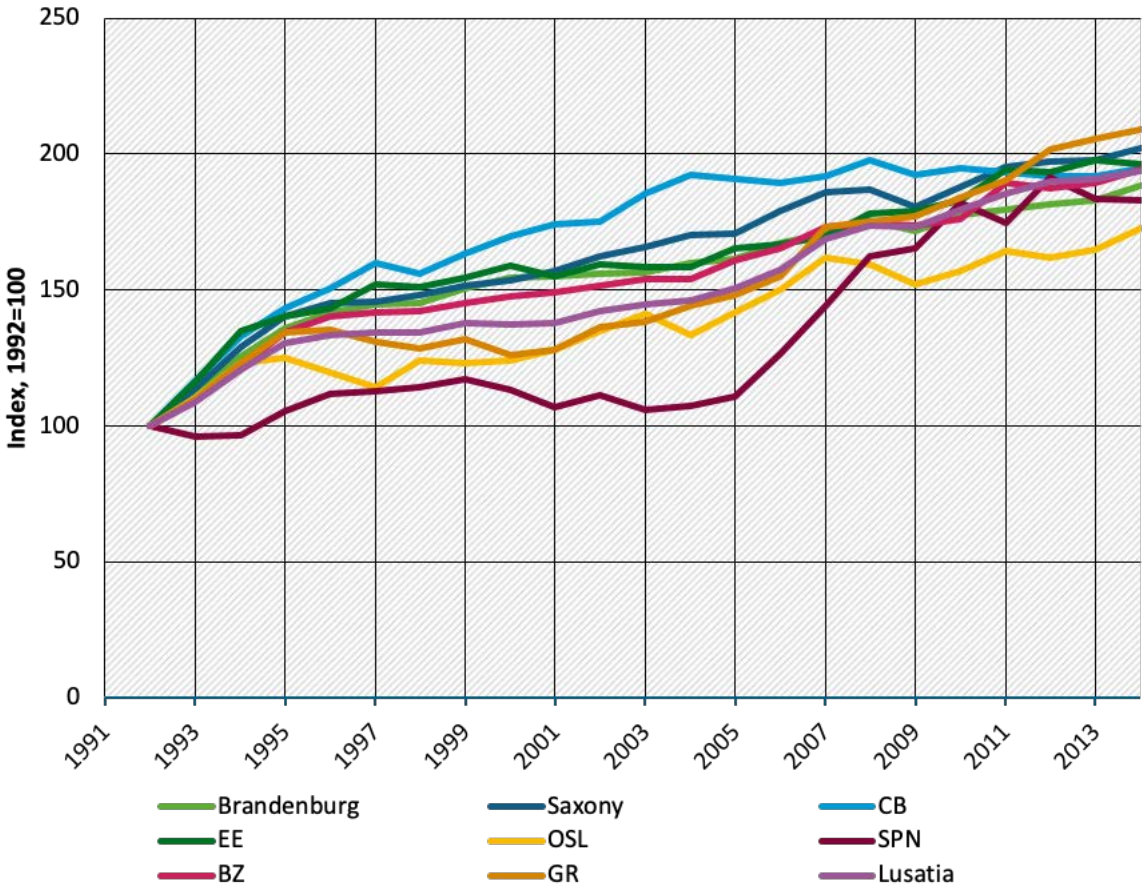
Figure 20: Development of the nominal domestic product per inhabitant (Germany=100)



Source: GA of the German states, own calculations and estimations

Compared to 1992, the (inflation adjusted) GDP in Lusatia even developed in a slightly more favourable fashion than in the comparison regions of the States of Brandenburg and Saxony. This development also reflects the disproportionally large reduction in population (Figure 21).

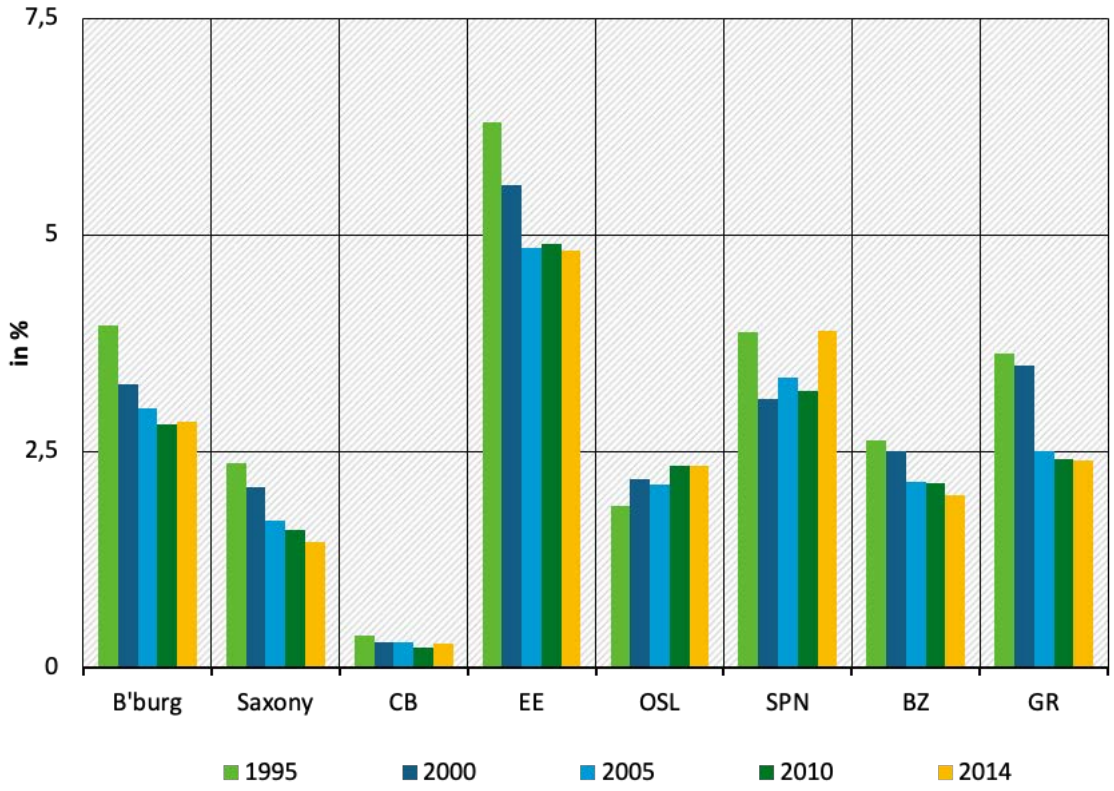
Figure 21: Development of the gross domestic product adjusted for inflation per inhabitant (1992=100)



Source: GA of the German states, own calculations and estimations

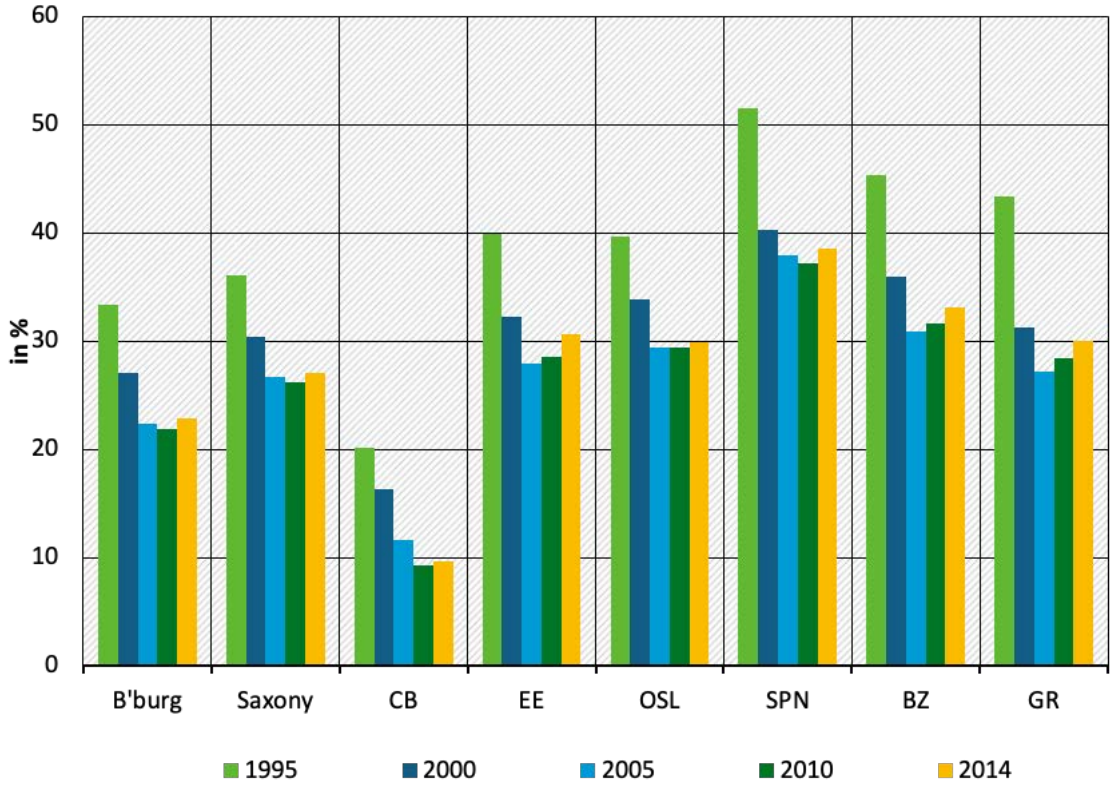
Compared to the figures in the mid-1990s, there was a clear reduction in the share of employees in the primary sector (agriculture, forestry and fishing; Figure 22) and in the secondary sector (mining, energy and water provision, manufacturing industry and construction; Figure 23), measured according to the number of employed persons in nearly all districts of Lusatia (only in the Oberspreewald Lausitz district did the share in agriculture since increase). Since the first half of the 2000s, the sector structures on this rough level have remained relatively constant.

Figure 22: Share of people employed in the primary sector



Source: INKAR, GA of the German states, own calculations and estimations

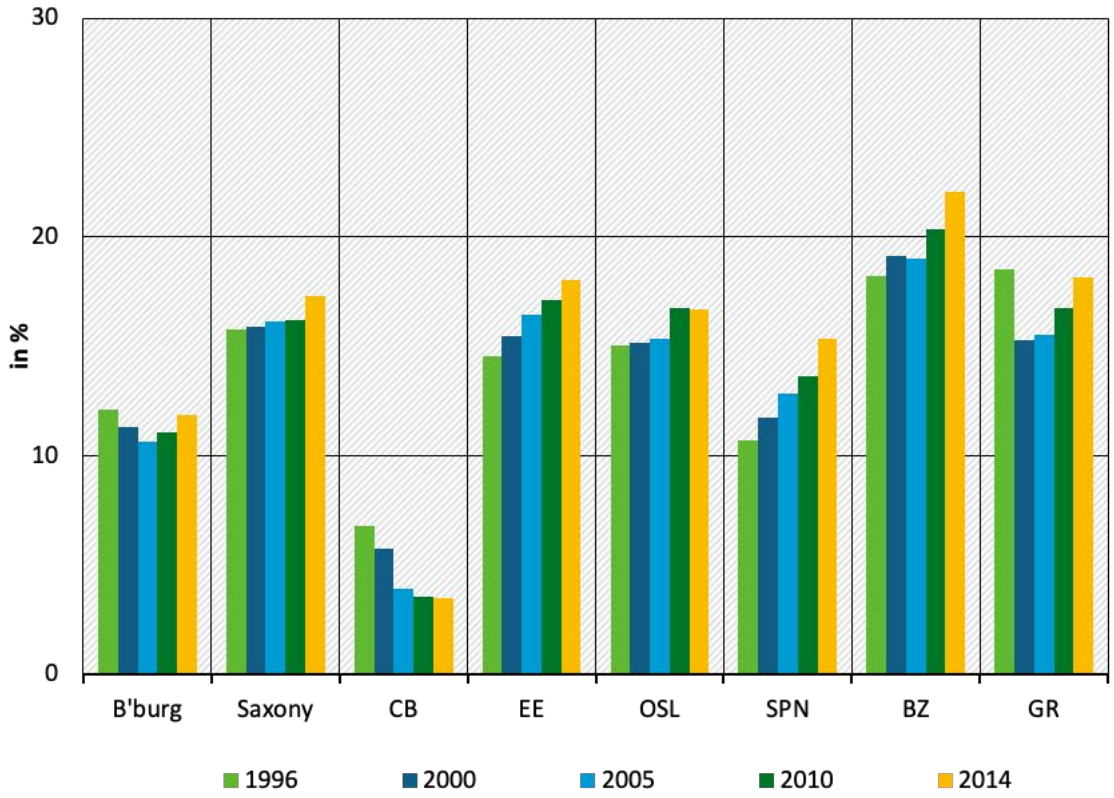
Figure 23: Share of people employed in the secondary sector



Source: INKAR, GA of the German states, own calculations and estimations

The employment trend in the secondary sector is above all a result of the downturn of employment in the construction industry (alongside the reduction of employment in the lignite industry at the start of the decade). The construction industry sharply contracted after the construction boom in the 1990s and has only recently stabilised at a lower level. Since the mid-1990s, the share of employees in the manufacturing industry (i.e., industry within the narrow meaning of the word) has again increased significantly almost everywhere (the only exception being the urban district of Cottbus) (Figure 24). There is no information available regarding the impact of the downturn in lignite power generation on upstream and downstream sectors of the manufacturing industry.

Figure 24: Share of working population in the manufacturing industry

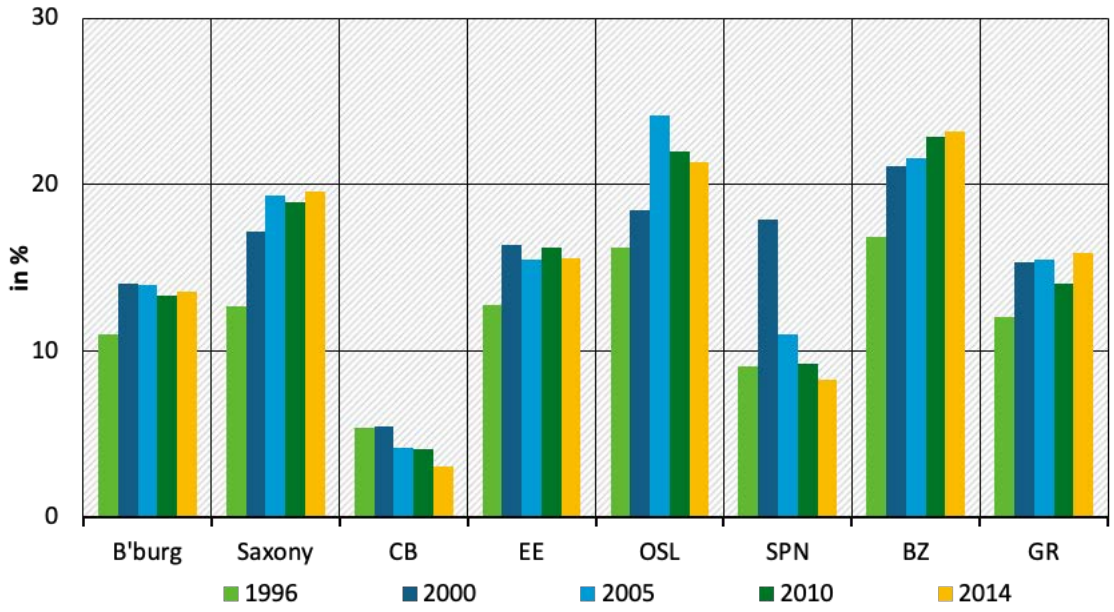


Source: GA of the German states, own calculations and estimations

Compared to the State of Brandenburg, Lusatia is much more industrialised. However, that is only the case for individual districts in Lusatia when compared to the State of Saxony.

When looking at the gross value added in the manufacturing industry, the picture is not so clear (Figure 25): The share of employees in the manufacturing industry in the Elbe Elster and Görlitz districts (like the State of Brandenburg as a whole) remained constant until the end of the 1990s, while the importance of industry for the working population has in this regard continued to increase. The Spree Neiße district represents a special case where the share of the manufacturing industry is in sharp decline. However, this figure essentially reflects a statistical effect because at the same time the statistically measured value added in the mining and energy sector has sharply increased due to the rise in energy taxes.

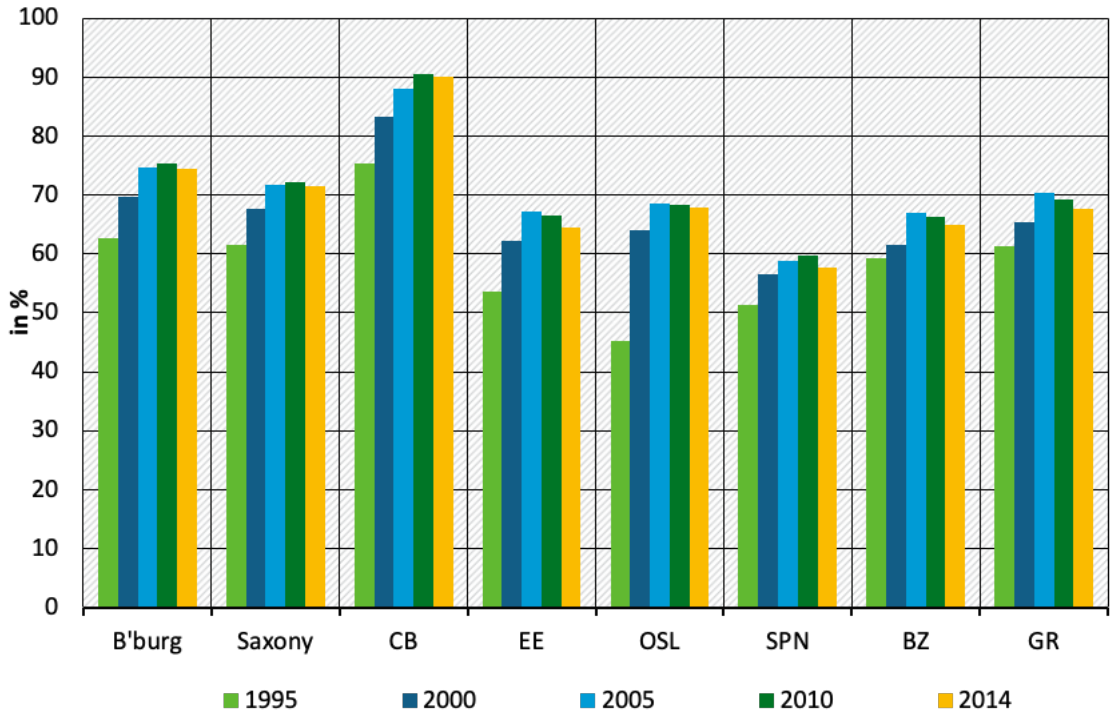
Figure 25: Share of gross value added in the manufacturing industry



Source: GA of the German states, own calculations and estimations

Since the mid-1990s, the tertiary sector (services, including government) has gained in importance in all districts of Lusatia and it has recently stabilised (Figure 26). In comparison to the States of Brandenburg and Saxony, the level of tertiarisation in Lusatia is somewhat less pronounced.

Figure 26: Share of working population in the tertiary sector

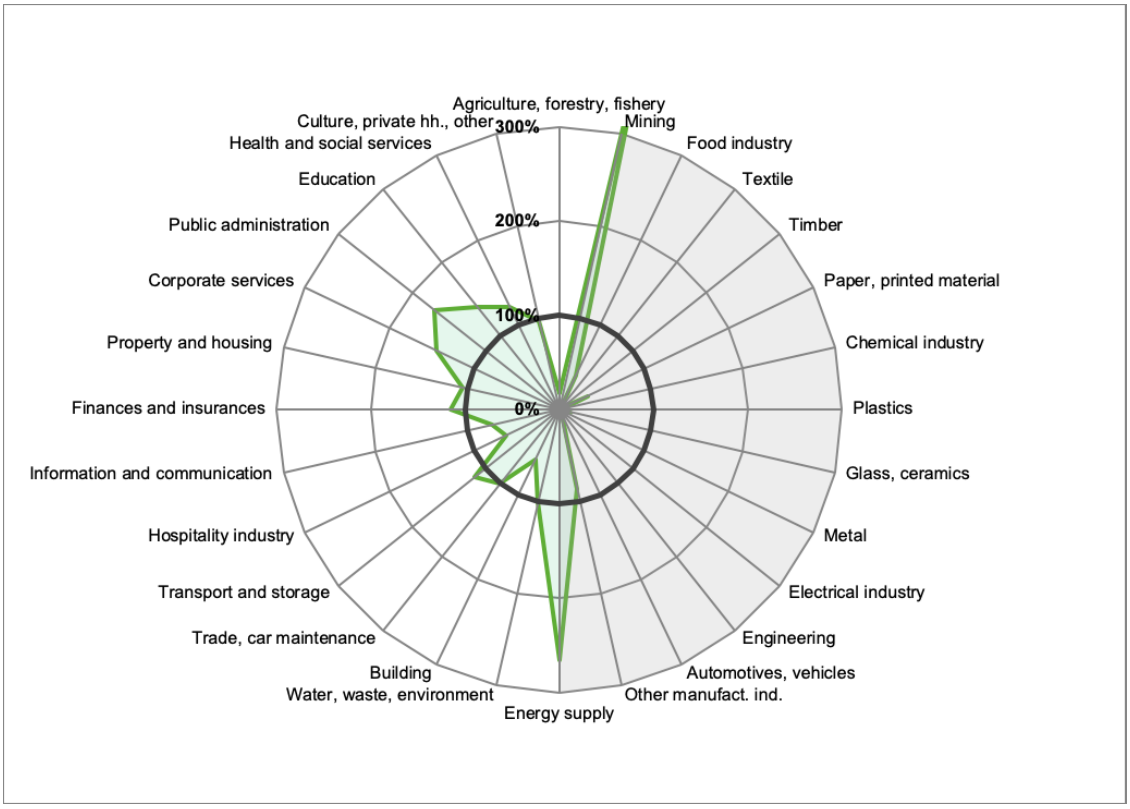


Source: INKAR, GA of the German states, own calculations and estimations

A previous study by the ifo Institute (Kluge 2014) shows that almost all districts in Lusatia have a "typical" specialisation pattern (compared to "Germany as a whole")(Figure 27 to Figure 32). Mining and energy are structure determining primarily in the Spree Neiße and Oberspreewald Lausitz districts and beyond that they are also important in Cottbus. In the remaining districts of Lusatia, the sector no longer plays an important role:

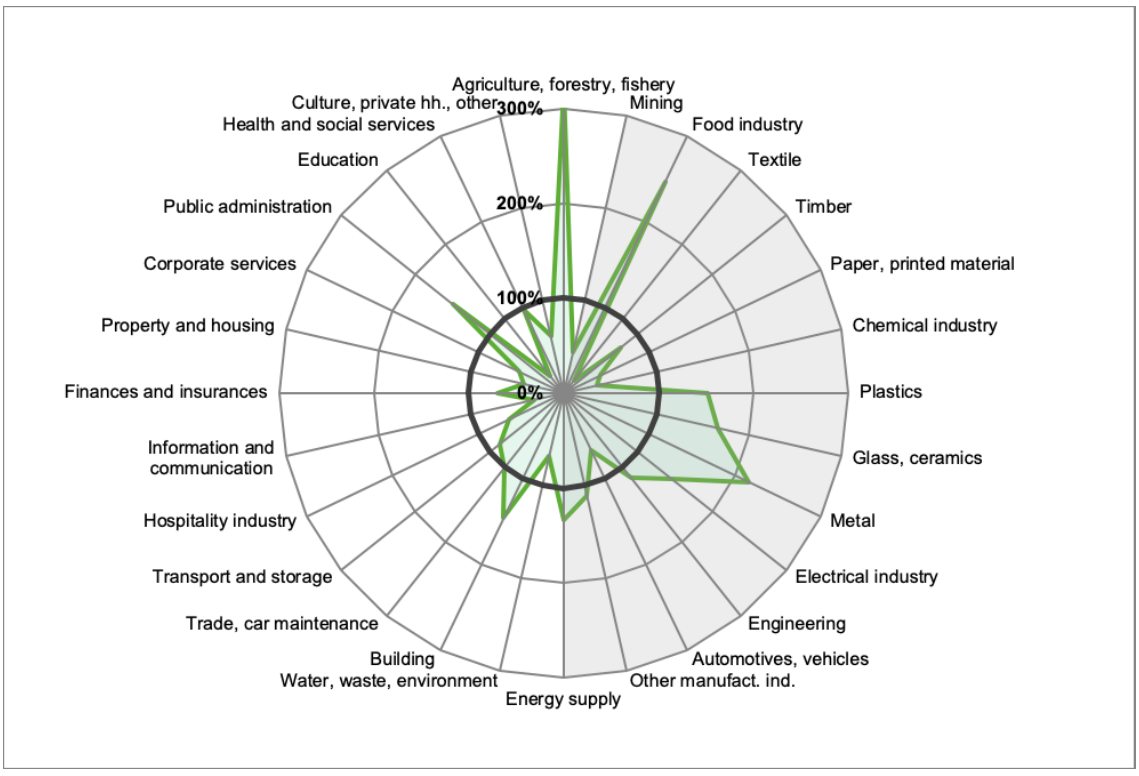
- In Cottbus, alongside the mining and energy sector, the public sector is also an important employer.
- The Elbe Elster district is, if anything, shaped by agriculture (including food manufacturing). Otherwise, the metal industry shows a strong representation here.
- The Oberspreewald Lausitz district has disproportionately high employment in the chemical and glass industries.
- Significant shares of the working population in the Spree Neiße district that are not in the mining and energy sector are only found in the paper and glass industries.
- Bautzen district is comparatively widely diversified with focuses on the textile and plastics industries.
- Görlitz district also shows a rather diversified economic structure; special focuses are the textile industry, the glass industry and mechanical engineering.

Figure 27: Specialisation pattern 2011: urban district of Cottbus



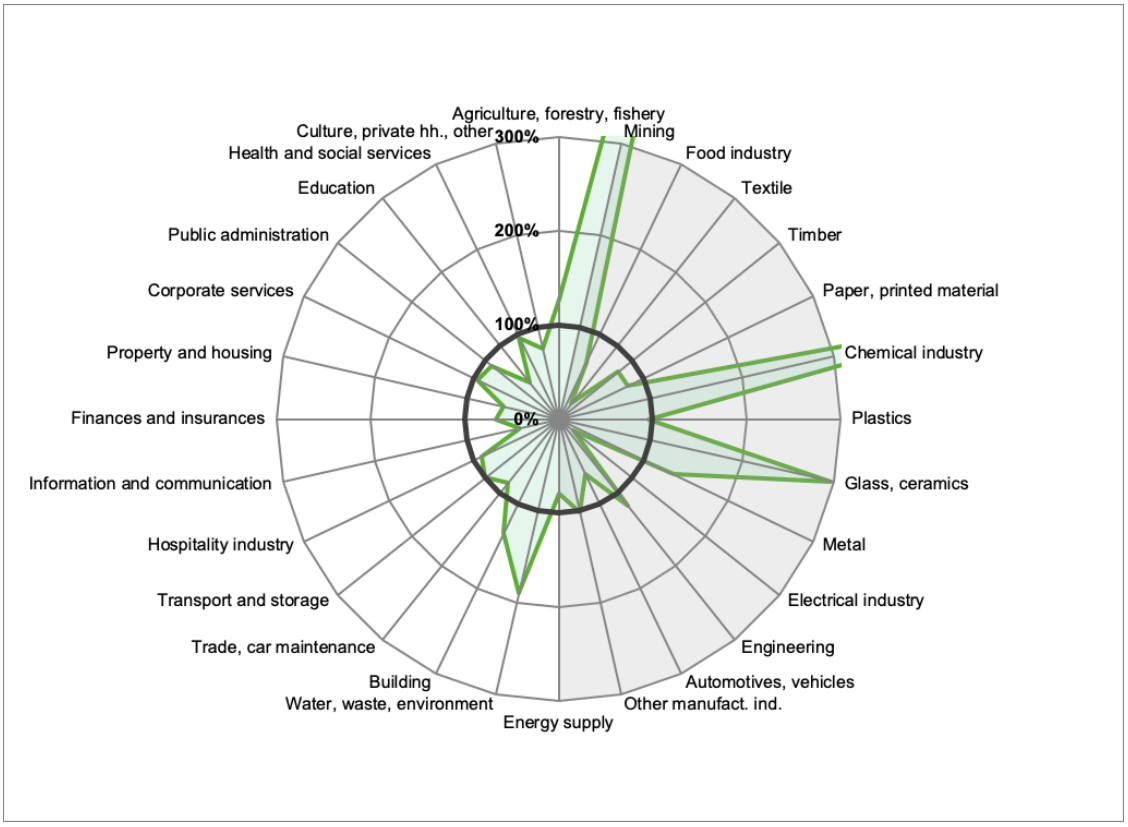
Source: ifo Institute on the basis of data from the German Federal Employment Agency

Figure 28: Specialisation pattern 2011: Elbe Elster district



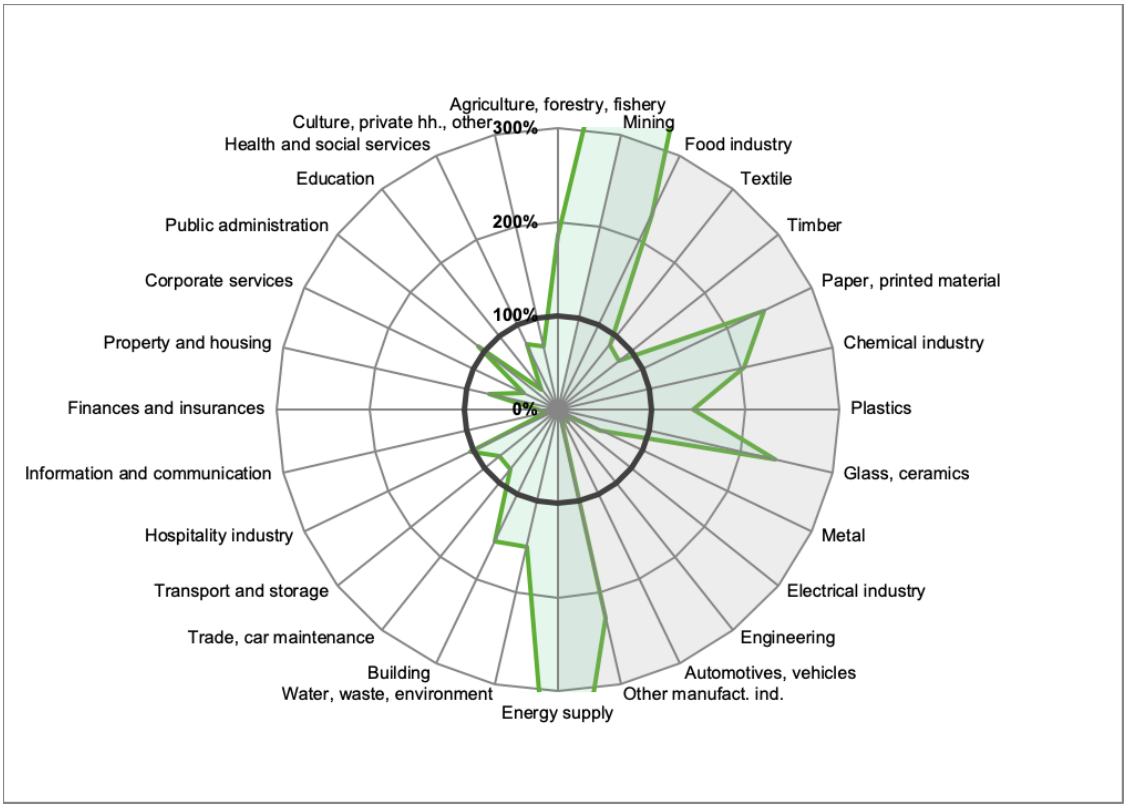
Source: ifo Institute on the basis of data from the German Federal Employment Agency

Figure 29: Specialisation pattern 2011: Oberspreewald Lausitz district



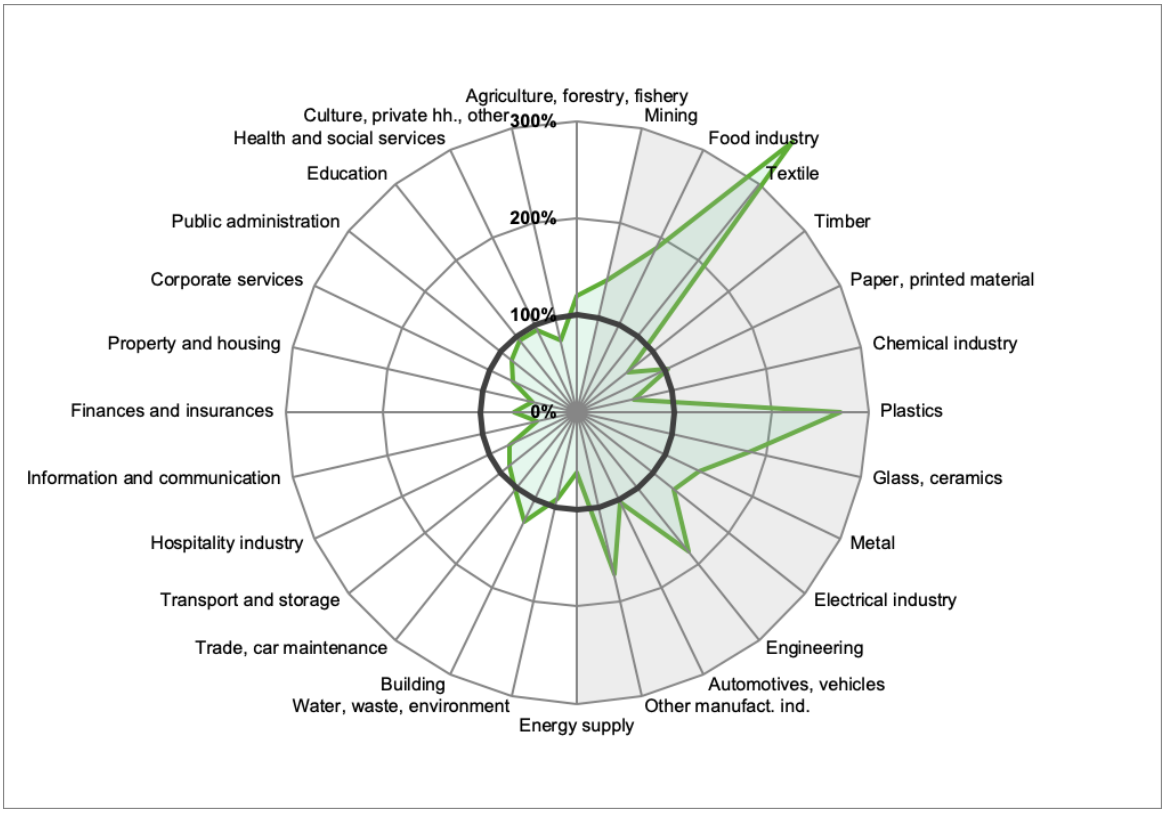
Source: ifo Institute on the basis of data from the German Federal Employment Agency

Figure 30: Specialisation pattern 2011: Spree Neiße district



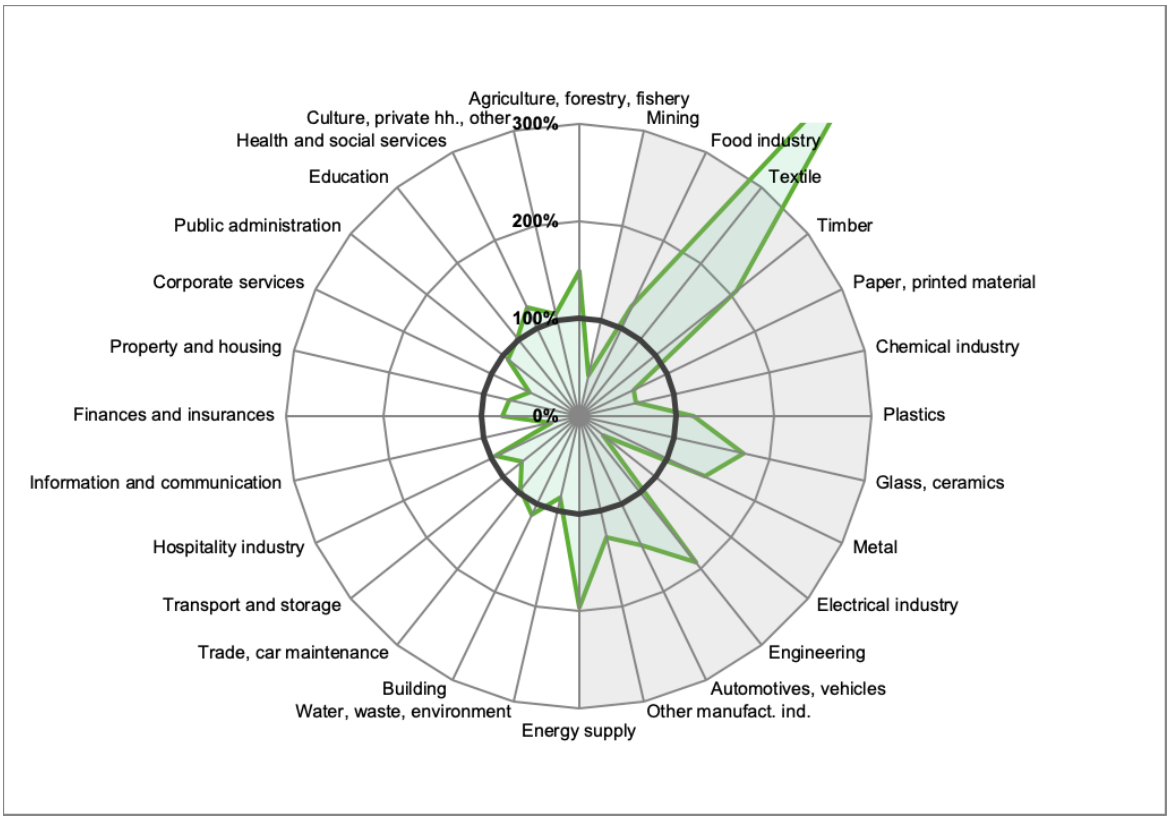
Source: ifo Institute on the basis of data from the German Federal Employment Agency

Figure 31: Specialisation pattern 2011: Bautzen district



Source: ifo Institute on the basis of data from the German Federal Employment Agency

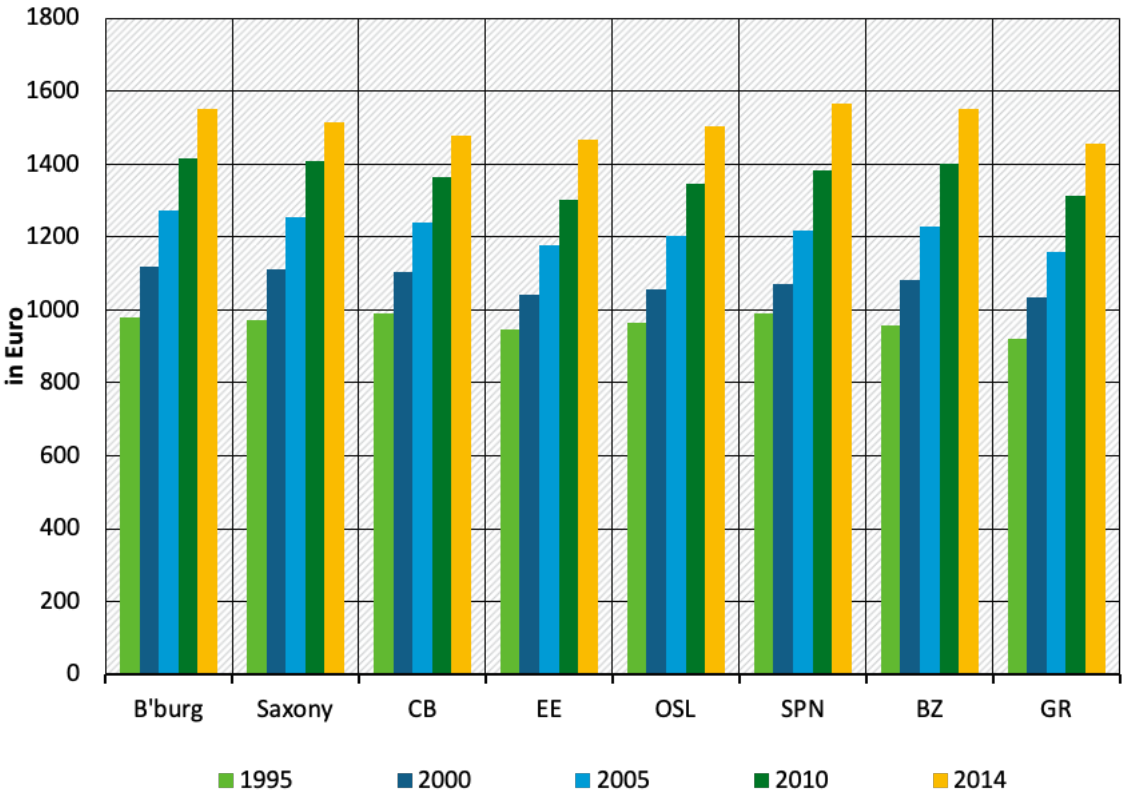
Figure 32: Specialisation pattern 2011: Görlitz district



Source: ifo Institute on the basis of data from the German Federal Employment Agency

The disposable income per inhabitant (Figure 33) has sharply increased in all districts of Lusatia in comparison to the mid-1990s. Yet, there is only a slight differentiation between the individual districts (Spree Neiße has the highest disposable income due to the high incomes in the mining and energy sector, followed by Bautzen district, which benefits above all from commuters to Dresden). Also the differences to the States of Brandenburg and Saxony as a whole are negligible.

Figure 33: Disposable income per inhabitant (on a monthly basis)



Source: INKAR, GA of the German states, own calculations and estimations

3 Description and evaluation of the structural policy interventions

3.1 Phases and political levels of the structural policy in Lusatia

3.1.1 Introduction

With the introduction of the market economy, there was a massive structural change in the East German states, from which Lusatia was not spared. The collapse of industrial businesses, which were no longer competitive, the reduction of overemployment in many economic areas, the slimming down of the inflated state sector and the insecurity of the East German stakeholders in regard to dealing with market economy institutions were characteristic of the structural change (see in this regard, for example, DIFU, 2004). Correspondingly, the politicians at the federal and state level were primarily aiming to establish institutional structures and to initiate the restructuring of the economy. However, there were no specific programmes for Lusatia during the investigation period (1990-2015) because the transformation-induced change in the economic structure affected all regions in the East German states in the same way.[10]

In the following, the interventions, which were used to politically accompany the structural change in Lusatia since 1990, are presented. At the same time, the role and impact of the structural policy of the states (in this case: Brandenburg and Saxony) should not be overestimated because the majority of the relevant framework conditions were stipulated by policies at the federal level and increasingly also by the European Union (EU). Therefore, when analysing the phases of the structural policy in Lusatia a difference must be made between the German federal government policy level (Chapter 3.1.2) and the state policy level (Chapter 3.1.3). The case of Lusatia is made more difficult by the fact that the investigation region stretches over two states and therefore the political area includes both the State of Brandenburg and the State of Saxony. Due to its importance for all of Lusatia (see Chapter 2), we are focussing on the State of Brandenburg in the analysis of the phases of the structural policy of the two states. The specifics of the structural policy of the State of Saxony are only briefly touched upon.

The cohesion and structural policy is one of the central policy areas of the EU. Approximately one third of the EU budget is used for this purpose. The objective of the EU structural policy is to aid economically weaker regions to reduce regional handicaps and to keep up with the general economic development. Lusatia, as a structurally weak region, is supported with funds from the EU structural policy. Therefore, the EU structural policy programmes are also briefly considered (Chapter 3.1.4).

For the evaluation of the structural policy interventions, the project consortium has defined impact dimensions (see Chapter 1). In the course of the work, it has become evident that in response to the existing challenges, economic objectives in particular (job creation, equalisation of living standards) were placed at the heart of the structural policy interventions. This also becomes clear in the discourse analysis below. There are hardly any academically founded evaluation results available regarding how the different interventions have impacted objectives other than economic objectives. Therefore, these other objectives are only touched upon in this study, even if they could gain importance in the future as framework conditions with regard to structural policy measures in other coal regions.

[10] Specific considerations on regional measures only came about from 2015 (see e.g., Agora Energiewende, 2016, or Markwardt et al., 2016). They were triggered by discussions regarding the Climate Action Plan 2050, in which the objective of a further reduction of lignite power generation is enshrined and whereby a further-going structural change in Lusatia is necessary.

3.1.2 Structural policy of the German federal government

Phase 1: 1990-1998 – "Aufbau Ost" [reconstruction East; development of the East German states]

At the start of the 1990s, there was a series of key decisions at the federal level, which considerably influenced the economic development in the East German states and therefore also in Lusatia. Examples worth mentioning include:

- the creation of a common currency area on 01.07.1990,
- the specification in the Unification Treaty that gave the return of assets expropriated in the GDR priority over the compensation for these assets instead, and
- the determination of priorities of the Treuhandanstalt [privatisation agency] for a fast privatisation of the previously nationalised businesses and their premises.

All three decisions significantly influenced the extent and speed of the structural change in the East German states in the first years after the German reunification.

The creation of a common currency area with the chosen exchange rate (1:1 for flows, e.g., wages and salaries) implied a currency appreciation of 400 % for the East German businesses, decisively contributing to a fast collapse of large parts of the industry (see e.g., Sinn, 1994). The priority of "return over compensation" proved in many cases to be a serious barrier to investment and therefore also to development for companies in the East German states because the corresponding claims had to be identified in a time-intensive process and to be clarified in a legally binding manner.[11] The Treuhandanstalt [privatisation agency] interpreted its statutory task (sec. 2, para. 6 TreuhG [Treuhandgesetz, Trusteeship Act]) to the effect that privatisation was to be granted priority over redevelopment and, if applicable, closure. That meant that structural and labour market policy considerations, which the states placed special emphasis on, only got very little consideration at the beginning. In addition, as a type of side condition, the Seat of the Federal Government was relocated from Bonn to Berlin, which led to an increase in appeal of the capital region (Lusatia's indirect neighbour).

In phase 1, the policy of the German federal government for the East German states was shaped by the notion that the underlying objective, i.e., "equalisation of living standards", could only be achieved through huge state aid. With the "Strategie Aufschwung Ost" [upswing east strategy] (see Möllemann, 1991), it was recognised for the first time that in order to overcome the economic crisis situation in the East German states, not only short-term liquidity aid was needed but rather a mid- to long-term aid concept was required. Accordingly, a ten-point plan was suggested; its most important elements were implemented through the German federal government programme "Gemeinschaftswerk Aufschwung Ost" [upswing east community venture] and financed by the "Fonds Deutsche Einheit" [German unity fund] (see DEFG, 1990). On the one hand, the launched programme package included growth-orientated elements, i.e., business funding by way of large **investment grants** in the context of the Gemeinschaftsaufgabe "Verbesserung der regionalen Wirtschaftsstruktur" [community task "improvement of the regional economic structure"] (GRW), by awarding **low-interest loans** in the context of new business start-ups, but also for residential construction investments and by way of **exceptional depreciations;** on the other hand it covered the improvement of the general location conditions, which meant the accelerated expansion of the **public infrastructure** and temporary **simplification in the regulatory system**. It was complemented by the social flanking of the adjustment process, which primarily comprised **labour market policy measures**, e.g., job creation and comprehensive qualifications measures.

[11] This investment barrier was lifted with the Investitionsvorranggesetz [investment priority act] (1992).

In the field of business funding, the focus was initially on funding investments. By way of **investment allowances** and **grants** as well as by way of **tax relief,** incentives to invest were created primarily with the objective of increasing employment in the East German states. Considerations to shape a forward-looking structural policy were still of secondary importance at this point in time. Yet the scope of public funding was considerable. By way of investment grants from the GRW (later supplemented by EU subsidies from the European Regional Development Fund, ERDF) and the investment allowance in the East German states (see InvZulG [Investitionszulagengesetz, German investment allowance act] 1991, 1996, 1999), the financial support could be as much as 50 % of the investment sum depending on the sector and the business size. While a legal entitlement was granted for the tax-related funding instruments (investment allowances and exceptional depreciations), only guidelines were given regarding the design of the investment grants and the states could deviate from these guidelines depending on their own individual focusses.

A second key aspect of the structural policy of the German federal government in the "Aufbau Ost" [development of the East German states] phase was the fast **establishment of the infrastructure**. In this area, the East German states had a lot of catching-up to do. The need to modernise and catch-up was extraordinarily high in particular in the fields of transport and telecommunications, but also in urban development and housing. At the time of the German reunification, the infrastructure supporting economic activity in the East German states did not meet the requirements of an economy with a high degree of labour division and of a mobile society. "Verkehrsprojekte Deutsche Einheit" [Germany unity transport projects] and "Gemeinschaftswerk Aufschwung Ost" [upswing east community venture] were the structural policy programmes for expanding and modernising the infrastructure. By way of these programmes, inadequately developed East-West transport connections and the transportation route network in the East German states were (and are being) expanded and modernised. In addition to the German federal government's own investments, there were also the infrastructure projects of the states and municipalities, which however in light of lower tax incomes could only be realised by the German federal government providing the required funds by way of a disproportionately large allocation of funds (in Solidarpakt I [solidarity pact I, agreement between the German federal government and the states to allocate funds for the development of the East German states]). For the economic region of Lusatia, it meant that in this first phase there was a quick expansion of the transport connections between the centres of Berlin, Dresden and Leipzig, from which Lusatia benefited due to its location.

Despite the unusually comprehensive funding of businesses and the expansion of the infrastructure, the economic development in the East German states and Lusatia lagged far behind the initial expectations. Due to the sometimes dramatic labour market situation in the East German states, the social flanking of the transformation processes through active labour market policy is to be discussed as an extraordinarily important component of the structural policy accompanying of "Aufbau Ost" [development of the East German states]. Since the German reunification, the unemployment rate in Lusatia has been significantly higher than the average rates in the States of Brandenburg and Saxony. At its worst, up to a third of the working population was affected by underemployment in the East German states (see IWH, 2010); in Lusatia the figure was even higher. Subsequently, in the first half of the 1990s, approximately 360 thousand people in the East German states were participating in ABM, while the number of participants in professional training measures was even higher at almost 400 thousand people. For the short-term stabilisation of the labour market, between 1991 and 1995 the German Federal Employment Agency spent a total of approximately 22 billion DM (approximately

11.25 billion Euro)[12] for reduced working hours, of which 15 billion DM (approximately 7.67 billion Euro) was for the East German states alone. Until June 1993, the funding for reduced working hours was not only limited to paying wage compensation, but the German Federal Employment Agency also paid the employer's contribution to health and pension insurance. Therefore, businesses in the East German states had their labour costs reduced by more than 3.5 billion DM (approximately 1.79 billion Euro) (see Völkel, 1997). In the State of Brandenburg, reduced working hours were concentrated on the mining sector (the water, energy and mining sector's share in all reduced working hours in the state was 23.9 % in 1995 according to the German Federal Employment Agency (1996)). A further social policy flanking measure was the large-scale application of early retirement programmes. Early retirement was systematically deployed in order to relieve pressure on the labour market. In the East German states after the German reunification, the age on leaving the workforces was around 55 (see Buchholz, 2008). Insofar the labour market policy is to be categorised above all as a **reactive structural policy** in this first phase of the German federal government's structural policy.

Phase 2: 1999-2015 – "Technology-orientated structural policy"

The main objective of phase 1 of the German federal government's structural policy was to create jobs. In the framework of the "Aufbau Ost" [development of the East German states] policy, the investment projects were funded largely irrespective of economic sector, technology and regional integration. This form of state investment funding was the subject of a sustained critical debate. At its heart was the argument that through the state subsidies of the capital factor, the relative factor prices were distorted with the consequence of an inflated capital intensity in production (see Chapter 4 for the evaluation). By substituting work with capital, negative employment effects arose (see e.g., Klodt, 2000 or Ragnitz, 2003). The success of the "Aufbau Ost" [development of the East German states] policy within the meaning of a self-sustaining upswing (a growth dynamic in the East German states independent of transfer payments) lagged behind expectations, which led to a course correction in the German federal government's structural policy at the end of the 1990s.

In phase 2, the political priorities shifted from essentially regional policy objectives (i.e., supporting the performance capacity of businesses in structurally weak regions with the objective of regional balance) to an **innovation- and technology-orientated objective.** The basic assumption was that the regional economic structure's ability to adapt and to be competitive primarily depended on the innovation work of the businesses and their research and development (R&D) activities. In order to meet the needs of the special situation in the East German states, a new funding programme was conceived by the Bundesministerium für Bildung und Forschung [German Federal Ministry of Education and Research] (BMBF), which started in 1999 under the name of "InnoRegio" (then later continued at the core of the BMBF's innovation initiative "Unternehmen Region" [Entrepreneurial Regions]). BMBF described the basic idea of "InnoRegio" as follows: *"Creative new ideas arise in places where people from the biggest variety of disciplines, sectors and institutions meet. A region is therefore successful when a network is formed, in which the skills, experiences and key technologies of the region meet – where something new, unique and outstanding can be formed. A network that captures regional traditions, develops a common innovation strategy for the region and gives the region an unmistakable profile."* (Entrepreneurial Regions, 2017). The funding from the BMBF was consequently based on the fastest possible circulation of innovative solutions and the improvement of the education structure and technology transfer. The objective of the funding was to connect potentials for

[12] This and the following conversions were done by the authors (conversion rate: 1 DM = 0.51129 EUR).

innovation in the East German regions and upon this basis to initiate the development of long-term effective technology platforms (Institute for Innovation and Technology, 2016).

An important component of the "Entrepreneurial Regions" was the **cluster formation strategy**, i. e., strengthening of horizontal and vertical integration of businesses, associations and academia in one region. Porter (2000) describes a cluster as the regional concentration of businesses, which are connected with each other beyond the value-added chain. In addition, there are the associated regional institutions, such as associations and universities. At the same time, members of a cluster have a relationship with each other beyond supply, competition or common interests. According to the understanding of the cluster concept, the ability of a location to be competitive and to develop depends among other things upon how it can generate and disseminate knowledge and make it usable.

The cluster formation was and is supported by network-orientated approaches. To be named as example in this regard are the following programmes:

- "InnoRegio" (1999-2006)
- "Innovative regionale Wachstumskerne" [innovative regional growth centres] (2001-2007)
- "Innovationsforen" [innovation forums] (2001-2016)
- "InnoProfile" (2005-2013)
- "Zentren für Innovationskompetenz" [centres for innovation skills] (since 2002)
- "WK-Potenzial" [growth centre potential] (since 2007)
- "ForMaT" (since 2007)
- "Zwanzig20" [twenty20] (since 2012).

This type of support was or rather is decidedly future-looking and is to be categorised as a structural policy intervention of the **forward-looking structural policy**. In addition to the BMBF programmes, there are also funding programmes from the Bundesministerium für Wirtschaft und Energie [German Federal Ministry for Economic Affairs and Energy] (BMWi), which are decidedly orientated towards strengthening the innovational strength and competitiveness of small and medium-sized enterprises (SMEs), including trade and self-employment. The Zentrales Innovationsprogramm Mittelstand [central innovation programme for small and medium-sized enterprises] (ZIM) began in 2008 (since 2015 in all German states) as a funding programme not restricted by technology or sector for SMEs and research institutes that are working with them.

In phase 2, the **expansion of the infrastructural facilities** also continued to be driven ahead in the East German states. Therefore, e.g., the Solidarpakt II [solidarity pact II, agreement between the German federal government and the states to allocate funds for the development of the East German states], which was in place from 2005, was explicitly justified with the fact that it would reduce the existing "infrastructural need to catch up" in the East German states by 2019. In the 1991-2015 period, 35.4 billion euros were invested in the "Verkehrsprojekte Deutsche Einheit" [Germany unity transport projects] programme alone (see German Federal Ministry of Transport and Infrastructure, 2016). The comprehensive investments led to a qualitative and quantitative improvement of the infrastructural facilities in the East German states and therefore also to a clear improvement in the regional conditions for the business located in the East German states. With the further opening of the EU internal market by opening the borders to Eastern Europe, a rapid transport development has occurred. The previous north-south traffic flows have been displaced by new traffic flows in the east-west direction. The German federal government has driven forward these transport connections, which led to a further improvement to Lusatia's connection to the interregional transportation route network.

In the field of the **reactive structural policy** to cushion social hardships, there was still a great need due to the above average unemployment rate in the East German states and in particular also in Lusatia. However, in this regard there was a fundamental change in direction in the active labour market policy (see Rabe and Schmid, 1999). The old Arbeitsförderungsgesetz [German employment stimulation act] (AFG) was revised and on 01.01.1998, it was integrated into the third book of the Sozialgesetzbuch [German Social Security Code] (SGB III). Hereby, the previously existing position of the AFG as a central labour market policy instrument was reduced and the subsidiary role of labour market policy was explicitly defined. It was intended to support balance on the labour market, i.e., to make the process of filling positions easier. However, economic and employment policy interventions are primarily responsible for the level of employment and these interventions can be supplemented by measures on the supply side. Accordingly, the employees should bear the personal risks themselves and take on more responsibility for their individual place on the labour market (see Feil et al., 2008). The further reform of the SGB III in 2002 through the "Job-AQTIV-Gesetz" [Job-AQTIV act] continued the 1998 paradigm change in labour market support to make it an **activating labour market policy**. The Hartz laws I-III passed between 2003 and 2005 as well as the Gesetz zu Reformen am Arbeitsmarkt [German reforms on the labour market act] continued this approach and focussed on consistent activation. In this respect, the labour market policy in this second phase is to be categorised as **forward-looking structural policy**.

3.1.3 Structural policy of the states

The described instruments from the "Aufbau Ost" [development of the East German states] policy affected all East German states to more or less the same extent and therefore could not explain any specific conditions in Lusatia. However, they have critically influenced the development of Lusatia. In addition, this fundamental policy decision of the German federal government represents an exogenous regulatory framework for the policies of the States of Brandenburg and Saxony that could only be modified to a limited extent (and for the large part not at all) by their own state policy interventions. Therefore, in the following it is to be examined which key decisions of economic policy were made by the States of Brandenburg and Saxony and in how far they can serve as an explanation for the developments in Lusatia. The focus is placed on the structural policy of the State of Brandenburg. The sub-headings distinguish between the legislative terms because the changing state governments have in part backed different strategical focusses. The details of the economic policy of the State of Saxony are only briefly touched upon at the end of the chapter.

a) Brandenburg

1990-1994

The economic policy strategy in the first legislative term of the State of Brandenburg pursued the following objectives in particular:

- preserving industrial centres and
- reducing unemployment by deploying labour market measures.

Priority was placed on creating equal living standards in all regions of the state. In doing so, the focus was placed on the underdeveloped regions far from Berlin, therefore also on Lusatia. In the first years after the German reunification, the institutional framework to implement economic development policies was established in order to be able to support the settlement of employment-intensive companies. And so the following institutions were founded: Wirtschaftsförderung Brandenburg [economic development agency Brandenburg] (WFBB) (1990), Landesagentur für Struktur und Arbeit LASA [state agency for structure and labour]

(LASA) (1990), Brandenburgische Landgesellschaft [Brandenburg land company] (1991), Landesentwicklungsgesellschaft [state development company] (LEG) (1991), Technologie- und Innovationsagentur Brandenburg [Brandenburg technology and innovation agency] (T.I.N.A.) (1991), Brandenburgische Außenhandelsagentur [Brandenburg foreign trade agency] (BRAHA) (1992), Investitionsbank des Landes Brandenburg [business promotion bank of the State of Brandenburg,] (ILB) (1992), Brandenburgische Energiesparagentur [Brandenburg energy saving agency] (BEA) (1992) and Brandenburgische Boden [Brandenburg land management] (BBG) (1994). The principles for the implementation of funding programmes were specified among other things with adoption of the first Technologieinitiative Brandenburg [Brandenburg technology initiative] (1991) and the Mittelstandsförderungsgesetz [small and medium-sized enterprises funding act] (1992).

The regional policy's mission statement was "**decentral concentration**" (Ragnitz et al., 2011). By way of the targeted deployment of subsidies to support structure-determining investment projects in all regions of the state, the less favourable development conditions in the structurally weak regions were to be countered. Existing shortcomings in the field of employment structure or in infrastructure were to be remedied and an independent development with spillover into a larger economic region was initiated. At the heart of this local development strategy were the so-called "regional development centres" (RDCs) in the structurally weaker areas. These structurally weaker areas in the Brandenburg part of Lusatia included the towns of Cottbus, Finsterwalde and Senftenberg/Lauchhammer. In addition, there were also locations that required special action due to serious commercial-industrial restructuring needs as a result of industrial monostructures. In Lusatia that meant the towns of Lübbenau/Vetschau, Spremberg and Elsterwerda. Defining the RDCs was intended to unfurl a binding power for all departments at the state level to contribute in this manner to the establishment of centres with spillover effects to the respective surrounding areas. The idea to concentrate the state's funds on these centres followed the economic policy consideration that the efficiency of deploying funds on the basis of the population and infrastructural connections in the centres was estimated as being much more favourable than doing so in the sparsely populated surrounding communities. Therefore, in the State of Brandenburg the GRW funding was orientated towards the RDCs, for example, in the 24th GRW annual programme (1995-1998) only 164 towns and municipalities were included in the funding while in 1991 the whole state had been granted maximum funding. Infrastructure planning in the State of Brandenburg was also strongly orientated towards these RDCs (e.g., road building and train transportation). Furthermore, as of 1994 the towns in question also had an additional flat-rate investment allowance from funds from the "Aufbau Ost" [development of the East German states] Investitionsfördergesetz [investment promotion act] (IfG) available to them (see Ragnitz et al., 2011).

A strong orientation towards the objectives of **reducing local disparities** was characteristic for the structural policy during the first legislative term of the State of Brandenburg. Within the meaning of reducing negative disparities, the peripheral regions were funded more heavily and, in that way, attempts were made to attract companies to settle there. Sectoral aspects were only given little consideration. Although the great importance of industry was emphasised, in the end it was a matter of stabilising the regional economic situation, in particular in the locations in Brandenburg that were less economically attractive and far from Berlin. However, irrespective of the definition, it was not a future-orientated shaping of the sectoral economic structures in these locations. With the "Zukunftsorientierte Entwicklung und Umstrukturierung der Standorte" [future-orientated development and restructuring of the locations] (ZEUS) programme, the State of Brandenburg followed a location-orientated policy to preserve the industrial centres (see Danwerth, 1998). The concern about the further loss of jobs was at the forefront, not considerations about ensuring the long-term competitiveness of the Brandenburg

economy. In this regard, this type of economic policy is to be categorised as a **preserving structural policy**.

It was orientated towards supporting businesses in achieving competitiveness during the transformation phase after the German reunification and also to make the unavoidable job losses socially compatible by way of a policy to delay structural changes. This policy way characterised not only by the coordinated deployment of various instruments in the context of securing the future of locations but also by the state government itself drafting structural development concepts for individual regions, for example, the structural development concept for Lusatia that was worked on since 1993 and adopted in 1995 (see MWMT, 1995). In this policy, it was assumed that lignite opencast mining and the associated energy industry would in the future continue to be a fixed component of the further industrial-commercial development of Lusatia and therefore, they were of central importance for the structural support and the safeguarding of jobs, since other industry sectors did not exist to the same extent in the region.

A further feature of the structural policy in this first legislative term was the great importance of active labour market policy in the form of the **provision of publicly-financed replacement jobs** through ABM and qualification measures. Therefore, in the State of Brandenburg a multitude of associations for employment promotion, employment and structural development were established that were intended to perform the fundamental tasks of location development (clearing industrial brownfields, enhancing problem areas of town planning, e.g., through creating and maintaining green spaces, etc.). Therefore, according to the data from the state government, in 1994 nearly 23,100 people were employed in a total of 82 such associations (see Ragnitz et al., 2011). The labour market policy of the State of Brandenburg in the 1990-1994 legislative term is above all to be characterised as **reactive structural policy.**

In summary, it can be noted that the Brandenburg structural policy in the first legislative term was shaped above all by the creation of institutions and rules of procedure to accompany the transformation process. There was no active structuring of economic development. The heart of the policy was to preserve existing structures in the hope of being able to at least cushion the loss of no longer viable jobs. At the same time, attempts were made to prevent an unbalanced development among the individual regions in the State of Brandenburg. In regard to developing new economic potential, a passive approach was rather prevalent, in which all investors were equally welcome provided they promised the creation of additional jobs.

In this first phase, effects on the “social welfare”, “ecology” and “regional identity” impact dimensions were not an explicit objective and at best they indirectly arose from labour market policy programmes and from the modernisation of the existing infrastructure. However, they would have been more likely to counter the high migration figures in the region. At the same time, the qualification programmes were intended to contribute to increasing the chances of employment on the labour market.

1994-1999

The structural policy in the second legislative term was considerably shaped by the so-called “job strategy” and the closely associated “regionalised structural policy” (from 1996). Accordingly, employment objectives should be the priority of all government initiatives. The stated objectives were the creation of jobs, attracting new companies and the modernisation of existing industrial centres. The active labour market policy was continued in the form of **ABM**, **training and retraining** (T&R) and also the **granting of wage subsidies** in order to reduce unemployment.

The priority objective of reducing unemployment and creating new jobs was to be implemented through a series of measures. In the framework of a “Pakt für Arbeit” [pact for employment], all

important stakeholders, such as trade unions and employers' associations, were involved in the Brandenburg job strategy. On the part of the state government, all departments established a self-commitment. It included reviewing the programmes within their areas of responsibility in regard to their impact on employment and, if applicable, devising necessary adjustment measures. Furthermore, there was an attempt to involve the German federal government in the job strategy by calling for a stronger interlocking of labour market policy and structural policy and for a legal entitlement to participate in labour market policy measures (see Ragnitz et al. 2011). All measures with an effect on employment were implemented in the context of the job strategy including the following interventions (see Landesdrucksache 2/4015, p. 6):

- funding for investment in small and medium-sized enterprises (SMEs),
- funding for start-ups,
- knowledge transfer as a motor for growth,
- integrated travel area, location and rural development,
- revitalisation of inner cities,
- integration of economic, structural and labour market policies by using sec. 249h of the Arbeitsförderungsgesetz [German employment stimulation act] (AFG),
- support for selected economic locations through the priority expansion of the transport infrastructure.

The transfer to the "regionalised structural policy" from 1996 can be regarded as a further development in the strategy of the "decentral concentration" from the first legislative term. Through a state development plan, the concept became more specific. It led to an orientation of the structural policy being more focussed on the individual regions. The five planning regions, which were already determined in 1993, grew in importance because they were entrusted with the task of drafting the regional development concepts in agreement with the state government. In this regard, it was a departure from the rather centrally orientated perspective of the first legislative term when the generation of regional development plans was still regarded as a matter for the state government.

When the Treuhandanstalt [privatisation agency] ceased activities in 1994, the government of the State of Brandenburg focussed more on **funding large infrastructural and industrial projects**. For example, in Lusatia the state financially supported the construction of a racing track (Lausitzring). Another large project was providing support to attract the "Cargolifter" business to Brand (Lower Lusatia), whose objective was to construct large airships to transport cargo. Both large projects in Lusatia (like many large projects in other parts of the State of Brandenburg) did not prove to be successful.

The **energy sector** in Lusatia was also of great importance during the second legislative term. The huge contraction in employment in this sector by the mid-1990s (see Chapter 2) affected above all the lignite mining industry in Lusatia. The state government declared lignite-fired energy generation to be the "first mainstay of the economic development" in the region (see MWMT, 1995). In 1996, the first energy concept for the State of Brandenburg was adopted. Alongside the affirmation of lignite, it also included the demand for increased support for renewable energies and increased energy efficiency. Its most important points were safeguarding approximately 13,000 to 17,000 jobs in the lignite industry and energy industries in Lusatia and increasing the share of renewable energy in the primary energy mix to 5 % by 2010. In addition, an energy resource institute was established with close connections to the Brandenburg University of Technology Cottbus-Senftenberg (BTU), which was newly founded in 2013, and the Brandenburgische Energiesparagentur [Brandenburg energy saving agency] (BEA). The achievement of the objectives was to be financed over the whole period with approximately 31 million euros with public funds, including funds from ERDF (see Land Brandenburg, 1996).

All in all, the Brandenburg economic policy for Lusatia in the second legislative term is also to be categorised as a **preserving structural policy.** The 1994-1999 structural policy of the State of Brandenburg was by and large a continuation of the policy from the first legislative term. In large parts it continued to follow the idea that the existing industrial centres had to be restructured, further developed and modernised. It was accompanied by an active labour market policy. The biggest difference in comparison to the first term was the departure from centrally planned local development and a move towards a regionalised structural policy. There was no targeted orientation towards the other impact dimensions.

1999-2004

In the third legislative term, there was a paradigm change in the Brandenburg structural policy. In light of the huge financial problems of the state and of the absence of a self-supporting economic development in many of the peripheral regions, the priorities and strategies changed. The heart was the so-called "modernisation with Brandenburg characteristics" (see Land Brandenburg, 2017), which emphasised the state's own responsibility, which in turn represented a departure from the repeatedly emphasised responsibility of the German federal government for the development in the State of Brandenburg. In the third legislative term, the main tasks of the policy were still the reduction of the high level of unemployment and bringing living standards up to the West German level. However, what was different than before is that it was all to be achieved primarily through the **expansion of the (transport) infrastructure**, through a greater emphasis on the **innovation power of the economy** and through **improved educational investments** (see Ragnitz et al., 2011). The previous Brandenburg economic policy, which had previously focussed on state interventionism, and the comprehensive deployment of labour market policy instruments became less important. The previous model of "decentral concentration" clearly lost importance in its practical implementation, although it was officially retained.

The funding policy of the state was given a new direction and institutionally reorganised by establishing the Zukunftsagentur Brandenburg [future agency Brandenburg] (ZAB). In place of the previously location-based development strategy came a technology-orientated funding approach. Back in 1994, the state government already had adopted a technology concept ("Brandenburg auf dem Weg in die Zukunft" [Brandenburg on the way to the future]), which defined several "fields of technology" to be eligible for funding: production technology, management methods, biotechnology, microtechnology, software technology and materials technology as well as information and communication technology as a horizontal field. However, it was replaced in 1999 by an amended "state innovation concept", which among other things defined the areas of expertise of materials technology, micro- and nanotechnology, production technology, biotechnology, nutritional sciences, transport technology, environmental technology as well as media, information and communication technology to be new focuses. The concentration on technology focuses was supplemented by the desire to establish regional technology clusters, which was to be achieved through the reorientation of the project-based technology funding towards a network-orientated innovation funding. Alongside funding research projects in these fields, a corresponding orientation of universities and research institutes was also called for.

The new Energiestrategie 2010 [2010 energy strategy] from 2002 represented in essence only a continuation of the energy concept from 1996. Consistent with the previous strategy, the importance of lignite for Lusatia was emphasised. Efforts to save energy, to improve energy efficiency or to expand renewable energies, and therefore also to reduce the CO_2 emissions, were to be increased. The strategy to expand renewable energies was to be pursued in close cooperation with the energy suppliers within the context of regional development strategies.

In this regard, a gradual change of course towards a more **forward-looking structural policy** can be detected in the policy of the State of Brandenburg in this phase, even if elements of a reactive structural policy were still present. It was only in the following legislative term when the Christlich Demokratische Union Deutschlands [christian democratic union of Germany] (CDU) was involved in government that there was a fundamental paradigm change in the economic policy.

2004-2009

In the 2004-2009 legislative term, there was a reorientation of the sectoral and regional economic development policy, which was then implemented under the motto "strengthen strengths". In principal, it was a departure from the previous policy of preserving the existing economic structures and safeguarding existing jobs, for a growth-orientated funding policy with the objective in particular of using **sector-based synergies** and improving the **competitiveness** of businesses. In this regard, the structural policy can be classified as "**forward-looking**". For this purpose, 14 (originally 16) fields of sector expertise and one horizontal field were defined; a particularly high growth potential could be assumed for them and economic structures already existed for them in the state (DI/ifo, 2010, p. 11-12). For the regional implementation of the funding strategy, 67 sector focus sites were selected that showed a sectoral concentration and sector-specific location factors (Prognos, 2008, p. 8). The 14 fields of sector expertise defined for the State of Brandenburg were[13]:

- aeronautics,
- automotive,
- biotechnology/life sciences,
- energy,
- logistics,
- media/ICT/geoinformation,
- metal,
- nutritional sciences,
- optics,
- paper,
- plastics/chemicals,
- rail transport,
- tourism,
- wood-processing industry,
- horizontal field: microelectronics.

At the same time, there was a departure from the "principle of scattering" in structural funding. For this purpose, 15 regional growth centres were defined in the State of Brandenburg and they covered a total of 26 towns and municipalities. Overall, the growth centres represented a large share of the job provision (approximately 50 %), 10 % of the area and approximately one third of the population of the State of Brandenburg. Furthermore, the growth centres had to show a particularly high economic or academic development potential and over the past years, they had to have collected approximately 60 % of the investment from ZAB. By way of the close spatial and sectoral interlocking, growth impulses from the growth centres should spill over into the surrounding municipalities and towns.[14] (Basler+Partner, 2010, p. 1).

[13] Originally the geoinformation and mineral oil sectors were also included in the independent fields of sector expertise.

[14] There were three regional growth centres in Lusatia: Cottbus, Spremberg and "West Lusatia" (Großräschen, Finsterwalde, Lauchhammer, Senftenberg and Schwarzheide).

Finally, with the reorientation of the funding policy there was to be more coherency with the funding objectives of the ERDF because the State of Brandenburg received a large share of its structural policy funds through allocations from the EU funds (see Chapter 3.1.4). Therefore, within the ERDF Operational Programme of the state there was a focus on the improvement of competitiveness and an increase in the levels of income and employment. In order to achieve these objectives, in the long term, the competitive and innovative ability of the businesses and the innovation potential of the education and university landscape were to be increased and the infrastructural potential was to be supported in order to allow a positive economic development (Prognos, 2008, p. 6-7).

2009-2014

The economic policy of the fifth legislative term stood under the motto "strong for the future - bundle strengths".[15] It was a further development of the reorientated policy that had already begun in 2004. For one thing, the previous fields of sector expertise were to be further developed along the respective value-added chains into clusters within the meaning of intersectoral networks. In addition, the economic policy was supplemented by strategies for funding innovation, energy policy, industry and SMEs. Furthermore, in the future the profiles of the universities should be more aligned with the innovation clusters.

Clusters with presumed growth potentials have been funded since 2011 through a joint initiative with the State of Berlin (innoBB). The objectives of this strategy include among other things

- strengthening the dialogue between academia and the economy,
- securing the capital region as an innovation location,
- bundling skills,
- prioritising innovations with long-term growth effects and
- safeguarding international competitiveness.

In it,

- the health economy,
- energy technology,
- transport/mobility/logistics, optics, and
- ICT/media/creative industries

were defined as joint clusters. In addition, there were also horizontal topics that had a cross-cluster importance. They included the fields of

- materials,
- production and automation technology,
- clean technologies and safety.

Each cluster was given a master plan, which determined targeted inventions and action areas to develop cluster structures and which were led by the respectively responsible institutions (the economic development agencies of the States of Berlin and Brandenburg). By **focussing on innovative clusters** and the **inter- state cooperation to support innovation,** a harmonisation of the technology and innovation support policies was to be achieved so that in the future joint structural funding, e.g., through ERDF funds, could be achieved. At the same time, the preservation and development of innovation infrastructures were to be strengthened (Berlin/Brandenburg, 2011, p. 4-20). In 2014, the State of Brandenburg incorporated also the clusters of nutritional sciences, tourism, metal and plastics/chemicals into its own state-specific strategy (innoBB_plus) (Land Brandenburg, 2014, p. 25-27).

[15] https://www.wfbb.de/de/Standort-Brandenburg/Wirtschaftsregion/Regionale-Wachstumskerne

Focussing on the innovation cluster was also incorporated as a strategic objective in the Brandenburg Hochschulentwicklungsplan [university development plan] until 2025. In this regard, in particular the BTU is to be named. It was intended to contribute to the profile formation of the "energy technology" and "health economy" in the Lusatia energy region (Ministerium für Wissenschaft, Forschung und Kultur, 2013, p. 53).

In addition, in 2012 the new "Energiestrategie 2030" [2030 energy strategy] of the State of Brandenburg was adopted. It stipulated a further reduction of energy consumption, the increase of renewable energies in power generation, the low-priced provision of power and the stabilisation of employment and value added. In this context, the lignite power generation, which was fundamental for the value added in Lusatia, was seen as bridge technology, whose consumption would be required beyond 2030 (Ministerium für Wirtschaft und Energie, 2012, p. 36-38). However, upon the reformulation of the energy policy objectives an **increased focus on environmental policy objectives** was observed. This focus was derived in particular from the climate protection objectives of the EU and the consequences of the energy transition. As a result, e.g., the renewable energy share in power generation for the primary energy consumption was to be increased to 32 % by 2030. At the same time, the primary energy consumption should be reduced by 20 % of the 2007 figure and the final energy consumption reduced by 23 % by 2030. In order to achieve these objectives, there should be targeted investment in the grid's upgrade and expansion, in measures for R&D in energy technology and innovative storage technologies should be deployed. Furthermore, the acceptance of energy policy interventions among the population should be increased, which was to come about through the introduction of new technologies and the grid expansion (Ministerium für Wirtschaft und Energie, 2012, p. 36 et seq.).

In addition to the location-based structural funding and the sectoral funding, two other strategies **to strengthen the industrial and SME economic structure** were adopted in the fifth legislative term. With the Aktionsplan "ProIndustrie" [pro industry action plan], a guiding principle was created, through which the sectoral and location-based funding policy of the state was focussed on strengthening industrial value added (Landesregierung Brandenburg, 2012, p. 3).

The final building brick in the Brandenburg structural policy was the SME strategy adopted in 2010 entitled "Brandenburg – Europäische Unternehmerregion, Strategie für die Stärkung von Innovation und Kreativität im Mittelstand" [Brandenburg - European entrepreneurial region, strategy for strengthening innovation and creativity in small and medium-sized enterprises]. Since the economic structure in the State of Brandenburg is characterised by being 99 % SME, targeted strategies to support SMEs should be developed. In doing so, the focus was on start-up funding, ability to innovate, internationalisation and attracting skilled employees. The improvement of businesses' ability to invest was facilitated, e.g., by the Brandenburg mezzanine loan, which provided subordinate loan capital, and by the early phase fund, which strengthened the equity capital base of young businesses. Furthermore, targeted investment funding for SMEs was to be achieved also through funding from the German federal government, the EU and the Kreditanstalt für Wiederaufbau [Reconstruction Loan Corporation] (KfW) (Landesregierung Brandenburg, 2010, p. 3-5).

All in all, the structural policy of this phase can conclusively be categorised as **forward-looking.** However, it was not stringently sustained; in regard to the energy industry in Lusatia, the expectation was still held that lignite power generation would still have a structure-determining part to play for some time yet. In this respect, there are still also elements of the **preserving structural policy,** which neglected the establishment of new industries in the Lusatian lignite field.

b) Saxony

1990-2015

Due to the subordinate role of the lignite industry in the State of Saxony and the policy-shaping assumption that after 1990 the last remaining lignite mines would continue to exist permanently, there were **no explicit considerations for shaping the structural change in the Saxony part** of the Lusatian coalfield. Rather, the economic policy of the State of Saxony focussed on funding regional growth poles in the other parts of Saxony and in this regard primarily funded industrial projects. It was characterised by an expectation that the positive overspill in particular from the agglomeration of Dresden would reach Lusatia. In contrast to the State of Brandenburg, the economic policy of the State of Saxony was characterised by greater continuity. Hardly any difference in the economic policy orientation can be detected in the individual legislative terms.

Considerable components of the industry policy of the State of Saxony were and are **the support for the new settlement of businesses** (by deploying funding policy instruments, in particular the GRW, supporting growth processes in domestic SMEs and also a large-scale innovation funding). However, there was no focus placed on influencing the regional economic structures. Rather the **provision of funds was implemented in a "demand-driven" manner.** Due to existing location advantages (high density of publicly financed research institutes, availability of highly qualified skilled employees, favourable infrastructure connections) and the possibility of being able to link to existing industrial structures, industrial focuses were formed above all in large agglomerations (Dresden, Leipzig and Chemnitz; to a lesser extent also in Plauen and Zwickau). The rather peripheral Lusatian mining regions were only able to partially benefit from it. From a sectoral perspective, vehicle manufacturing, microelectronics and also mechanical and plant engineering benefitted. Together, they combined more than half (of which 32 % alone was car manufacturing) of the industrial production in the State of Saxony.

At the latest since the turn of the millennium, the innovation policy has been of greater significance in the orientation of the industrial policy of the State of Saxony, i.e., the **funding of research, development and innovation** in industry. It reflects the aspiration of the state government to continue to develop Saxony to be a technologically leading economic area within Europe. In this regard, it appears above all important that despite a fundamental openness to technology, the innovation policy of the State of Saxony wanted to concentrate on key technologies (microelectronics, information and communication technologies, nanotechnologies, new materials, advanced production technologies, photonics and biotechnologies). Accordingly, the innovation policy of the State of Saxony strove to support the traditionally existing industry sectors in the use of these key technologies, in particular in their application in some thematic future areas that were defined in advance (approach of "intelligent specialisation"). Due to the existing economic structure, the agglomerations in the State of Saxony were again the primary beneficiaries. There was no specific support for the structural change in the Lusatian coal regions. Due to the small size of the part of the Lusatian coalfield located in the State of Saxony, it did not appear necessary.

By and large, the economic policy of the State of Saxony over the past 25 years can be classified as **forward-looking.** It was also broadly successful. The economic development in the State of Saxony benefited among other things from the comparatively favourable initial situation, e.g., the existing economic and settlement structures and the presence of high-performing research institutes.

Today in the part of Lusatia located in the State of Saxony, the lignite industry is still of relatively little importance and is concentrated in the most northern part of Görlitz district. Saxony has always acknowledged the further use of lignite as a fuel. However, since the opencast mines and

power stations, which are situated in the part of Lusatia located in the State of Saxony, are operated by companies, whose head offices are located in the State of Brandenburg, they are dependent on economic policy decisions in the neighbouring state.

3.1.4 Structural funding from the EU

Since the German reunification, the East German states have also been supported by **EU funding programmes.** Funding from the EU structural and investment funds essentially serve the co-finance state funding programmes in so far as they serve the EU objectives, including cohesion or rather convergence and social balance. The basis for the EU structural funding is formed by different regional categories (until the 2000-2006 funding period: objective 1 region to objective 3 region; afterwards there was a new systematic; in the 2014-2020 funding period: less developed regions, transition regions and more developed regions). The category to which a region is assigned controls how much a region can be supported with funds from the EU.

As the basis for the assignment to the different categories of assisted regions, the second level of the EU hierarchical classification of territorial units (NUTS 2 regions) is used (Lehmann, 2012, p. 33). In the State of Brandenburg, there are two such regions: firstly, the region Brandenburg-Nordost [north-east Brandenburg] covering the (urban) districts of Barnim, Uckermark, Ostprignitz-Ruppin, Prignitz, Märkisch Oderland, Frankfurt (Oder), Oberhavel and Oder Spree; and secondly, the region Brandenburg-Südwest [south-west Brandenburg] covering the (urban) districts of Cottbus, Spree Neiße, Elbe Elster, Potsdam, Potsdam Mittelmark, Dahme Spreewald, Brandenburg an der Havel, Teltow Fläming, Havelland and Oberspreewald Lausitz.

Prior to the EU eastern enlargement in 2004, the East German states were classified as objective 1 regions and were therefore in the highest funding category. Since then, there has been a gradual reduction in the intensity of the funding, also in the States of Brandenburg and Saxony. The EU eastern enlargement and the increase of the GDP pro inhabitant led to a convergence with the EU average. In order to at least partially prevent a resulting (de)classification, there was a subdivision of the regions on the NUTS 2 level, which meant that the region Brandenburg-Nordost [north-east Brandenburg] could continue to receive higher funding. For the 2014-2020 funding period, the Lusatian regions were classified as “transition regions”.

Today, the EU funding programmes are still of considerable importance for the structural development in the States of Brandenburg and Saxony.[16] The EU structural funding consists of five structural and investment funds (European Commission, 2017), whereby in particular

- the European Regional Development Fund (ERDF),
- the European Social Fund (ESF) and
- the European Agricultural Fund for Rural Development (EAFRD)

are important for the structural funding in the States of Brandenburg and Saxony.

Funding from ERDF, ESF and EAFRD is mainly administered at the state level (e.g., in the context of GRW funding). The foundations for the implementation of the EU structural funding in the States of Brandenburg and Saxony are the Operational Programmes, which are agreed with the EU for the respective funding period and which stipulate the individual guidelines, the overriding funding strategy and the funding programmes.

Until 2006, the EU structural funding was put into operation in a joint programme. For the third funding period (2000-2006), six focusses were defined:

[16] The following information focusses on the EU funding of the State of Brandenburg as an example; in the State of Saxony, there were essentially similar regulations since the EU does not issue region-specific programmes. Therefore, more-detailed information on it is not given.

1. funding competitiveness of the commercial economy, in particular SMEs (ERDF),
2. infrastructure investments (ERDF),
3. conservation and improvement of the environment (ERDF),
4. funding labour force potential and equal opportunities (ESF),
5. funding rural development (EAGGF-A, since 2006 EAFRD),
6. technical assistance (all three funds).

The fundamental objective was a further convergence with the average EU economic potential, e.g., by safeguarding and creating jobs, by connecting sales markets, by expanding the transportation and R&D infrastructure, by creating economic network structures and by investing into future-orientated fields of technology (Land Brandenburg, 2006, p. 56-60).

While in the first three EU funding periods (1991-2006), the focus was placed on safeguarding jobs, improving the employment chances for the unemployed, the development and expansion of the infrastructure and the improvement of businesses' competitiveness, from the fourth and fifth funding periods (2007-2020), there was a greater orientation towards innovation policy measures, such as R&D funding, increasing the propensity to start-up businesses and specific funding of businesses in defined innovation clusters (Ministerium für Wirtschaft und Energie Brandenburg, 2014).

Since 1991, the State of Brandenburg has received financial support through the ERDF. In the third funding period (2000-2006), the allocations reached a maximum with a total of 1.695 billion euros and have since sunk steadily due to the positive economic development of the State of Brandenburg (from 1.499 billion euros in the 2007-2013 funding period to 846 million euros in the 2014-2020 funding period) (Ministerium für Wirtschaft und Energie, 2017). With the shift in the EU cohesion and structural policy, the focus within the ERDF Operations Programmes of the State of Brandenburg changed in the fourth and fifth funding periods, too. In order to achieve greater coherence with the funding objectives of the EU, in 2005 the economic policy of the State of Brandenburg was given a new direction.

In particular labour market programmes, which contributed to the improvement of human capital, were financed by the ESF. Measures were and are implemented to serve safeguarding jobs, qualifying employees, funding start-ups and improving the employment situation. A great change in direction was also observed here. While in the third funding period (2000-2006), the focus was still on combating unemployment in general and youth unemployment in particular as well as on the qualification of employees in order to improve the competitiveness of SMEs, in the current and fifth funding period until 2020, there is a focus on programmes which include career orientation, the propensity to start-up businesses and advanced qualification of the workforce. In doing so, a horizontal objective is to achieve a higher income (MASGF, 2014, S.12-13).

Since 2006, the EAFRD has replaced funding programmes that were independent until then, such as the European Agricultural Guidance and Guarantee Fund–Guidance Section (EAGGF-G) and the LEADER programme. The basis for the implementation in the 2007-2013 funding period was the "Entwicklungsplan für den ländlichen Raum Brandenburgs und Berlins 2007-2013" [rural development programme for the States of Brandenburg and Berlin 2007-2013]. The rural development programme covered four focus areas:

1. improving the competitiveness of the agricultural and forestry industry,
2. improving the environment and landscape,
3. quality of life in rural regions and diversification of the rural economy, and
4. LEADER.

Within the first focus area, interventions, in particular for improving human capital and innovative ability in the primary sector, were funded. Whereas, the third and fourth focus areas also served to fund the economic and regional structure (Ministerium für Infrastruktur und Landesplanung, 2010, p. 111).

One funding policy that has existed since 1991 is LEADER. Since the 2007-2013 funding period, the LEADER programmes have been included in the regular funding. LEADER is directed exclusively towards rural regions. It is intended to fund regional cooperation relationships by forming local action groups (LAGs), which have their own regional management and select projects in agreement with the competent granting authority. As of 2007, there are a total of 14 LEADER regions in the State of Brandenburg. The LEADER regions located in the Brandenburg part of Lusatia are:

- Elbe Elster,
- Energy region in the Lusatian Lakeland,
- Spree Neiße Land, and
- Spreewald Plus (DVS, 2017).

A special characteristic of the EU structural funding programmes is found in the horizontal objectives (cross-section objectives), which are to ensure that in addition to the actual cohesion and growth objectives, social and ecological objectives are also considered. For the 2000-2006 funding period, such objectives were, for example, objectives regarding equal opportunities for women and men, sustainable development and the transformation to an information society. However, in the evaluation it is shown that it is difficult to make statements about the impact of programmes on the horizontal objective, which is in particular a result of a lacking set of indicators (Kienbaum, 2003, p. 8). Therefore, in the following funding period targeted topic-specific studies for the evaluation were drafted within the ERDF Operational Programme, in which alongside equal opportunities and sustainable development, the shaping of demographic change was added as a third horizontal objective. However, e.g., even an evaluation of sustainable urban development concludes that in the selection of projects horizontal objectives only had a subordinate role and that the effects only arose indirectly, e.g., through the percentage of funded female entrepreneurs being at 50 % and the percentage of jobs created through interventions of the ERDF being at 70 % (Ridder et al., 2013a, p. 73). A horizontal evaluation on the topic of climate protection concludes that the direction of impact of the enacted interventions is mainly positive, but that also here there was a lack of measurable indicators (Ridder et al., 2013b, p. 15). The funding within the ESF Operational Programme shows per se a positive contribution to gender mainstreaming and equal opportunities of female and male citizens on the labour market. However, also here it is not possible to quantify the impact. Regarding the horizontal objectives of sustainable development and shaping the demographic change, it is noted they were only of subordinate importance in the selection of projects (ISW-Institut, 2012, p. 123-130).

Therefore, a change in direction in the implementation of the EU structural funding programmes becomes evident. While in the first three EU funding periods (1991-2006), the **focus was placed on safeguarding jobs**, **improving job chances for male and female employees**, the development and expansion of the **infrastructure** and the improvement of **businesses' competitiveness,** from the fourth and fifth funding periods (2007-2020), there was a greater orientation towards **innovation policy measures,** such as **R&D funding**, the increase of **the tendency to start-up businesses** and specific funding for companies in defined **innovation clusters**. It is also apparent that although the "social welfare", "ecology" and "regional identity" impact dimensions were essentially discussed and emphasised in the political orientation, they were only of a very low importance in the evaluation and quantification of the programmes impact.

Overall, the EU structural funding has both **preserving** and also **forward-looking** elements. However, over time an increase in importance of the forward-looking structural policy is to be noted. At the moment, the current EU structural funding is to be categorised as a **forward-looking structural policy.**

3.2 Evaluation of the structural policy interventions

After the historical overview of the phases and political levels of the structural policy, an evaluation of the most important structural policy interventions follows. On the basis of the available literature, an evaluation of the impact of structural policy exclusively for Lusatia is not possible. There are no studies that only focus on the area of analysis, Lusatia. The separation of the structural policy interventions in terms of their central impact on the areas of labour market, innovation, investment, network support and infrastructure is not always unambiguously possible. Often, the structural policy programmes of the German federal government, the states and the EU impact several areas at the same time. In the following, as far as possible, the five areas are analysed separately and the importance of renaturation measures are presented. The evaluation focuses on the "economy" impact dimension. Whenever possible, an attempt is made to address the other impact dimensions of "social welfare", "ecology" and "regional identity". In the discourse and frame analysis, these impact dimensions of structural policy are considered in more detail.

3.2.1 Labour market

On account of the dramatic labour market situation after the German reunification, a core part of the structural policy was to deploy active labour market policies to provide social flanking for the structural change caused by the transformation. Measures to reduce labour supply through **early retirement**, measures to **qualify the labour force** and measures to **create jobs** were of particular importance (see Brenner et al., 1999). The **reduced working hours** instrument was also deployed in order to cover a short-term reduction in demand for labour (see Völkel, 1997). In this regard, the labour market policy is to be classified primarily as a "**reactive structural policy**".

The early retirement of workers reduced the labour supply in the East German states to a considerable extent. In the East German states after the German reunification, the age upon leaving the workforce was around 55, i.e., approximately ten years before reaching the age of retirement (see Buchholz, 2008). Early retirement was financially supported through the instrument of early retirement pension (for men from 60 years old, for women from 55 years old) and the retirement transitional allowance (for everyone aged over 55). Workers in the East German states were entitled to unemployment benefit for up to 5 years (the so-called "retirement transition regulation"). Older people, who were unemployed in the East German states, were not recorded in the official German unemployment statistics. For example, in 1992 less than 5 % of those aged 55 and older were unemployed, although nearly one million people made use of this special unemployment regulation in the first two years after the German reunification (see Buchholz, 2013).

Other labour market policy programmes, e.g., T&R and also in particular ABM, were deployed to a great extent. Special regulations applied in the East German states, e.g., not having a target group orientation for ABM as well as the assumption of all wage and material costs by the unemployment offices. In 1992, T&R programmes had on average almost half a million participants. However, in the following years, the qualification measures were restricted (see Brenke et al., 1999). Between 1991 and 1993, the German Federal Employment Agency spent

more than 25 billion DM (approximately 12,78 billion Euro)[17] on ABM in the East German states (see Spitznagel, 1992).

These measures made a considerable contribution to easing the labour market. Nevertheless, their success is to be assessed as inconclusive. Without doubt, their social policy function was important because many of the unemployed were difficult to integrate in the regular labour market due to the distortions of the transformation process. The measures considerably contributed to guaranteeing income and prevented the distribution of income being further stretched in the East German states and therefore also in Lusatia. However, if the primary objective of active labour market policy measures is regarded as being the transfer into regular employment, then it has largely failed. It was the declared objective of the active labour market policy to deploy the instruments in such a way that the process of matching supply and demand on the labour market was also supported through **aid for economic restructuring.** A bridge into the regular labour market was to be created through **qualification** and **temporary employment opportunities** (see Buttler, 1993).

A series of evaluation studies on ABM conclude that the chances of employment barely improved or did not improve through participation in them (see e.g., Steiner and Kraus, 1995; Hübler, 1997; Kraus et al., 1998; Kraus et al., 2000; Bergemann and Schultz, 2000; Bergemann et al., 2000; Reinowski et al., 2003; Bergemann, 2005 as well as Hujer and Thomsen, 2006). Only a few studies come to a positive conclusion (see e.g., Eichler, 1997, and Eichler and Lechner, 2002). Somewhat more positive, though not fully clear, are the results of the evaluation of the impact of T&R. For example, Pannenberg (1996), Fitzenberger and Prey (1996), and Kraus et al. (1997) made positive findings regarding the chances of employment, while Staat (1997) and Lechner (1998) show negative or insignificant results.

For this rather negative finding, the following reasons can be cited: On the one hand, the economic recovery lagged behind the initial optimistic forecasts so that demand for labour was weaker than expected; all in all, there were too few jobs. On the other hand, the expectations for a successful reintegration in the regular labour market were often justified with the stabilisation of the labour capacity and qualification. Due to the design of the ABM, it is often questionable in how far these aspirations could have been achieved. Special funding conditions caused an inefficient, rather work-intensive manner of production in the ABM. There were incentives to deploy outdated technologies and for services to be performed as far as possible using manual labour or if modern technology was used to accept the underutilisation of the workforce. Both the low-technology and also underutilisation strategies led to a process of dequalification, so that it could be observed that there was a stigma attached to participating in a ABM, which considerably lowered the participant's reemployment chances (see in this regard Brenke et al., 1999). In addition, regular employment could have been supplanted by ABM at least in some individual sectors (see IWH, 2003). On the labour supply side, participation in the ABM had often caused a decrease in efforts to find a regular job for reasons including the increase of the reservation wage that the schemes effected[18]. In the case of T&R, there was the negative impact that the qualifications taught often did not correspond to the needs of the employers.

Regarding the traditional ABM (including measures for structural adjustment), nearly all microeconomic and macroeconomic studies for East Germany conclude that such measures led to a worsening rather than an improvement of individual reemployment chances and the regional labour market situation. In this regard, it was logical that these "traditional" measures of the active labour market policy became increasingly restricted from the turn of the

[17] This conversion was done by the authors (conversion rate: 1 DM = 0.51129 EUR).

[18] The "reservation wage" is the lowest wage that job seekers at least expect in order to do without social security benefits.

millennium and were almost completely replaced with other, more incentive-orientated instruments as a result of the labour market policy reforms ("Agenda 2010") in the second legislative term of the German federal government led by chancellor Gerhard Schröder.

Not least due to the negative evaluation results in regard to the "traditional" forms of active labour market policy, there was a fundamental restructuring of the labour market policy in Germany in 2003 ("Hartz reforms"). The primary objective of these reforms was to increase the incentives of starting employment even with low wages. On the one hand, the **reduction of the level of the wage compensation** in the case of unemployment (introduction of Arbeitslosengeld II [unemployment benefit II] in the case of long-term unemployment) with the simultaneous **increase in opportunities to earn extra income** served this purpose. On the other hand, regulations (e.g., in the field of temporary employment and fixed-term employment) were removed in order to increase job opportunities. At the same time, under certain circumstances **wage subsidies** were even introduced as a temporary means to increase the demand for labour.

All in all, the evaluation of the Hartz reforms regarding the impact on unemployment is predominantly positive (for a summary of the studies see Bräuniger et al., 2013). This positive impact prevails particularly regarding the instruments, which aimed to increase the individual's incentive to work. Instruments, which were intended to achieve an improvement in the qualifications of unemployed people, are also favourably evaluated. Some measures are considered as less effective. Logically, they were not pursued over time. The decline in unemployment figures (with simultaneously increasing employment), even in Lusatia, was at least supported by such measures. In contrast, in the population there was often a negative evaluation of the Hartz reforms because they were linked to a reduction in the social security benefits with the simultaneous increase of the recipient's requirement to cooperate (principle of incentives and demands).

The active labour market policy made a positive contribution to the **reactive structural policy** intended to cushion social hardships. Therefore, it also had positive impacts on the "social welfare" dimension as defined by the project consortium (and in this regard, in particular on the sub-area of "distribution"). However, other impact dimensions were not addressed. Yet, it did not really work as a future-orientated instrument to manage structural change.

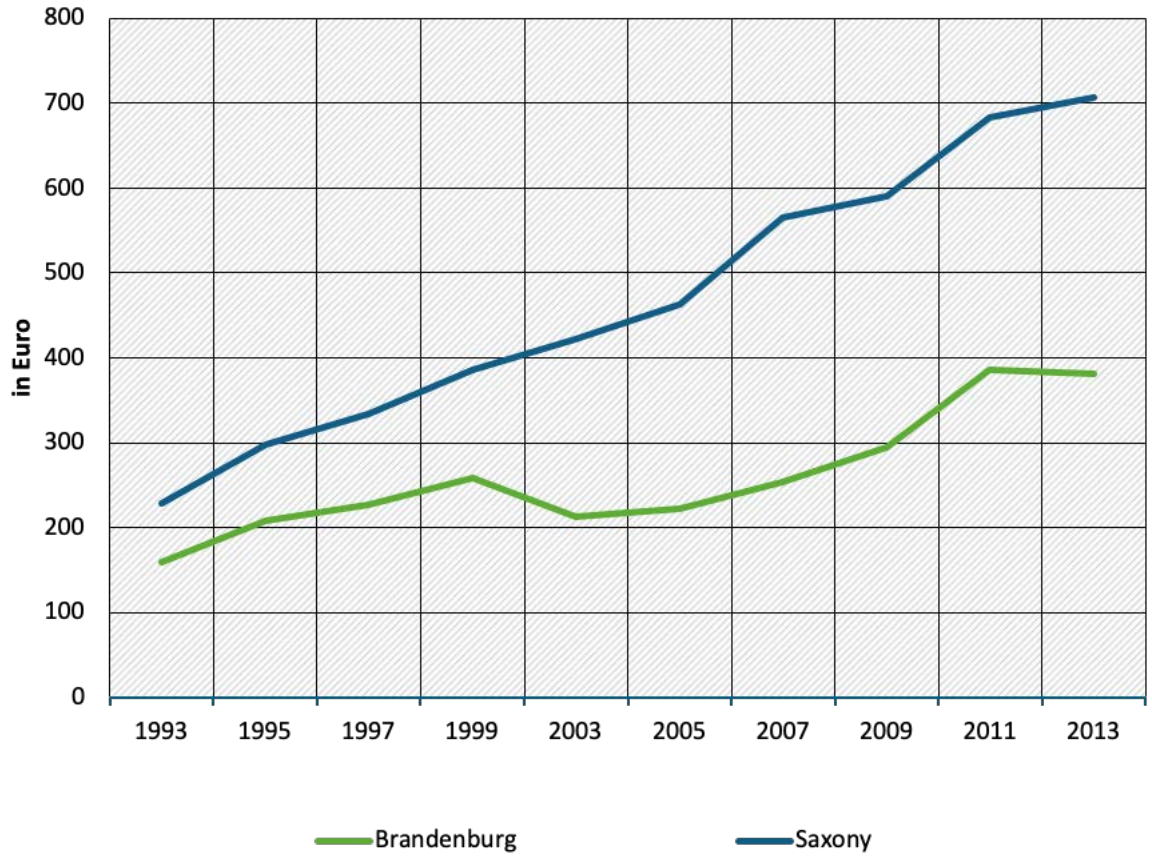
3.2.2 Innovation and research funding

The **funding of innovation and research** (as an important part of a **forward-looking structural policy**) has greatly gained in importance in recent years. Therefore, the corresponding objectives are found in nearly all structural and regional economic programmes today. They primarily address the "economy" dimension from the impact dimensions defined by the project consortium due to their orientation, which is generally open to technology.[19] The EU "Europe 2020" strategy, which since the 2014-2020 funding period is also essentially echoed in the funding objectives of the ERDF and the ESF, describes one of the three core objectives as being an "intelligent growth", which is to enable a development of the economy based on knowledge and innovation. This objective was quantified by the requirement that at least 3 % of the EU member states' GDP is to be used for R&D (MASGF, 2014, p. 1). In the state sector, in particular the programmes of the German federal government, which are largely initiated by the BMBF and the BMWi, play a key role.

[19] An exception is found in project funding particularly from the German federal government, which is to some extent targeted towards solving certain problems relevant to technological and societal policies, and in so far also has an impact of the "ecology" dimension in certain programmes.

The development of **R&D expenditure** in the East German states is below the West German level even more than 25 years since the German reunification. At the same time, it becomes clear that the large share of SMEs in East Germany leads to less R&D expenditure because in the commercial sector R&D is primarily carried out by large companies and groups. Consequently, the East German states have a low R&D potential in the private sector due to their economic structure, while the number of academic personnel in the public sector can be regarded as above average. Therefore, with suitable cooperation structures between the state research institutes and the private sector a catch-up process for the R&D intensity would essentially be possible (Eickelpasch et al., 2010, p. 43-44). At the same time, the situation in each of the East German states is thoroughly different. Comparing the per capita expenditure in the States of Brandenburg and Saxony shows a very large difference in the research intensity. In the State of Saxony, the R&D expenditure per inhabitant increased from 227.80 euros per capita in 1993 to 707.40 euros per capita in 2013, while in the State of Brandenburg there was only an increase from 159.00 euros per capita in 1993 to 380.90 euros per capita in 2013. Therefore, the gap in the expenditure per inhabitant had relatively increased. In 1993, the State of Brandenburg's expenditure was approximately 70 % of that of the State of Saxony, and by 2013 it was only approximately 54 %.

Figure 34: R&D expenditure per inhabitant (1993-2013)



Source: Eurostat (2017)

In the State of Brandenburg, the state innovation funding policy was determined by funding the cluster structures of the two innovation strategies "innoBB" and "innoBB_plus" (see Chapter 3.1.3). A further focus of the innovation policy is and was the funding of start-up activities. For this purpose, numerous instruments exist, whereby the Brandenburg universities play a central part as pulsers for start-ups. For this purpose, e.g., in 2008 the Brandenburgisches Institut für Existenzgründung und Mittelstandsförderung [Brandenburg institute for start-ups and SME support] (BIEM e. V.) was founded. Its members are the universities in the State of Brandenburg and the Wirtschaftsförderung Brandenburg [economic development agency Brandenburg] (WFBB). The institute coordinates the start-up teaching at the universities and should make an active contribution to regional development through corresponding research on start-ups and entrepreneurship (BIEM, 2017). Furthermore, there is funding for commissioned research in cooperation with SMEs through the Brandenburgischer Innovationsgutschein [Brandenburg innovation voucher] and the provision of innovation specialists to SMEs through the funding programme "Brandenburger Innovationsfachkräfte" [Brandenburg innovation specialists]. The intended coherence of the Brandenburg innovation policy with the EU funding objectives is also considered in the university development planning. In the planning for the 2014-2025 period, the universities in the State of Brandenburg were assigned to the respective innovation clusters of the innoBB strategies.

A final evaluation of the innovation and research policy is very difficult at this current time. In essence, it can be noted that it is only from 2005 that the State of Brandenburg placed increased focus on funding future-orientated fields of technology. The German federal government and the EU had already increasingly moved towards innovation funding at an earlier point in time. Indicators such as the per capita expenditure for R&D show that the State of Brandenburg is almost bringing up the rear in Germany and that there is also less focus on the university policy. In 2015, the internal R&D expenditure over all sectors only amounted to 1.65 % of the Brandenburg GDP, while the all-Germany average was 2.93 %. The State of Saxony, where the funding of technology has always enjoyed a higher significance, also has a significantly higher expenditure at 2.73 % of the GDP (Destatis, 2017). The very low level in the State of Brandenburg may be explained through its compartmentalised economic structure with a large share of SMEs, which leads to less R&D expenditure in the private sector. In addition to the State of Brandenburg, it is only the States of Mecklenburg-Western Pomerania, Saxony-Anhalt and Saarland that have similarly low R&D expenditure measured against the GDP in the industry sector. However, in 2015 the State of Brandenburg also took last place for R&D expenditure in the university sector (0.35 % of the GDP). Meanwhile, the funding policy of the State of Brandenburg is orientated towards the **creation of network structures** and **transfer offices**, in order to initiate cooperative research structures between businesses and academic institutions. Their impact will at the earliest be shown only in the next few years.

In contrast, the German federal government is increasingly focussing on funding cutting-edge research, which distinguishes itself by a level of exclusivity of knowledge within small circles of experts (Ragnitz, 2015, p. 4). For the State of Brandenburg, this path does not appear to be expedient, with but a few exceptions, e.g., the mainly privately-financed Hasso Plattner Institute at the University of Potsdam. With such an approach, Lusatia in particular is only considered to a small extent. Rather, an increase in businesses with innovative and knowledge-intensive products or services is needed in order to create starting points for suitable research cooperation projects. This process will also play a central part in the Lusatian structural change of the future.

3.2.3 Investment and business funding

The **investment funding** was the most important component in the overall strategy of the "Aufbau Ost" [development of the East German states] policy. The objective of the investment funding was to encourage private investments and, in this regard, it is to be categorised as a "**forward-looking structural policy**". In regard to the volume of funding, the most important instruments of the investment funding were the investment allowances granted until 2013 and the funding in the context of the Gemeinschaftsaufgabe "Verbesserung der regionalen Wirtschaftsstruktur" [community task "improvement of the regional economic structure"] (GRW). In this way, from 1991 to 2015 more than 41 billion euros of commercial investment funding flowed into the East German states through the GRW. In this period, approximately 7.5 billion euros went to the State of Brandenburg[20] (for all figures, see Bundesamt für Wirtschaft und Ausfuhrkontrolle [German Federal Office of Economic Affairs and Export Control], 2017). Since 1991, the instruments of investment funding have in part undergone considerable institutional changes. While immediately after the German reunification, there were no restrictions in certain sectors, e.g., for the investment allowance, today the focus is clearly on SMEs in the manufacturing industry (IWH, 2010). The funding regulations for the investment allowance have also undergone a change. In the beginning, the funding rate was scaled according to the respective type of investment. Now, in accordance with the changed EU regulations, the maximum funding rate is scaled in accordance with the size of the business. In addition, the States of Brandenburg (to a very great extent) and of Saxony (to a limited extent) implement a regional differentiation for the funding, i.e., the support rates are also scaled according to region (IWG, 2010). Lusatia (in the State of Brandenburg) is one of the favoured funding regions.

The mechanisms of the various investment funding programmes were by and large identical. By way of subsidies, the real capital costs were brought under the market level. Thus, it became possible to implement projects, which with their given viability would not have been implemented in East Germany, in the State of Brandenburg or in Lusatia (see IWH, 2003). Hence, the investment funding aimed not only to encourage supra-regionally operating companies to invest in the region but also to increase the willingness to invest of companies already in the region. From these perspectives, the investment funding is to be considered as successful. East Germany, the State of Brandenburg and even Lusatia showed an extraordinary investment dynamic in the first years after the German reunification. In the mid-1990s, the investments in fixed assets calculated per person capable of gainful employment exceeded the West German comparison level by over 50 % (see Langmantel, 2003). Since then, the investment activity in the East German states has been in sharp decline. A possible reason for the weak investment dynamic in the East German states could be the **lack of sufficient profitable investment opportunities.** Although further interventions in investment funding could prompt increased investment, they would then be investments that would not pay off under market aspects.

Relevant analyses of the impact concluded that the investment funding has led to positive investment and employment effects (see e.g., IWH, 1997; Schalk and Untiedt, 2000; IWH, 2003; Koller, 2004; SVR, 2005; Eckey, 2008; Röhl and von Speicher, 2009; Bade and Alm, 2010; Bade and Eickelpasch, 2011, Alm, 2013; Alecke, Mitze and Untiedt, 2013). In regard to regional growth effects, there are results that show a positive growth effect of the investment funding (e.g., Bradley and Untiedt, 2008). However, deadweight and displacement effects could not be ruled out (see IWH, 2003; Eckey, 2008). Estimates conclude that approximately one third of the funded investment (per employee) would have also occurred without this funding (IWH, 2003). That means that although the net effect is positive, it is difficult to quantitatively determine.

[20] Approximated because the statistics of BAFA [German Federal Office of Economic Affairs and Export Control] does not differentiate between commercial economy and infrastructure in the percentage allocation of the states.

The Institut für Wirtschaftsforschung Halle [Halle Institute for Economic Research] (IWH) argues: *"The discussion around the deadweight effects is to be judged as inconclusive: If there is no deadweight effect, then the funding would be highly effective, but at the same time, the risk of misinvestment would be very high. However, if there are deadweight effects, then the funding would be superfluous, but at least these would be projects, which would also be longer-term projects and which would therefore more likely be of greater importance for regional development."* (see IWH, 2003, p. 177) Only looking at this part of the literature, the investment funding within the meaning of a **forward-looking structural policy** with the objective of establishing new, alternative economic structures is insofar to be evaluated positively.

Nevertheless, there is a series of effects that are to be regarded as negative. To some extent, the investment funding led to capital-intensive production structures being established. The subsidising of the capital factor distorts the decision-making calculations of a business. The labour factor, which becomes relatively more expensive, is substituted by the capital factor, which becomes relatively cheaper. If the subsidies provide very high funding rates, it can induce an overcapitalisation because the risks and capital costs for the private investors tend to be around zero. This counteracts the objective of safeguarding and creating new jobs.

Ultimately, an honest evaluation of this structural policy intervention must also consider that in part the investment funding simply led to a **relocation of production capacities**. From a macroeconomic perspective, it is particularly problematic when the regionally limited investment funding opportunities essentially serve to relocate production from one site to another by the funded business. However, when a site is relocated the assets are often modernised. But the funding has as a counterproductive effect when it distorts competition in a way that on account of the funding a business relocates its production from a region that receives little or no funding to a region that receives a lot of funding (IWH, 2003, S. 208).

Of the GRW funds granted between 1991 and 2015, including ERDF contributions, 88.7 % went to the East German states (see German Federal Office of Economic Affairs and Export Control, 2017). Therefore, by far the majority of the GRW was deployed in the East German states where it contributed to the development of the regional economy. From a macroeconomic perspective, it could also possibly be judged as negative (Alecke, Mitze and Untiedt, 2010). The core argument for the comprehensive funding in the East German states was originally the objective of "equalisation of the (material) living conditions" in all regions of the Federal Republic of Germany. Despite huge efforts, this objective is at best only achievable in the long term, therefore only the "equivalence" of living conditions is currently being pursued as an overarching funding objective.

Furthermore, it is to be critically regarded that the investment funding in the East German states contributed to **structural distortions**. The clearest sign of it was the higher than average strength of the construction sector in the East German states. The investment funding, be it in the context of the commercial investment funding or in the context of housing funding, led to new production capacities in the construction sector being built up until 1995. Afterwards, there was a harsh crisis of adjustment in this sector, which is still ongoing today. Therefore, e.g., in 2015 the number of employees subject to social security contributions in the construction sector per 1,000 inhabitants was in the State of Brandenburg still approximately 23 % higher than the all-Germany average (Statistisches Bundesamt und Bundesagentur für Arbeit, 2017).

Further points of criticism regarding the investment funding are possible habituation effects and the observable, lacking establishment of permanent production structures. There are some indications that after 25 years of continuous funding, the stakeholders in the East German states have grown used to the investment funding and correspondingly react to incentives only to a lesser extent. Until the end of the 1990s, the funding in the East German states was provided

largely without regard to the sector, technology and regional integration. That often led to the creation of "extended workbenches" (subcontracting manufacturing companies) with little loyalty to the region (see Ragnitz et al., 2011).

The points of criticism led to a constant adaptation of the regulations and award criteria for the investment funding. A considerable characteristic of the new direction of the investment funding in the East German states, and in particular in the State of Brandenburg, was the departure from the principle of scattering of the funding in favour of an investment funding focussed on technology and future sectors. Therefore, the criterion of belonging to an innovation cluster is enshrined in the GRW funding guidelines of the State of Brandenburg. Impact analyses for this reorientated funding are currently not publicly accessible.

In summary, it can be noted that the investment funding to overcome the structural change can have a positive effect in the "economy" dimension. Substitution, deadweight and displacement effects are undoubtedly present and have to be taken into consideration. In a national, trans-regional context, there is the risk of a suboptimal capital allocation. Other dimensions of the impact dimensions defined by the project partners were not addressed by the investment funding according to the findings of the available literature.

3.2.4 Network support

Since the end of the 1990s, there has been a gradual change in the support strategy of the German federal government (and subsequently of the German states as well). It became increasingly clear that the insufficient convergence success was less a result of a lack of capital goods but primarily due to the insufficient technological performance capacity of many East German businesses. Alongside the instruments of direct innovation funding (see Chapter 3.2.2), the economic policy was therefore focussed more strongly on supporting a better **networking** of the businesses with each other or of the businesses with academic institutions (universities or non-university research institutes). This is also to be categorised as an element of a "**forward-looking structural policy**".

Starting with the "InnoRegio" initiative by the German federal government (1999-2006, see Chapter 3.1.2) support initiatives have since been started not only by the BMBF (in the programme series of "Unternehmen Region" [Entrepreneurial Regions]) and the BMWi but also by all East German states. The objective of these initiatives was the increased networking of all relevant stakeholders in the innovation process. Also in Lusatia, a series of such networks was and is supported by policies. However, these networks are often supported only on the basis of research projects on specific topics. Furthermore, in the framework of the GRW the German federal government and the states also funded the creation of **regionally orientated clusters** with the objective of a better coordination of all stakeholders for regional policy-related important measures and for matters of regional marketing. In this regard, the idea of innovation is less at the forefront, but rather the focus is on the general **improvement of regional cooperation.** Furthermore, cooperation programmes for the rural regions, which are usually funded with EU funds, are working in the same direction.

However, experiences with "cluster policies" of this type have been rather sobering. Although in many cases, innovations have been initiated through innovation-orientated cluster policies, the establishment of long-term stable (institutionally secured) cluster structures has been the exception to the rule. One reason is that it is not easy to communicate to the participants which benefit they can gain from a long-term cooperation that is not topic-orientated.

The GRW funding programmes, which were intended to support the formation of clusters, proved to be even less successful. Also in this regard, when public financing came to an end, it could generally not be replaced by private sources of finance. However, the success of cluster

policies should not only be measured against the stability of a cooperation even without permanent funding incentives: Even the knowledge of potential cooperation partners in a region can help to initiate another cooperation in the face of future challenges. It can be said that the various networking initiatives have made a considerable contribution in this regard.

3.2 5 Infrastructure

At the time of the German reunification, the infrastructure in the East German states was in a bad condition as a result of the lacking investment during the GDR era (IWH, 2003, p. 114). However, a successful convergence process requires an efficient infrastructure that takes on a preliminary function in economic production and contributes to regional convergence by reducing transaction costs (Röhl, 2000, p. 1). Consequently, at the start of the transformation process the East German infrastructure in particular was to be brought up to West German standards by way of demolition, modernisation and development. This was illustrated, for instance, by the construction sector's large share in East German production, which up until the mid-1990s was approximately 15 % (Blum et al., 2009, p. 33).

In doing so, the **infrastructure funding** (as a component of a "**forward-looking structural policy**") also had an impact on the equalisation of living standards between East and West Germany, e.g., through the modernisation of the housing stock and shorter travel times to close-by conurbations. In terms of location, the infrastructure funding was also concentrated on the central locations that essentially corresponded to the large and medium-sized centres specified by spatial planning. There was no infrastructure funding specifically for Lusatia. However, due to the great importance of mining in Lusatia, there was a special characteristic in the funding within the re-use of former opencast mine areas. Measured by accessibility indicators[21], a pronounced heterogeneity can be seen in the transport infrastructure connections within Lusatia. All in all, accessibility in Lusatia is worse than in the West German non-city states (see ifo, 2014).

In this study, a comprehensive analysis of the infrastructure investments is not possible because the development of infrastructure follows very different objectives and at the same time also covers very different areas of investment. They include both the development and expansion of the material infrastructure (e.g., traffic infrastructure, land use, urban development) and also the immaterial infrastructure (e.g., human capital, R&D institutions).

As a reaction to the demographic change and the higher expectations of potential tenants, **urban redevelopment** is of great importance until today. As a result of a high level of subsidies (e.g., exceptional depreciations) in the period after the German reunification, there was a 7 % increase in the housing stock despite the continuing negative net migration between 1996 and 2001. At the same time, the declining population and a suburbanisation trend led to a constantly decreasing demand, which ultimately led to a great oversupply of housing in the East German states and to high vacancy rates of between 5 % and 11.5 % in 2007, even in the large East German cities (Blum et al., 2009, p. 143). Since urban development is essentially one of the municipal responsibilities, there was targeted funding in order to counter the oversupply of housing. For example, in the 2002-2014 period approximately 60 million euros from the "Stadtumbau-Ost" [urban rebuilding east] programme went to Cottbus for the demolition, upgrade and recirculation of the urban infrastructure as well as to secure the old housing stock. Over the same period, Senftenberg received approximately 16.2 million euros, Forst got 14.6 million euros and Spremberg 13.3 million euros. In Cottbus, for example, approximately

[21] E.g., the average car journey time to the next motorway junction, the average train journey time to the three nearest agglomerations, the average journey time to European agglomerations by car or airplane

9,900 residential units have been demolished. However, at the same time new homes were built. As a result, vacant properties were reduced from 9,000 in 2002 to approximately 2,900 in 2014 (Landesamt für Bauen und Verkehr, 2017).

Although the infrastructure funding was mainly directed at creating investor-friendly framework conditions ("economy" impact dimension), it also had positive effects on the dimensions of "ecology" (e.g., by remediating areas contaminated by opencast mines), "social welfare" (e.g., by creating jobs or by redeveloping urban development structures) and "regional identity" (e.g., by improving general standards of living). However, they were at best positive side effects. Negative (ecological) impacts (e.g., through an increase in traffic as a result of improving transport routes) cannot be excluded, however, they were not investigated in more detail in the available literature and must therefore be left out of consideration in this study.

3.2.6 Renaturation

The conversion of the opencast mine sites used in the extraction of lignite was a topic of great importance. Although the legal conditions for remediation and conversion arise from the Bundesberggesetz [German Federal Mining Act] (BBerG), the implemented measures also have a structural policy impact. The objective of reclamation is a balanced provision of land for agriculture, forestry, tourism, industry and nature conservation. This has an impact in the "economy", "social welfare" and "ecology" dimensions but also in the "regional identity" dimension.

In the 40-year GDR history in Lusatia, large parts of the landscape, e.g., courses of rivers, villages, parts of towns and parts of the infrastructure (such as streets or railway lines) were destroyed or massively changed. Between 1949 and 1990, 71 villages in Lusatia were bulldozed (see Steinhuder, 2005). After the German reunification, approximately 35,000 ha land in Lusatia was revealed to be non-recultivated land as a result of lignite mining. The questions how to remedy existing ecologically contaminated sites and how social policy should treat the now superfluous miners were urgently posed.

In the beginning, by way of ABM **jobs were created through the redevelopment of contaminated sites** left from the opencast industry. In 1992, there were on average approximately 4,000 employees in such schemes in Lusatia (see Steinhuber, 2005). In this respect, mine remediation initially had an impact on the "social welfare" dimension. In order to finance the lignite mine remediation, in 1992 the German federal government and the states agreed a first administrative agreement (that was supplemented over time with four further administrative agreements), which regulated the financing of the removal of ecological contamination. Between 1993 and 2017, approximately 10.9 billion euros went primarily towards mine remediation schemes and ambitious water management projects (see LMBV, 2016). As of 1994, the Lausitzer und Mitteldeutsche Bergbau-Verwaltungsgesellschaft mbH [Lusatian and Central German mining management company] (LMBV) has been organisationally responsible for the recultivation of the "abandoned mines", while the respective mine operator (in Lusatia, currently the LEAG) is responsible for the active mines. With approximately 9,200 employees in 1996[22], the mine remediation financed by the German federal government and the states had a considerable impact on employment. In addition, there were also hard to quantify indirect employment effects caused by the increase in the regional purchase power and the purchase of goods and services (see e.g., Bläsche et al., 1999). Therefore, the conversion of the opencast mine areas contributed to safeguarding incomes and purchase power as well as to

[22] Approximately 2,500 employees in the State of Brandenburg and in East Saxony were employed directly by LMBV and around 6,700 employees were subsidised employees as per sec. 249h AFG (Arbeitsförderungsgesetz, German employment promotion act) in third party companies for the remediation of LMBV mines (see LMBV, 1996).

reducing the migration from the region according to the impact dimensions of "economy" and "social welfare". Over the course of time, the LMBV reduced the number of employees to approximately 650 in the States of Brandenburg and Saxony in 2016 (see LMBV, 2016); simultaneously the number of fully remediated opencast mines increased. This increased the attractiveness of the location, led to new businesses settlements and in particular increased the **employment in the tourism sector** (see BIS, 2016). Furthermore, in the impact dimension of "regional identity", the results of the lignite opencast mine remediation contributed both to the improvement of "soft location factors"[23] and also considerably to the change in image and to viable future perspectives of the affected regions (see BIS, 2016). In this regard, the remediation of the opencast mines made a positive contribution to the structural change. However, the resulting effects should not be overvalued. For example, in regard to long-term unemployment, it has been shown that the trend in the remediation areas is less favourable than the average trend in the States of Brandenburg and Saxony.

3.3 IBA Fürst Pückler Land

One approach, which deviates from the above described structural policy interventions of the German federal government and of the states, is the Internationale Bauausstellung [International Building Exhibition] (IBA) Fürst Pückler Land. In the context of the IBA Fürst Pückler Land, it was not a matter of "hard location factors" as in traditional structural policy programmes[24], but was more a matter of "soft location factors". The main objective of the IBA Fürst Pückler Land was to create future prospects for the people in the region. Using the instruments of urban and regional planning, attempts were made in 30 individual projects to give the structural change in Lusatia economic, artistic and ecological impulses. Independent of the regional situation in Lusatia, these projects were categorised into seven focus topics subject to their content:

- industrial heritage,
- waterscapes,
- energy landscapes,
- new territory,
- border landscapes,
- urban landscapes and
- transitional landscapes (see IBA-Studierhaus, 2017).

The IBA Fürst-Pückler-Land GmbH with its 15 employees was established for the selection and implementation of the projects funded in the context of the IBA. Between 2000 and 2010, the IBA attempted to give the mining landscape on the Lusatian coalfield a new face and new perspectives. In Lusatia the IBA came "bottom up" (Steinhuber, 2005, p. 316). This facilitated acceptance of the IBA among the population. However, the financial resources for the IBA Fürst Pückler Land proved to be insufficient. In essence, funds for mine remediation were redirected to IBA projects and used "more intelligently" (Steinhuber, 2005). The IBA projects contributed in particular to strengthening regional identity in Lusatia, while in contrast economic factors were barely addressed.

[23] This includes, e.g., the development of leisure activities or improving the environmental situation.

[24] They include, e.g., transport infrastructures or industrial estates, which directly benefit the economy.

4 Discourse analysis for the classification of the structural policy interventions in Lusatia

The overall objective of the discourse analysis was to understand the development of structural policy interventions in the socio-political context. It provided information that answers the question who favoured and supported which structural policy approaches and why. Thus, it made it possible to trace the selection of measures back to the stakeholders. The discourse analysis primarily followed the method of frame analysis and furthermore, it used selective results from interest group research in order to gain information about the political influence of individual stakeholders.

Regarding the discourse analysis, it was determined for the most important stakeholders in the structural policy discourse over the two phases, which frames would be called upon to legitimise political demands. The identified frames were allocated to the four impact dimensions ("economy", "social welfare", "ecology" and "regional identity"), upon which this study is based. Frames, which primarily focussed on the distribution of responsibilities and opportunities of political influence, were allocated to the "politics" meta level. All identified frames can be found alongside short descriptions of them in the appendix.

For the purpose of this analysis, stakeholders were understood as collective stakeholders, i.e., as groups of individuals recorded as one unit: on the one hand there are the trade unions, trade associations, environmental groups and citizens' initiatives, and on the other hand the state and local politicians. The analysis of the manner of argumentation of the societal groups placed a focus on the trade unions and trade associations, which clearly dominated the structural policy over the investigation period.

4.1 Overview of the structural policy discourse

4.1.1 Phase 1: 1990-1998

Jobs at any cost

In the structural policy discourse during the 1990-1998 phase, the frames **safeguarding/ creating jobs** and **social security** were dominant in all concerns. Frames from the other impact dimensions, such as "ecology" and "regional identity", were clearly subordinate in light of the extraordinary situation after the German reunification, above all in light of mass unemployment in the East German states.

In doing so, the range of political demands and proposals, which are justified with social welfare or employment-facilitating effect, is noteworthy. Thus, all stakeholders called upon these frames to legitimise positions in questions about the currency conversion, various funding programmes, the preservation of existing industries, the reduction of bureaucracy, the reduction of taxes and the protection of the environment. In this phase, the discourse was almost exclusively about how jobs can be created and how the economic effects of the German reunification can be cushioned.

In this regard, the **reducing negative disparities (East-West)** frame was frequently used. At the same time, the general thrust of the discourse was that the East German states needed special help due to the prevailing extraordinary situation. From the mid-1990s, this discourse was increasingly questioned, in particular, on the part of individual federal politicians from the Freie Demokratische Partei [German free democratic party] (FDP) and the CDU and by Germany-wide trade associations, such as the Bundesverband der Deutschen Industrie [Federation of German Industries] (BDI). In this regard, above all the **responsible budget policy** and **distortion of competition** frames were drawn upon. Arguments were made about

the amount of the transfers in favour of East Germany and that the creation of jobs should be left to the market because ABM do not create permanent jobs that are viable without subsidies. At the state level, this tendency was criticised as "breaking solidarity" with East Germany (LR, 1997a). However, the special position of the East German states as an especially needy economic area was not fundamentally scrutinised.

Preserving industry instead of reorientation

At the local and state level in particular, the structural policy discourse was very orientated towards preserving existing industries from the GDR era, e.g., mining and the production of glass, chemicals and textiles. To legitimise it, the **regional importance of existing industries** as well as **safeguarding/creating jobs** and **social security** frames were drawn upon. Lignite mining and electricity generation had the most important role in this part of the discussion. In innumerable statements from state politicians from all parties, from local politicians from the affected municipalities and from businesses and trade unions, the importance of lignite for the structural development in Lusatia was confirmed. The **security of supply** frame was often deployed to support these statements. At the same time, market economic frames, such as **competitiveness** or **affordability of energy**, were only deployed very rarely, and if they were, it was almost exclusively to emphasis the merits of lignite in comparison to subsidised coal or nuclear power.

Reference was very rarely made to the **future sectors** frame compared to the employment effect of existing industries. However, in the second half of the 1990-1998 phase, this frame was often used against the backdrop of the structural policy's lack of success in regard to employment. As a rule, it referred to the funding of research (LR, 1997b, 1997c), SMEs (LR, 1992a) and of environmental technologies. However, it was normally understood a supplement to safeguarding jobs in existing industries, not as a counterargument.

Protection of the environment as a job creation scheme

By and large, the **end-of-pipe environmental protection (regional)** frame was used very rarely. However, when it did appear, it was often alongside the **safeguarding/creating jobs** and **social security** frames. In light of the environmental destruction in the GDR and of the social distortions after the German reunification, environmental protection was often considered alongside social issues, for example, in emphasising a "social and ecological market economy" as a societal objective (LR, 1993a, 1990a). Repairing the environmental damage and the remediation of GDR opencast mines were also generally ascribed additional legitimisation as being job creation schemes (LR, 1996a, 1993b, 1992b, 1992c, 1990a). In the discursive application, the environmental policy objectives as well as social issues were clearly subordinate. In some cases, the state politicians (LR, 1992d) and the affected businesses in the chemical and lignite industries (LR, 1995a, 1993c) criticised environmental regulations as unaffordable cost factors that could lead to redundancies.

The **end-of-pipe environmental protection (regional)** frame was often used with the **regional appeal** frame. In this regard, it primarily concerned improving the quality of the water, soil and air in Lusatia or rather in the East German states, and it is often connected with the structural policy objective of creating a region with good quality of life and appeal. As a rule, it was not about reducing CO_2 emissions with the exception of a few statements from Bündnis 90/Die Grünen [alliance 90/the greens party] and environmental groups.

Pragmatic reference to culture

All in all, the heritage-based frame of **preserving regional culture** was only used very rarely. It was above all deployed in cases where villages, such as Horno (today in Spree Neiße district) or Schlabendorf (today in Dahme Spreewald district), were under threat of being bulldozed for opencast mining (LR, 1990b). In addition, this frame was also used in individual cases in order to justify preserving traditional industries, e.g., the Lusatian textile industry. At the same time, Lusatia's cultural identification with mining was rather to be described as sober and pragmatic. Identification with mining was more likely to be found in regions with underground mines, e.g., coal mining in the Ruhr area or silver mining in the Erzgebirge [Ore Mountains], but was only rarely found in regions characterised by opencast mines (Krüger, 2017; Zuchold, 2017). However, it is to be noted that after the German reunification Lusatia took on aspects of mining culture from the Ruhr area or from the Erzgebirge [Ore Mountains], for example, the feast of Saint Barbara or using the expression "Glück auf". All in all, the social and labour market policy frames had clearly more weight than the cultural aspects.

4.1.2 Phase 2: 1999-2015

Creation of high-quality jobs

In the second phase, the discourse around creating and safeguarding jobs became clearly more differentiated. Stakeholders no longer argued for jobs as an end in itself, but for **economically viable jobs**. In this context, the necessity of innovation funding was repeatedly emphasised by both the governing parties and the opposition parties at the state level. The large projects and the ABM of the first phase were again critically evaluated by both political and societal stakeholders. In the 1999-2015 phase, safeguarding jobs as the only argument to justify structural policy interventions was no longer regarded as sufficient. Yet, it still had a high significance and was drawn upon to support a series of political demands.

The focus of the debate shifted more towards skill shortages and migration, which many stakeholders considered to be the central structural policy problem in Lusatia and in the State of Brandenburg (see e.g., (LR, 2014a, 2008a)). The **social security** and **regional appeal** frames were often drawn on in this context in order to advocate a region with a good quality of life that can keep its population and attract skilled workers. As a rule, it concerned the provision of public services, municipal finances as well as infrastructure and also occasionally recultivation in the sense of creating an attractive landscape. Wage matters were also discussed differently in this phase compared to the first phase. Low wages were increasingly perceived to be part of the problem because attractive wages were necessary to attract skilled workers and to counter the negative migration trends. This argument was even used by regional trade associations, which in the first phase had called for restraint in collective wage negotiations (LR, 2008a).

Targeted funding for the East German states instead of the principle of scattering

The **reducing negative disparities (East-West)** frame was used much more rarely in a legitimating capacity than in phase 1. The particular neediness of East Germany was no longer at the centre of structural policy demands. When using the **endogenous economic potential** frame, it was more frequently emphasised that the East German states must now go through a self-sustaining economic development and stand on "their own two feet". By and large, in light of the improved economic situation in this phase, many stakeholders were more optimistic. Even though problems were still being recorded, there was no longer an acute sense of crisis as was the case in the period after the German reunification.

In this context, the **responsible budget policy** frame was often used in order to justify the general reduction of structural funding in the East German states and the departure from the principle of scattering funding. For example, the government of the State of Brandenburg argued that funds should be used as effectively as possible, hence justifying its further limitation to particularly promising economic locations.

Climate protection was addressed more often

Climate protection as a legitimising frame was used considerably more frequently in this phase than it was in phase 1, and this trend has further intensified since around 2010. Immediately after the German reunification, GDR legacy contamination represented the most important environmentally-related challenge in the structural policy discourse. In connection with the energy transition policy at the federal level and in the context of state policy decisions, such as the Brandenburg Energiestrategie 2020 [energy strategy 2020], in this phase the **climate protection** frame was mentioned clearly more often. It was also deployed without reference to jobs, which was very rare in the first phase.

For example, this frame was explicitly used in order to demand the phase-out of coal in Lusatia. However, this demand was only made by the Bündnis 90/Die Grünen, by environmental groups and to a lesser extent by the Partei des Demokratischen Sozialismus [German party of democratic socialism] (PDS)/Die Linke [the left party] [25]. In the case of other stakeholders, there remained high approval in regard to the regional importance of the coal industry. In particular, proposals by the German federal government concerning the coal industry, such as the climate levies suggested in 2015, were met with unified rejection. In this context the **planning security** frame is used; it was argued that German federal government decisions, which were perceived as arbitrary, would "regulate the domestic lignite industry to death". At the same time, in light of the environmental damage arising from coal the defenders of the coal industry found themselves more often on the defensive. In 2012, for example, the Minister-President of the State of Brandenburg, Matthias Platzeck (Sozialdemokratische Partei Deutschlands, social democratic party of Germany, SPD), insisted at an SPD symposium: "We are not coal freaks"(LR, 2012a).

In this regard, the connected frames of **regional importance of existing industries** and **safeguarding/creating jobs** were used extremely frequently by the state politicians, trade unions and industry in order to prevent the negative effects of German federal government policies on the Lusatian coal industry. The **preserving regional culture** frame was only rarely used in this context. If it was used, then above all in the argumentation by the citizens' movements calling for the preservation of the Lusatian lignite industry. Such groups started forming in 2011.[26]

In this regard, it is noticeable that even advocates of the long-term consumption of coal argued using the **climate protection** frame (Müller, 2017). The alleged contradiction between high CO_2 emissions from coal-fired electricity production and climate protection was refuted with a reference to the carbon capture and storage (CCS) technologies, which can even turn coal-fired electricity into a purportedly climate neutral fuel. For example, the Brandenburg Energiestrategie 2020 [energy strategy 2020] planned to achieve the climate objectives of the State of Brandenburg by building a new power station with CCS at the Jänschwalde site. Already in 2008, Vattenfall – with intensive discursive and political accompaniment – installed a CCS

[25] The "Die Linke" party was formed in 2007 by the merger of the (West German) Wahlalternative Arbeit und soziale Gerechtigkeit [electoral alternative labour and social justice] (WASG) and the (East German) PDS.

[26] However, it is debatable to which extent the "Pro-Lausitzer Braunkohle e.V." association in particular can be regarded as a pure civil society organisation because it is institutionally very closely integrated with the coal industry in Lusatia.

demonstration plant at the Schwarze Pumpe [black pump] power station, which was operational until 2014.

Furthermore, at the start of this phase all stakeholders generally pledged their support for the expansion of renewable energies, which in particular the State of Brandenburg had heavily promoted. In this regard, it is to be noted that the state was regularly awarded the "Leitstern" [guiding star award] for the expansion of renewable energies, which was established by the SPD and Bündnis 90/Die Grünen federal government. This award was repeatedly greatly emphasised by the state government. In this regard, the **climate protection** frame is of course used, but in combination with the **safeguarding/creating jobs** and **future sectors** frames reference, reference is also made to the impact on employment. However, this line of argumentation is most frequently used by environmental groups, citizens' initiatives against opencast mining and Bündnis 90/Die Grünen.

At the start of the period under investigation, the conflict surrounding the future of coal was still largely dormant. While those in favour of coal doubted that renewable energies could ever become a systemic competitor, the opponents of coal assumed that fast expansion of renewable energies would to some extent "automatically" oust coal power. This changed noticeably towards the end of the period under investigation, when it became clear that both assumptions were not correct.

Climate policy as a risk for Lusatia

At the end of this phase, state and local politicians, industry representatives and trade unions were increasingly starting to see the expansion of renewable energies as a structural policy problem. In this regard, the **security of supply** and **affordability of energy** frames were typically used to argue that power from renewable energies was unreliable in comparison to coal-fired electricity production and that the funding in the context of the Gesetz für den Ausbau erneuerbarer Energien [German expansion of renewable energies act] (EEG) was too expensive. The backdrop was the unexpectedly fast expansion of renewable energies, which reduced the price of electricity and impaired the profitability of power stations fired by fossil fuels. However, after the collapse of the solar industry in 2011 the employment impact of renewable energies was increasingly regarded with scepticism.

At the end of the 1999-2015 phase, the positions of the advocates and opponents of coal moved further away from each other, in particular in light of the rapid expansion of renewable energies. In addition, the opposition of regional and state stakeholders against German federal government decisions increased. A clearly **different prioritisation of climate protection on the one hand and social and economic concerns on the other hand** was shown. All in all, the argumentation for preserving the existing structures concerned the coal industry and its suppliers significantly more often than in the 1990s when other GDR industries like glass, paper and chemicals were mentioned more often. Main reason was that these industries – if they still existed to any significant extent at all – had largely stabilised.

4.2 Study of individual groups of stakeholders

4.2.1 State politicians

Phase 1: 1990-1998

In the 1990-1998 phase, the state politicians used the frames of **social security**, **safeguarding/creating jobs** as well as **reducing negative disparities (East-West)** and **regional importance of existing industries** almost without exception for their argumentation in regard to structural policy matters (LR, 1995b, 1991a). In this regard, the extraordinary situation after the German reunification and the inequality of living standards in the reunified Germany were often referred to in order to justify a more favourable treatment of their own state. Therefore, on the one hand justice and on the other hand the extraordinary need for help and the consequences of an industrial collapse were used as arguments.

In this regard, notable parallels in argumentation irrespective of political party became apparent. The necessity of preserving existing industries was completely undisputed in the communication of state politicians (LR, 1993d). The lignite industry was the very highest priority among the industries worth saving and all state governments of Brandenburg and Saxony actively supported the lignite industry (LR, 1995c, 1993e, 1991b, 1990c). Also they consistently argued for as much aid and funding as possible from the German federal government (LR, 1999a, 1999b, 1999c, 1992e). When the Brandenburg Minister for Economic Affairs, Burkhard Dreher (SPD), became the successor of Walter Hirche (FDP) after the 1994 state parliament elections, he tellingly placed his term of office under the motto “exercise continuity” (LR, 1994a).

Despite this common core of state policy interests, which were largely represented with the same patterns of argument, there were different focusses within different parties. The parties were different in their recommendations as to how employment and social welfare were to be achieved and how funds should be spent in a targeted manner.

For example, the CDU in the States of Brandenburg and Saxony repeatedly emphasised funding and relief for SMEs as a motor for growth. Already early on, the CDU argued that “funding with a sense of proportion” was needed and that ABM should create jobs that are viable in the future, which in its opinion were to be found above all in a “healthy SME economy” (LR, 1999d, 1994b, 1993d). In contrast, the SPD more heavily emphasised the role of (big) industry in order to safeguard jobs (LR, 1992f). Both patterns of argument roughly coincided with the groups of voters that these parties typically appeal to.

Similar to the SPD, the PDS primarily argued using the **safeguarding/creating jobs**, **social security** and **reducing negative disparities (East-West)** frames. In the period of upheaval of the early 1990s, it demanded ABM and other immediate measures several times (LR, 1990d). However, it also emphasised that tried and tested successes from the GDR era, e.g., aspects of the social system, should be kept and warned against an “imposition of the Federal Republic of Germany’s conditions” (LR, 1990d). When at a later date the PDS was in opposition, it was against any reduction of the “Ostförderung” [funding for the East German states] (LR, 1999e). Similar to Bündnis 90 (later: Bündnis 90/Die Grünen), the PDS argued early on for the protection of the environment and funding for environmental technology as well as for an increase in municipal finances and a participation of the municipalities in the energy supply (LR, 1999d, 1990a).

In contrast, the FDP argued more strongly that the market-based competition and reduction of bureaucracy would bring jobs (LR, 1994c, 1992g), however, at the state level it argued primarily with the **reducing negative disparities (East-West)** and **safeguarding/creating jobs** frames

(LR, 1993d, 1991c). In this regard, it is noticeable the even Bündnis 90/Die Grünen repeatedly referred back to the regional importance of the coal industry, in particular for jobs. Therefore, in the argumentation the role of lignite was not fundamentally questioned despite the demands for its reduction and ultimate phase-out (LR, 1992h, 1991d). Instead, the funding for environmental technology and renewable energies was demanded using the **future sectors** frame (LR, 1999d, 1997d, 1997e, 1997f, 1994c)**.**

Regarding the FDP and Bündnis90/Die Grünen, it is noticeable that during the Brandenburg traffic light coalition (1990-1994)[27], when the FDP nominated the minister of economics and Bündnis 90 nominated the minister of environment, they argued much more with labour market and social policy aspects for the preservation of the lignite industry (LR, 1999d). However, when in opposition the FDP argued in a more market economy-orientated manner, while Bündnis 90/Die Grünen increased their demands for a phase-out of coal. In this regard, the **end-of-pipe environmental protection (regional)** frame denounced the destruction of the landscape and the environmental pollution that are associated with coal extraction, but arguments were also made using the climate policy necessity of CO_2 reduction. Otherwise, the **climate protection** frame was only rarely mentioned in the 1990-1998 phase. At the same time, arguments were made against bulldozing culturally rich villages using the **preserving regional culture** frame (LR, 1994d).

All in all, it is to be observed that in matters of structural policy, regional policy interests outweighed party affiliation. In light of the precarious economic situation in the East German states, the state governments of Brandenburg and Saxony represented in core matters the same interests vis-à-vis German federal government policy despite having a different party political composition.[28] For example, both state governments spoke up for the reversal of the compensation principle ("compensation had priority over return") because complex return procedures were seen as a barrier to investment and an impediment to employment (LR, 1992e). Likewise, in 1994 as a reaction to the German federal government's plans to transfer the Lusatian lignite industry into a 100 % subsidiary of the German federal government both state governments decried it as "selling off Lusatia" (LR, 1994c). The ever-present frames of **safeguarding/creation of jobs** as well as **regional importance of existing industries** were also used here. In this regard, the parties at the state level often explicitly broke ranks with the party position at the federal level, for example, the Brandenburg SPD on the question of a VAT increase in 1992 or the Saxony CDU in regard to the proposed reduction of the solidarity surcharge (LR, 1995d).

Overall, the prevailing powers in the States of Brandenburg and Saxony did not allow a forward-looking approach to structural change. The focus was clearly placed on a **preserving structural policy**. Due to the extraordinary economic situation, the focus was clearly placed on crisis management and not on the development of future sectors.

Phase 2: 1999-2015

In phase 2, the **safeguarding/creating jobs** frame was central in the argumentation of the state stakeholders of all parties. In the structural policy debate there was generally a departure from large projects in favour of the targeted connection of promising economic potential. Using the **future sectors**, **competitiveness** and **endogenous economic potential** frames, arguments were increasingly made in line with the cluster policy that funding can contribute to the creation

[27] From 1990 to 1994, the State of Brandenburg was governed by a "traffic light coalition" comprising SPD, FDP and Bündnis 90.

[28] After the traffic light coalition (see above), the State of Brandenburg was governed by an SPD government. In contrast, in the State of Saxony the CDU were consistently in power from 1990 to 1999.

of economically viable jobs if it supports the innovation power and network formation of businesses in key sectors in a targeted manner. Even if long-term stable clusters were only formed in exceptional cases, this turn towards a **forward-looking structural policy** is fundamentally to be assessed as positive. At the same time, the creation of jobs remained the most import metric according to which the state governments measured structural policy success (LR, 2015a, 2010a).

The **reducing negative disparities (East-West)** frame was used significantly less frequently to justify structural policy demands. The **social security** frame also appeared much less frequently in this phase than in the extraordinary social situation after the German reunification. Instead, the state governments used the **endogenous economic potential** frame to increasingly call on the regional economy to self-organise, in particular in regard to research cooperation. Regarding infrastructure funding, in addition to transport routes, the digital infrastructure was increasingly emphasised. In light of negative migration and skill shortages, the **regional appeal** frame became more predominant.

In this phase the lines of conflict in structural policy were also often more likely to be found between the states and the federal government than between the different parties. This division became clear especially on the topic of lignite, which at the end of this phase graduated to be a central structural policy issue in the public discourse. German federal government proposals, such as the climate levies, were clearly rejected by all parties at the state level with the exception of Bündnis90/Die Grünen and PDS/Die Linke. In addition to the frames usually used by the coal advocates, the **subsidiarity** frame was also used – interventions in the Lusatian economy were dismissed as interference by stakeholders, who are poorly informed about local conditions. Also, the **planning security** frame was often used to emphasise the uncertainty that is caused by federal government interventions that are perceived as arbitrary. In this regard, the only exceptions were Bündnis 90/Die Grünen and to a lesser extent the PDS/Die Linke, who explicitly advocated the end of the Lusatian coal industry in this phase.

The parties used very different lines of argumentation to legitimise their positions. For example, the FDP, which has not been in government in the State of Brandenburg since the end of the traffic light coalition, argued that a "notable economic growth" was the only "truly comprehensive means against unemployment" (LR, 2005). From this belief, the party derived business-orientated demands, which were essentially the same as the demand from trade associations: the reduction of bureaucracy especially for SMEs, the reduction of the non-wage labour costs and making the protection against unwarranted dismissal more flexible. The FDP used the **social security** frame in its argumentation less frequently than the other parties. However, the fundamental orientation of the structural policy towards innovation support and the targeted funding of key industries was not questioned. Rather, the insufficient success was criticised (FDP, 2016). Coal mining and energy generation were explicitly advocated and any restrictions or obligations were rejected as market distortion.

The CDU placed the most emphasis on **responsible budget policy** in the structural policy context, particularly in matters of economic development and "Aufbau Ost" [development of the East German states]**.** For example, in the 2009 election campaign for the Brandenburg state parliament it called for "an effective balanced budget provision as soon as possible", which "clearly reins in the spending desires financed by debt" (CDU Brandenburg, 2009). Otherwise, similar to the FDP, the CDU presented business-orientated demands as the solution to the existing structural problems and in this phase, it also focused on taking pressure off SMEs. The **reduction of bureaucracy** and **competitiveness** frames were often used to underpin it. Just like the FDP and SPD, the CDU advocated a robust protection of the interests of the domestic lignite industry (DIE LINKE Brandenburg, 2008a; LR, 2014b).

In contrast, the positions of the PDS/Die Linke were diametrically opposed to the CDU and FDP. It generally advocated an anti-cyclical expenditure policy, a generous social policy and measures, such as a statutory minimum wage (LR, 2005). In addition, in this phase they intensified their criticism of capitalism and demanded a fundamental change of economic system. They primarily argued with the **safeguarding/creating jobs** frames and they used the **social security** frame more than any other party. At the same time, Die Linke believed the social situation to be more dramatic than the other parties. In addition, it was not in favour of the structural funding becoming more focussed and, for example, in 2009, it called for the establishment of a municipal compensation fund for structurally weak regions in order to counter this trend (DIE LINKE Brandenburg, 2009). When in the Brandenburg state government, in which Die Linke governed continuously together with the SPD between 2009 and 2015, it demanded that the structural policy was reorientated more towards industry policy with model projects (LR, 2013a).

The position of Die Linke regarding coal-fired electricity production was not clear. On the one hand, the short to long-term importance of lignite was emphasised, above all using the **security of supply** and **safeguarding/creating jobs** frames. However, it demanded a phase-out of coal (initially 2050, then 2040) more clearly than all other parties with the exception of Bündnis 90/Die Grünen and fundamentally rejected CCS technologies (DIE LINKE Brandenburg, 2014, 2008b). At the same time, Die Linke insisted upon an ambitious climate policy and, for example, explicitly supported the proposal for the climate levies in 2015, whereby they nevertheless demanded the establishment of a special fund for a socially compatible winding-down of the coal industry in Lusatia (DIE LINKE Brandenburg, 2015; DIE LINKE Sachsen, 2015).

In the structural policy discourse, the SPD emphasised in essence the same frames as Die Linke, but in doing so argued for a preventative welfare state and not for a change in economic system (SPD Brandenburg, 2009). The Brandenburg SPD, which since the German reunification has continuously been in power, evaluated the social and economic situation in Lusatia and in the State of Brandenburg much more positively than Die Linke. The SPD focussed on topics, such as well-paid jobs, and in this connection called for the minimum wage as well as strong trade unions in order to proceed against low wages and to increase **regional appeal** (LR, 2005).

In addition, the SPD argued more vehemently than the CDU and the FDP and explicitly for an active industrial policy, for example, it wanted to increase the share of industry in the State of Brandenburg's economy (SPD Brandenburg, 2014). At the state level, the SPD explicitly declared its support for lignite as a domestic fuel and to do so, it deployed the usual frames of **safeguarding/creation of jobs**, **security of supply**, **affordability of energy** as well as the **regional importance of existing industries (coal)** (SPD Brandenburg, 2009). This position often conflicted with that of the federal SPD, which critically regarded coal-fired electricity. An example of this stance can be seen in the controversy surrounding the climate levies.

In this phase, Bündnis 90/Die Grünen continued to argue against new opencast mines and for a fast phase-out of coal using the **end-of-pipe environmental protection (regional)**, **climate protection** and **preserving regional culture** frames (LR, 2015b, 2014c). In order to structure it in a socially compatible way, a "master plan for structural change" was to be drafted (LR, 2010b). In this regard, structural change was understood as a positive, future-orientated process that must be shaped. Other parties tended to see structural change as something that happens to people and to which politicians must react with measures to cushion individual or regional hardships.

There was no longer any positive reference to the coal industry by Bündnis 90/Die Grünen, as there was in phase 1. For them, like the other parties, the energy policy was the central issue for the economic future of Lusatia (Bündnis 90/Die Grünen Brandenburg, 2014). Regarding the economic development, Bündnis 90/Die Grünen generally called for a "Green New Deal", i.e., a

financial increase and new orientation towards ecological and social criteria with the simultaneous abolition of subsidies for fossil fuels (Bündnis 90/Die Grünen Brandenburg, 2009). The **future sectors** and **safeguarding/creating job** frames were referred to justify it. It was argued that only a low-carbon and resource-efficient economy could provide safe jobs in the future (LR, 2015b). In addition, Bündnis 90/Die Grünen used the **subsidiarity** frame in order to argue in favour of more democratic co-determination and against the "orientation (of the state government) towards centralised structures and close association with energy companies" (Bündnis 90/Die Grünen Brandenburg, 2009).

The structural policy statements of state politicians had a very different tone in phase 2 compared to phase 1. The region's own potential as well as the support for innovative ability and jobs that are viable in the future were increasingly emphasised. State political stakeholders agreed to reject interventions of the German federal government in the regional economic structure. There were also noticeable parallels in regard to the coal industry. The argumentation of the state politicians, in particular the state governments, was virtually unchanged over both phases. In the course of phase 2, the division between Bündnis 90/Die Grünen and the rest of the parties became bigger. All in all, the discourse on the compatibility between the protection of environment and climate as well as of economic development clearly escalated.

4.2.2 Local politicians

Phase 1: 1990-1998

Local politicians participated significantly less than state politicians in the structural policy discourse. In the 1990-1998 phase, it was primarily mayors and representatives of municipal authorities, who became active when a threat was perceived as acute, for example, the closure of production sites or deficits in municipal finances (LR, 1994e, 1991e, 1991f, 1990e). In these cases, a similar discursive orientation as in the state politics was shown, just on a smaller scale. For example, the social consequences of a shortfall in municipal finances or the local importance of resident businesses were used as arguments to gain financial support from the federal and state level.

Equally, local politicians entered into the structural discourse on matters concerning bulldozing villages for coal extraction, e.g., in the case of Horno or Schlabendorf (LR, 1997g, 1990f). In these cases, they generally canvassed to preserve the villages. With the aid of the **preserving regional culture frame,** the cultural and emotional value of the villages was emphasised (LR, 1997g, 1990f).

In addition, stakeholders from local politics were active in matters of funding policy that directly affected them. Therefore, already at the start of the 1990s, municipal politicians were calling for better participation opportunities regarding the use of funds. Using the **subsidiarity** frame, it was argued that the decisions relevant to funding could be made more effectively at the municipal level (LR, 1992i, 1990g). Another example is the state strategy to give more funding to "regional development centres" (RDCs), which caused a conflict between the municipalities surrounding Berlin and the municipalities on the peripheries, such as the ones in Lusatia. Interestingly, both groups used the **reducing negative disparities (regional)** frame. While disadvantaged municipalities surrounding Berlin argued that they were neglected and condemned to "self-help", the "Arbeitsgemeinschaft Regionale Entwicklungszentren" [regional development centres working group][29] argued that equality in the funding policy was de facto

[29] "Arbeitsgemeinschaft Regionale Entwicklungszentren" [regional development centres working group] (today: Städtekranz Berlin-Brandenburg [city circle Berlin-Brandenburg]) was established in 1994/95 in order to assert the interests of the seven economically stronger cities on the State of Brandenburg's peripheries (Frankfurt

giving preferential treatment to the municipalities around Berlin, which were already benefiting from Berlin's spillover effects (LR, 1995e).

Phase 2: 1999-2015

As in the previous phase, local political stakeholders were above all active in the issues of funding policy, municipal finances and coal mining. Against the backdrop of the desolate situation of the municipal finances, in this phase the municipalities also lamented the growing burden of duties with simultaneous budget cuts, e.g., as result of the regressively structured Solidarpakt II [solidarity pact II, agreement between the German federal government and the states to allocate funds for the development of the East German states].

They exercised harsh criticism of the state government, who they felt had abandoned them (LR, 2010c, 2008b). They referred to the **regional appeal** and **social security** frames, in order to argue that the municipalities could only hold on to inhabitants and attract skilled workers, if they were financially able to offer high-quality public services and infrastructure (LR, 2015a). In this regard, the increasing concentration of funds by the state government of Brandenburg was strongly condemned. Thus, for example, the Städte- und Gemeindebund [association of towns and municipalities] was against a streamlining of the system of central locations in the context of the "strengthen strengths" strategy (LR, 2008b).

Also in this regard, **social security** and **regional appeal** were used in the argumentation. At the same time, the **reducing negative disparities (regional)** frame was used to accuse the state government of neglecting regions that were already disadvantaged. Interestingly, between state and local politics there was a similar opposing dynamic on the topics of funding and budget as between state and federal politics. Vis-à-vis the state level and the German federal government level, the municipal politicians often argued with the **subsidiarity** frame that political decisions are better made on the basis of local expertise than at the state level (LR, 2015c).

However, this picture is much more complex regarding the question of the future of the coal industry. In this regard, there is a division between the municipalities and villages; between those that are affected by the expansion of opencast mining and those that profit from the local coal industry. At the same time, there were often personnel links with the corresponding citizens' initiatives. For example, municipal politicians from Grabko and Hornow-Wadelsdorf (today both of them are municipalities in the Spree Neiße district) participated in several demonstrations against new opencast mines and argued primarily with the **end-of-pipe environmental protection (regional)** and **preserving regional culture** frames. The **climate protection** frame was used less frequently (LR, 2015d).

In contrast, representatives from Cottbus, Welzow or Spremberg spoke in favour of expanding opencast mining and against a restriction of the domestic coal industry in the name of climate protection. The same frames were deployed for preserving the coal industry as were used by the state government, by unions and by the industry: **safeguarding/creating jobs**, **regional importance of existing industries (coal)**, **security of supply** and **affordability of energy** (LR, 2015e, 2015f, 2012b, 2011). Overall, the municipalities that advocated coal clearly dominated the discourse and were quoted much more often in the media. This becomes particularly apparent in regard to the discussions around the climate levies, when the "Lausitzrunde" [Lusatian round-table], a coalition of lignite-friendly municipalities, was largely perceived as the mouthpiece of the Lusatian municipalities.

(Oder), Brandenburg an der Havel, Luckenwalde, Eberswalde, Neuruppin, Jüterbog and Cottbus) vis-à-vis the state government and in particular cities in the more closely connected area around Berlin.

4.2.3 Industry

Alongside trade unions, economic interest associations and businesses were by far the most active non-state stakeholders in the structural policy debate. In particular in phase 1, there was a clear difference in the patterns of argumentation between federal associations, which were dominated by West German stakeholders, and the East German trade associations and businesses.

Businesses and trade associations were particularly relevant for politicians because they (or rather the member companies in the associations) created jobs and decided on investments. Since economic topics, such as unemployment and the general economic situation, are decisive in elections, politicians often have an incentive to take the interests of structurally important companies or sectors favourably into account. In particular, if mass redundancies are attributed to a politician or a party, it greatly compromises their chances of re-election. As leverage against politicians, businesses can threaten the closure of company sites or imminent redundancies. In addition, the success of businesses also has a direct influence on the public budget by way of tax payments. Through the business tax, which is the most important inherent source of income of the municipalities, businesses have a great influence at the local level. In the social science literature on lobbying, this influence is characterised as "**structural power**", which arises from the economic importance of businesses (Dür, 2008). Furthermore, important businesses and associations typically create strong networks of contacts in the political sector, which can give them favourable access to politicians (Bouwen, 2004; Hall and Deardorff, 2006).

Sector-specific expertise is a further source of political influence for businesses. It often means that businesses are often better able than other interest groups to calculate the impact of new laws on their economic activities, especially because much information relevant to economic policy, for example, on the business models and future strategies, are subject to business confidentiality. At the same time, this asymmetry of information creates an incentive for businesses to present selected facts as advantageous as possible.

Precisely in the period immediately after the German reunification, the situation arose that a large economic area was unfamiliar with the "rules" of the market economy. This situation intensified the asymmetry of information in particular in favour of the West German industry, whose businesses could, for example, largely assert their interests in the privatisations carried out by the Treuhandanstalt [privatisation agency]. In addition, West German businesses were actively wooed by the German federal government and by the states to invest in the East German states. The political imperative of investment funding in the aftermath of the German reunification put businesses in the position to negotiate with the state politicians about access to funding and attractive business settlement conditions.

Phase 1: 1990-1998 – Industry at the federal level

In the 1990-1998 phase, the trade associations at the federal level had a strong West German influence and were very different in their stance to East German trade associations. The most important stakeholders in this group were the BDI, the Bundesverband der Arbeitgeber [Confederation of German employers' associations] (BDA) and the Deutscher Industrie- und Handelskammertag [German chamber of industry and commerce] (DIHT). Even the Bundesverband der mittelständischen Wirtschaft [German association for small and medium-sized businesses] (BVMW), sectoral associations, such as the Bauindustrieverband [construction industry association], as well as individual West German banks entered into the structural policy discourse.

In light of the extraordinary situation in the first years after the German reunification, Germany-wide trade associations, such as the BDI, positioned themselves explicitly behind

"Gemeinschaftswerk Aufschwung Ost" [upswing east community venture] using the usual frames of **safeguarding/creating jobs, social security** and **reducing negative disparities (East-West)** as well as **regional importance of existing industries** (LR, 1991m, 1991n). At the same time, they were confident that free competition would create jobs. The indication that with this programme "things have been put on the right track", signalled that at this point in time, West German industry was already against further-going aid (LR, 1991m, 1991n).

The federal associations then quickly began to call for the aid to be more market-orientated and to insist that special aid is only granted in exceptional cases (LR, 1991o). Already in 1993, they argued for reducing the Solidarpakt [solidarity pact] (LR, 1993g), while in 1994, they were against new development aid (LR, 1990p) and for the reduction of social welfare benefits (LR, 1994f). In doing so, they primarily deployed market economy frames: political interventions and complex bureaucratic procedures were described as **distorting competition** and as a **barrier to investment** (LR, 1991p, 1990q, 1990r). Using the **responsible budget policy** frame, the banks repeatedly warned against the cost of the aid for the East German states (LR, 1991q, 1990s, 1990t).

The BDI and representatives of West German industry began earlier than others to use the **future sectors** and **competitiveness** frames to argue explicitly against the "structure preservation", which was at the heart of structural policy during this phase (LR, 1991o). The general thrust was that market-based support with minimal state intervention is the best way to create jobs in sectors that are viable in the future.

In contrast to nearly all other stakeholders, the federal associations argued on the whole less frequently with the **safeguarding/creating jobs** frame, for example, immediately after the German reunification or in the wage debate, in which high wages were described as generally reducing employment (LR, 1999f)**.** The reduction of the wage subsidy granted by the state was also rejected with a reference to the impact on employment (LR, 1999i). Demands for a reduction of bureaucracy and against tax increases were also justified with safeguarding jobs (LR, 1999g, 1999j).

Phase 1: 1990-1998 – East German or rather Lusatian industry

In the 1990-1998 phase, the most active stakeholders in this group were the Unternehmerverband Berlin-Brandenburg [Berlin-Brandenburg entrepreneurs' association] (UVBB), Unternehmerverband Sachsen [Saxony entrepreneurs' association] (UVS), the Unternehmensforum DDR [GDR business forum] and the Industrie- und Handelskammer [Chamber of Commerce and Industry] (IHK) Cottbus, as well as sector associations, such as Lausitzer Verband Textil- und Kleidungsindustrie [Lusatian association of the textile and clothing industry]. Essentially, East German trade associations and regionally settled businesses had a much more positive attitude to structural funding than their West German or rather federal counterparts (LR, 1991r, 1991s, 1990u, 1990v). They argued much more with the **safeguarding/creating jobs** and **reducing negative disparities (East-West)** frames – usually to justify funding in general or in their own sectors (LR, 1991t, 1991u, 1991v).

Thus, for example, the UVBB unreservedly advocated the special funding of the East German industry at a time when it was already being questioned by the BDI (LR, 1992q, 1992r, 1991r). The UVBB argued explicitly for a generous investment allowance as a measure that promotes employment (LR, 1992q, 1992r). In structural policy issues, the East German businesses and associations often exercised solidarity with the trade unions in their sector. Thus, for example, LAUBAG and Industriegewerkschaft Bergbau, Chemie, Energie –[German mining, chemical and energy industry trade union] (IG BCE) put on a united front to argue against a restriction to the rules around early retirement using the **social security** frame (LR, 1997n, 1996c). Once again the argumentation matches that of the Germany-wide trade associations concerning reducing

the bureaucratic barriers for the funding, which were described as barriers to investment and reducing employment (LR, 1992q).

After the German reunification, the future of the local lignite industry was in question for a long time. Against this backdrop, the GDR lignite combines at first and LAUBAG later on consistently argued that a collapse of the Lusatian coal industry must be avoided with references to **safeguarding jobs** and cushioning social hardships (LR, 1994e). Here, the necessity of special public funding was often emphasised. The **regional importance of existing industries (coal)** and **security of supply** frames were referred to in a supportive way (LR, 1990w, 1990x, 1990y). The Rheinisch-Westfälisches Elektrizitätswerk [Rhenish-Westphalian Electricity Industry] (RWE) also pursued this argumentation, when it temporarily exercised administration duties at the sites in Lusatia (LR, 1991u, 1990y). The **end-of-pipe environmental protection (regional)** frame was used primarily in reference to remedying environmental damage dating from the GDR era, which was regarded as a priority (LR, 1990w, 1990x, 1990y). However, in matters of new environmental regulations, the **end-of-pipe environmental protection (regional)** frame was usually in conflict with safeguarding jobs (LR, 1993c). Overall, the argumentation of the coal industry showed notable similarities with the argumentation patterns of state politicians and trade unions.

Phase 2: 1999-2015 – Industry at the federal level

By and large, in this phase the trade associations at the federal level were less active in the structural policy discourse on the "Ostförderung [funding for the East German states] and on Lusatia than shortly after the German reunification. It was because in phase 1, they were significantly more directly involved in structural policy due to their cooperation in the Treuhandanstalt [privatisation agency] and in shaping structural policy instruments, such as ABM, than was the case in 1999-2015. At the same time, their basic attitude to structural policy remained critical. This positioning is clearly different from the regional industry in the East German states and therefore also in Lusatia.

Regarding the Solidarpakt [solidarity pact] and funding policy in general, the **responsible budget policy** frame was deployed in order to argue for a consolidation and reduction of special funding for the East German states (BDI, 2015a, 2015b). Employment and social policy restrictions were typically rejected using the **reduction of bureaucracy** and **competitiveness** frames (BDA, 2015)**.** Essentially, they argued for flexibility on the labour market and wage restraint (BDA, 2013a). In the case of social policy measures, which generated additional costs for businesses, the impact on competitiveness was criticised, for example, when the BDA rejected higher non-wage labour costs (BDA, 2013b). A restriction of competitiveness implied job losses. Occasionally, the **safeguarding/creating jobs** frame was also explicitly used, for example, to argue that a minimum wage creates a barrier to joining the labour market (BDA, 2014).

While the general lines of argumentation regarding structural policy differed between regional and federal associations, they were the same in regard to preserving the coal industry. Just like the state politicians, regional associations and trade unions, they deployed the **safeguarding/creating jobs**, **social security** and **regional importance of existing industries (coal)** frames in this matter. These legitimising frames were only rarely referred to by the trade associations in other structural policy matters. For example, the Bundesverband der Energie- und Wasserwirtschaft [federal association of the energy and water industries] (BDEW) (BDEW, 2015) and the BDI (BDI, 2015c) warned of structural breaks in the context of the climate levies, which were suggested in 2015 by the BMWi. Furthermore, using the **security of supply** frame (BDEW, 2010) arguments were made for a broad energy mix, which also included coal. The necessity of climate change was not questioned, but it was argued that the suggested measures

would not promote climate protection or that the social and economic costs would be prohibitive.

In contrast to state and federal politicians, who are divided in energy policy matters, the trade associations at the regional and federal level typically took the same stance in this matter. Here, the energy companies with influence both in Lusatia and in the federal associations functioned as a link. Otherwise, in the second phase the federal associations avoided to comment on the industry in Lusatia or in the State of Brandenburg and left it to the regional associations.

Phase 2: 1999-2015 – East German or rather Lusatian industry

In the second phase, the UVBB and UVS regional trade associations as well as the IHK Cottbus continued to actively monitor the structural policy discourse. In matters, which concerned the coal industry, the operators of the Lusatian lignite industry, at first LAUBAG/Vereinigte Energiewerke AG [united energy plants corporation] (VEAG) and after 2001 Vattenfall, got involved. In this regard, initiatives with a structural policy orientation arose from the Lusatian industry, such as the Energieregion Lausitz-Spreewald GmbH [Lusatia Spreewald energy region] or the Wirtschaftsinitiative Lausitz e.V. [Lusatia economic initiative], which with their expertise exercised influence in terms of business and policy consultation. The progressing self-organisation of the industry was also reflected in the discourse, which increasingly referenced the inherent potential of the region (LR, 2014e).

At the same time, the position of the East German and Lusatian stakeholders essentially remained positive (LR, 2012d, 2003a). However, in this regard there was less argumentation using the **reducing negative disparities (East-West**) frame or overcoming mass unemployment, than in the first phase. Rather, the funding policy was called on to help tap into the **endogenous economic potential** of the region. The state's "strengthen strengths" strategy as well as the increased focussing of funds on areas of expertise and regions, where the biggest economic effects are expected, was essentially welcomed (LR, 2014e, 2014f).

Here, East German trade associations and businesses practically unanimously emphasised the central role of innovation support. In this context, the compartmentalised economic structure of Lusatia was increasingly perceived as a problem. In 2014, UVS even called on the funding policy to contribute to the consolidation of the business landscape because larger businesses were generally more innovative than small businesses (LR, 2014f). In order to increase the regional innovative ability, the business associations repeatedly called for the intensification of the cooperation between research and industry (LR, 2012e).

In this phase, the future of the coal industry remained a major structural policy point of contention. Just like in phase 1, the operators and regional trade associations argued with one voice that the lignite industry must be preserved for as long as possible in order to safeguard the structural policy perspectives of Lusatia (LR, 2007, 2003b). In doing so, the **safeguarding/ creating jobs, regional importance of existing industries (coal)** and **security of supply** frames were deployed with notable consistency. Decisions at the federal level, which restricted the regional industry, were often perceived as arbitrary restrictions to **planning security** (LR, 2015i).

In addition, special funding for Lusatia was called for as a way of **reducing negative disparities (regional)** arising from the impact of the German federal government's energy and climate policy. At the same time, environment policy restrictions were still presented as undesired additional costs that could lead to the loss of jobs. On this matter, this argumentation essentially matched the arguments presented by the trade unions, the state politicians and coal advocates.

4.2.4 Trade unions

In order to exercise political influence, the trade unions primarily focussed on their potential to mobilise. Thus, in the 1990-1998 phase, they repeatedly and successfully called for mass demonstrations against social injustices as well as against disagreeable decisions at the state and federal level. In conflicts regarding collective wage agreements and sometimes also in the case of individual decisions by the Treuhandanstalt [privatisation agency], they often called for strikes in order to exercise pressure on businesses and politicians through the economic consequences of a strike. In the 1999-2015 phase, the trade unions organised several large demonstrations on topics, such as climate levies or the sale of Vattenfall's lignite division scheduled for 2014.

As the representation of the workforce, trade unions had a high level of political legitimacy in representing interests. This factor is particularly relevant for the SPD, which is traditionally dependent upon the support of the trade unions. In addition, the trade union representatives are involved in the business management as they sit on the supervisory boards. Due to this prominent position, trade unions have very good connections to politicians and automatically sit "at the table" in social and structural policy negotiation processes, such as "Bündnis für Arbeit" [alliance for jobs].

Phase 1: 1990-1998

In addition to the trade associations, the trade unions were among the most active and simultaneously the most influential stakeholders in the structural policy discourse. In the 1990-1998 phase, the following trade unions were the most predominant in shaping the discourse: Deutscher Gewerkschaftsbund [German Trade Union Confederation] (DGB), Industriegewerkschaft Metall [German metal industry trade union] (IG Metall), Industriegewerkschaft Bergbau und Energie [German mining and energy industry trade union], (IG BE, later IG BCE - German mining, chemical and energy industry trade union], Deutsche Angestellten-Gewerkschaft [German employees trade union] (DAG), now Vereinte Dienstleistungsgewerkschaft [German united service sector trade union] (ver.di), Industriegewerkschaft Bauen-Agrar-Umwelt [German construction, agriculture and environment industry trade union] (IG BAU) and Gewerkschaft Textil-Bekleidung [German textile and clothing industry trade union] (GTB). In the early 1990s, the trade unions from the GDR era that still existed, such as Freier Deutscher Gewerkschaftsbund [free German trade union association] (FDGB), increasingly spoke out until they were merged into the trade unions of the Federal Republic of Germany. Overall, the trade unions were characterised by a remarkably consistent communication and argumentation.

At the same time, the trade unions represented a broad portfolio of political demands with a clear focus on social and labour market policies. In addition to wage issues and conflicts regarding collective wage agreements, the trade unions advocated, e.g., the preservation of existing businesses in Lusatia and in the East German states (LR, 1993f), the increase of ABM, a socially compatible currency conversion (LR, 1990h, 1990i, 1990j), and on several occasions for structural policy emergency programmes (LR, 1992j, 1992k), as well as against cuts to the welfare state (LR, 1999f).

The argumentation drew on the **safeguarding/creating jobs** and **social security** frames, in particular to justify far-reaching structural and social policy demands (LR, 1997h, 1997i, 1991g, 1990k, 1990l). The **quality of jobs** frame was sometimes used in a supportive way but certainly not as frequently as in wage negotiations and collective wage conflicts. Structural policy within the sense of financial funding and ABM was almost exclusively positively evaluated and any reductions to welfare benefits were rejected. Since trade unions represent the organised interest representation of the employees, this orientation is not surprising. However, in this phase their

political engagement went far beyond the direct interest of their members because they also had an interest in increasing trade union membership, in particular in the East German states.

With reference to the economic distortions in the course of the German reunification, the trade unions occasionally referred to the **reducing negative disparities (East-West)** frame, for example, when calling for an equalisation of the wages in East and West Germany (LR, 1993f, 1990m)**.** However, this frame was used much less frequently than, for example, in the communications from the state politicians in Brandenburg and Saxony. In contrast to the stakeholders in industry, whose Germany-wide organised associations tended to represent positions influenced by West Germany that were extremely different to the business associations in the States of Brandenburg and Saxony, no such division can be identified for the trade unions.

In collective wage agreement conflicts, the **quality of jobs** frame was dominant and was often referred to in order to legitimise demands for wage increases and additional wage benefits (LR, 1999g, 1992l, 1992m, 1991h). Other stakeholders, e.g., at the state level or in industry, argued less often with good jobs as an end in itself. The trade unions argued less frequently with the **regional appeal** frame that more attractive working conditions could lead to more apprenticeships being filled and to skilled workers moving to the region (LR, 1991h). Often in questions of collective wage agreements, the trade unions were accused by trade associations (LR, 1992n, 1992o) and politicians (LR, 1997j) that excessive wage demands caused additional costs for businesses and therefore led to job losses. The trade unions countered this criticism with the **quality of jobs** and **social security** frames, arguing that "dumping wages" were not desired in any case and led to social neglect (LR, 1999g). Where trade unions explicitly held back in matters concerning collective wages, e.g., in the context of the "Bündnis für Arbeit" [alliance for jobs], they themselves argued that restraint regarding wages contributed to safeguarding jobs (LR, 1997k).

Apart from matters concerning collective wage agreements (LR, 1999h), the sectoral trade unions were often notably in close alliance with the employers' associations and businesses in their sector in the structural policy debate. This alliance became particularly clear in regard to closing sites or possible cuts to funding, e.g., in the case of the lignite remediation (LR, 1999e, 1997l, 1997m, 1995f). This argumentation was seen, for example, in the GTB (LR, 1991i, 1991j) and in the IG BE/IG BCE (LR, 1992p, 1991d, 1990n). In Lusatia, this happened against the backdrop of radical contractions of whole branches of industry, which brought forth a "fight for survival" mentality in the sector's stakeholders. In terms of discourse, the state level, regional trade associations or rather businesses and trade unions often acted in concert in this regard. In communications of this type, the **regional importance of existing industries** frame was typically used to support employment policy arguments (LR, 1999e, 1997l, 1997m, 1995f). In the case of the lignite industry, reference was often made to the **security of supply** frame. The DGB confederation of trade unions generally backed the demands of its member trade unions (LR, 1991k).

In general, trade unions showed a great extent of solidarity in their political interests and external communications. Discursive attacks on each other did occur, but were extremely rare. For example, in 1996 IG Metall criticised IG BE saying that the one-sided concentration on the existing lignite industry was obstructing employment opportunities. Using the **jobs viable in the future** frame, IG Metall demanded that the funding policy was redirected towards new sectors and that innovation was supported (LR, 1996b). Such occurrences were an exception.

Phase 2: 1999-2015

Overall in this phase, there was an increased focus on energy policy in the structural policy statements of the trade unions. Other topics, in which the trade unions were active in this phase were collective wage policy and employment law matters. IG BCE and ver.di, which represent employees of energy corporations, were the most influential trade unions during this phase. DGB or other sector trade unions, such as IG Metall or IG BAU, also contributed to the structural policy discourse on Lusatia. At the same time, there were still notably few differences among the trade unions in terms of argumentation.

The trade unions essentially saw themselves as a preserving and cushioning force in the face of structural change, irrespective of whether it was caused by the market or by policy. The **safeguarding/creating jobs** and **social security** frames were correspondingly consistently deployed to justify political demands. At the same time, the trade unions continued to make decidedly positive statements regarding the "Aufbau Ost" [development of the East German states] policy. For example, in 2001 IG BCE called for a long-term continuation and intensification of "Aufbau Ost" [development of the East German states] with the focus on the creation of jobs (IG BCE, 2001a). Simultaneously, the trade unions invested little political capital in general funding policy matters and did not make any specific demands. The trade unions no longer made proposals, such as for far-reaching emergency programmes, which they had called for in the first phase.

It was initially emphasised in regard to collective wage policy that there was a deliberate restraint concerning wage demands in East Germany in the period after the German reunification in order to safeguard jobs. However, using the **reducing negative disparities (East-West)** frame, it was made clear that the demand for equal wages continued to exist (IG BCE, 2001a). Regarding collective wage conflicts and employment law matters, there were also heavy exchanges of blows with employers in this phase. In this regard, the parties mutually blamed each other for being responsible for the loss of jobs (IG BCE, 2001b). In the course of phase 2, the trade unions increasingly argued with the **quality of jobs** and **regional appeal** frames in order to emphasise the importance of good wages as a means against negative migration and skills shortages.

However, by far the most statements in the structural policy discourse were made in reference to the future of Lusatian lignite. Therefore, the trade unions took a stance against the EU Emissions Trading System (ver.di, 2004) and the climate levies (LR, 2015g) with reference to the social and economic impact, which could arise from a reduction in the competitiveness of the coal industry. Regarding the lignite remediation, they insisted on the responsibility of the public authorities. Here, the usual frames of **safeguarding/creating jobs**, **regional importance of existing industries (lignite)**, **security of supply** and **affordability of energy** frames were deployed. For example, in the face of the climate levies they warned against the "social blackout of whole regions" (IG BCE, 2015). This positioning corresponds to that of the state governments, trade associations and operating companies, which acted in concert in this regard. It was often argued that the East German energy industry had already suffered enough with the drop in production and in employment over the course of the 1990s. Interestingly, in this regard the term "structural change" was mainly linked to the economic collapse after the German reunification. Therefore, it has primarily negative connotations (LR, 2007), although, e.g., environmental groups and Bündnis 90/Die Grünen generally used the term positively with a future orientation.

Until approximately 2012, the **climate protection** frame was still frequently used by the trade unions in order to advocate the construction of new highly efficient coal-fired power stations and CCS infrastructure. After the failure of the CSS pilot project at the Jänschwalde site, this

argument was barely deployed. In return, references to the energy transition were increasingly negative. For example, IG BCE warned against the "Wild West" on the energy markets (IG BCE, 2014a). The costs of the subsidies from the German expansion of renewable energies act (EEG) and the fluctuating generation capacities of renewable energies were criticised and the advantages of coal were emphasised. In the face of lignite's environmental and CO_2 balance, the trade unions also went increasingly on the defensive.

With Vattenfall's change of course towards low-carbon energy generation, the operating company was also increasingly criticised by the trade unions. Therefore, in 2012 IG BCE warned Vattenfall that the increased orientation towards renewable energies must not be a "departure from lignite" (IG BCE, 2012). When in 2014, Vattenfall announced that it intended to sell the Lusatian lignite division, it was criticised as a "sell-off" and "filleting" of the domestic lignite industry (IG BCE, 2014b). In this regard, the argumentation was very similar to the criticism of the wave of privatisations and the work of the Treuhandanstalt [privatisation agency] in the 1990s.

In conflicts that directly impacted the sector trade unions, other trade unions typically did not contradict their demands. For example, that was the case with DGB and IG Metall, which occasionally made more positive statements regarding the energy transition than ver.di or IG BCE (IG BCE, 2014c). Also in this phase, the state politicians, trade associations and trade unions mutually supported each other in their demands vis-à-vis the federal government. This "states versus federal government" dynamic was also reflected in the statements of the trade unions. Just like the state governments, they emphasised the **subsidiarity** frame **–** any interference from outside in lignite's competitiveness was strictly rejected. In this regard, the general thrust was that the competitiveness of lignite should not be restricted through special levies.

4.2.5 Other civil society stakeholders

Phase 1: 1990-1998

Besides the trade unions, the presence of other civil society groups was notably rare in the structural policy discourse of the 1990-1998 phase. Occasionally, citizens' initiatives were formed against the bulldozing of villages, which as a rule used the **preserving regional culture** frame to argue for the preservation of the home region (LR, 1990b). Now and again, groups such as the Mieterbund der DDR [GDR tenants' association] or the Arbeitslosenverband der DDR [GDR association of unemployed people] (LR, 1990o) called for a better position of their members using the **social security** frame.

Particularly environmental groups only rarely spoke out about structural policy matters in the 1990-1998 phase and as a rule, they primarily followed environmental policy lines of argumentation (LR, 1991l). Arguments that, for example, emphasised the employment policy aspects of environmental protection, were presented primarily by Bündnis 90/Die Grünen. Here, it is to be observed that in the beginning, there was a large crossover in personnel between local environmental groups, such as Grüne Liga [green league], and Bündnis 90/Die Grünen (Schuster, 2017). Given that Bündnis 90 was represented in the Brandenburg traffic light coalition of 1990-1994, the environmental groups had much easier access to the administration and to politicians at the state level at this time than was later the case.

Phase 2: 1999-2015

Other civil society stakeholders continued to be less present than the trade unions in the structural policy discourse during this phase. Nevertheless, the progressing polarisation regarding the coal question in Lusatia led to an intensification of civil society activity. A mobilisation generally occurred when the citizens felt personally effected. At the same time, the future of lignite became the main structural policy controversy in Lusatia.

Compared with phase 1, a clear intensification of the debate and a greater spilt among the Lusatian population into coal opponents and coal advocates could be observed. Thus, this phase saw the establishment of a series of citizens' initiatives and associations, which could be respectively clearly attributed to one side. Attempts to influence policy were made primarily using means, such as demonstrations and petitions.

For example, the "Pro Lausitzer Braunkohle" [pro-Lusatian lignite] association and "Traditionsverein Lausitzer Braunkohle Senftenberg" [heritage association for Lusatian lignite in Senftenberg] called for the long-term preservation of the Lusatian lignite industry (LR, 2014d, 2011). The line of argumentation was very similar to that of the state politicians, the coal industry and trade unions but in addition to jobs and the regional importance of the coal industry, it more strongly emphasised the **preserving regional culture** frame. Thus, for example, the "Pro Lausitzer Braunkohle" [pro-Lusatian lignite] association argued that Lusatia had been "a mining region for over 100 years" and postulated, "a home region worth living in needs the creation of value from lignite" (Pro Lausitzer Braunkohle e.V., 2011; siehe auch Müller, 2017).

On the other hand, there were alliances such as "Strukturwandel jetzt - Kein Nochten II" [structural change now - no Nochten II], the "Klinger Runde" [Klinge roundtable] or the "Lebenswerte Lausitz" [liveable Lusatia]. As a rule, they were alliances of citizens, who demanded a stop to the expansion of opencast mines but beyond that also pursued structural policy objectives. As in the case of "Strukturwandel jetzt - Kein Nochten II" and "Klinger Runde", they were often connected to environmental organisations that acted regionally or interregionally.

These stakeholders explicitly called for the end of coal mining in Lusatia, something which in phase 1 was very rarely articulated (LR, 2015h, 2013b, 2009). In order to justify this demand, above all the **end-of-pipe environmental protection (regional)** and the **preserving regional culture** frames were called upon. The latter frame was primarily concerned with protecting the original heritage and landscape. In this regard, preserving Sorbian culture was emphasised because in this phase, several Sorbian villages were threatened by the expansions of opencast mines. Therefore, both sides were trying to gain control of the narrative regarding what is it that forms the cultural identity of Lusatia. In this regard, it is interesting to note the positive use of the term structural change, which was understood as the departure from the coal industry and the move to pastures new. For other stakeholders, the term tended to have more negative connotations.

Environmental groups, such as Greenpeace or Friends of the Earth Germany, used essentially the same frames as these citizens' movements in order to argue for a phase-out of coal (LR, 2013c, 2008c). However, in this regard environmental groups used the **climate protection** frame more often. Occasionally the **safeguarding/creating jobs** frame in combination with **future sectors** frame was used in order to refer to the employment potential of renewable energies or to draw attention to the economic alternatives to lignite (LR, 2015g). Furthermore, it is noticeable that in this phase environmental groups increasingly commissioned academic studies in order to underpin their arguments and to be able to make market-based statements with greater creditability (LR, 2012c).

4.3 Conclusions

This analysis has shown that the structural policy discourse revolves around the control of the narrative using a few legitimising frames. Even stakeholders who represent diametrical opposite positions regularly use the same frames in order to justify their demands. In particular, frames such as **safeguarding/creating jobs, social security, future branches** and even the term structural change itself are used to justify political concepts, which are sometimes very different. Other frames, such as **preserving regional culture** were primarily used at the local level or by citizens' movements.

While the structural and social policy discourse clearly changed through the two phases, the discourse on the future of lignite only changed very little. Here, the patterns of argumentation of the opposing groups show a remarkable continuity. On one side, arguments were made for the indispensability of lignite with the emphasis on **security of supply, affordability of energy and jobs.** On the other side, the disadvantages of the lignite industry were emphasised, citing **emissions**, **regional environmental damage** and the **bulldozing of villages**. At the same time, arguments were made for the funding of future sectors, such as renewable energies.

Regarding federal policy, regional stakeholders, such as state politicians, businesses and trade unions, interestingly represented the same interests, in particular on matters concerning the impact of federal decisions on the Lusatian economic structure. In this regard, it was often argued that the decisions at the federal level, which were regarded as arbitrary, destroyed the planning security for the businesses and population in Lusatia.

5 Findings

This case study examined the structural change in the Lusatian lignite field caused by the system change from a centrally planned economy to a market economy over the 1990-2015 period. The objective was to analyse the structural policy interventions in Lusatia, to demonstrate their economic and political framework conditions as well as to describe and as far as possible to evaluate their impact.

The structural change in Lusatia caused by the system change was primarily characterised by large-scale de-industrialisation because the existing (industrial) companies were no longer competitive in market conditions. The Lusatian lignite economy was greatly affected by this de-industrialisation. The number of employees shrank from 80,000 people at the end of the GDR to less than 8,000 people in the mid-1990s. Numerous opencast mines and power plant sites were closed. For the majority of the employees, there were no re-employment opportunities in Lusatia because other sectors also heavily contracted in the course of the transformation and at the same time, there was only a faltering start to establishing new companies and economic sectors.

In this regard, the structural changes in Lusatia bears little difference to those in other parts of the East German states. This explains that, although the economic policy of the German federal government and the states involved over the course of time have started a multitude of different structural policy interventions in the East German states, these focussed on the economic region of "East Germany" as a whole and only paid little consideration to the specific features of the Lusatian coalfield. This significantly differentiates the structural change in Lusatia from the structural change in the Ruhr area, which not only occurred at a much slower pace but was also shaped to a much greater extent by region-specific structural policy interventions, e.g., adaptation aid from the State of North Rhine-Westphalia.

Overall, the structural policy in Lusatia is considered as only modestly successful. In retrospect, the "Aufbau Ost" [development of the East German states] policy (1990-1998) can be described as successful at least from an economic perspective. However, new structural patterns have developed, above all, in locations that are sufficiently attractive for external investors. In this respect, the structural policy was organised as an accompanying ("reactive") policy rather than as an (structure) forming policy. With a few local exceptions, Lusatia was not one of the regions that is attractive to investors, meaning that today, the region is still considered as being structurally weak. Unemployment is higher than in the other East German states, the value added per capita outside of the lignite industry is much lower and even the migration of younger and well-educated population strata continues to be considerable. In this regard, the development of Lusatia since 1991 is an example of "passive redevelopment" that should not necessarily be emulated by other regions.

Even though (with the exception of individual settlement projects) there was no "Lusatia-specific" policy by the German federal government or by the involved states (Brandenburg and Saxony), Lusatia profited to a considerable extent from the policy measures implemented for all East German states. The analyses in this case study show that particularly in the early 1990s, the policy was concerned with cushioning the negative impact of the transformation-related structural change on the labour market. For this purpose, broad investment funding programmes of the German federal government and of the states were deployed. In addition, this objective was supported by the launch of large-scale labour market programmes to create state subsidised jobs and by the reduction of the labour force potential through early retirement programmes. It was only towards the end of the 1990s that this "reactive" structural policy was replaced with a structural policy that focused more heavily on supporting the structural adaptation processes (hence making it forward-looking). This policy was based above all on

stimulating innovation and still continues today. One of the contributing factors to this change of policy was that the measures pursued until then had in many cases proved to be of little help. Due to the specific business structure, the lack of diversification in the economic structure, the remote location and the location deficits associated with it, policy approaches that were more focussed on growth were only of little help in Lusatia.

Similar paradigms also shaped the state policy. Safeguarding jobs was a priority of the Brandenburg economic policy. To the extent that there was a rather forward-looking structural policy, this policy followed passed-down conceptions about a centrally controlled predictability of regional economic structures for a long time. At the same time, strong tendencies arose for the concentration of funding on certain locations and sectors that were regarded as "developable". The objective was to expand existing sector focuses where possible ("strengthen strengths"), however, there was no objective to develop new sectors. Opportunities to work towards more diversification of existing monostructures by way of suitable structural policy measures were missed in this way. These opportunities would have been of great importance precisely for Lusatia, which has been shaped by mining. Instead, until a few years ago Lusatia's future was regarded as being that of an "energy region," which also included the continued existence of the lignite industry. For Lusatia, not questioning the continued existence of lignite power generation meant that the establishment of other economic structures was neglected. From the beginning, the State of Saxony focussed rather on a market-driven modernisation strategy, which due to existing location advantages favoured especially the cities in the State of Saxony. A close coordination of the policies of the States of Brandenburg and Saxony could not be discerned at least during the investigation period.

Using the impact dimensions developed by the project consortium, the structural policy interventions in Lusatia can be classified primarily as serving the "economy" impact dimension and (at least until the end of the 1990s) as serving the "social welfare" impact dimension. The "ecology" impact dimension most likely played a part in the necessary renaturation measures in the areas affected by the closure of the lignite opencast mines or in the remediation of former industrial land. However, it was not a structural policy intervention within the narrow meaning of the term. Furthermore, the ecological situation had already improved simply on account of the closure of many businesses during the transition to a market economy so that for this reason additional measures only received a small amount of attention. "Regional identity" did not play any part at all in the structural policy programmes and therefore was not examined in greater detail in the current evaluation studies. From the authors' point of view, this lacking examination is a shortcoming because the acceptance of structural policy interventions is also dependent upon how much such interventions take the specific regional economic circumstances into consideration and therefore also make allowances for identity-establishing aspects.

The great emphasis on the economic and social challenges in the various phases of the transformation process is also reflected in the societal discourse in the East German states and in Lusatia. While in the 1990s, it was mainly the labour market situation that was at the forefront of the public discourse, since the start of the 2000s, the spectrum of topics has clearly expanded and has concentrated increasingly on rather "growth-orientated" objectives. Only recently, environment policy aspects and aspects directed towards the preservation of regional identity have increased in resonance, although during the investigation period (until 2015), they did not have an accentuated role.

In the discourse until 2015, the term "structural change" was primarily connected with the economic collapse after the system change and therefore mainly had negative connotations. However, some environmental groups and local initiatives, which demanded a stop to the expansion of opencast mines, were already using the term in a positive and future-orientated manner.

The process of structural change in Lusatia is by no means concluded, but rather it continues to progress. It is influenced by a multitude of factors. The globalisation of the economy and digitalisation are two important drivers with a great influence on the economy and lifestyle in the region. The decision that coal-fired energy generation shall be ended throughout Germany by 2038 at the latest, will present further challenges for coal regions and in particular for Lusatia.

The work on the case study revealed that when developing structural policy interventions, a complex framework of economic, social, ecological and also cultural impacts must be considered and must be integrated in the system of objectives – and that scientific evidence on how different interventions have impacted and continue to impact objectives other than economic objectives still needs to be obtained.

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7 Appendix: Frame overview

Frames are the interpretation schemas that societal groups use to categorise and interpret societal discourse fragments and events (Creed et al., 2002; Goffman, 1974). The frame analysis establishes "where actors see issues, policies and policy situations in conflicting ways, which embody different systems of belief and related prescriptions for action" (Schön and Rein, 1994, p. xviii).

The frames identified in this study are allocated to the four impact dimensions ("economy", "social welfare", "ecology" and "regional identity") that are the basis for this study. Frames, which primarily focus on the distribution of responsibilities and opportunities of political influence, are allocated to the "politics" meta level.

Economy

Endogenous economic potential	Reference to Lusatia's own economic potential or that of the businesses based in the region
Planning security	Emphasis of the importance of predictable framework conditions for the economy
Regional importance of existing industries (coal, chemicals, glass, paper, etc.)	Positive reference to the structural importance of industrial sectors based in the region
Security of supply	Reference to the secure supply of energy
Distortion of competition	Negative frame often used to reject political and economic interventions
Competitiveness	Positive emphasis on market forces and supporting structural policy interventions, in particular in matters of allocation
Future sectors	Positive reference to economic diversification towards future-orientated sectors

Social welfare

Safeguarding/creating jobs	Reference to creating jobs or safeguarding against unemployment
Quality of jobs	Emphasis on the appeal of jobs in regard to pay, working conditions, social status, etc.
Affordability of energy	Emphasis on the social side of the security of supply in terms of avoiding fuel poverty
Reducing negative disparities (East-West, regional)	Call for the equity or alignment of living standards between different geographical regions
Social security	Reference to diverse social problems and their solutions

Ecology

Climate protection	Reference to climate change and political approaches to mitigate its consequences
End-of-pipe environmental protection (regional)	Reference to the local environment in terms of landscape as well as of air, water and soil quality

Regional identity

Preserving regional culture	Positive reference to local traditions and defending them against external forces
Regional appeal	Reference to the appeal and image of a region, often connected with demands for improving them

Politics (meta level)

Reduction of bureaucracy	Negative reference to bureaucracy as a barrier to investment or as a cost factor
Subsidiarity	Call for political decisions to be made at the most suitable political level
Responsible budget policy	Call for the responsible use of tax payers' money, often in the sense of "balancing the books"