



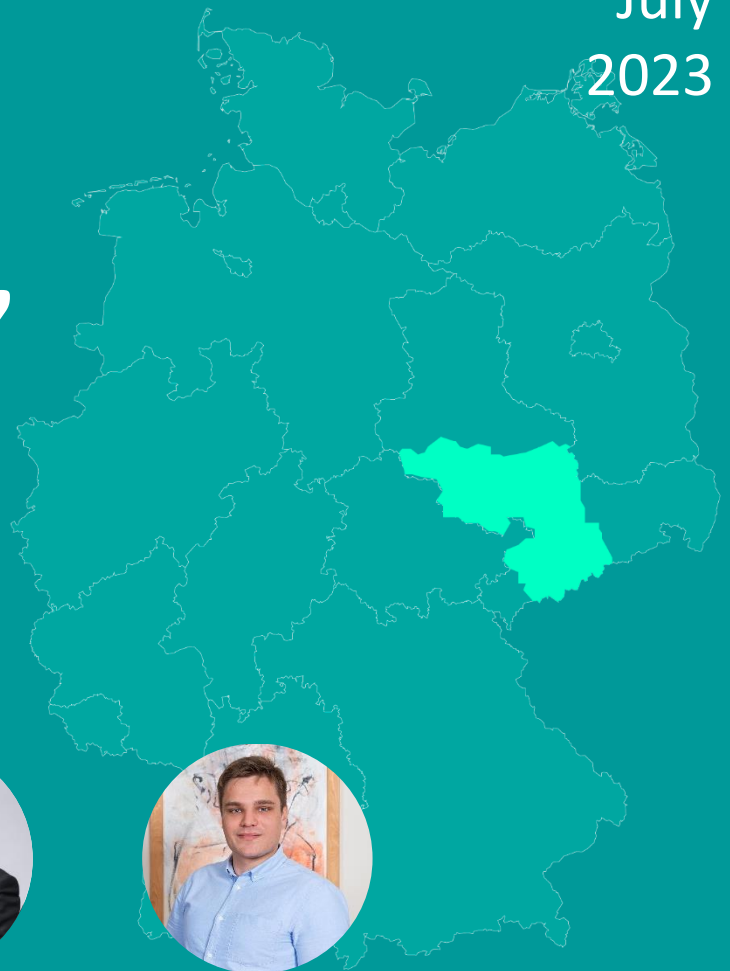
ENTRANCES

ENergy TRAnSitions from Coal and carbon: Effects on Societies

POLICY BRIEF

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CENTRAL GERMANY, GERMANY



Authors:



Katja Heinisch



Oliver Holtemöller



Christoph Schult



Halle Institute for Economic Research
Member of the Leibniz Association



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ENTRANCES PROJECT

ENTRANCES (ENergy TRANSITIONS from Coal and Carbon: Effects on Societies) is a three-year project funded by the European Union's Horizon 2020 research and innovation program. The project addresses the Social Sciences and Humanities (SSH) aspects of the Clean Energy Transition (CET) through the development of a theoretically based and empirically grounded understanding of cross-cutting issues related to social aspects of the transition in European coal and carbon-intensive regions and the formulation of a set of recommendations able to tackle these issues. To that end, 13 coal and carbon-intensive transition regions in Europe were studied using the same Multidimensional Analytical Framework (MAF), resulting in 13 case studies and an equal set of recommendations that reveal the complexity of the transition process and the impact in the daily life of local communities in its various dimensions.

EXECUTIVE SUMMARY

This policy brief was developed under the ENTRANCES project and focuses on the results of the Central Germany case study.

Central Germany, located on the border between the two German federal states Saxony-Anhalt and Saxony, is one of the oldest coal regions, where mining started in 1382 and evolved to significantly influence regional industrial and population growth. The Central German coalfield peaked during the German Democratic Republic era, becoming the primary domestic energy source, though production started declining after the 1970s, culminating in to the closure of some mines before the 1990 German Reunification.

After 1990, the region underwent high unemployment rates and significant out-migration. The structural transformation from a centrally planned economy to a market-based economy dramatically reshaped the region and its inhabitants. The 2020 Coal Phase-out Act marked the beginning of a second structural transformation of the economy in Central Germany. The effects of the previous structural change, along with its socio-economic consequences, remain palpable in the region.

Over the past decade, the region's unemployment rate and income levels have gradually aligned with the national average. The introduction of the 2020 Coal Phase-out Act poses new challenges to this progress. This puts substantial pressure on both policymakers and regional stakeholders. This Policy Brief aims to assess these challenges and suggests potential policy recommendations.



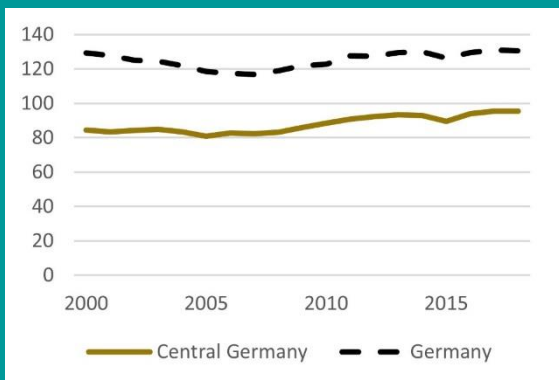
Economic Situation

An important indicator of economic development is gross domestic product (GDP) per capita. GDP per capita can be decomposed into three components, i.e., labour productivity, the employment rate and the share of the population in working age.

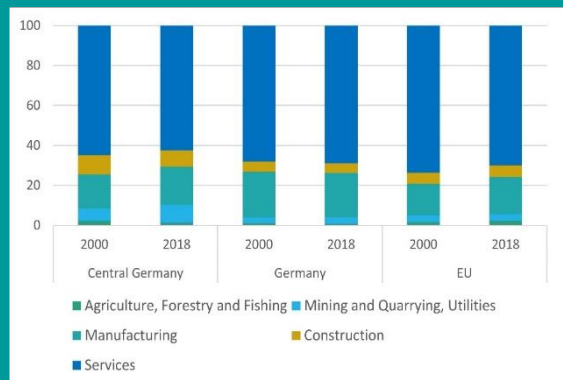
Central Germany's GDP per capita, at about 95% of the EU28 level in 2018, has been converging with the EU average, but remains below the national average. Disparities persist regionally, trailing nearly 30% behind the national average. In contrast, the share of utilities, mining and quarrying in gross value added in 2018 is with 9% above national and EU figures. While labour productivity has seen improvements in recent years, it remains just below the EU average. Meanwhile, national labour productivity outpaces the EU average.

Central Germany has experienced a 14% decrease in its total population since 2000, differing significantly from the 5% growth seen across the EU28. Regions such as Central Germany are grappling with a diminishing working-age population. This situation points to socio-economic challenges, and projections forecast a continued downward trend until 2035.

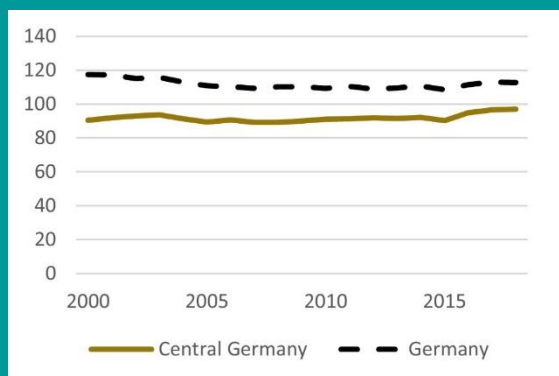
GDP per capita (EU28 = 100)



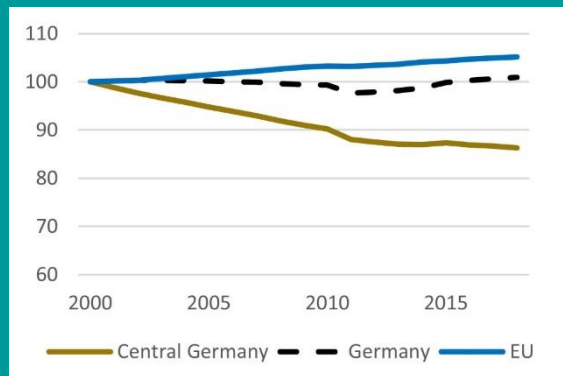
Economic Structure (Value Added Shares)



Labour Productivity (EU28 = 100)



Population (2000 = 100)



Note: Real gross domestic product is not available on a regional level. Therefore, the figures refer to nominal figures. The Census 2011 led to a break in the population series published by the statistical office of Germany from 2011 onwards.

Sources: Federal and regional statistical offices of Germany and Eurostat.

INTRODUCTION TO THE CASE STUDY

Following the German Coal Phase-out Act, discourse shifted from feasibility to the speed of the phase-out. Dominating conflicts include the pace of phase-out and usage of transition funds.

The region is striving to become an innovation and industrial hub, keen to actualize the EU Green Deal and contribute to global climate protection. However, it faces hurdles such as population ageing, political polarization, and policy-implementation gaps. The transformation of the energy system and decarbonisation is expected to significantly influence the socio-psychological well-being of residents, despite strong local ties and high life satisfaction. Labour productivity lags behind the national average, and the regional GDP per capita is slowly aligning with EU and national levels, accelerated by high outmigration and rapid modernization of the region's capital stock. The phase-out of coal-fired electricity in Central Germany marks the region's second substantial economic transformation in three decades.

With this case study ENTRANCES explores the challenges faced by coal and carbon-intensive regions in transition, focusing on various socio-economic, socio-technical, socio-ecological, socio-cultural, socio-political, socio-psychological, and gender-related factors. It also examines the coping strategies that have emerged in recent years to address these challenges and investigates the variables that have influenced the emergence of deterritorialization and the strategies that determine its success using multidimensional analytical framework (MAF).

This policy brief aims to identify policies or policy combinations that would effectively restore territorial and community ties in coal and carbon-intensive regions while promoting their transition to clean energy.

Key questions

Key Question 1. What are the challenges faced by coal and carbon transition regions in different dimensions of change?

Key Question 2. What are the emerging coping strategies and what policies could be more effective to address the identified challenges?



METHODOLOGY:

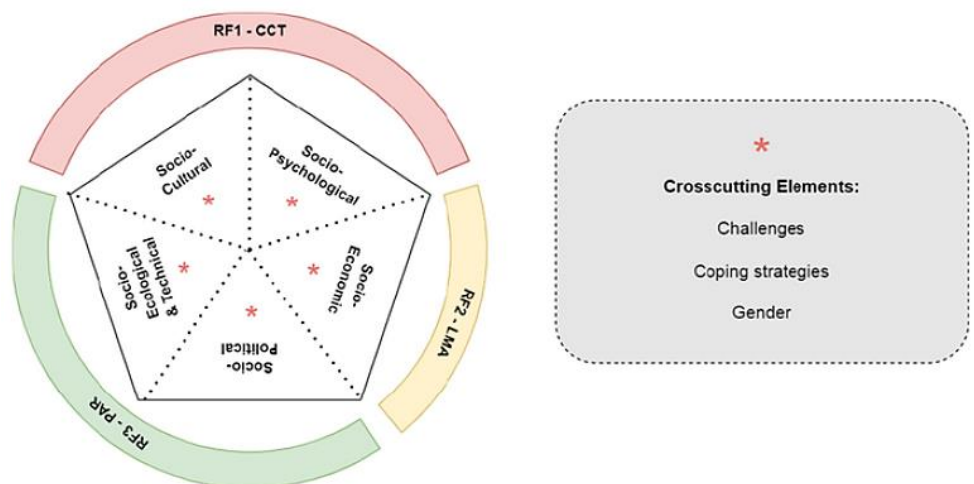


The ENTRANCES case studies were structured into multiple foci (Territorial Change, Structural Change and Clean Energy Transition) and respective units of analysis (Coal and Carbon Territory, Labour-Market Area and Political Administrative Region) to better address the scope of research. Additionally, a comprehensive Multidimensional Analytical Framework (MAF) consisting of five components: socio-cultural, sociopsychological, socio-economic, socio-ecological, and technical component, was adopted to study the complex and multidimensional dynamics in place.

Each component of analysis is supported by specific concepts and methodologies, as well as three cross-cutting elements: challenges, coping strategies, and gender dimension. The resulting challenges, as well as the gender dimension analysis, provide a very clear picture of the real situation in the region of analysis, accurately highlighting the problems related to the demographic, economic, social, cultural and political configuration. The initial results obtained from the different coping strategies generate new avenues for the discussion and recommendations presented in this policy brief.



Overview of the Multidimensional Analysis Framework: Research foci, components and crosscutting elements





CHALLENGES AND COPING STRATEGIES

CHALLENGE 1



Energy Crisis

1

Clean energy transition

To decrease reliance on Russian gas, it's imperative to augment the proportion of renewable energy sources and expand storage facilities for surplus electricity generated from solar and wind power.

The federal states Saxony and Saxony-Anhalt have a high share of installed wind capacity and district heating. The chemical industry and other manufacturing sectors depend heavily on gas.

2

Energy imports diversification

To diversify energy imports, a European electricity grid expansion is essential. It's also critical to foster trade relationships with diverse suppliers of natural gas and other fossil fuels.

Currently only electricity imports allow the usage of renewable energy imports in Central Germany.

3

Energy efficiency

Economic activity in Central Germany needs to reduce its energy intensity. Implementing and developing new energy technologies are vital to reducing the dependency on Russian gas.

RECOMMENDATIONS

- R&D into renewable energy and energy efficiency
- Invest in renewable energy infrastructure
- Establish storage facilities
- Incentivize private sector participation
- International best practices
- Expand geothermal energy and biogas
- European electricity grid expansion
- Negotiate bilateral and multilateral energy agreements
- Foster diverse trade relationships
- Increase use of district heating
- Harness excess heat
- Support education about energy efficiency

DISCUSSION

Central Germany's energy sector, heavily dependent on lignite mining and imported Russian natural gas, faces increased risks in light of geopolitical tensions, necessitating urgent energy diversification and infrastructure development. While postponing the coal phase-out and expanding renewables are options, they present challenges due to volatility, and an emerging hydrogen industry could offer a cleaner, long-term solution. In the short-term, increasing energy efficiency, offers a viable coping strategy to alleviate the current crisis.



CHALLENGES AND COPING STRATEGIES

CHALLENGE 2



Transparency and acceptance of the Coal Regions Investment Act

1

Transparent rules for the acceptance of projects

Saxony's project selection process is top-down, led by the Saxon Agency for Structural Development, while Saxony-Anhalt follows a more bottom-up approach with three funding lines, stakeholder involvement, and grant notifications based on local authority assessment and agency examination.

The federal states Saxony and Saxony-Anhalt have different procedures to select projects. A more transparent selection process can increase trust in the system.

2

Transparent communication of accepted projects

The authorities' decisions to grant funding for various projects are often viewed as lacking transparency and justification. Stakeholders from the private sector, civil society and public administration complain about a lack of transparency in the project selection process.

RECOMMENDATIONS

- Publish protocols of the decision process
- Use a transparent scoring mechanism
- Harmonize and streamline the selection process
- Include local stakeholders (representatives of small businesses, public administration and unions)
- Regularly publish accepted and rejected projects
- Cooperate with public broadcasters
- Independent auditing

DISCUSSION

The Coal Regions Investment Act is a legislative framework enacted in Germany to support the structural transformation and economic development of regions affected by the decline of the coal industry. The act aims to provide financial resources and assistance for the development of alternative industries, infrastructure, and job creation in these regions. It establishes funding mechanisms and support programs to facilitate the transition towards sustainable economic activities and the revitalization of affected communities. The Act recognizes the importance of ensuring a just transition for workers and communities impacted by the coal phase-out and strives to foster sustainable growth and prosperity in the affected regions.

The usage of available funds has faced criticism for not targeting specific municipalities and projects, leading to a lack of trust in the selection process. To address this, a more transparent decision-making process is needed. Currently, the federal state and representatives from local communities decide on project acceptance/rejection, but the criteria used are unclear. This lack of transparency may result in a bias towards urban projects over rural ones, as decision makers are primarily from urban areas. However, involving local stakeholders in the decision-making process alone does not guarantee broad acceptance. Therefore, in addition to transparent acceptance and rejection rules, improved communication about the decisions is necessary.



CHALLENGES AND COPING STRATEGIES

CHALLENGE 3



Ageing and Population Shrinking

1

Youth Immigration

In order to reduce the impact of an ageing population on regional development, it is necessary to increase the number of immigrants coming to the region. This requires a more attractive environment for young cohorts.

While the city of Leipzig is very successful in attracting young people from other parts of Germany the rural areas of Central Germany are less successful.



2

Automation

Another way to address the reduction in the working-age population is to reduce the labour intensity of the local economy. This means applying more machines and software to replace mechanical work by humans in different production processes.

Germany lacks behind in the digitalization of administrative services.



3

Increase of the Retirement Age

In order to reduce the effect of lower fertility and a longer life expectancy the regular retirement age in Germany increases to 67 for cohorts born after 1964.

The implementation of a higher retirement age is very controversial in the public debate. The federal government of Germany already implemented exceptions for workers insured for 45 years to retire at the age of 63. There are also potential social and skill specific inequalities.

RECOMMENDATIONS

- Modernize essential infrastructure
- Provide attractive immigration policies
- Cultivate a welcoming environment
- Improve social amenities
- Adopt machine learning and artificial intelligence in public administration
- Train the workforce to adopt new technologies
- Support private investment in digital infrastructure
- Introduce phased retirement options
- Enhance working conditions for older employees
- Targeted exceptions

DISCUSSION

Central Germany, grappling with an ageing population due to past mass youth migration, needs strategic solutions to cope with the demographic shift. Strategies include encouraging young cohort immigration and modernizing the local economy to reduce labor intensity, although these may face challenges like regional attractiveness and a shortage of qualified young workers. Other approaches, such as the increasing retirement age, hinge on public acceptance, indicating the necessity of holistic strategies that balance infrastructure development, educational advancement, and socio-political factors.



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✉ info@entrancesproject.eu

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