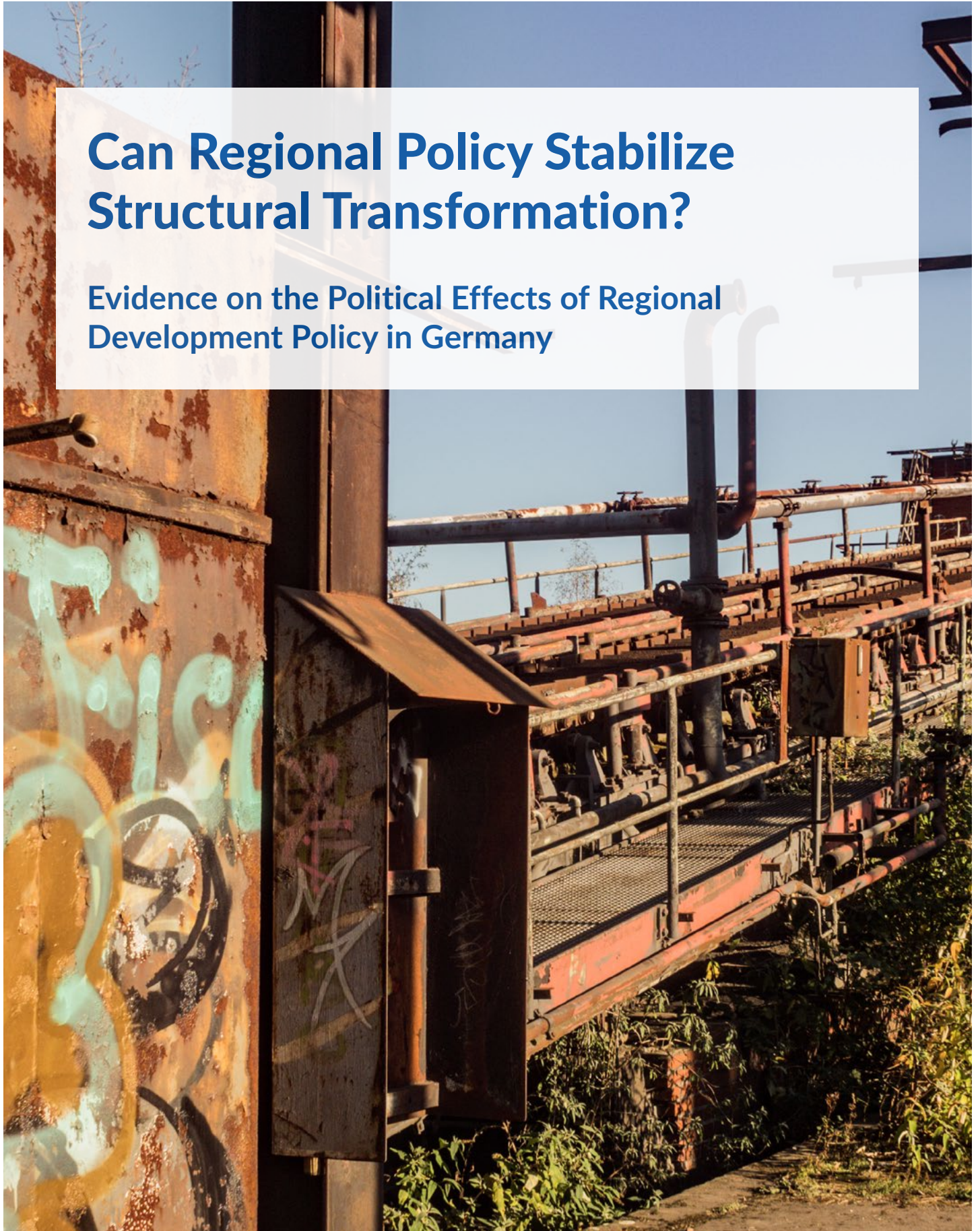


Can Regional Policy Stabilize Structural Transformation?

Evidence on the Political Effects of Regional
Development Policy in Germany



Publishing Information

© Bertelsmann Stiftung, Gütersloh
2026

Publisher

Bertelsmann Stiftung
Carl-Bertelsmann-Straße 256, 33311 Gütersloh
www.bertelsmann-stiftung.de

Program

Sustainable Social Market Economies
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Citation note

Heddesheimer, V, Hilbig, H., Posch, D, Südekum, J. (2026) Can Regional Policy Stabilize Structural Transformation? - Evidence on the Political Effects of Regional Development Policy in Germany. Bertelsmann Stiftung (Hrsg.) Gütersloh

Layout

Paul Feldkamp

DOI 10.11586/2026077

ID_3095

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Key takeaways

Structural transformation is not purely a techno-economic challenge. Above all, it is a political one. Its success depends to a large extent on public acceptance and social cohesion. Structural change unfolds unevenly across space, shaped by patterns of industrial specialization and region-specific political-economic configurations. In places where adjustment pressures are concentrated, willingness to support transformation often declines. Political polarization can follow, and – as numerous studies across OECD countries show – populist political movements tend to gain disproportionately strong support in precisely these regions. Both dynamics, as the relevant academic literature suggests, can complicate the implementation of an orderly transformation at the expense of economic growth and social cohesion, as political polarization and the electoral success of populist movements can delay adjustment processes and, in certain contexts, contribute to abrupt and conflict-ridden forms of disruption. Against this backdrop, regional policy is increasingly being deployed as a political instrument to strengthen support for structural change and prevent political disruption in the wake of economic shocks. International evidence suggests that regional policy can help reduce political polarization when it protects local employment and delivers visible improvements in infrastructure. Yet whether, and under what conditions, such effects materialize remains empirically underexplored. In Germany in particular, robust empirical evidence is still lacking on whether and how regional policy affects political polarization at the local level.

This study therefore combines a fine-grained analysis of German regional funding flows with a causal investigation of political effects at the local level, alongside a differentiated examination of individual components of Germany's integrated federal funding system, or the Federal Funding System for Structural Development Regions (GFS). It builds on the established literature on the "Geography of Discontent," which shows that perceived regional disadvantage and economic status loss in Germany are expressed primarily through support for right-wing populist parties. While electoral abstention often reflects resignation, voting for Alternative for Germany (AfD) represents an active anti-system signal, closely linked to dissatisfaction with state performance and regional inequality. This study is the first to systematically examine the

political effects of regional development policy in Germany using administrative microdata on the actual disbursement of GFS funds, covering all 22 funding programs administered by seven federal ministries at the county level in 2021. Given the temporal scope of the funding data, our empirical analysis focuses on election results from three state elections: in Lower Saxony (Oct. 9, 2022) as well as Bavaria and Hesse (both on Oct. 8, 2023).

Taken together, the state election results provide robust evidence that public regional funding has a dampening effect on political polarization, as measured by support for the AfD. However, this effect does not occur automatically with every euro spent. Rather, the impact varies substantially across different funding pillars. At the level of the three main funding pillars, infrastructure funding shows the strongest and most statistically significant effect on the AfD vote share. Business-related support also produces a negative point estimate, although the aggregate effect is not statistically significant. At the program level, infrastructure funding under the Joint Task for the Improvement of Regional Economic Structures (GRW), the Innovation & Structural Change program and broadband expansion funding emerge as statistically significant.

Research in regional economics suggests that regional funding is politically most effective in areas facing the greatest adjustment pressures – that is, where the local economic base is under the most intense transformation pressure. Our findings show that support for the AfD is most responsive to funding interventions in regions facing elevated adjustment pressures. Specifically, more intensive funding in counties with a high share of emissions-intensive employment or acute "transformation stress" leads to a statistically significant reduction in the AfD vote share in state elections. Substantively, our estimates suggest that a €100 increase in per capita infrastructure funding is associated with an approximately 1.00 percentage point decline in the vote share of AfD in regions with high concentrations of emissions-intensive employment.

Beyond this, our study highlights an important tension in the design of German regional policy. While infrastructure and business support are concentrated primarily in economically weaker regions, innovation-oriented programs (such as EXIST and ZIM) barely

reach the regions under the greatest transformation pressure, instead clustering in areas that are already economically strong. Yet the structural transformation driven by decarbonization fundamentally challenges this allocation logic. Many of the industrial specializations that are deeply rooted in local economies and have historically sustained regional growth are now becoming economically less viable as the transition accelerates. As a result, the local knowledge base on which innovation has traditionally depended also begins to erode. Under these conditions, innovation policy driven primarily by efficiency considerations may

actually make it harder for affected regions to develop new avenues of growth. The GFS can therefore be interpreted in two ways: on the one hand, it appears to provide short-term political stabilization by enabling visible investment projects on the ground that generate strong political multiplier effects. On the other hand, it risks depriving precisely those regions of the technological renewal they most urgently need – regions that are both most economically dependent on structural renewal and most politically fragile.

1. Introduction

Across many Western democracies, the long-term shift toward service-based economies and knowledge-intensive sectors has produced deep regional disparities. Deindustrialization, automation and global competition have triggered lasting job losses, falling wages and the erosion of local value chains, particularly in regions once shaped by industrial production (Acemoglu and Restrepo 2018; Autor, Dorn and Hanson 2013; Dauth, Findeisen and Südekum 2017; Dauth et al. 2021). Climate change – along with the policy measures designed to mitigate it – is accelerating this structural transformation and creating additional adjustment pressures. Both the materialization of physical climate risks and the transition risks associated with decarbonization are placing growing strain on existing capital stock, labor markets as well as public and private finances (Beirne, Renzhi and Volz 2021; Claeys et al. 2024; Colgan, Green and Hale 2021).

These economic adjustment processes are unfolding in highly uneven ways across space, giving rise to so-called “left-behind places” – regions that have fallen behind the national average in economic dynamism, investment and long-term prospects (Dijkstra et al. 2020; Rodríguez-Pose 2018). Emerging research suggests that left-behindness and climate vulnerability often overlap. Economically weaker regions tend to face both elevated physical climate risks and greater transition risks, not least because they are more likely to depend on emissions-intensive industries, have less diversified economic structures and possess more limited adaptive capacity (Kostarakos et al. 2025; Rodríguez-Pose and Bartalucci 2024). Alongside measurable economic consequences – including weaker employment, outmigration and fiscal stress – these developments are increasingly generating political effects. A growing body of research shows that regional economic marginalization is associated with political alienation, declining trust in public institutions and rising support for populist and anti-system parties (Autor et al. 2020; Colantone and Stanig 2018; Cremaschi, Bariletto and de Vries 2025; Milner 2021).

In the context of the green transition, however, these dynamics may take on a distinct character. The

phaseout of specific economic activities – in this case emissions-intensive industries – is not an unintended consequence of exogenous shocks such as trade policy or technological change. Rather, it is the result of a deliberate and explicit political transformation process. At the same time, decarbonization is deeply normatively charged in public debate. Political messaging – often framed in stark or confrontational terms – that questions or denies the long-term viability of certain industries or consumption patterns can create stigmatization effects. Among affected workers and regions, such narratives may reinforce the perception of being politically and economically delegitimized, potentially reshaping political demand in these areas (Heddesheimer, Hilbig and Erik Voeten 2025). These dynamics are likely to be particularly pronounced in regions facing more severe climate-related structural disruption.

Even in Germany – despite its extensive welfare state and robust system of fiscal federalism – regional economic disruptions, particularly in former industrial centers and peripheral rural areas, have visibly contributed to political polarization (Dippel et al. 2022; Heddesheimer, Hilbig and Erik Voeten 2025; Schöll and Kurer 2024). More recent research on Germany, along with analyses by the Cologne Institute for Economic Research (IW) on the 2025 federal election, shows that populist parties perform particularly well in regions where industry remains central to local value creation, yet where the future decline of these economic structures is increasingly anticipated (Bayerlein et al. 2025; Bergmann, Diermeier and Kempermann 2025).

Against this backdrop, governments across affluent democracies are increasingly turning to geographically targeted economic interventions to support lagging regions. These place-based policies – including investment subsidies, industrial policy initiatives and infrastructure investment – are intended to strengthen local employment, sustain regional value creation and counter growing spatial inequalities (Südekum 2022; Südekum and Posch 2024, 2025). At the same time, they are increasingly viewed as political instruments.

Policymakers often see regional development funding as a way to make state capacity visible and rebuild public trust in “left-behind places” (Austin, Glaeser and Summers 2018; Heddesheimer, Hilbig and Wiedemann 2026).

Economic research has long shown that geographically targeted funding programs can stimulate economic activity in structurally weaker regions. Studies of investment subsidies, industrial clusters, tax incentives and large-scale infrastructure programs consistently find positive effects on employment, productivity and local economic growth (Bartik 2020; Sieglöcher, Wehrhöfer and Etzel 2025; Kline and Moretti 2014; Neumark and Simpson 2015). At the same time, the literature also points to the efficiency challenges associated with geographically concentrated transfers. From a macroeconomic perspective, place-based interventions can create risks of misallocation and yield only limited productivity gains when funding is not tied to clearly identifiable externalities or demonstrable barriers to regional development. In this vein, Edward Glaeser and Joshua Gottlieb (2008) argue that spatially targeted policy interventions improve welfare only under specific conditions, and that the empirical evidence points to an inherent trade-off between distributive objectives and economic efficiency.

For a long time, however, the political impact of such regional programs remained poorly understood. A growing body of research now examines whether and how place-based interventions shape political attitudes and electoral behavior. In the European context, much of this work focuses on European Union cohesion policy. These studies suggest that transfers and investments in economically marginalized regions can reduce populist or Euroskeptic tendencies, particularly when local residents can observe tangible improvements and perceive stronger labor market opportunities (Albanese, Barone and de Blasio 2022; Bayerlein and Diermeier 2025; Crescenzi, Di Cataldo and Giua 2020; Gold and Lehr 2024; Vergioglou 2023). A critical factor is the visibility and political attribution of state action. Direct and highly visible interventions tend to generate stronger political feedback effects than indirect measures such as tax incentives or innovation subsidies (Mettler 2011; Campbell 2012). Evidence from Germany points in a similar direction. Hager and Hilbig (2024) show that municipal spending on visible public goods functions as a signal of prosperity and reduces support for populist parties. Araújo, Arretche and Beramendi (2024) find that infrastructure

investments generate lasting electoral effects when spillover effects visibly improve everyday local conditions. Taken together, this evidence challenges a purely transfer-based understanding of regional policy and instead highlights the importance of policy design, visibility and local implementation capacity. Our own research on funding cuts to Germany’s largest regional development program – the Joint Task for the Improvement of Regional Economic Structures (GRW) – likewise underscores the importance of local political responses as a condition for broader electoral effects (Heddesheimer, Hilbig and Wiedemann 2026).

Alongside research on regional development programs, a broader body of literature has emerged on targeted compensatory policies designed to cushion economic shocks – whether triggered by trade exposure, technological change or sector-specific crises. While these policies pursue objectives similar to those of regional development policy, they typically target specific groups or industries rather than places. Here too, the evidence on political impact remains mixed. Some studies find that targeted compensation programs can reduce political discontent by mitigating economic losses and strengthening trust in political leaders (Kim and Pelc 2021; Rickard 2023). Other research, however, points to the political ambivalence of such measures. Compensation can itself send political signals by drawing attention to the costs of economic disruption in the first place. Kim and Gulotty (2024), for example, show that this can generate an “anxiety effect,” in which incumbents are punished, particularly in regions only marginally affected by economic shocks. Even where compensation takes the form of substantial financial support, political effects often remain limited. Jares and Malhotra (2025) find that large transfer payments to U.S. farmers during the trade conflict had little measurable impact on voter turnout or broader political engagement.

Against this backdrop, the German case warrants particular attention. Since 2020, Germany has operated the Federal Funding System for Structural Development Regions (GFS), an institutionally distinctive framework that brings a wide range of geographically targeted policy instruments under a single umbrella. The system combines traditional business-related support, infrastructure investment and innovation funding with programs aimed at strengthening social cohesion and democratic resilience. Unlike many of the policy interventions examined in previous research, the GFS not only enables a substantial

increase in the intensity of regional support but also introduces systematic variation in the design of policy interventions within the same regions. This creates a unique opportunity to assess the political effects of different program types, rather than treating regional funding as a single aggregated measure. Given the pronounced regional tensions accompanying structural transformation in Germany (see Mitsch and McNeil 2022; Radtke and Löw-Beer 2025; Reitzenstein et al. 2022; Schönauer and Glanz 2023), a central question arises: Can the GFS serve as a visible signal of state capacity – one capable of reducing political polarization and strengthening trust in government action?

This study thus examines whether, and through which mechanisms, the different components of GFS funding shape political attitudes and electoral behavior. At its core is the question of whether higher levels of regional funding – both overall and across individual funding pillars – contribute to political stability, for example by reducing support for extremist and populist parties such as the AfD. As the first study of its kind in Germany, our analysis combines a fine-grained examination of funding allocation with a causal investigation of political effects at the local level, while also providing a differentiated assessment of individual GFS components.

The structure of the study follows the analytical logic linking funding allocation to political outcomes. Following an overview of the funding system (Chapter 2) and a discussion of the methodological approach (Chapter 3), we turn to an empirical analysis of the spatial distribution of GFS funding (Chapter 4). The core of the study then turns to a causal analysis of election outcomes at the local level – using municipalities as the primary unit of analysis, with funding assigned at the county level – presented in Chapter 5. This analysis also examines how regional transformation pressures shape the political effects of funding. The study concludes with a summary of the key findings and the resulting policy recommendations for economic policymakers (Chapter 6).

2. Germany's Federal Funding System for Structural Development Regions

Germany's Federal Funding System for Structural Development Regions (GFS) was introduced on Jan. 1, 2020, with the aim of bringing Germany's federal regional funding programs under a single strategic framework for the first time. The system encompasses more than 20 funding programs administered by seven federal ministries across six policy areas, targeting structurally weaker regions throughout Germany, regardless of whether they are located in eastern or western Germany, or in urban or rural areas. In this sense, the GFS goes well beyond traditional regional business-related support. It combines investments in economic development, innovation, infrastructure, digitalization as well as social participation and democratic resilience.¹ Table 1 outlines the three core pillars of the GFS, the associated funding programs and their respective policy objectives.

The creation of the GFS can be traced back to recommendations put forward in 2019 by the expert working group on "Economy and Innovation" within the federal Commission on Equivalent Living Conditions. The aim was to improve coordination across the federal government's existing regional support programs, increase transparency in the geographic allocation of funding and establish a more systematic framework for evaluating the effectiveness of regional development policy. At its core, the GFS is designed to promote equivalent living conditions across Germany.

The overarching objective of the GFS is to promote equivalent living conditions across Germany. Accordingly, structurally weak regions should be enabled to provide attractive conditions for both living and working. The identification of structurally weak regions is based largely on the criteria used in the Joint Task for the Improvement of Regional Economic Structures (GRW). These include regional income levels, underemployment, demographic trends and infrastructure conditions. Based on this classification, eligible regions receive preferential funding terms or exclusive access to specific programs.

In April 2025, the federal government published the first cross-program evaluation of the GFS (Federal Ministry for Economic Affairs and Climate Action 2025). According to the report, the GFS contributes to measurable improvements in regional development over the medium to long term. Regions receiving GFS support show stronger economic output, higher employment, rising wages, additional private investment, greater innovation activity and improved broadband coverage. The funding also appears to improve migration balances and, by extension, demographic trends, suggesting that the GFS enhances the attractiveness of structurally weak regions and – when sufficiently funded – can contribute to economic convergence across regions. The political consequences of the GFS, however – particularly its effects on regional voting behavior – have not yet been systematically examined.

1 <https://www.bundeswirtschaftsministerium.de/Redaktion/DE/Artikel/Wirtschaft/gesamtdeutsches-foerdersystem.html>

GFS pillar (analytical category)	Funding program (subcomponent)	Description	Policy objective
Business-related support	GRW – Commercial economy (Joint Task for the Improvement of Regional Economic Structures)	Investment grants for businesses in structurally weak regions to establish, expand or modernize facilities.	Strengthen business competitiveness and innovation capacity, create and safeguard jobs, stimulate private investment.
	Innovation & structural change	Support for regional innovation ecosystems in structurally weak regions through open-topic, bottom-up collaboration between academia, industry and other regional stakeholders.	Build future-oriented innovation hubs, support sustainable structural transformation, foster interdisciplinary and strategic partnerships.
	Companies in the region	Support for regional innovation alliances involving businesses, universities and research institutions.	Develop and strengthen regional innovation structures, establish future-oriented technological capabilities, support innovation-driven structural change.
	INNO-KOM (Innovation Competence)	R&D support for non-profit, non-university industrial research institutions in structurally weak regions, including market-oriented development, early-stage research and infrastructure modernization.	Strengthen regional innovation capacity, transfer research findings to SMEs, maintain high-performing research infrastructure.
	Innovative Municipalities	Research and development projects led by municipalities in cooperation with academia, business and civil society, focused on demographic change, public services and sustainable local development.	Strengthen municipal innovation and governance capacity, develop practical models for administration, infrastructure, participation and sustainable regional development – particularly in structurally weak regions.
	ZIM (Central Innovation Program for SMEs)	Technology-neutral and sector-neutral support for market-oriented R&D projects by small and medium-sized enterprises, including individual projects, joint ventures and innovation networks.	Strengthen the innovation and competitive capacity of SMEs, support first-time innovators, foster cooperation and regional innovation networks, especially in structurally weak regions.
	EXIST (University-Based Entrepreneurship)	Support for the development of university-based entrepreneurship ecosystems, regional startup networks and entrepreneurial infrastructure at higher education institutions.	Unlock untapped entrepreneurial potential, embed entrepreneurial thinking in higher education, increase innovative spin-offs, especially in structurally weak regions.
Infrastructure and public services	GRW – economic infrastructure	Support for municipal investments in business-related infrastructure, including industrial parks, technology centers, tourism infrastructure as well as education and research facilities.	Improve regional location conditions, strengthen local value chains and economic attractiveness, increase business investment.
	Broadband expansion (Gray spot program)	Funding for gigabit broadband rollout in underserved areas, including planning, consulting and fiber-optic infrastructure expansion.	Close digital infrastructure gaps, improve the competitiveness of rural and structurally weak regions, ensure digital access for households, businesses and public institutions.
	Digital Now	Grants for SMEs to digitalize business processes, including investments in hardware, software and workforce training.	Accelerate digital transformation and strengthen SME competitiveness, with higher funding rates for structurally weak regions.

GFS pillar (analytical category)	Funding program (subcomponent)	Description	Policy objective
Infrastructure and public services	Urban development funding	Financing for integrated urban development initiatives through programs such as Vibrant Centers, Social Cohesion and Growth and Sustainable Renewal.	Support sustainable and future-oriented urban development through downtown revitalization, neighborhood stabilization and adaptation to structural change, including climate adaptation.
	Intercompany vocational training centers	Capital funding for construction, modernization and equipment upgrades in vocational training centers, including digitalization and development into centers of excellence.	Strengthen vocational education and workforce development, secure the skilled labor base, particularly among SMEs, modernize training infrastructure – with enhanced funding rates in structurally weak regions.
Society and Democracy	Workshop on the Future of Municipalities	Support for municipalities developing local demographic strategies, including external consulting, analysis and citizen participation formats.	Strengthen social infrastructure, civic participation and local attractiveness through strategic responses to demographic change – particularly in structurally weak regions.
	Multigenerational Housing	Accessible community spaces providing intergenerational programs, counseling, volunteer support and social participation opportunities.	Strengthen social cohesion, promote civic participation and volunteer engagement, support demographic adaptation and improve local quality of life – particularly in structurally weak regions.
	Partnerships for Democracy (part of “Live Democracy!”)	Municipal network and grant structures supporting civil society projects in democracy promotion, diversity and extremism prevention.	Strengthen local civil society, expand democratic participation – especially among young people – and improve social cohesion, with particular relevance for structurally weak municipalities.

3. Data and methodology

3.1 Data sources

To systematically examine the political effects of regional funding under the Federal Funding System (GFS), we combine GFS funding data with electoral data.

3.2 GFS funding data

Our analysis draws on administrative funding data from the Integrated Federal Funding System for Structurally Weak Regions (GFS), provided by the Federal Ministry for Economic Affairs and Energy (BMWE). The data are available at the county level and capture the actual disbursement of funds across all ministries participating in the GFS for the year 2022. The data do not merely report aggregate funding volumes. Instead, funding flows are disaggregated by individual program lines, allowing us to analyze key dimensions of regional support separately – including business-related development under the Joint Task for the Improvement of Regional Economic Structures (GRW), municipal infrastructure, innovation and research programs, digitalization initiatives as well as projects aimed at strengthening social cohesion and democratic participation. To ensure a consistent and analytically tractable framework, we group the individual programs into three thematic pillars – economy, infrastructure and society. This classification follows the official program taxonomy used by the BMWE (BMWK 2025, Figure 1). All funding volumes are converted into per capita measures and subsequently standardized.² As a result, all estimated effects can be interpreted consistently as the change associated with a one-standard-deviation increase in regional funding intensity.

3.3 Socioeconomic structural data

We merge the GFS funding data with socioeconomic indicators from the INKAR database maintained by the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR 2025). These

data are available at the county level and refer to the year 2020 – immediately before the start of the GFS funding period. Using pre-treatment data from 2020 helps avoid endogeneity concerns that could arise if structural characteristics had already been affected by the funding itself. Specifically, we include the following variables: gross domestic product per capita, median income, gross wages, local rent levels, the share of employment in the tertiary sector, the share of employment in manufacturing, the share of foreign residents, upper secondary educational attainment and the share of refugees.

3.4 Electoral data

To assess political effects, we link the GFS funding data with harmonized official election results from the German Election Database (GERDA), which provides consistent municipality-level and county-level electoral data across German elections (Heddesheimer et al. 2025). Our analysis focuses on three state elections that took place immediately after the GFS funding period and therefore offer a particularly suitable opportunity to capture potential political responses to regional funding intensity. Specifically, we examine the election to the 19th state parliament of Lower Saxony on Oct. 9, 2022, as well as the elections to the 19th state parliaments of Bavaria and Hesse, both held on Oct. 8, 2023.

For all three elections – as well as for state elections held before 2022 – GERDA provides fully harmonized second-vote results at the municipal level. These are matched to the funding data using official municipality identifiers. The municipality therefore serves as the primary unit of analysis, while county boundaries are used solely to link municipalities to county-level GFS funding data.

Our main outcome variable is the vote share of the AfD. This focus is grounded in the established literature on the “Geography of Discontent,” which shows that perceived regional disadvantage and economic status decline in Germany are expressed primarily

² Here, standardization means that each variable is divided by its own standard deviation, resulting in variables that are expressed on a common scale.

through support for right-wing populist parties (Dippel et al. 2022; Heddesheimer, Hilbig and Wiedemann 2026). While electoral abstention often reflects political resignation, voting for the AfD constitutes a more active anti-system signal, closely linked to dissatisfaction with state performance and perceived regional inequality. Because the Sahra Wagenknecht Alliance (BSW) party was not yet on the ballot during the period under study (2022–2023), the AfD provides the most valid indicator of politically mobilized discontent in structurally weak regions.

We deliberately do not analyze federal election data, as GFS funding data are available only for the year 2022. A federal election analysis would require covering the period between 2021 and 2025. Without data on the distribution of funding after 2022, a valid analysis is not possible. In particular, there would be a substantial risk of measurement error if the regional allocation of funds in 2023 and 2024 were not strongly correlated with the distribution observed in 2022. If funding priorities shifted across regions in subsequent years, relying solely on 2022 data could introduce substantial bias into the estimates. To avoid this risk, and in the interest of methodological rigor, we limit our analysis to state elections held in close temporal proximity to the observed funding period.

3.5 Indicators of transformation pressure

To assess whether regional funding produces different effects in areas facing intensified decarbonization and adjustment pressures, we incorporate two specific indicators of structural transformation pressure measured at the county level:

Transformation stress index: This dynamic indicator builds on the methodology developed by Südekum and Rademacher (2024). It identifies counties whose economic structures are heavily concentrated in industries that, over the period from 2000 to 2019, failed to decouple emissions from economic output. A high score therefore signals technological lag and substantial future adjustment needs.

Share of emissions-intensive employment ("brown jobs"): This static indicator follows the classification developed by Vona et al. (2018) and further applied by Heddesheimer, Hilbig and Erik Voeten (2025). It measures the share of employees at the county level working in occupations that are disproportionately

concentrated in environmentally intensive industries and whose skills are only weakly transferable to emerging green sectors. A high share suggests an elevated risk of status loss and structural unemployment.

3.6 Empirical strategy

To isolate the causal effects of regional funding, we employ a difference-in-differences (DiD) research design. Rather than comparing funded and nonfunded regions at a single point in time, this approach examines how political outcomes evolve over time across regions exposed to different levels of funding intensity. In other words, we do not simply ask whether voters in funded regions behave differently from voters elsewhere. Instead, we examine whether voting behavior changes differently after the introduction of funding compared with otherwise similar regions receiving lower levels of support. This approach serves as a real-world counterfactual test. It filters out stable, time-invariant differences between regions – such as historically rooted political preferences – and focuses exclusively on changes over time. A key advantage of this method lies in its ability to account for broader trend effects. Political sentiment often shifts nationwide in response to major events – including economic crises, inflationary pressures or geopolitical shocks. If one were to compare voting outcomes in funded regions only before and after the allocation of funds, there would be a substantial risk of incorrectly attributing broader national trends to regional policy interventions. The DiD framework addresses this issue by subtracting the “common trend” observed in less intensively funded comparison regions. The estimated effect therefore captures only the portion of political change that can plausibly be attributed to additional regional funding. In our analysis, regional funding intensity is operationalized as a continuous treatment variable at the county level. Specifically, we measure per capita funding volumes for each of the GFS funding pillars across all counties in 2022. This year serves as the empirical baseline because it is the first year for which complete, harmonized and program-level funding data are available.

To identify political changes over time, we define specific pre-treatment and post-treatment periods. The state elections in Lower Saxony (2017), Bavaria (2018) and Hesse (2018) serve as the pre-treatment period – before GFS funding could plausibly affect electoral behavior. The elections held in 2022 and 2023 constitute the post-treatment period. We therefore

examine how the vote share of the AfD evolves in regions with higher versus lower levels of GFS funding relative to their preexisting electoral baseline.

3.7 Presentation of results

To present the empirical findings, we use coefficient plots. These visualize estimated regression coefficients as point estimates along with their corresponding 95% confidence intervals. Confidence intervals that do not cross the zero line indicate statistical significance at the 5% level. This visualization allows for an efficient assessment of the direction, magnitude and precision of the estimated relationships.

4. Distribution of GFS funding

Before turning to the political impacts of regional funding, we first examine how resources under the Integrated Federal Funding System are distributed across regions. The objective of this descriptive analysis is to better understand whether, and in what ways, funding allocation is associated with the socioeconomic and political characteristics of Germany's counties.

To analyze funding patterns, we draw on structural data from INKAR (Indicators and Maps on Spatial and Urban Development), maintained by the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR). We correlate per capita disbursements across individual GFS subprograms in 2022 with a range of relevant economic, demographic and political indicators at the county level, using structural data from 2020 and 2021. The analysis includes bivariate correlations between 16 GFS funding programs and 14 selected structural indicators. This allows us to identify broader patterns in the distribution of funding across programs, while also highlighting differences between individual funding pillars.

4.1 Broad distribution patterns: A focus on structural weakness

Figure 1 presents the correlations between individual GFS funding programs and a range of structural indicators. Looking across all program lines, the overall allocation pattern confirms the core orientation of the GFS toward structurally weaker regions. Funding is concentrated primarily in areas facing economic and demographic pressures. This pattern is particularly pronounced when examining political indicators. Across the major funding programs, funding intensity shows a strong positive correlation with the vote share of the AfD in the 2021 federal election. The strongest correlation is observed for total GRW funding ($r = 0.58$), followed closely by GRW business-related support ($r = 0.55$). It is important to emphasize that these unweighted correlations are purely descriptive. They primarily reflect the fact that the administrative criteria used to allocate funding – structural weakness – overlap geographically with regions experiencing elevated levels of political discontent. In practice, the GFS is therefore reaching precisely those regions that are not only under economic strain, but where political protest has already manifested itself

through strong electoral support for populist parties. Consistent with this pattern, these same programs show strong negative correlations with indicators of prosperity. Regions receiving high levels of GRW funding tend to have significantly lower median incomes ($r = -0.42$) and lower local housing costs ($r = -0.35$).

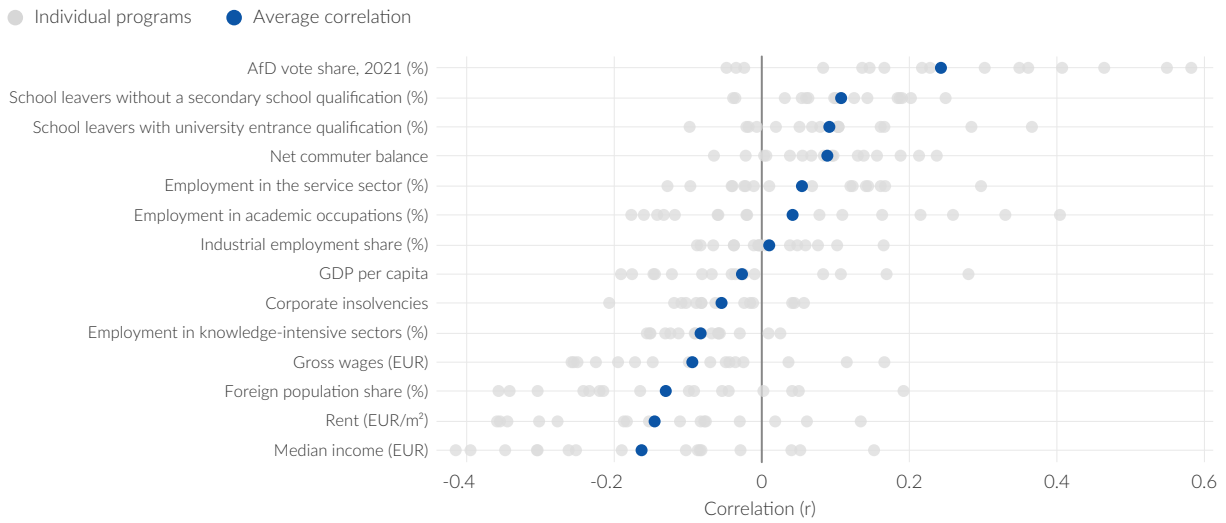
4.2 Heterogeneity in funding allocation

Beneath this broad pattern, however, three distinct allocation logics emerge. A closer analysis of the correlations reveals that the GFS does not operate as a uniform policy instrument.

Rather, it simultaneously pursues multiple and, in some cases, contrasting strategic objectives. The largest funding streams follow a clear compensatory logic, explicitly targeting structural deficits. This is particularly evident in the GRW programs – both business-related support and infrastructure funding – which display strong correlations with economic weakness and elevated AfD vote shares. Interestingly, civil society programs follow a remarkably similar pattern. Partnerships for Democracy shows a correlation of $r = 0.41$ with the AfD vote share, while Multigenerational Centers shows a correlation of $r = 0.35$ – nearly matching the pattern observed for business-related development programs. These programs also disproportionately direct resources toward lower-income regions ($r = -0.30$). Taken together, these instruments appear highly redistributive, targeting regions with the greatest socioeconomic and political need.

In contrast, a second group of programs follows an efficiency-oriented strategy centered on technological excellence and innovation capacity. Here, funding tends to flow toward regions that are already economically strong. A central example is the EXIST program. EXIST funding is positively correlated with commuter inflows ($r = 0.37$), the share of academically employed workers ($r = 0.33$) and gross domestic product per capita ($r = 0.28$). Similarly, the “Companies in the Region” program shows positive correlations with academic employment ($r = 0.26$). Rather than compensating for structural weaknesses across lagging regions, these programs reinforce existing innovation clusters – often university cities or already established

FIGURE 1 Correlations between GFS programs and selected district-level indicators



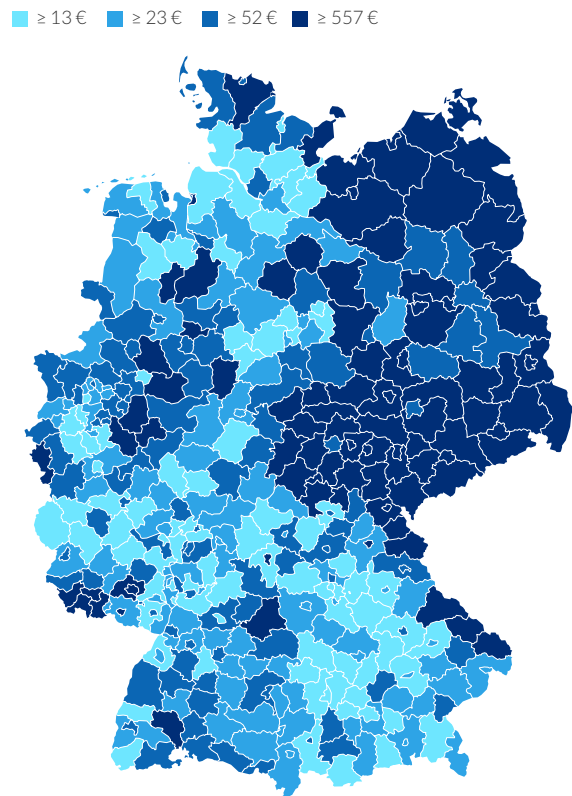
Source: Eigene Berechnungen auf Basis der GFS Förderdaten des BMWF.

research hubs. Unsurprisingly, these innovation-oriented programs show either no correlation or slightly negative correlations with AfD vote shares.

A third group of programs shows little systematic relationship with the structural indicators included in our analysis, suggesting a much broader geographic distribution. Programs such as the Workshop on the Future of Municipalities and Digital Now exhibit only weak correlations – typically below $r = 0.1$ – with key indicators, including income levels, industrial employment and political preferences. Similarly, urban development funding shows no pronounced spatial concentration in relation to specific regional challenges. This distribution pattern likely reflects differences in application behavior among municipalities and firms, rather than deliberate regional targeting by the federal government.

Taken together, a clear pattern emerges. While the largest share of GFS funding – particularly GRW programs and democracy-oriented initiatives – functions as a classic compensatory policy directed toward politically fragile and economically weaker regions, the innovation pillar – most notably EXIST – selectively strengthens already high-performing regional centers.

FIGURE 2 Geographic distribution of GFS funding across counties and independent cities



Source: GFS-Förderdaten des BMWF.

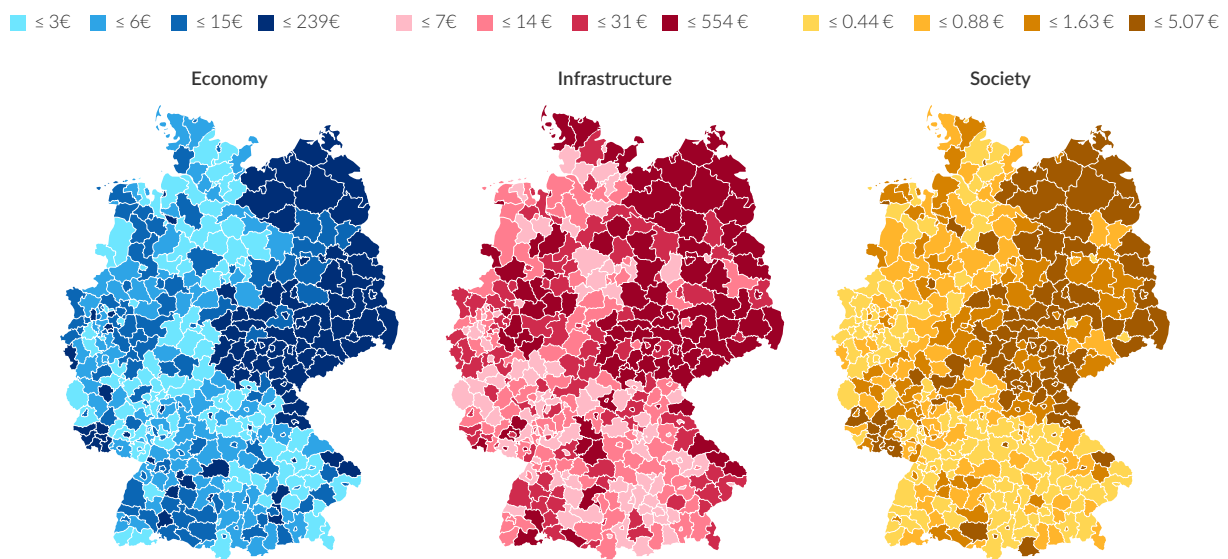
4.3 Spatial distribution of GFS funding

Figure 2 illustrates the geographic distribution of GFS funding across Germany's counties, measured in euros per capita. The analysis shows that the highest funding intensities are concentrated primarily in the eastern federal states, although this broader pattern is interrupted by significant clusters in western border regions. The highest overall funding volumes nationwide are found in counties located in Saxony-Anhalt, Mecklenburg-Western Pomerania and Thuringia. The county of Altmarkkreis Salzwedel (Saxony-Anhalt) records the highest level of funding in the dataset, receiving approximately €557 per capita. It is followed by the county of Ludwigslust-Parchim (Mecklenburg-Western Pomerania) with roughly €468 per capita and Schmalkalden-Meiningen (Thuringia) with approximately €324 per capita. At the same time, several counties in Bavaria – particularly in areas that once formed part of the former inner-German border zone – display funding intensities that match or even exceed those of many eastern German regions. Notable examples include Cham, with approximately €281 per capita, Tirschenreuth at roughly €211 and Wunsiedel im Fichtelgebirge at approximately €178 per capita. All of these figures lie well above the national average. By contrast, funding levels in economically strong western metropolitan regions remain comparatively low. Urban centers such as Munich, Frankfurt and Düsseldorf receive between €7 and €13 per capita, placing them at the lower end of the national distribution.

Figure 3 shows that total funding volumes at the county level are driven primarily by the economy and infrastructure pillars, with infrastructure funding accounting for the most extreme outliers in the overall distribution. In Altmarkkreis Salzwedel, infrastructure funding accounts for nearly the entire funding volume, totaling approximately €554 per capita. A similar pattern appears in Ludwigslust-Parchim, where infrastructure support reaches roughly €438 per capita and dominates the county's overall funding profile. Business-related support, by contrast, reaches its highest relative levels in specific urban and industrial centers. The city of Jena (Thuringia) ranks highest, receiving nearly €239 per capita. It is followed by the city of Chemnitz (Saxony) with approximately €208 and the county of Spree-Neiße (Brandenburg) with roughly €203. This funding pillar also shows notable concentrations in western Germany. One prominent example is the Bavarian county of Wunsiedel im Fichtelgebirge, which receives approximately €171 per capita in business-related support.

The Society and Democracy pillar, by contrast, differs markedly from the investment-oriented funding categories – both in its geographic distribution and in its financial scale. Even at the upper end of the distribution, per capita funding in this category remains in the low single-digit euro range. The highest allocations are found in Vogelsbergkreis in Hesse, with approximately €5.10 per capita, followed by Spree-Neiße with around €5.00 and the city of Zweibrücken (Saarland) with

FIGURE 3 Geographic distribution of GFS funding by GFS pillar



Source: GFS-Förderdaten des BMWF.

approximately €4.95. The geographic pattern of this funding pillar differs notably from that of business and infrastructure support. Western counties such as Vogelsbergkreis (Hesse) and Zweibrücken (Rhineland-Palatinate) – which do not appear among the top recipients in the other funding categories – emerge here as leading beneficiaries. This suggests a distinct allocation logic, one that translates geographically in different ways than the capital-intensive investment programs.

4.4 Transformation pressure and the allocation of funding

When averaged across all GFS program lines, there is virtually no systematic relationship between funding intensity and regional transformation pressure. For both indicators – the transformation stress index and the share of emissions-intensive employment – the average correlation is close to zero.³ A more differentiated picture emerges, however, once individual programs are examined separately. The GRW Commercial Economy program shows a positive correlation with both the share of emissions-intensive employment ($r = 0.23$) and transformation stress ($r = 0.20$). Germany’s flagship regional development instrument therefore tends to reach regions directly affected by industrial transformation. At the same time, the relatively modest strength of these correlations provides empirical support for the diagnosis put forward by Südekum and Posch (2024): while the GRW responds to existing economic weakness, it captures regions facing elevated transformation pressure only to a limited extent.

A very different pattern emerges for innovation-oriented funding programs. Programs such as EXIST, ZIM and Companies in the Region show statistically meaningful negative correlations with both transformation

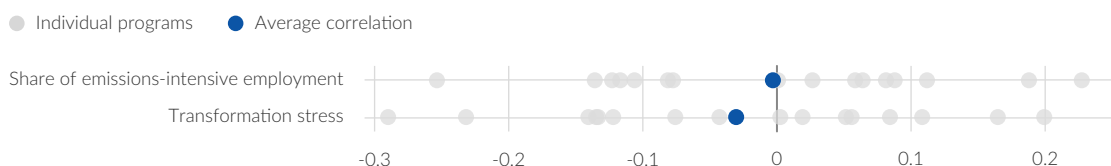
indicators, with correlation coefficients ranging from -0.29 to -0.12 . In practical terms, this means that funding for research, development and entrepreneurship tends to flow less frequently to regions facing the greatest structural adjustment pressures. As a result, Germany’s traditional industrial regions – areas characterized by higher shares of emissions-intensive employment – do receive support for physical investment and industrial modernization, but they participate only to a below-average extent in programs designed to support the knowledge economy.

4.5 Conclusion

The analysis of GFS funding allocation suggests that, in aggregate, the system largely fulfills its compensatory mandate. Funding is directed primarily toward economically weaker and politically fragile regions – a pattern reflected in the strong positive correlation between funding intensity and the AfD vote share. Beneath this aggregate pattern, however, distinct allocation logics become visible. The financially dominant pillars – particularly business and infrastructure funding under the GRW, along with civil society programs – explicitly target structural deficits. These interventions channel substantial resources not only to eastern Germany, but also to western border regions facing persistent structural challenges. Innovation programs, by contrast, are oriented primarily toward strengthening already competitive regional centers. This divergence creates a strategic gap in Germany’s approach to structural transformation. Regions facing elevated transformation pressure and high concentrations of emissions-intensive employment do receive investment support for physical capital – but remain largely excluded from programs designed to support participation in the knowledge economy.

³ Correlation coefficients (r) can take values ranging from -1 to 1 .

FIGURE 4 Correlation between GFS programs and transformation pressure



Source: Eigene Berechnungen auf Basis der GFS Förderdaten des BMWF.

5. Political effects: Electoral outcomes in state elections

As part of our impact analysis, we examine how GFS funding influences actual voting behavior. The analysis is based on official election results at the municipal level, allowing us to observe revealed electoral behavior rather than attitudinal survey responses.

5.1 Case selection and data basis

Harmonized data on the actual disbursement of funds under the Integrated Federal Funding System (GFS) are available for the year 2022. To assess the electoral effects of this funding, we focus on those federal states in which state elections took place shortly after the implementation and recording of these funding flows.

Our analysis is therefore based on a panel dataset covering state election results in three geographically large states:

Lower Saxony (election held on October 9, 2022)

Bavaria (election held on October 8, 2023)

Hessen (election held on October 8, 2023)

Across these states, our dataset captures electoral trends over multiple legislative cycles. This allows us to test whether voting behavior evolved differently in counties that received particularly high levels of GFS funding in 2022 compared with otherwise similar counties that received lower levels of support. All analyses based on state election outcomes are therefore restricted to these three states. It is also important to note that Germany's federal states play a central role in implementing and, in many cases, cofinancing GFS programs. The effects of these funding flows therefore have not only a federal policy dimension, but also a direct relevance for state-level politics.

5.2 Empirical strategy: Event study with state-specific trends

To identify the causal effects of GFS funding, we employ an event-study design – a dynamic extension of the difference-in-differences framework. Rather

than simply comparing average vote shares before and after the allocation of funding, this approach models the evolution of party support relative to the timing of the first election following the disbursement of GFS funds ($t = 0$). The reference category is always the last election held before the GFS funding period ($t = -1$). Specifically, this corresponds to the 2017 state election in Lower Saxony and the 2018 state elections in Bavaria and Hesse.

Model specification

The core estimating equation of our event-study model is:

$$\text{AfD}_{i,s,t} = \sum \beta_{\tau} \cdot \mathbf{1}(t = \tau) \cdot \text{GFS}_i + \sum \gamma_{\tau} \cdot \mathbf{1}(t = \tau) \cdot X_i + \alpha_i + \delta_{s,t} + \varepsilon_{i,s,t}$$

In this specification, $\text{AfD}_{i,s,t}$ denotes the vote share of the AfD in county i , located in state s , at election period t . GFS_i represents the standardized per capita funding intensity under the GFS in county i , while X_i denotes a vector of socioeconomic control variables, including indicators such as GDP per capita and industrial employment share. α_i captures county fixed effects, $\delta_{s,t}$ represents state-year fixed effects and $\varepsilon_{i,s,t}$ is the error term. The coefficients β_{τ} measure the effect of a one-standard-deviation increase in GFS funding intensity on the AfD vote share in period τ , relative to the reference period ($\tau = -1$) – that is, the final election before the introduction of GFS funding. Standard errors are clustered at the county level.

To ensure that we are capturing the effect of regional funding – rather than other regional developments – we estimate a highly conservative specification that controls for a broad range of potential confounding factors.

County fixed effects: These absorb all time-invariant differences across counties, including factors such as historical political culture, long-standing institutional legacies or geographic location.

State-year fixed effects: This is the key extension of our empirical specification. By including interaction terms between federal states and election years, we control for state-specific political cycles and electoral dynamics. This means that broader political

developments - such as state-level economic conditions, party competition, or regional campaign effects, are differenced out of the analysis. In practical terms, our identification strategy compares counties within the same state and in the same election year.

Time-varying socioeconomic controls: In addition, we interact key socioeconomic characteristics – such as GDP per capita, unemployment and industrial employment share – with election-period indicators. This allows counties with different economic structures to follow different political trajectories over time without these structural differences being mistakenly attributed to the effects of GFS funding.

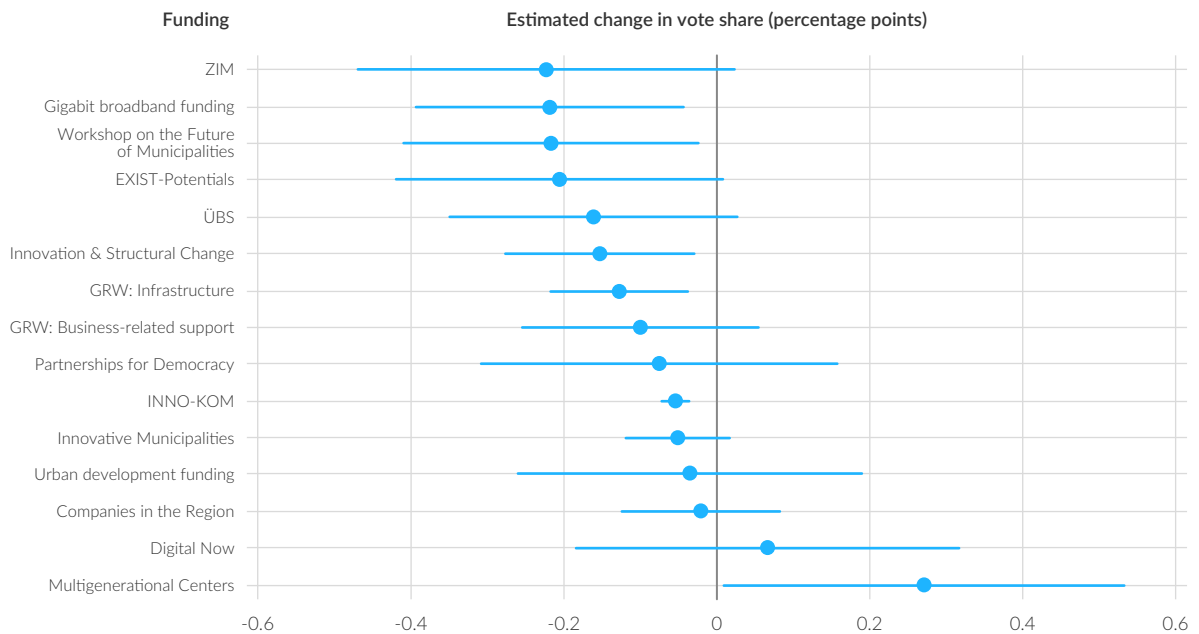
The empirical discussion that follows focuses primarily on the difference-in-differences estimator for the first post-treatment period ($t=0$). This coefficient captures how the AfD vote share changed in a county receiving a one-standard-deviation higher level of GFS funding, relative to its electoral baseline in the pre-treatment election ($t=-1$).

5.3 Results of the state election analysis

The results of the event-study analysis, presented in Figure 5, broadly support the hypothesis that targeted regional funding can help reduce political discontent. Across our empirical models, we find evidence of negative effects of regional funding on the AfD's electoral performance. At the same time, these effects vary substantially across the different funding pillars.

Aggregate effects: We begin by examining the three major funding pillars – economy, infrastructure and society. The results show that infrastructure funding, in particular, is associated with a measurable decline in support for the AfD. A similar negative relationship also emerges for business-related funding, although this effect does not reach conventional levels of statistical significance.

FIGURE 5 Effect of GFS funding on AfD vote shares in state elections



Source: Eigene Berechnungen auf Basis der GFS Förderdaten des BMWF.

As Figure 6 illustrates, infrastructure funding produces the strongest and most statistically robust effect. In our preferred specification, which includes state-specific trends, a one-standard-deviation increase in infrastructure funding is associated with a decline in the AfD vote share of approximately 0.23 percentage points (coefficient: -0.227). The 95% confidence interval ranges from -0.409 to -0.045 , excluding zero and indicating that this effect is statistically significant.

Business-related support also produces a negative point estimate, suggesting a dampening effect on AfD support. The estimated coefficient is -0.130 . However, in the aggregate model this effect does not reach statistical significance, with a 95% confidence interval ranging from -0.287 to 0.026 . For the Society and Democracy pillar, by contrast, we find no clear aggregate effect. The estimated coefficient is 0.028 , which is statistically indistinguishable from zero.

Disaggregated analysis: Which programs matter?

To better understand what drives these aggregate effects, we repeat the analysis at the level of individual funding programs. Figure 5 reports the estimated effects for the 15 program components included in our analysis. The results confirm that the overall political effects are driven primarily by specific infrastructure and innovation programs.

Infrastructure and digitalization: Within the infrastructure pillar, traditional GRW funding for business-related infrastructure emerges as a particularly robust policy lever. Higher funding intensity in this area is associated with a significantly smaller increase in the AfD's vote share, amounting to roughly 0.13 percentage points (coefficient: -0.128). Broadband expansion funding also shows a strong negative effect (-0.219), as do investments in intercompany vocational training centers (ÜBS), with an estimated

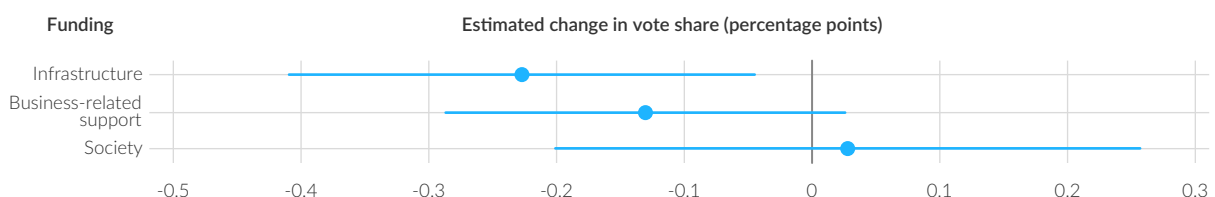
coefficient of -0.161 . Among these programs, broadband funding reaches statistical significance at the 95% confidence level. By contrast, the Digital Now program does not appear to reduce support for the AfD. Instead, it produces a slightly positive, though statistically insignificant, coefficient (0.066).

Innovation and structural change: Within the innovation pillar, the Innovation & Structural Change program stands out as particularly effective. In our preferred specification, the program produces a statistically significant dampening effect of -0.153 on the AfD vote share. Funding for external industrial research under INNO-KOM also shows a statistically significant negative relationship, with an estimated coefficient of -0.054 . Traditional business subsidies under GRW Commercial Economy likewise produce a negative coefficient (-0.100), though this effect does not reach statistical significance. Similarly, the Innovative Municipalities program produces a negative but statistically insignificant estimate (-0.051). Taken together, these findings suggest that both traditional investment support and innovation-oriented interventions can generate politically stabilizing effects.

Civil society programs: The more mixed picture observed for the Society and Democracy pillar becomes clearer once the individual programs are examined separately. The Multigenerational Centers program produces a statistically significant positive coefficient (0.271), indicating an association with increased AfD support. By contrast, the Workshop on the Future of Municipalities program shows the strongest negative coefficient within this pillar (-0.217) and reaches statistical significance. The Partnerships for Democracy program also produces a negative point estimate (-0.075), although this effect is not statistically significant.

Taken together, the state election results provide robust evidence that public regional funding can reduce

FIGURE 6 Effect of GFS funding pillars on AfD vote shares in state elections



Source: Eigene Berechnungen auf Basis der GFS Förderdaten des BMWF.

political discontent. At the same time, these effects are far from uniform. Political stabilization does not arise automatically with every euro spent. At the level of the major funding pillars, infrastructure funding produces the strongest and most consistent stabilizing effect. At the program level, both infrastructure investments and innovation-oriented interventions contribute significantly to reducing the vote share of the AfD.

5.4 Heterogeneity analysis: The role of transformation pressure

The results so far suggest that regional funding can help reduce political discontent. To sharpen this finding, we take a closer look at where these effects are strongest. Research in regional economics has consistently shown that the green transition is reshaping regions in Germany in highly uneven ways. This raises an important possibility: regional funding may generate its strongest political effects precisely where adjustment pressures are greatest – where local economic structures are under the greatest strain and political demand for state action is most pronounced.

To test this hypothesis, we divide our sample using two established indicators of structural transformation pressure:

Share of emissions-intensive employment: This indicator captures the share of workers employed in occupations disproportionately concentrated in environmentally intensive industries. Because these occupations often require highly specific skills, affected workers face elevated risks of skill obsolescence, economic displacement and status loss.

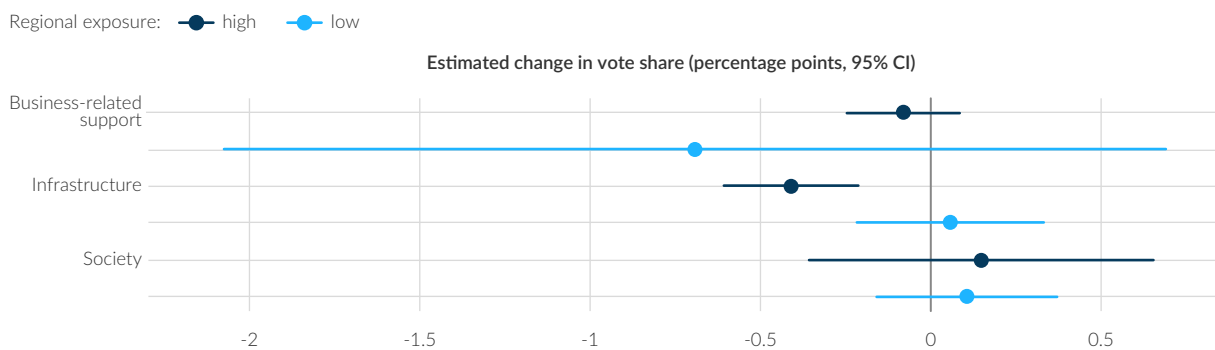
Transformation stress index: This dynamic indicator identifies regions specialized in industries whose emissions intensity has increased over time, suggesting particularly high future adjustment burdens.

We estimate our models separately for counties facing high versus low transformation pressure. The sample is split using a median threshold. Counties with values above the median for either the transformation stress index or the share of emissions-intensive employment are assigned to the high-pressure group. The results of this subgroup analysis, presented in Figure 7, strongly support the hypothesis of targeted political effectiveness.

The stabilizing effect is most pronounced in the area of infrastructure funding. In regions characterized by high shares of emissions-intensive employment, infrastructure support produces a particularly strong effect. A one-standard-deviation increase in infrastructure funding is associated with a reduction in the vote share of AfD of approximately 0.41 percentage points (coefficient: -0.410). By contrast, in regions with low levels of emissions-intensive employment, the estimated effect is statistically indistinguishable from zero (coefficient: 0.057).

A similar pattern emerges when using the transformation stress index, shown in Figure 8. In regions facing high transformation stress, infrastructure funding is associated with a significantly smaller increase in AfD support – roughly 0.35 percentage points lower than in the pre-treatment period. In regions under lower structural pressure, the estimated effect remains negative but is substantially weaker (-0.132). This pattern suggests that visible investments in public infrastructure – such as broadband expansion, construction

FIGURE 7 Effect of GFS funding on AfD vote shares by emissions-intensive employment



Source: Eigene Berechnungen auf Basis der GFS Förderdaten des BMWF.

projects or vocational education infrastructure – function as particularly credible political signals in places where economic uncertainty is greatest. These findings are consistent with existing evidence showing that visible public goods can act as signals of prosperity and state capacity (Hager and Hilbig 2024).

For business-related support, the estimated coefficients in high-pressure regions are also negative (high-stress regions: -0.101 ; high emissions-intensive regions: -0.080). However, in the subgroup analysis these effects do not reach statistical significance. For the Society and Democracy pillar, we find no statistically robust effects across any subgroup. Estimated coefficients remain close to zero throughout.

Taken together, these findings suggest that the political effects of GFS funding are concentrated primarily in regions facing the most severe structural challenges. More broadly, the results support the argument that proactive regional policy – especially through visible infrastructure investment – can serve as a stabilizing political force in precisely those regions where the green transition is most likely to be perceived not only as an economic challenge, but as a deeper normative and social threat.

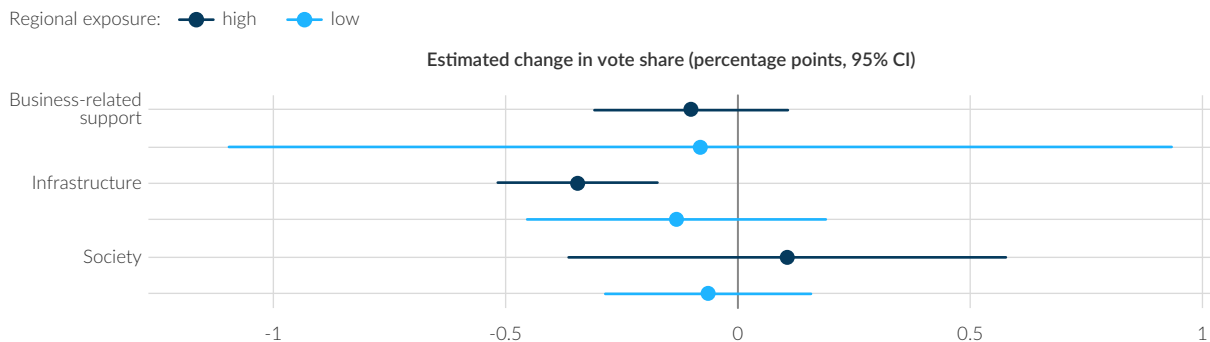
5.5 The political multiplier

Beyond the general effectiveness of regional funding, policymakers are also interested in the magnitude of its political effects relative to the resources invested. To make the estimated effects more intuitive, we translate the regression coefficients into what we refer to as a political multiplier. This metric captures the estimated change in the vote share of the AfD party

associated with an increase of €100 in per capita infrastructure funding. For context, actual per capita infrastructure funding in our sample has a median of approximately €15, an average of roughly €30 and reaches a maximum of around €516. The standard deviation is approximately €52, meaning that a €100 increase per capita represents a substantial intervention, but one that remains well within the observed range of variation. Methodologically, this calculation simply translates the abstract, standardized regression coefficients into real-world funding amounts expressed in euros. When averaged across all counties, an increase of €100 per capita in infrastructure funding is associated with a decline in the AfD vote share of approximately 0.60 percentage points.

The effects are considerably larger in counties facing elevated adjustment pressures. In regions with a high share of emissions-intensive employment, a €100 increase in per capita infrastructure funding is associated with a reduction in the AfD vote share of approximately 1.00 percentage point. The 95% confidence interval ranges from -1.49 to -0.52 percentage points, indicating statistical uncertainty around the exact magnitude of the estimate, while also showing that the relationship remains consistently negative across a plausible range of values. A similar pattern emerges when using the transformation stress index. In counties facing high transformation stress, the estimated effect amounts to approximately -0.83 percentage points per €100 per capita. The corresponding 95% confidence interval ranges from -1.25 to -0.42 percentage points. By contrast, in regions facing lower adjustment pressures, the point estimates are small and statistically imprecise, making it difficult to identify any systematic effect with confidence. Taken together, these findings suggest that

FIGURE 8 Effect of GFS funding on AfD vote shares in state elections by level of transformation stress

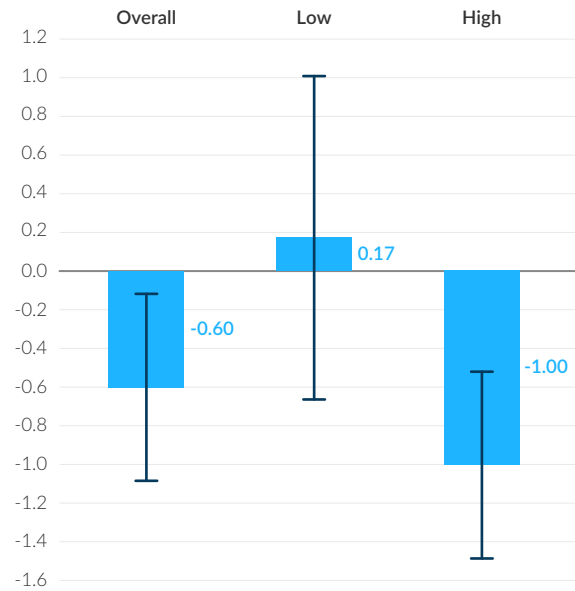


Source: Eigene Berechnungen auf Basis der GFS Förderdaten des BMW.

infrastructure investment is politically most consequential in regions where economic insecurity and structural transformation pressures are most pronounced. The translation of these estimates into euro-denominated effects is intended solely to improve interpretability and assumes a linear relationship between funding intensity and electoral outcomes. As the confidence intervals shown in Figures 9 and 10 make clear, these estimates should be interpreted with appropriate statistical caution.

FIGURE 9 Political multiplier by emissions-intensive employment

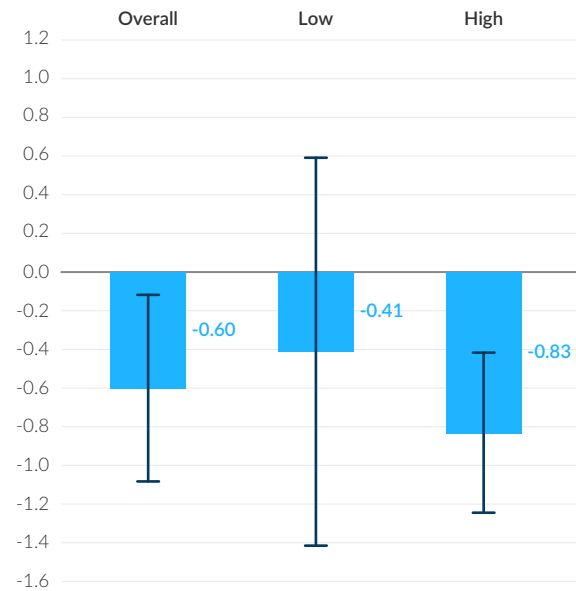
Change in AfD vote share (percentage points) per € 1000 increase in per capita investment



Source: Eigene Berechnungen auf Basis der GFS Förderdaten des BMWF.

FIGURE 10 Political multiplier by transformation stress level

Change in AfD vote share (percentage points) per € 1000 increase in per capita investment



Source: Eigene Berechnungen auf Basis der GFS Förderdaten des BMWF.

6. Conclusion and economic policy implications

6.1 Key findings summary

Our analysis provides robust empirical evidence that public regional funding can reduce political discontent. At the same time, these effects are far from universal. Consistent with the broader literature on the political consequences of economic disadvantage (Rodrik 2018; Colantone and Stanig 2018), we find that support for far-right populist parties responds most strongly to regional funding interventions in areas facing elevated structural pressures. Specifically, more intensive funding in counties with a high concentration of emissions-intensive employment or acute transformation stress is associated with a statistically significant reduction in the vote share of the AfD in state elections. These findings support the compensation hypothesis (Rickard 2023), but they also refine it in an important way. Political stabilization does not emerge through indiscriminate spending or blanket transfers. Rather, it depends on the targeted mitigation of specific regional vulnerabilities. In economically stable regions, by contrast, the political effects of funding remain limited.

At the same time, not all forms of regional support prove equally effective. At the level of the major funding pillars, infrastructure funding produces the most robust and consistent stabilizing effect. Business-related support also produces a negative point estimate, although the aggregate effect does not reach statistical significance. At the program level, infrastructure initiatives in particular – including GRW infrastructure funding and broadband expansion – as well as the Innovation & Structural Change program show statistically significant effects. These findings align closely with research on European Union cohesion policy, which emphasizes the importance of policy visibility and tangible improvements in local living conditions for political perception and electoral feedback (Crescenzi et al. 2020; Albanese et al. 2022; Heddesheimer, Hilbig and Wiedemann 2026). Unlike studies that find limited political effects from direct financial transfers to affected groups (Jares and Malhotra 2025), our findings suggest that place-based structural investment – policies that visibly improve the local environment – may be more credible and more politically effective in addressing economic insecurity and status loss in regions undergoing transformation.

A central and more ambivalent finding of this study lies in the disconnect between political effectiveness and the allocation of innovation policy. While infrastructure funding at the pillar level, and both infrastructure and innovation programs at the program level, generate measurable political effects in regions under pressure, our descriptive analysis reveals a deeper strategic gap. Innovation-oriented programs – such as EXIST and ZIM – rarely reach the regions facing the greatest transformation pressures. Instead, they remain concentrated in already high-performing innovation clusters. Yet the structural transformation driven by decarbonization fundamentally challenges this allocation logic. The very industrial specializations and development trajectories that are deeply embedded in local economies – and that historically served as engines of regional growth – are likely to become increasingly unstable during the transition (Bachtrögler-Unger et al. 2023; Rodríguez-Pose and Bartalucci 2024). As these industrial cores lose economic viability, the local knowledge base on which innovation along established development paths has traditionally depended also begins to erode. Under these conditions, an innovation policy guided primarily by efficiency considerations may unintentionally make it more difficult for heavily affected regions to generate and sustain new development trajectories (Grillitsch and Hansen 2019; Pinheiro et al. 2021; Becker, Losacker and Russo 2026). The GFS can therefore be interpreted in two ways. On the one hand, it appears to provide short-term political stabilization by enabling visible investment on the ground. On the other hand, it risks depriving precisely those regions of the technological renewal they most urgently need – regions that are both most economically dependent on structural renewal and most politically vulnerable.

Our findings carry important implications for current economic policy debates and for several ongoing initiatives of the federal government. First, Germany is currently undertaking a major reform of its central regional policy instrument, the Joint Task for the Improvement of Regional Economic Structures (GRW). In 2022, the strategic objectives of the GRW underwent a fundamental reorientation. Its mission is no longer defined solely by the creation of jobs in eligible regions. Instead, its mandate has been substantially broadened to include goals such as achieving Europe's

climate targets and responding to accelerating structural change driven by digitalization, demographic shifts and geopolitical disruption. So far, however, this revised strategic framework has not yet translated into a new map of eligible funding regions (see also Südekum and Posch 2024, 2025). A redesign of the funding map is currently underway, based on a significantly broader set of indicators. This new framework is expected to incorporate more proactive measures, including indicators of regional transformation stress. It is likely that this revised funding geography will also serve as the basis for other programs within the GFS. Our findings can make a direct contribution to this process. As the first study of its kind, our analysis provides new causal evidence on the political impacts of individual regional policy instruments in Germany, underscoring the importance of integrating forward-looking indicators of structural vulnerability into the design of future regional development policy.

Second, with the creation of the Special Fund for Infrastructure and Climate Protection (SVIK), the federal government has laid an important foundation for a major new wave of public investment in Germany. While the initiative is not explicitly designed as a

regional policy instrument and does not formally follow either the institutional logic or the geographic targeting framework of the GFS, the allocation and implementation of individual projects will inevitably be uneven across regions. As a result, the SVIK – despite being conceived as a national policy initiative – is likely to reshape Germany's economic geography and affect regions in markedly different ways. Our findings are particularly relevant in this context. They suggest that infrastructure funding, at the level of the major funding pillars, shows the strongest association with lower support for the AfD, and that these effects are especially pronounced in regions facing elevated transformation pressures. Whether this finding can be generalized to the SVIK will ultimately depend on how the fund is implemented at the regional level and how project allocation is structured in practice. At the same time, our results suggest that the political impacts of additional public investment are likely to depend not simply on the volume of spending, but, to a significant degree, on the local visibility of those investments and on how they are distributed across regions.

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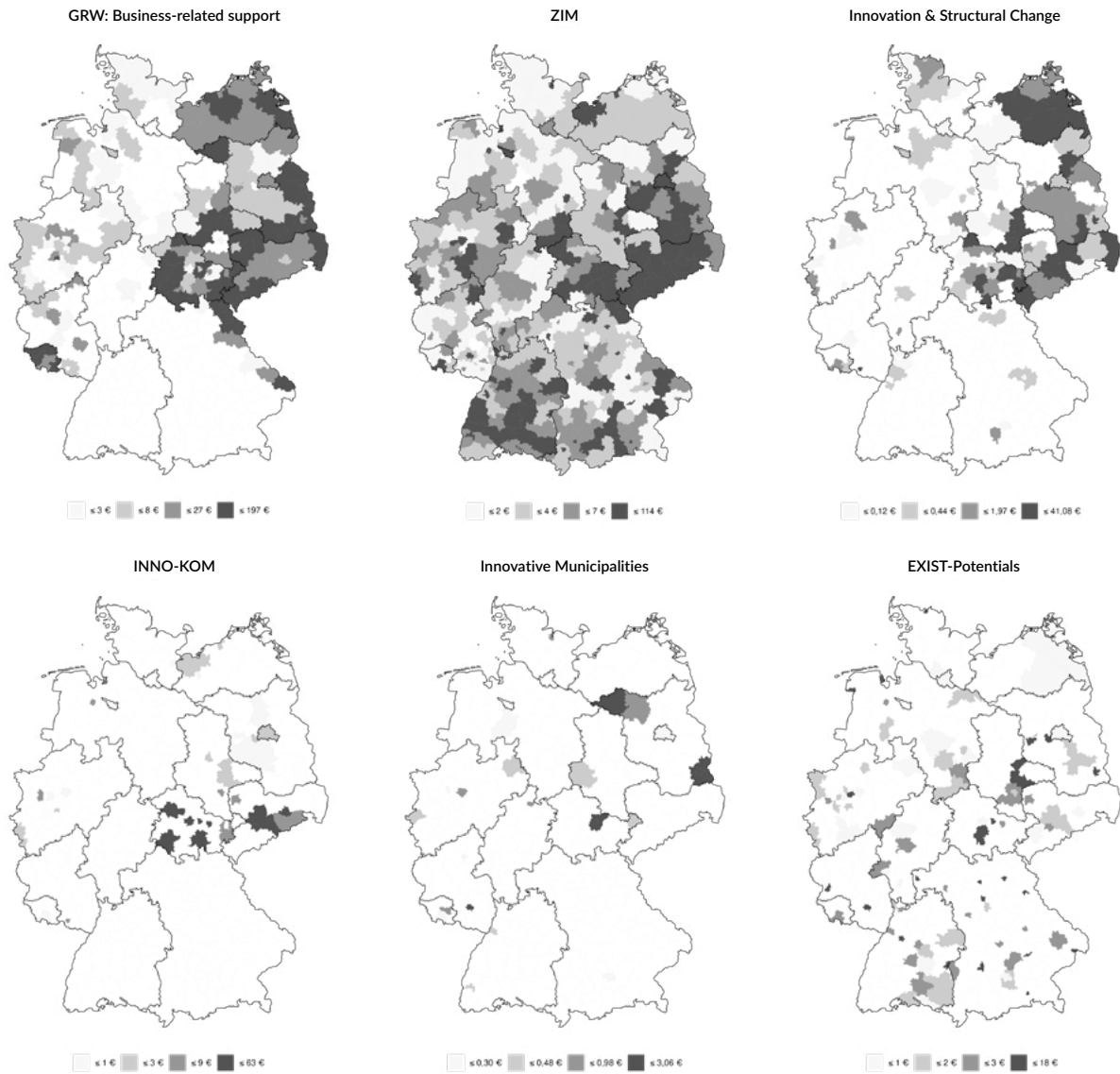
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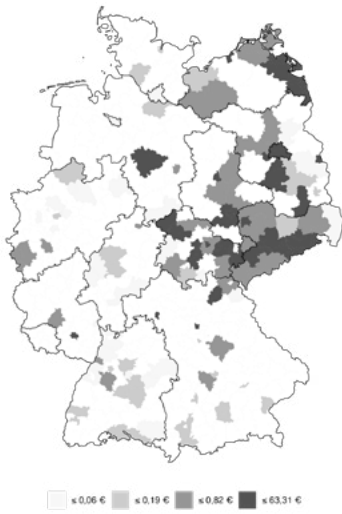
Annex

1. Geographic distribution of GFS funding programs

1.1 Economy

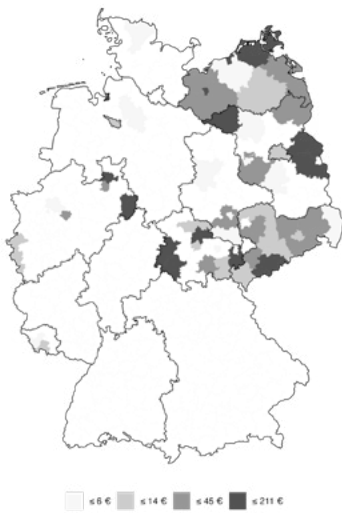


Companies in the Region

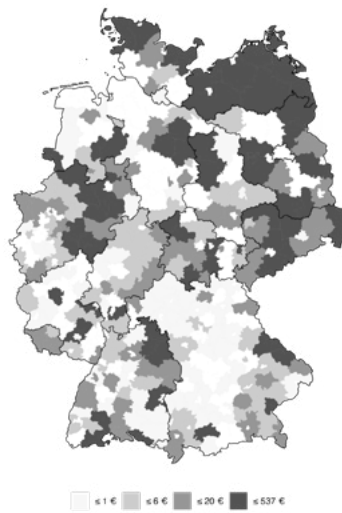


1.2 Infrastructure

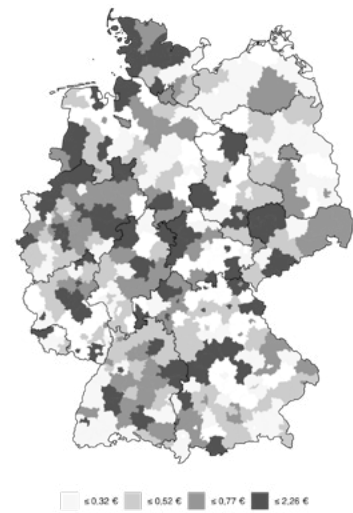
GRW: Infrastructure



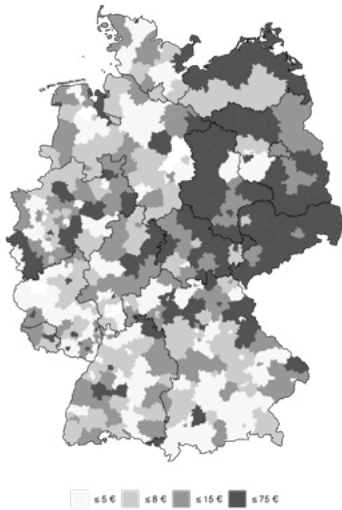
Gigabit broadband funding



Digital Now



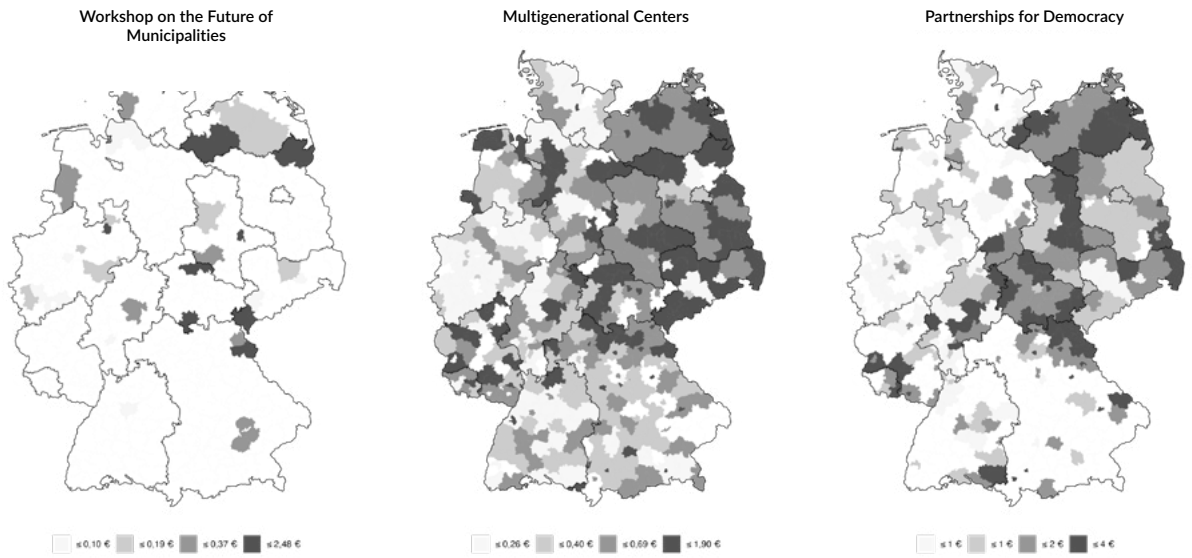
Urban development funding



ÜBS



1.3 Society and democracy



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