

AT A GLANCE

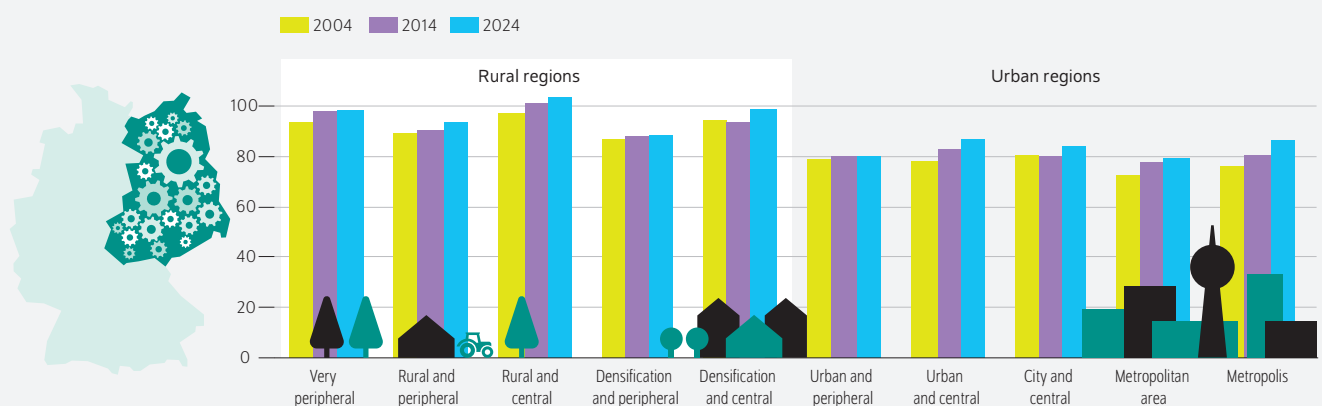
# Productivity: East-west gap replaced by urban-rural gap

By Martin Gornig

- Germany seems permanently divided economically; labor productivity in the east and west has barely converged for years
- Gaps are especially large in manufacturing and business services, sectors in which productivity is particularly high in the west
- There is usually little difference when comparing economic situations of cities and districts of the same type, except in the case of major cities
- Economic power becoming increasingly heterogeneous; inequalities between districts in both east and west continue to grow
- Active regional policy that equally supports regions that have fallen behind in the east and west is needed

## Productivity gap has nearly disappeared in rural regions

Productivity in Eastern Germany in percent of national average



Note: Productivity measured as gross value added in current prices per employed person.

Sources: National Accounts of the Federal States Working group (Arbeitskreis Volkswirtschaftliche Gesamtrechnungen der Länder); author's calculations.

© DIW Berlin 2025

## FROM THE AUTHORS

*“When discussing the economic catching-up process following reunification, the focus is often on the inequality that still exists. Focusing on that, however, overlooks the fact that apart from major cities, there are hardly any differences between cities and districts in the east and their western German counterparts.”*

— Martin Gornig —

# Productivity: East-west gap replaced by urban-rural gap

By Martin Gornig

## ABSTRACT

In 1991, the average labor productivity of the then-new federal states (plus West Berlin) only reached nearly half of the total national productivity level. Since then, the average labor productivity of these states has climbed up to nearly 90 per cent. However, the ranking of the individual states has barely changed: Hamburg and the southern German states are still at the top, while most eastern German states remain at the bottom. Differences in urban structure are a decisive reason for this gap. Due to the advantages of spatial agglomeration, densely populated urban regions—which are typically found in the west—have higher productivity levels compared to rural regions in the east. Such differences in productivity have increased significantly over the past ten years. However, eastern German regions frequently score even better than their counterparts in the west within the same type of settlement structures. To prevent the productivity gap from growing larger, policymakers should strengthen the independent economic capacity of the regions that have fallen behind in both the east and west.

There are many dimensions to the convergence of living conditions in eastern and western Germany as well as to the persistent differences between the two, such as differences in educational and income opportunities as well as access to public services and to nature.<sup>1</sup> Economic differences include, in particular, the development of economic performance capacity. There are many methods for evaluating a region's economic capacity. Frequently, indicators of companies' innovative potential or the level of education of employees are used.<sup>2</sup>

However, a main summary indicator of current economic performance capacity is productivity or, more precisely, gross value added in current prices per employed person. Disparities and trends in labor productivity have always played a decisive role in the economic policy debate on the economic differences between eastern and western Germany.<sup>3</sup> On the 35th anniversary of German reunification on October 3, 2025, this Weekly Report examines the development of regional differences in labor productivity. To do so, current data from the national account systems of the federal states (VGRdL) is analyzed.<sup>4</sup>

## A steady but slow catching-up process for more than a decade

In 1991, the average productivity level in the then-new states (as well as both parts of Berlin) was only a little over half of the total national average (Figure 1). Subsequently, the productivity gap narrowed rapidly and, by the beginning of the

<sup>1</sup> Martina Hülz et al. (2024): Multi-dimensionale regionale Ungleichheit in Deutschland: Eine Analyse aus ökonomischer und raumwissenschaftlicher Perspektive. ZEW Discussion Paper, no. 24, 015 (in German; available online; accessed on August 25, 2025. This applies to all other online sources in this report unless stated otherwise).

<sup>2</sup> Mitteldeutsche Stiftung Wissenschaft und Bildung (2025): ifo Faktenmonitor Ostdeutschland. Eine Bestandsaufnahme der wichtigsten Strukturdaten von Wirtschaft, Arbeitsmarkt, Wissenschaft und Gesellschaft (in German; available online).

<sup>3</sup> Doris Cornelsen und Wolfgang Kirner (1990): Zum Produktivitätsvergleich Bundesrepublik – DDR. DIW Wochenbericht no. 14, 172–174 (in German; available online).

<sup>4</sup> The VGRdL is based on the total German data available from February 2025. Cf. Data on the Federal and State Statistical Offices website. Labor productivity is measured as the total gross value added generated by full-time and part-time employees at current prices compared to the number of full-time employees.

2000s, eastern Germany had reached nearly 80 percent of the national average.

However, this convergence came to a halt. Steady, above-average growth in labor productivity was not recorded again year-on-year in eastern Germany until the 2010s. When it returned, the speed of growth has decreased considerably.<sup>5</sup> As of 2024, east German productivity was still at only nearly 90 percent of the total national level.

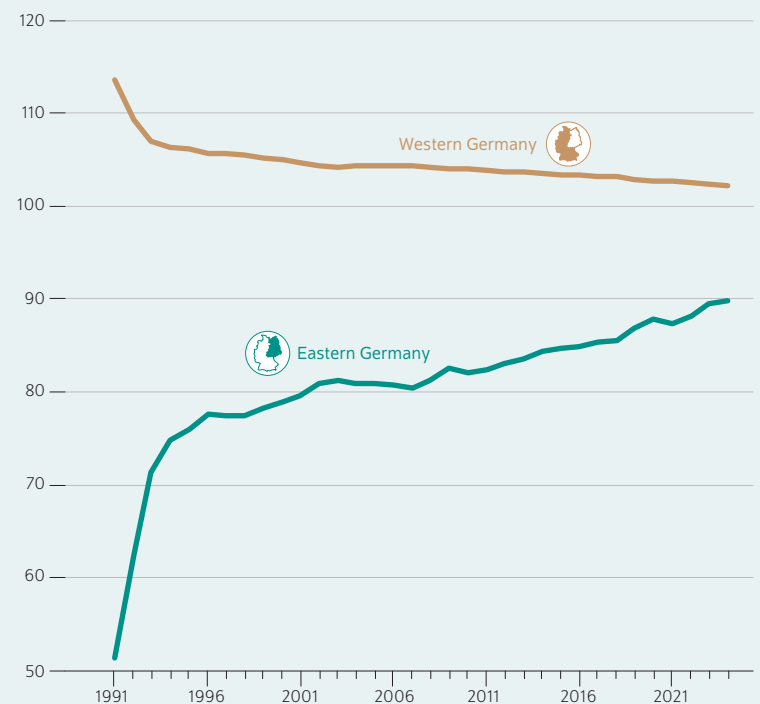
When comparing labor productivity at the state level, the distribution (measured by variation coefficients) has declined noticeably: While states are converging, their overall rankings have barely changed (Figure 2). Hamburg and the southern German states remain at the top and the eastern German states are still at the bottom. Of the western states, only Saarland, which is dealing with major structural problems due to the end of coal production and the shrinkage of the steel industry, ranks at the bottom. In contrast, Berlin was able to improve its position considerably and now has a level of labor productivity at about the national average. In a European comparison, this is rather unusual. Capital city regions generally have a level of productivity that is well above the national average.<sup>6</sup>

However, the overall productivity gap in eastern Germany varies considerably between the individual economic sectors (Figure 3). The gaps in financial, insurance, and business services as well as in real estate and housing stick out in particular. In these sectors, the catching-up process has been slow for many years: eastern German states have reached only around 80 percent of the national average. In wholesale and retail trade, transportation, accommodation and food services, information and communication as well as manufacturing, eastern German companies have achieved productivity growth that is well above average over the past ten years. However, labor productivity in these areas was 11 and 13 percentage points below the total national level, respectively, in 2024 as well.

Labor productivity in eastern Germany now exceeds the western German average in personal services, which includes education, health care, personal care, and public administration. In 2024, gross value added in current prices was six percent above the national average. Agriculture, forestry and fishing was above the national average, as well. When Germany was divided, agriculture was comparatively very productive in East Germany. Today, labor productivity in agriculture in the eastern German states is round about 20 percentage points above the total national average. However, the advantage has declined over the past two decades.

Figure 1

## Gross value added in current prices per employed person in eastern and western Germany In percent of total national average



Sources: National Accounts of the Federal States Working group (Arbeitskreis Volkswirtschaftliche Gesamtrechnungen der Länder), data from February 2025; author's calculations.

© DIW Berlin 2025

Following a period of high dynamism and stagnation, there has been a continual catching-up process in eastern Germany since the beginning of the 2010s.

## Reasons behind the persistent productivity gap

Thus, the productivity gap in the eastern German states is mainly in manufacturing and business services. These sectors are also the focus when attempting to identify possible causes of a persistent productivity gap in eastern Germany. Scientific studies are increasingly using firm data to analyze regional disparities.<sup>7</sup> These studies find that eastern German companies generally have a lower level of productivity than their western German counterparts, especially in manufacturing.

Various reasons are given for what is driving this overall gap in productivity. A lack of big corporations is frequently mentioned, which makes networking with technologically leading production clusters more difficult.<sup>8</sup> Another approach views path dependence as the underlying problem. “Hidden

<sup>5</sup> Jan Büchel und Klaus-Heiner Röhl (2022): Sind anhaltende Produktivitätsunterschiede zwischen West- und Ostdeutschland auch durch Unterschiede in der Datenbewirtschaftung zu erklären?. IW-Trends, Vierteljahresschrift zur empirischen Wirtschaftsforschung, no. 4 (in German; available online).

<sup>6</sup> Christian Franz et al. (2019): Berlin auf dem Weg ins Jahr 2030, DIW Politikberatung kompakt Nr. 144, revised version from January 20, 2020 (in German; available online).

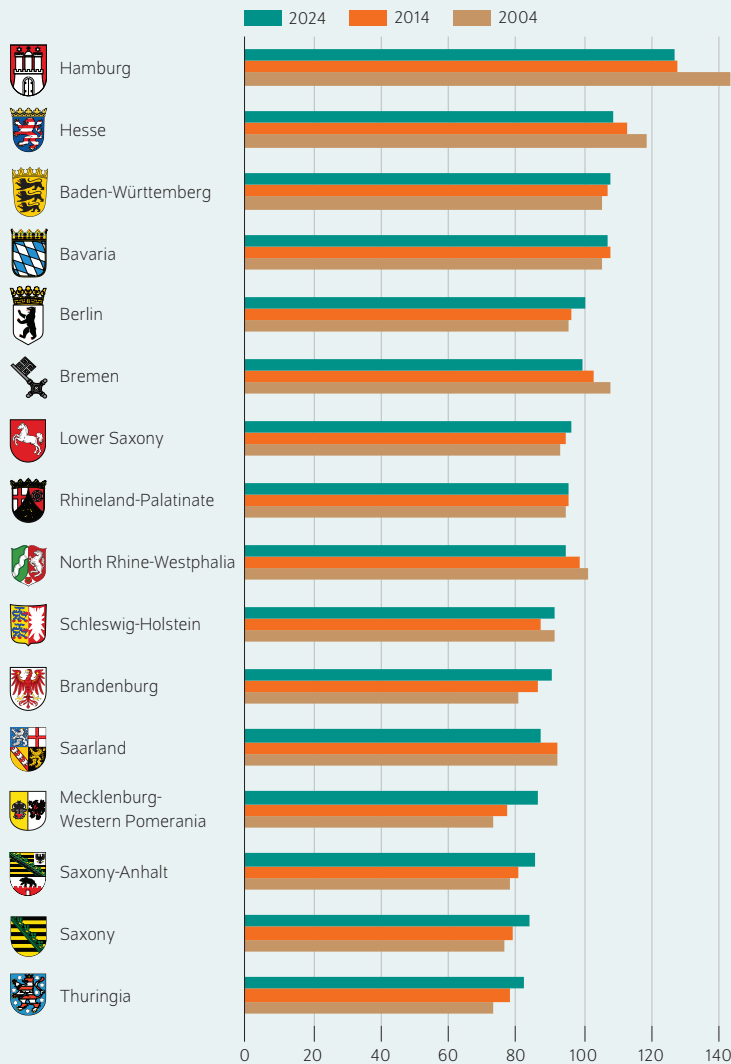
<sup>7</sup> Matthias Mertens und Steffen Müller (2020): The East-West German Gap in Revenue Productivity: Just a Tale of Output Prices?. Journal of Comparative Economics Volume 50, No. 3, 815–831 (available online); Heike Belitz, Martin Gornig und Alexander Schiersch (2020): Produktivität in der Industrie unterscheidet sich weiterhin zwischen Ost und West. DIW Wochenbericht no. 39, 747–753 (in German; available online).

<sup>8</sup> Büchel and Röhl (2022), ibid.

Figure 2

# Gross value added in current prices per employed person in the German states

In percent of total national average



Sources: National Accounts of the Federal States Working Group (Arbeitskreis Volkswirtschaftliche Gesamtrechnungen der Länder), data from February 2025; author's calculations.

© DIW Berlin 2025

The eastern German federal states have the lowest level of productivity; in the west, only Saarland has fallen behind.

Regional economics offers another argument for differences in productivity among companies: advantages due to spatial agglomeration of economic activities, which enables each individual company to have higher productivity.<sup>11</sup> These agglomeration advantages include companies sharing advance services and infrastructures due to their geographical proximity, generating access to new knowledge through personnel exchanges, or finding suitable personnel more easily by utilizing large labor markets. Corresponding analyses using individual data show that the operational productivity of companies in cities is much higher than of companies in less densely populated areas.<sup>12</sup>

Based on these findings, a decisive reason for the remaining differences in productivity could be differences in urban structure and economic geography between the two halves of the country.<sup>13</sup> Therefore, the smaller number of major cities in the east and the great distance to them would be responsible for the productivity gaps that still exist in many sectors. To investigate this thesis further, the cities and districts in eastern and western Germany will be classified as different urban types.

This classification is based on the urban structure and economic geography typologies of the Federal Institute for Research on Building, Urban Affairs, and Spatial Development (*Bundesinstitut für Bau-, Stadt- und Raumforschung*, BBSR).<sup>14</sup> The BBSR identifies up to five different urban structure types based on city size and degree of densification. In addition, the districts are differentiated in terms of accessibility to population centers.

Both characteristics (urban structure and accessibility to population centers) are combined for the analysis in this Weekly Report. However, not all possible combinations are covered when combining the two characteristics. For example, there are no major cities in peripheral locations in Germany. Furthermore, certain combinations are only in the east or only in the west. For example, there are no very densely populated districts in central locations in the east. In western Germany, there are no districts with signs of densification in very peripheral locations. In these cases, the category is merged with the neighboring category. There are ten urban structure types for urban and rural districts (Overview).

champions,” businesses that have developed into global market leaders in their niches due to a high level of specialization and technological innovation, are an example of path dependence. Three quarters of these firms have existed for over 40 years.<sup>9</sup> Furthermore, persistent differences in mentality, which can be passed on via generations, can contribute to differences in entrepreneurial propensity or leadership styles, for example.<sup>10</sup>

<sup>9</sup> Belitz, Gornig and Schiersch (2020), *ibid.*

<sup>10</sup> Steffen Mau (2024): *Ungleich vereint. Warum der Osten anders bleibt.* Suhrkamp.

<sup>11</sup> Gilles Duranton und Diego Puga (2004): *Micro-foundations of urban agglomeration economies.* Handbook of Regional and Urban Economics, Volume 4. Edited by John Vernon Henderson and Jacques-François Thisse. Elsevier.

<sup>12</sup> Martin Gornig and Alexander Schiersch (2024): *Agglomeration economies: different effects on TFP in high-tech and low-tech industries.* Regional Studies, Volume 58, No. 11, 1999–2010 (available online); Wolfgang Dauth al. (2022): *Die Konzentration von leistungsfähigen Arbeitskräften in hoch bezahlenden Betrieben verstärkt regionale Lohnunterschiede.* IAB Forum January 12, 2022 (in German; available online).

<sup>13</sup> Heike Belitz, Martin Gornig, and Alexander Schiersch (2019): *Productivity: Urban-Rural Differences Affect Productivity More Than East-West Differences.* DIW Weekly Report no. 43, 387–393 (available online).

<sup>14</sup> Bundesinstitut für Bau-, Stadt- und Raumforschung (2025): *BBSR – Raumbearbeitung – Raumtyp 2010: Lage (Kreise), BBSR – Raumbearbeitung – Siedlungsstruktureller Kreistyp.*

## Overview

### Types of settlements according to economic geography and urban structure

Based on the administrative boundaries of cities and districts

<b>Metropolis</b>	Large independent city in a very central location
<b>Metropolitan area</b>	Urban district or small independent city in a very central location
<b>City and central</b>	Small independent city in central location
<b>Urban and central</b>	Urban district in a central location
<b>Urban and peripheral</b>	Urban district in a peripheral location
<b>Densification and central</b>	Rural district with signs of densification in central location
<b>Densification and peripheral</b>	Rural district with signs of densification in peripheral location
<b>Rural and central</b>	Sparsely populated rural district in a central location
<b>Rural and peripheral</b>	Sparsely populated rural district in a peripheral location
<b>Very peripheral</b>	Sparsely populated rural district or with signs of densification in a very peripheral location

Sources: Federal Institute for Research on Building, Urban Affairs and Spatial Development (Bundesinstitut für Bau-, Stadt- und Raumforschung); author's depiction.

© DIW Berlin 2025

Data on gross value added in current prices and the number of employed people in the 400 districts was also taken from the VGRdL.<sup>15</sup> The results at the district level are adjusted based on the current data for the 16 states for the years 2004, 2014, and 2024, and then separately sorted into the ten urban structure types for eastern and western Germany.<sup>16</sup>

### No more productivity gap in most regions in the east

The overwhelming majority of districts in the east are quite rural. Thirty-six of the 76 eastern districts are classified as a “sparsely populated rural district” by the BBSR and 24 districts are considered “rural districts with signs of densification.” Only 16 districts are classified as large cities or metropolises.

Evaluating by urban structure type shows that, in 2024, the productivity gap was closed on average in the categories with strong representation from the east (Figure 4). On average, eastern German districts in a peripheral location and in central locations with signs of densification were near the national average. In the “rural regions in central locations” category, the eastern German average is even higher than the average national productivity in this category.

In contrast, the productivity level is still lower in the eastern German metropolises and urban districts than western German regions of the same urban structure type. In

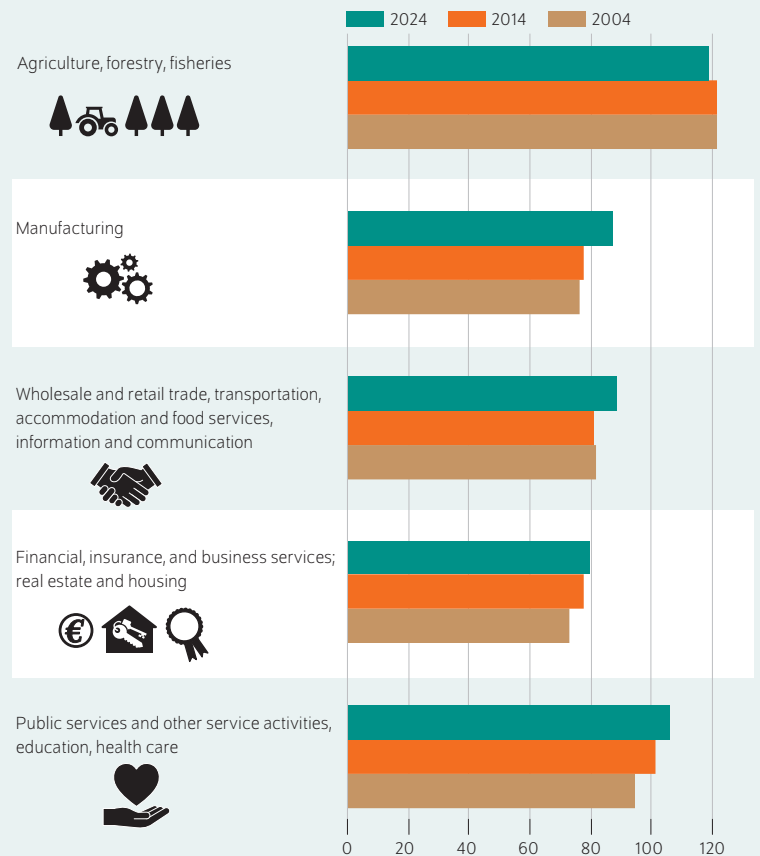
<sup>15</sup> These statistics are based on VGRdL data from August 2023 for the district level. The district data published at this time differ from the current state figures in terms of totals. Accordingly, the district data for 2004 and 2014 were adjusted to the district figures. For 2024, the internal distribution from 2022 was transferred to the state values.

<sup>16</sup> The spatial hierarchy of labor productivity across Germany corresponds to regional economic expectations in all three years. The highest productivity is achieved in the metropolises, the lowest in the peripheral locations.

Figure 3

### Gross value added in current prices per employed person by industries

Eastern German Industries in percent of total national average



Sources: National Accounts of the Federal States Working Group (Arbeitskreis Volkswirtschaftliche Gesamtrechnungen der Länder), data from February 2025; author's calculations.

© DIW Berlin 2025

Eastern Germany has caught up considerably in manufacturing, wholesale and retail trade, transportation, and accommodation over the past years.

particular, a large gap in the metropolises is noticeable: Berlin, Dresden, and Leipzig are far from the productivity level reached by cities of comparable size in western Germany.

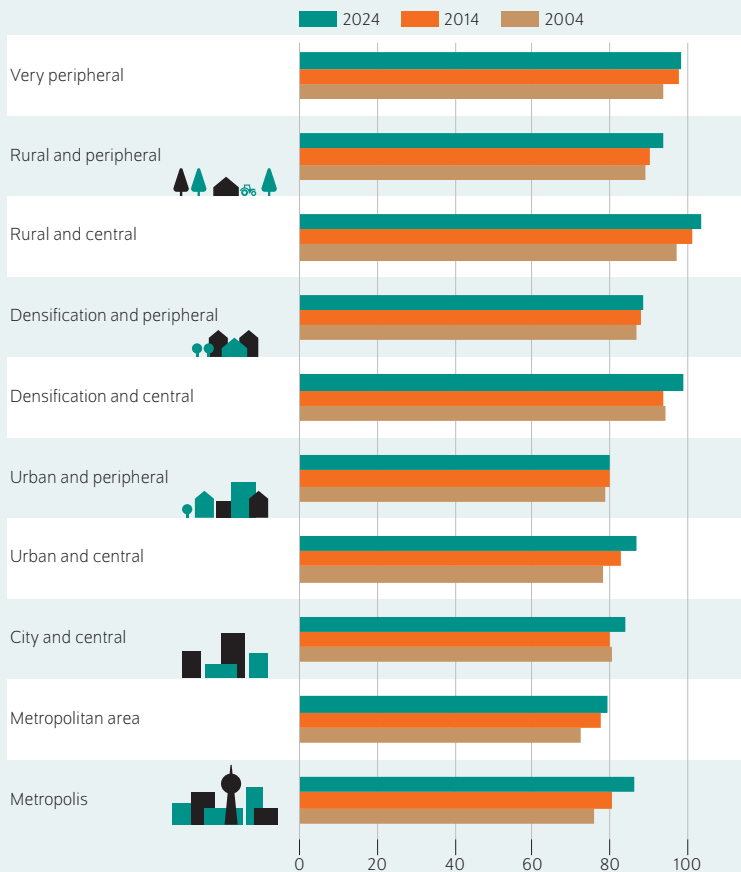
However, many other eastern German regions are success stories.<sup>17</sup> Correspondingly, when comparing aggregated labor productivity, a series of eastern German regions perform significantly better than their comparable western counterparts. This includes districts in the direct catchment areas of major cities such as Berlin and Leipzig. However, peripheral districts with signs of densification, such as Northwest Mecklenburg and Anhalt-Bitterfeld, are also above the western German average in their urban structure category; the same applies to the sparsely populated districts of Görlitz and Stendal.

<sup>17</sup> Cf. also Mitteldeutsche Stiftung Wissenschaft und Bildung (2025), ibid.

Figure 4

### Gross value added in current prices per employed person by settlement structure types

Eastern German Regions in percent of total national average



Sources: National Accounts of the Federal States Working Group (Arbeitskreis Volkswirtschaftliche Gesamtrechnungen der Länder), data from August 2023 and February 2025; author's calculations.

© DIW Berlin 2025

In sparsely populated rural districts and those with only slight signs of densification, eastern Germany is close to or above the national average.

### Disparities in regional productivity nevertheless still growing

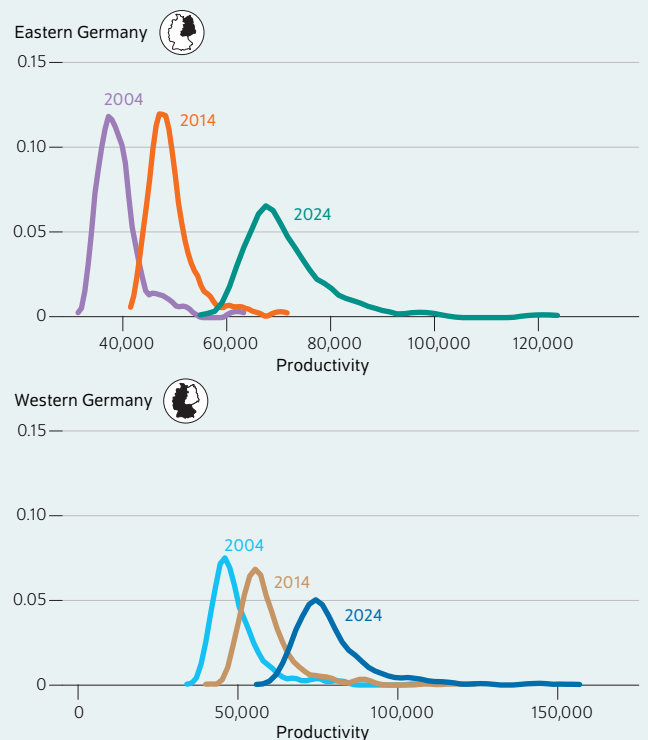
The gradual convergence process between the east and west should not mask the fact that regional differences in productivity – meaning differences in regional economic performance capacity – has massively increased over the past ten years. The variance in productivity values between the 400 districts increased by over 70 percent from 2014 to 2024. However, the average value increased considerably, resulting in a larger increase in dispersion due to the variance, as well. If variation coefficients are used to consider this influence, there is still an increase in the dispersion of over 25 percent.

Inequality has grown across both the east and the west. This can be seen in the density function based on the frequency distribution of labor productivity at the district level

Figure 5

### Development of the dispersion of labor productivity among the districts in 2004, 2014, and 2024 in eastern and western Germany

Density function



Note: The density function indicates how likely it is that a district in the east or west achieved a certain level of productivity in a certain year.

Sources: National Accounts of the Federal States Working Group (Arbeitskreis Volkswirtschaftliche Gesamtrechnungen der Länder), data from August 2023 and February 2025; author's calculations.

© DIW Berlin 2025

The productivity dispersion between districts in the east and west has become increasingly uneven, particularly over the last ten years.

(Figure 5). In both parts of the country, fewer and fewer districts are scoring near the average. The density function displays a significantly flatter curve, particularly in 2024. The number of districts at the top and bottom end of the distribution are increasing and they are moving increasingly further from the average.

There was a significant change in the regional distribution pattern of labor productivity between 2014 and 2024, especially for the east. The values for gross value added per employed person in the individual eastern Germany districts are becoming increasingly more spread out. Their heterogeneity is becoming more similar with the heterogeneity between districts in the west. While there were clear marginal regional differences in the east compared to the west between 2004 and 2014, the density functions now show nearly identical patterns (Figure 6).



## Conclusion: Target support measures to weak regions in east and west

While the productivity gap between the east and west has closed in many sectors, the need for regional transfer payments is rising in light of increasing differences in economic capacity between rural and urban areas. Equal living conditions in Germany must be ensured, in particular by inter-governmental transfers between the states, from the states to municipalities, and within the states between municipalities.

In response to the decline in economic disparities between the states and rapid increases in disparities within the states, refocusing compensation mechanisms should be considered. Refocusing could involve integrating the federal level more closely into small-scale compensation measures as part of a joint task<sup>18</sup>—for example, to secure social and public services.

This could involve strengthening independent economic capacity of the regions lagging behind in both parts of the country through an active regional policy. Access to digital infrastructures is a major requirement for economic connectivity to modern production structures and is proven to increase productivity. Thus, policymakers should set up appropriate support programs.

The availability of labor is increasingly becoming a bottleneck for economic development, especially in rural areas.<sup>19</sup> The spatial clustering of social and public services within such regions should improve the attractiveness of living there for workers. Spatial classification concepts, as discussed in the 1990s under the term “decentralized concentration,” could also be useful here.<sup>20</sup>

Furthermore, it should be investigated whether strategic industrial policy concepts can be successfully implemented specifically in rural regions. In this way, many examples of successful small and medium-sized firms in industry outside of the major metropolitan regions can be found in Germany.<sup>21</sup> Furthermore, a series of scientific studies indicate that industries with suitable production clusters in less dense regions have respectable development prospects.<sup>22</sup>

<sup>18</sup> Formerly: Gemeinschaftsaufgabe as defined in Article 91a Grundgesetz.

<sup>19</sup> Eric Thode and Roman Wink (2024): *Entwicklung und Zukunft des ostdeutschen Arbeitsmarkts*. Bertelsmann Stiftung (ed.) (in German; available online).

<sup>20</sup> The concept describes the bundling of land planning and state infrastructure to selected locations in rural regions. Christoph Zöpel (2002): *Brandenburg 2025 in der Mitte Europas*. Verein Forum Zukunft Brandenburg. Potsdam 2002.

<sup>21</sup> *Wirtschaftswoche* (2023): *Die 450 heimlichen Weltmarktführer*, Sonderheft 1–2023.

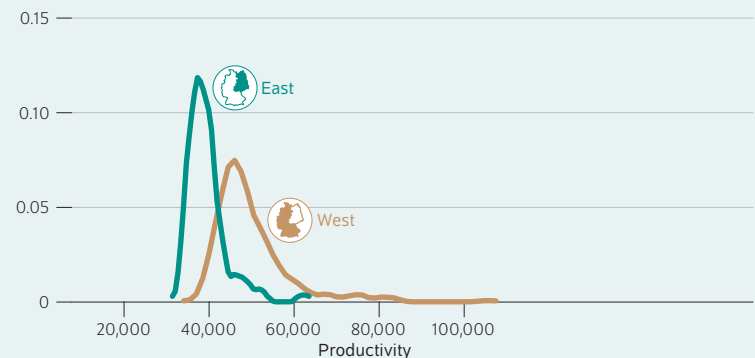
<sup>22</sup> Martin Gornig and Alexander Schiersch (2024), *ibid.* Henriette Ruhmann, Michael Fritsch und Loet Leydesdorff (2022): *Synergy and policy-making in German innovation systems: Smart Specialisation Strategies at national, regional, local levels?*. *Regional Studies* Volume 56, no. 9, 1468–1479 (available online).

Figure 6

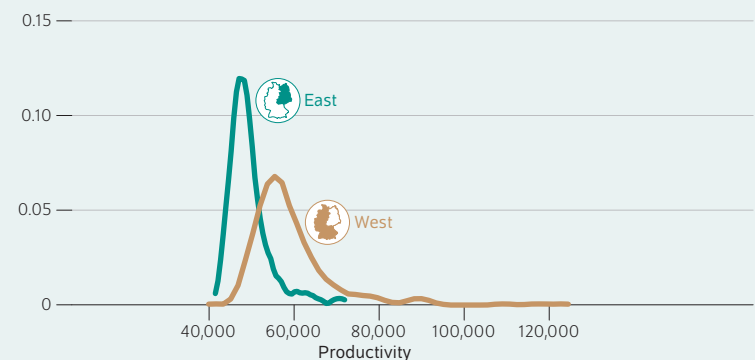
## Comparison of labor productivity density in districts in eastern and western Germany in 2004, 2014, and 2024

### Density function

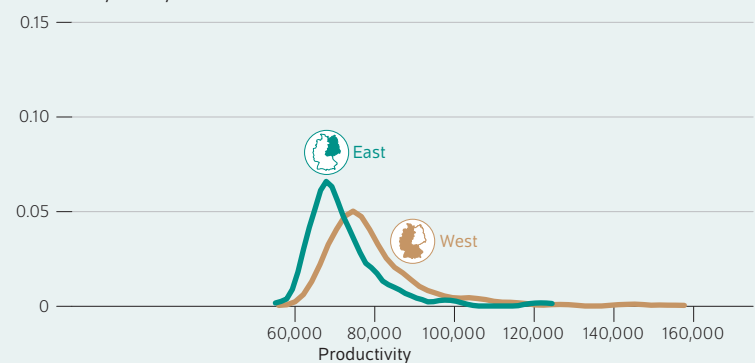
Productivity density 2004: west vs. east



Productivity density 2014: west vs. east



Productivity density 2024: west vs. east



Note: The density function indicates how likely it is that a district in the east or west achieved a certain level of productivity in a certain year.

Sources: National Accounts of the Federal States Working Group (*Arbeitskreis Volkswirtschaftliche Gesamtrechnungen der Länder*), data from August 2023 and February 2025; author's calculations.

© DIW Berlin 2025

Over the past ten years, the density pattern of the districts' labor productivity has converged significantly between eastern and western Germany.



## LEGAL AND EDITORIAL DETAILS



DIW Berlin — Deutsches Institut für Wirtschaftsforschung e. V.

Anton-Wilhelm-Amo-Straße 58, 10117 Berlin

[www.diw.de](http://www.diw.de)

Phone: +49 30 897 89-0 Fax: -200

Volume 15 October 1, 2025

### Publishers

Prof. Anna Bindler, Ph.D.; Prof. Dr. Tomaso Duso; Sabine Fiedler; Prof. Marcel Fratzscher, Ph.D.; Prof. Dr. Peter Haan; Prof. Dr. Claudia Kemfert; Prof. Dr. Alexander S. Kritikos; Prof. Dr. Alexander Kriwoluzky; Prof. Karsten Neuhoﬀ, Ph.D.; Prof. Dr. Sabine Zinn

### Editors-in-chief

Prof. Dr. Pio Baake; Claudia Cohnen-Beck; Sebastian Kollmann; Kristina van Deuverden

### Reviewer

Prof. Dr. Pio Baake; Dr. Stefan Bach

### Editorial staff

Rebecca Buhner; Dr. Hella Engerer; Petra Jasper; Adam Mark Lederer; Frederik Schulz-Greve; Sandra Tubik

### Layout

Roman Wilhelm; Stefanie Reeg; Eva Kretschmer, DIW Berlin

### Cover design

© imageBROKER / Steffen Diemer

### Composition

Satz-Rechen-Zentrum Hartmann + Heenemann GmbH & Co. KG, Berlin

Subscribe to our DIW and/or Weekly Report Newsletter at

[www.diw.de/newsletter\\_en](http://www.diw.de/newsletter_en)

ISSN 2568-7697

Reprint and further distribution—including excerpts—with complete reference and consignment of a specimen copy to DIW Berlin's Customer Service ([kundenservice@diw.de](mailto:kundenservice@diw.de)) only.