

Eastern Germany Still Playing Economic Catch-Up

By Karl Brenke

The economic gap between eastern and western Germany is still sizeable, even 25 years after the fall of the Berlin Wall. In terms of GDP per inhabitant and productivity, eastern Germany has attained nearly three-quarters of western German levels, respectively. Since some years, the catch-up process is advancing very slowly indeed. The main reason for low productivity is the lack of highly skilled jobs. In addition, the structure of the eastern German economy is comparatively fragmented. Disposable income per inhabitant in eastern Germany is around 83 percent of the western German equivalent. This ratio has not changed substantially since the end of the 1990s. Unemployment is still relatively high in eastern Germany but, in recent years, has fallen more markedly than in western Germany. However, this is partly due to shrinking numbers of potential employees.

Expectations after the fall of the Wall that the east would quickly catch up with the west in terms of economic power and living standards have not come to fruition. This conjecture was certainly exaggerated and assumed that a traditionally thinly populated region in flux could catch up with one of the best-performing economies in the world. Nevertheless, significant progress toward convergence has been made. In particular, eastern Germany had undergone successful re-industrialization. One major challenge is demographic change. The number of young employees in eastern Germany has fallen more significantly than in western Germany. In order to keep or attract skilled workers, more appealing jobs with good remuneration must be made available in eastern Germany. However, higher wages must accompany greater productivity and, in turn, this requires more intensive innovation activity.

This fall marks the 25th anniversary of the collapse of the political regime in the GDR and the opening of the border to West Germany. Following the political change and right to travel that ensued, there were increasing calls for improvements in the standard of living in the GDR, with people looking to West Germany for direction. After German reunification, the people of East Germany wanted the introduction of the deutschmark which was regarded as a symbol of economic strength and great purchasing power. Monetary, economic, and social union was introduced on July 1, 1990, removing the need to protect the exchange rate of the less productive economy of the GDR. Overnight, the area between the Baltic Sea and the Erz Mountains was flooded with goods from the West. Production in East Germany largely collapsed and the situation was further exacerbated by strong wage increases.

After this economic shock, policy-makers set themselves the task of rapidly building a new self-sustaining economic base. In addition, they were under the pressure to fulfill the expectations of a population that had been promised “flourishing landscapes.” The following examines to what extent these objectives have been achieved.¹

Shrinking and Aging Population

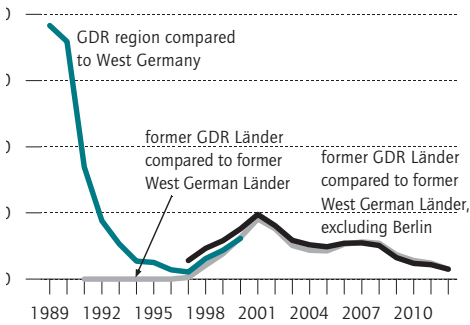
Although monetary, economic, and social union was a cardinal error from an economic perspective, from a political point of view it was both inevitable and necessary, as demonstrated by the announcement that accompanied the calls for this union: “If the deutschmark won’t come to us, we’ll come to it.” Without the deutschmark, the exodus from the GDR after the border opened would probably have been even greater than it actually was.²

¹ The city of Berlin was assigned to East Germany where the available data allowed.

² A further incentive to leave West Germany was the high level of social security benefits.

Figure 1

Migration Losses from the GDR and Eastern Germany Compared to Western Germany
Emigrants less immigrants in 1,000s



Source: Federal Statistical Office; calculations by DIW Berlin.

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Migration losses in eastern Germany are now very low.

The economy would have thus been deprived of the potential labor force.

Migration-related population losses decreased significantly because people hoped that the economic and political unity, fully implemented in October 1990, would lead to strong economic recovery after a short period of transition. By the mid-'90s, net migration in terms of population exchange with the western Länder was only slightly negative (see Figure 1). Two further, smaller migration episodes then took place: one around the turn of the millennium and the second from 2005 to 2008. This was obviously due to pro-cyclical migration behavior, where people were leaving eastern Germany as a result of the general economic upturn in Germany as a whole and the good employment opportunities in the west.³

After reunification, a second serious demographic development occurred: a dramatic decline in births. According to official population statistics, annual births halved from 1990 to 1994—from a plentiful 200,000 to just under 100,000.⁴ This was partly because women were having their first child at a later age;⁵ in the GDR, people became parents at rather a young age because the birth

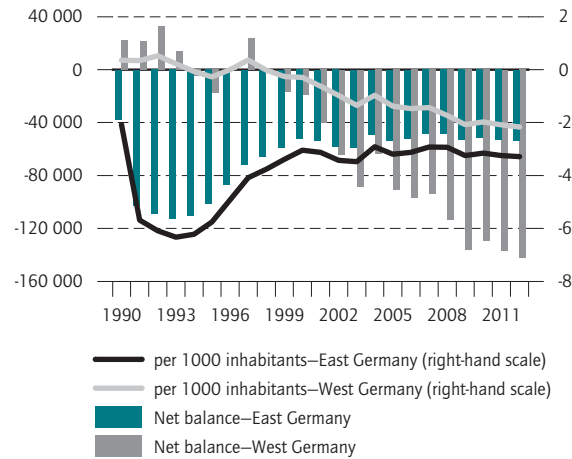
³ This does not include immigration and emigration to or from abroad. Net migration abroad was positive, even for East Germany, but the immigration gain in absolute terms was relatively low.

⁴ Excluding Berlin, the percentage decline was even higher at 56 percent, with the number of births in the eastern German Länder falling from 163,000 to 71,000.

⁵ O. Pötzsch, "Facetten der Geburtenentwicklung in Deutschland," *Wirtschaft und Statistik*, no. 6 (2005): 574 ff.

Figure 2

Balance of Live Births and Deaths



Source: Federal Statistical Office; calculations by DIW Berlin.

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The birth deficit per capita is still higher in eastern Germany than in western Germany.

Table 1

Average Life Expectancy of Newborns

In years

Mortality table	Former West Germany ¹		Former East Germany ²	
	Male	Female	Male	Female
1986/88	72.21	78.68	69.75	75.81
1991/93	73.11	79.48	69.86	77.18
2000/023	75.67	81.35	74.10	80.79
2009/113	77.97	82.77	76.64	82.58

¹ Until 1998/2000, including West Berlin.

² Until 1998/2000, including East Berlin.

³ Excluding Berlin.

Source: Federal Statistical Office.

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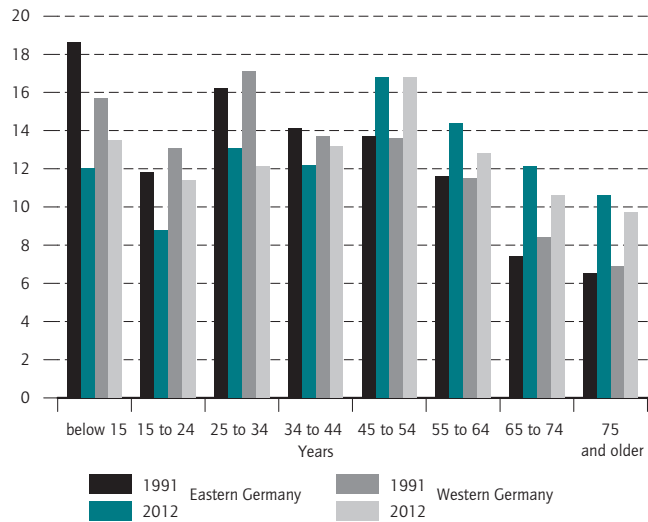
Life expectancy has risen faster in eastern Germany than in western Germany.

of their first child made them eligible for a number of benefits, such as the right to an apartment of their own. From the mid-1990s, the birth rate rose once again but remained well below previous levels. A total of 130,000 births were registered in 2000, since which time the figures have barely changed. This is far from sufficient for natural reproduction; in 2012, the number of children per woman aged 15 to 49 years was only 1.4; in the former West German Länder, the rate was just as low.⁶

⁶ Data from the German Federal Institute for Population Research, www.bib-demografie.de/DE/ZahlenundFakten/06/Figureen/a_06_08_zusgef_

Figure 3

Age Structure of Population in Eastern and Western Germany
Shares in percent



Source: Federal Statistical Office; calculations by DIW Berlin.

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The percentage of young people to total population has declined more in the east while the percentage of elderly has grown.

The balance of live births and deaths since 2000 is minus 50,000. In 2013, this was more than three people per 1,000 inhabitants compared to more than two people in western Germany (see Figure 2).

The significant increase in life expectancy has had a stabilizing effect on population development in eastern Germany. This led to a substantial convergence with the higher and likewise increased life expectancy in western Germany. During the early 1990s, life expectancy for female newborns in the east was 2.3 years lower than in the west and is now almost as high (see Table 1). A difference of 1.3 years still exists for male newborns, but right after the fall of the Wall it was as much as 3.3 years.

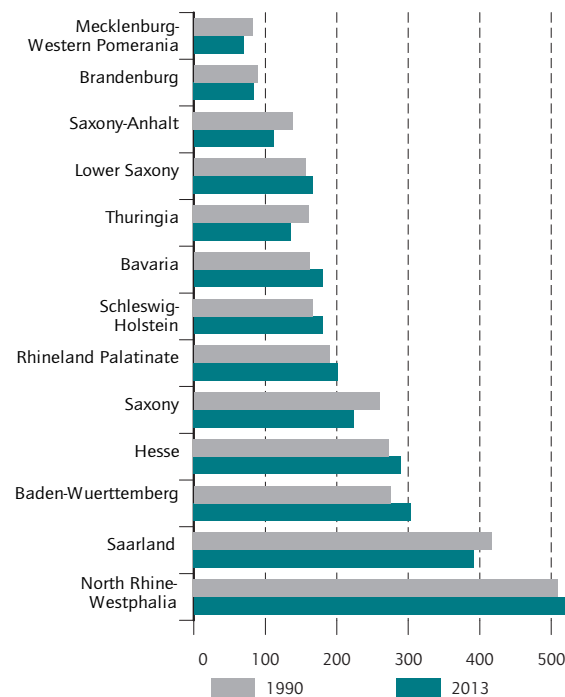
As a result of the development of migrations and births, society in eastern Germany has aged much more than in western Germany in recent years. The younger generation age cohorts now account for a much smaller proportion of the population than in the west; in comparison, however, there are rather a lot of older people in eastern Germany (see Figure 3). In the early '90s, the opposite was the case.

The already low population density in eastern Germany has further declined. With the exception of Saxony, the eastern German non-city Länder are among the lowest populations per square kilometer (see Figure 4). In 2013, there were 265 inhabitants per square kilometer in the west, compared to 150 in the east (non-city Länder: west = 256, east = 118).⁷

With such serious differences in spatial structures, the hope for a rapid convergence of economic power between east and west was probably unrealistic from the outset. In view of the persisting political objective of an east-west convergence of living standards, the comparison with western Germany may be justified. From an economic structural and historical perspective, however, this may be somewhat misleading. When Germany was divided, the West boasted strong economic centers with the corporate headquarters of many enterprises with cross-regional operations, while in the GDR the economy—a centrally planned economy with inefficient structures—had to be completely rebuilt. This fundamental economic difference between western and eastern Germany will remain for some time to come and will characterize relations between the two parts of the country in terms of economic power and productivity.

Figure 4

Population Density of Territorial States
Inhabitants per square kilometer



Source: Federal Statistical Office; calculations by DIW Berlin.

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⁷ The more recent demographic development has reinforced east-west discrepancies that existed before the fall of the Wall. Before the GDR existed—in the German Empire and prior to that in the Prussian Kingdom—large parts of present-day eastern Germany belonged to “Ostelbien”—a synonym for, among other things, low population density and economic underdevelopment.

Economic Output: The Catch-Up Process Is Slow-Going

After a sharp fall during the period known as the *Wende* (German term signifying the process of change from a centrally planned economy to the revival of parliamentary democracy and a market economy in the German Democratic Republic in 1989 and 1990), overall economic output in eastern Germany initially started climbing from the mid-'90s, albeit at a significantly slower pace. Since then, real GDP growth has continued to lag behind increases in production in the former Western Länder (see Figure 5). From 1995 to 2013, inflation-adjusted economic output rose by an annual average of 0.9 percent; in western Germany, it was 1.4 percent.

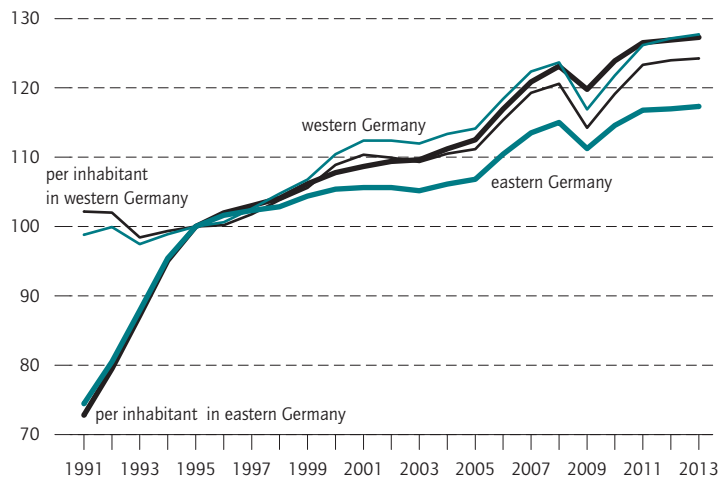
It should also be taken into account, however, that production opportunities are influenced by population growth. Taken by itself, a growing population will result in an increase in demand—for instance, for consumer-related goods that are not traded across the regions within the country, as well as for public services. With a shrinking population, the opposite is true. With regard to the development of wealth and prosperity, this means that a given production output in a region with a shrinking population must be considered differently to that in a region where the population is growing.

Expected per capita results for eastern Germany paint a somewhat more favorable picture: from 1995 to 2013, per capita economic output increased by 1.3 percent per year—in the former West German Länder, however, where the population increased as a result of immigration, it rose by 1.2 percent. From 2006, economic output per capita in the east (1.2 percent) barely rose more than in the west (1.1 percent). In 2013, the east achieved just 71 percent of the western value.

As a result of the adjustment shock caused by monetary union and the obligations resulting from social union, eastern Germany was dependent on massive funding that flowed through various channels: via the federal budget, from other Länder as part of financial compensation, indirectly via the European Union, from social security insurance, and in the form of private investment. The extent of the transfer can be outlined using the ratio of the value of goods consumed (sum of investments, as well as private and public consumption) on the one hand and goods produced on the other. From 1991 to 2011, the year up to which complete data are available, the value of goods consumed was consistently higher than the value of goods produced (see Figure 6). This difference has lessened over time, but, even in 2011, consumption exceeded production by eight percent. In absolute terms, this represents a good 30 bil-

Figure 5

Price-Adjusted GDP Index 1995 = 100



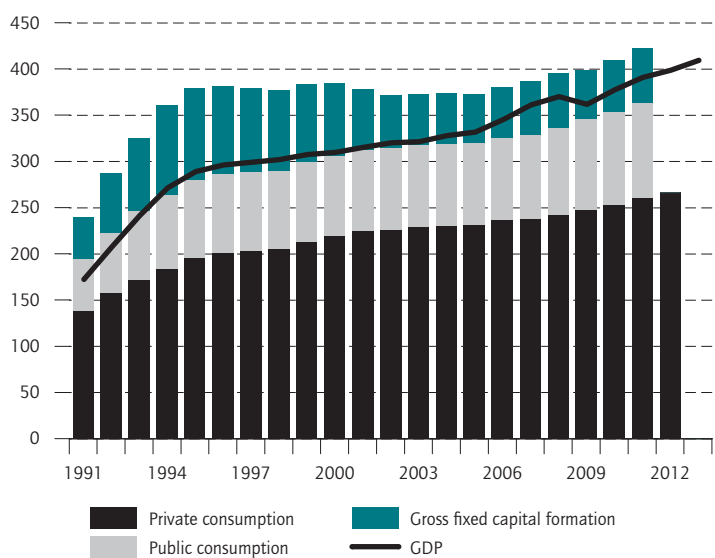
Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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Economic output has been growing more slowly in the east than in the west since the mid-'1990s.

Figure 6

Goods Consumption and Production in Eastern Germany In billions of euros at current prices



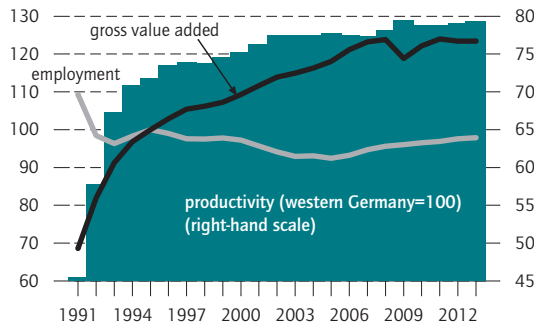
Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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Although the gap has narrowed, considerably more goods are consumed in the east than are produced.

Figure 7

Productivity and Employment in Eastern Germany
Index 1995 = 100



1 Productivity = real gross value added per worker.
Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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In terms of economic output per employed persons, eastern Germany has not been able to catch up with western Germany.

lion euros or approximately 1,900 euros per inhabitant. Since 2005, the current account deficit has barely fallen at all, meaning eastern Germany remains heavily dependent on transfers.

Significant Deficit in Productivity Persists

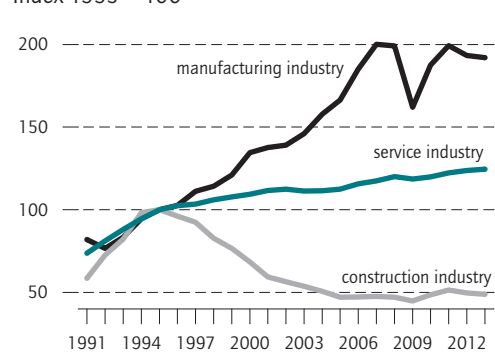
With a common currency, eastern Germany had no way of gradually bringing its productivity into line with the western German level.⁸ Rather, rapid and major productivity gains are required in order to just maintain one part of total production. In fact, economic output per worker rose by almost half from 1991 to 1995 (see Figure 7). However, this was accompanied by a sharp decline in employment. Productivity increased not least because many non-competitive production facilities were shut down. To cushion the transition process, particular focus was placed on instruments such as short-term work—even complete stoppages—and job creation measures, especially in the period immediately after the Wende.

After a temporary slight recovery in 1994 and 1995, employment in eastern Germany fell steadily for ten years. Economic output per worker increased at a faster rate than in western Germany, causing the productivity gap to decrease. This process of catch-up has since

⁸ The estimated productivity level for eastern Germany compared to western Germany ranges from 14 to 35 percent. O. Schwarzer, Sozialistische Zentralplanwirtschaft in der SBZ/DDR, (Stuttgart, 1999): 167.

Figure 8

Gross Value Added (GVA)¹ in Selected Areas of the Eastern German Economy
Index 1995 = 100



1 Price-adjusted.
Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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Industry has expanded rapidly in eastern Germany.

relaxed somewhat. Since 2005, employment in eastern Germany has been on the rise once again, and productivity is tending to grow only slightly stronger than in western Germany.

Calculated per employee, eastern Germany achieved 79 percent of western German productivity levels in 2013. As people work longer hours on average in the west than in the east, the gap in hourly productivity is even greater; in relation to the west, the figure for eastern Germany in 2013 was 74 percent.

Very Different Developments in Individual Economic Sectors

Construction

In eastern Germany, after a short transitional period, construction experienced enormous growth in production coupled with major personnel increases (see Figure 8). This was mainly due to a strong increase in demand from the public sector and state-owned enterprises aiming to eliminate major shortcomings in the eastern German infrastructure. A further contributory factor was numerous private investors, many of whom expected that eastern Germany would quickly catch up with the west in terms of economic power. Accordingly, a lot of money went into constructing commercial premises and apartments, and the building boom was

given an addition boost by government concessions (for example, for depreciation).

When it became increasingly clear in the mid-'90s that expectations concerning the development of eastern Germany were unreasonably high, construction output slumped. This downward trend could not be stopped until 2010. During the building boom, the construction industry made a significant contribution to the temporary increase in employment in eastern Germany. At its peak, the number of workers in the eastern German construction industry topped 1.2 million. Today, by comparison, there are only half as many.

Service Sector

The service sector also expanded substantially immediately after the *Wende*. From the mid-'90s, growth slowed but continued more or less steadily. Given the limited supply of consumer-related goods and services in the GDR, this development was foreseeable. Although numerous state-organized services were abandoned after the *Wende*, new ones replaced them and employment losses in this area were limited. Many production-oriented services, such as transportation, logistics, security, or research and development were no longer provided by the manufacturing enterprises themselves, but—following the example of the west—were outsourced to service enterprises. In addition, there were growth opportunities in services that were either unknown in the GDR or did not exist to the same extent as in the west, for example, advertising or financial services.

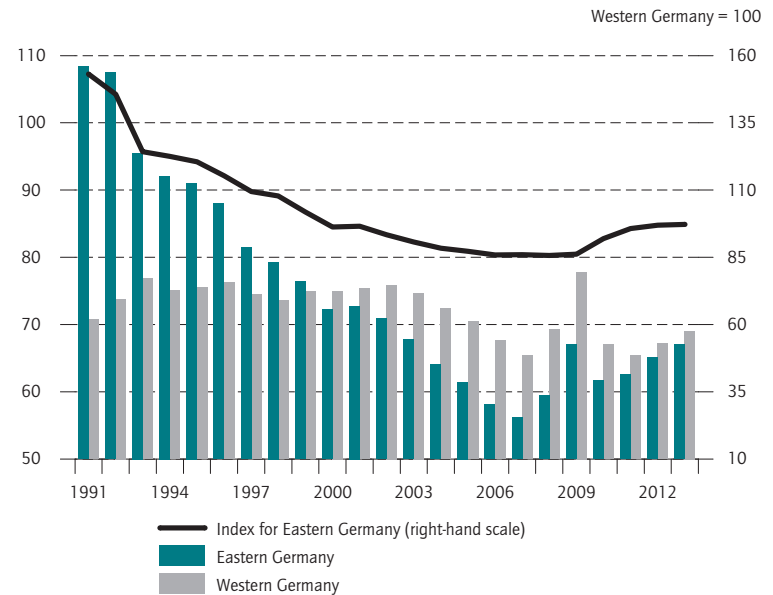
Eastern Germany saw exceptionally strong growth in the tourism sector, with the number of overnight stays in the accommodation sector increasing by 125 percent from 1995 to 2012, almost four times as much as in western Germany.⁹ However, the decline in population had a dampening effect on services oriented toward demand from the local population. For example, if the younger generation age cohorts are on the decline, then fewer education opportunities are needed to meet the demand. The effect of shrinking population on trade and other budget-related services was reflected in decreasing consumer demand.

In the course of general tertiarization, employment in the east continued to grow. The number of workers in the eastern German service sector rose from five million in 1991 to 5.7 million in 2013. The number of self-employed almost doubled to 670,000, and the self-employ-

⁹ Berlin recorded the strongest growth at 240 percent and Mecklenburg-Western Pomerania had a growth rate of 160 percent.

Figure 9

Unit Labor Costs¹ in the Manufacturing Industries of Western and Eastern Germany



¹ Remuneration per employee in relation to CVA per worker.

Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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Unit labor costs are slightly lower in eastern Germany than in the west.

ment rate in the east, now at 11.7 percent, is somewhat higher than in the west (10.9 percent).

Manufacturing Industry

Monetary union put pressure predominantly on those sectors manufacturing interregionally tradable goods—particularly the manufacturing industry. In the summer of 1990, industrial production fell by half and would have collapsed entirely had it not been supported by state exports to the Soviet Union, traditionally its most important trade partner, providing the conglomerates with massive liquidity aid.¹⁰ Businesses under the umbrella of the *Treuhandanstalt* (THA)¹¹ had to be privatized as soon as possible, which frequently required them being divided up into viable units. Although many companies were operating at very low production levels only, they

¹⁰ For a more detailed description of the development in this transitional period, see K. Brenke, "Die Jahre 1989 und 1990. Das wirtschaftliche Desaster der DDR – schleichender Niedergang und Schocktherapie," *Vierteljahrshefte zur Wirtschaftsforschung*, no. 2 (2009).

¹¹ The *Treuhandanstalt* was the trust corporation in Berlin responsible for privatizing state-owned East German enterprises.

Table 2

Importance of Manufacturing in European Union Countries

	Per capita GVA in the manufacturing industry in euros at current prices			Proportion of manufacturing to total GVA in percent		
	1991	2002	2013	1991	2002	2013
Ireland	-	8,664	7,491	-	29.1	23.3
Germany	4,431	5,011	6,528	26.6	21.5	21.8
Western Germany	5,608	5,699	7,294	28.1	22.8	23.0
Eastern Germany	1,291	2,362	3,397	14.8	14.0	15.1
Austria	3,381	4,799	6,124	21.1	19.4	18.3
Sweden	3,900	5,201	5,728	18.7	19.8	14.8
Finland	3,325	5,867	4,560	18.9	24.3	14.9
Denmark	3,022	4,449	4,556	16.2	15.1	11.9
Netherlands	2,553	3,447	4,112	17.0	13.4	12.8
Euro area	-	3,735	4,045	-	18.1	15.7
Belgium	-	4,116	3,814	-	17.7	12.5
Italy	3,342	3,924	3,628	21.6	19.1	15.5
EU as a whole	-	3,180	3,477	-	17.4	15.1
Czech Republic	-	1,834	3,183	-	24.6	25.1
France	2,680	3,166	2,861	17.3	14.0	10.2
Spain	-	2,699	2,678	-	16.7	13.4
Slovakia	-	952	2,657	-	21.8	21.9
UK	2,545	3,585	2,577	18.9	13.9	9.8
Portugal	-	1,913	1,939	-	16.2	14.0
Hungary	-	1,279	1,877	-	21.3	22.6
Poland	-	751	1,586	-	15.5	17.7
Greece	-	1,228	1,419	-	9.7	9.8

Source: Eurostat; Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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Industrial production in eastern Germany has now reached the EU average.

held on to part of the workforce because very often it was the skilled personnel potential that constituted the actual essence of a business—and not the equipment and machinery, which in most cases was used and worn or did not meet the standards of the day. Sometimes companies actually had to be given away or privatized by accepting a negative purchase price. Substantial subsidies were granted, in particular investment assistance, to stimulate industrial reconstruction. This assistance still exists today in a modified form.

Industrial production reached its lowest point in 1992; it then rose sharply. Development was greatly supported by a departure from the initial wage policy aimed at the fastest possible convergence of wages to western German levels. At the beginning of the restructuring period, unit labor costs exceeded 100, i.e., labor costs were higher than total economic output (see Figure 9). This was partly because personnel had been retained. Unit labor costs then fell significantly, not least because of moderate wage increases; from the turn of the millennium, they were even lower than the level for the manufacturing sector in western Germany.

This did not necessarily mean that industry in eastern Germany would now be more price competitive than in western Germany. Unit labor costs indicate the wage proportion of added value only. However, the breakdown of costs may vary according to the type of production. The high level of investment subsidization provided a greater incentive to invest in eastern Germany, especially in capital-intensive production, meaning asset depreciation carried more weight as a cost factor.

Given the industry's downturn at the beginning of the 1990s, a de-industrialization of eastern Germany was widely feared. From today's perspective, this assessment was not justified. In fact, the collapse of the industrial base in the GDR was followed by a period of re-industrialization. Similar developments also occurred in other countries in the former Eastern bloc; the opposite—creeping de-industrialization—has been observed in many western countries. The share of industry to total gross value added (GVA) in eastern Germany is indeed far behind that of western Germany, but it has now reached the European Union average (see Table 2). The gap with Italy, for example, is only small, and that with Spain, France, and the United Kingdom, where de-industrialization did indeed take place, has clearly been closed now.

Poor Occupational Structure

One possible explanation for the still relatively low productivity of the eastern German economy could be a specific sectoral structure in which economic sectors with generally low productivity carry greater weight, while industries with generally high productivity are under-represented. In fact, in eastern Germany, some sectors with below-average production, such as hospitality, construction, or the agricultural sector, have higher shares in total added value than in the west and sectors with above-average production, such as financial services, manufacturing, or some freelance and scientific services, carry less weight (see Tables 3 and 4). The picture that emerges, however, is not clear-cut. In eastern Germany, there are comparatively few simple services, such as trade or household services, and the economic structure is characterized, to a greater extent than in the west, by mining and energy—sectors with relatively high productivity.

How the sectoral structure influences overall economic productivity can be estimated using a model calculation. Data for 2011 were used because information for later years is not sufficiently subdivided by sector. Assuming that the labor force in eastern Germany with unchanged productivity was just as well distributed ac-

Table 3

Sectoral Structure of Gross Value Added In percent

	Eastern Germany			Western Germany		
	1991	2011	2013	1991	2011	2013
Agriculture, forestry, and fishing	1.9	1.2	1.3	1.1	0.7	0.7
Manufacturing industry	30.8	26.8	26.1	37.0	31.4	30.9
Processing industry	14.8	16.2	15.1	28.1	23.8	23.0
Construction	9.9	6.2	6.2	5.6	4.4	4.5
Energy, water, mining	6.1	4.5	4.9	3.3	3.1	3.5
Trade, transportation, accommodation, and ICT	20.6	17.2	17.3	19.9	18.8	18.6
Wholesale and retail trade; Repair of motor vehicles and motorcycles	-	7.3	-	-	9.3	-
Transportation and storage	-	4.1	-	-	3.8	-
Accommodation	-	2.0	-	-	1.6	-
Information and communication technologies	-	3.9	-	-	4.1	-
Financial and corporate activities; Real estate activities	16.4	25.2	25.5	23.2	27.7	28.0
Financial and insurance activities	-	2.6	-	-	4.6	-
Real estate activities	-	12.3	-	-	12.1	-
Professional, scientific, and technical activities	-	4.9	-	-	6.1	-
Administrative and support service activities	-	5.3	-	-	4.9	-
Public services, education, health, other activities	30.3	29.6	29.8	18.8	21.3	21.7
Public administration and defense; compulsory social security	-	9.2	-	-	5.6	-
Education	-	5.9	-	-	4.3	-
Human health and social work activities	-	9.3	-	-	7.1	-
Arts, entertainment and recreation	-	1.8	-	-	1.4	-
Other service activities (unless mentioned elsewhere)	-	3.3	-	-	2.7	-
Households with domestic help	-	0.1	-	-	0.3	-
Total	100	100	100	100	100	100

Sources: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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The proportion of public services in eastern Germany is higher than in the west.

According to industry sector as in western Germany (see Model 1), GVA for the whole economy of eastern Germany would be two percent lower (see Figure 10). The low total productivity can therefore not be attributed to the structure of the sectors; otherwise, according to the model calculations, total GVA would in fact be higher.

Another explanation might be that productivity within each sector is lower than in the west, affecting the overall result accordingly. In fact, most industry sectors in the east have a lower per capita output than in the west. The largest deficits are found in financial services, production-related services, and the manufacturing sector.¹² There are only a few exceptions: in the public sector, productivity is as high as in the west,¹³ and in the agriculture, mining, and energy sectors, which are more strongly characterized by large-scale production, productivity is higher in the east. It is assumed that if

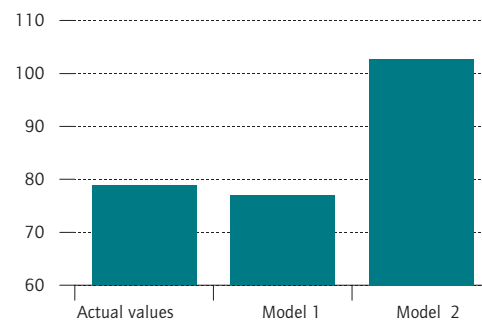
¹² One special case is *rental housing services* because here output is determined essentially on the basis of rents earned. The comparatively low productivity in this sector is due to the low rents in eastern Germany.

¹³ This is the mirror image of wage adjustment in the public sector; here again, GVA is determined largely on the basis of workers' salaries.

Figure 10

GVA Per Employed Persons in Eastern Germany in 2011

Index for western Germany = 100



Model 1: For a given productivity in the individual sectors, eastern Germany has the same sector structure as western Germany.

Model 2: For a given sectoral structure, eastern Germany has the same productivity in the individual sectors as western Germany.

Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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The productivity gap between western and eastern Germany is not due to the industry structure.

Table 4

GVA Per Employed Persons by Sector

In 1,000s of euros

	1991			2011			2013		
	Western Germany	Eastern Germany	Western Germany = 100	Western Germany	Eastern Germany	Western Germany = 100	Western Germany	Eastern Germany	Western Germany = 100
Agriculture, forestry, and fishing	16.8	9.0	53.4	26.5	31.2	117.8	28.8	36.0	125.1
Manufacturing industry	42.2	15.5	36.8	73.8	55.2	74.8	74.8	55.9	74.7
Manufacturing	42.7	11.9	28.0	76.9	56.1	72.9	76.5	54.1	70.7
Construction	33.2	18.2	54.8	47.2	38.0	80.4	48.8	39.7	81.3
Energy, water, mining	66.0	30.7	46.5	141.7	128.4	90.6	165.7	147.8	89.2
Mining and quarrying	-	-	-	72.3	92.7	128.2	-	-	-
Electricity, gas, steam, and air conditioning supply	-	-	-	179.1	191.0	106.6	-	-	-
Water supply; sewerage and waste management activities	-	-	-	119.8	97.1	81.0	-	-	-
Trade, transportation, accommodation, and ICT	31.6	16.9	53.4	42.1	32.8	77.9	43.2	34.1	79.0
Wholesale and retail trade; Repair of motor vehicles and motorcycles	-	-	-	38.0	27.4	72.0	-	-	-
Transportation and storage	-	-	-	46.2	38.7	83.7	-	-	-
Accommodation	-	-	-	23.5	20.2	85.8	-	-	-
Information and communication technologies	-	-	-	79.8	69.0	86.5	-	-	-
Financial and corporate activities; Real estate activities	89.9	35.1	39.1	96.4	67.5	70.1	99.4	70.5	70.9
Financial and insurance activities	-	-	-	87.5	62.4	71.3	-	-	-
Real estate activities	-	-	-	712.7	394.3	55.3	-	-	-
Professional, scientific, and technical activities	-	-	-	58.7	41.4	70.5	-	-	-
Administrative and support service activities	-	-	-	42.9	29.4	68.4	-	-	-
Public services, education, health, other activities	30.6	20.2	65.8	42.1	40.7	96.6	44.3	42.7	96.3
Public administration and defense; compulsory social security	-	-	-	54.4	54.3	99.9	-	-	-
Education	-	-	-	42.4	39.9	94.0	-	-	-
Human health and social work activities	-	-	-	39.9	36.8	92.4	-	-	-
Arts, entertainment and recreation	-	-	-	56.4	37.3	66.2	-	-	-
Other service activities (unless mentioned elsewhere)	-	-	-	45.0	37.3	83.1	-	-	-
Households with domestic help	-	-	-	8.3	6.6	80.1	-	-	-
Total	40.9	18.6	45.4	59.0	46.5	78.8	60.9	48.3	79.3

Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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Eastern Germany's productivity gap is most pronounced in financial and corporate services.

Table 5

Employment Structure for Employees in Western and Eastern Germany in 2013

In percent

	Western Germany ¹	Eastern Germany
Management Executives	10.9	8.8
Highly skilled workers without management skills	23.7	19.9
Workers with intermediate skills	41.6	49.3
Semi-skilled workers	15.3	15.9
Unskilled activities	8.5	6.1
Total	100	100

¹ Including Berlin.

Source: Federal Statistical Office.

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Management executives are strongly underrepresented in the east.

workforce distribution across the individual industry sectors of the east were to remain unchanged in each branch, the same productivity would be achieved as in the former West German Länder (see Model 2), overall productivity in eastern Germany would be 30 percent higher than it actually was in 2011. It would even have exceeded the level of western Germany by three percent. Thus, the overall lower per capita output results from the fact that eastern German production lags behind the west within the individual sectors.

One possible reason for this is that in the east simpler activities are provided in the individual sectors than in the west, a fact that should be seen in the job structure. There may be no relevant data for all the working population, but such data do exist for employees.¹⁴ There are approximately five output groups ranging from manage-

¹⁴ These data are from the official survey of workers' salaries in firms with ten or more employees in almost all industry sectors except agriculture and private

Table 6

Activity Structure by Industry Sector in 2013

	Index ¹ of occupation structure			Proportion of management executives and highly skilled workers to total workforce in percent	
	Western Germany	Eastern Germany	East-west difference	Western Germany	Eastern Germany
Coal mining	168.4	193.8	25.4	37.0	43.0
Mining and quarrying, other mining	158.7	162.4	3.7	25.0	31.0
Support services for mining	175.7	155.3	-20.3	39.0	19.0
Manufacture of food products	151.1	146.2	-4.9	18.0	13.0
Manufacture of beverages	156.9	156.6	-0.3	23.0	21.0
Manufacture of tobacco products	166.0	138.7	-27.4	33.0	18.0
Manufacture of textiles	156.6	156.3	-0.3	23.0	19.0
Manufacture of wearing apparel	159.8	150.3	-9.4	25.0	14.0
Manufacture of leather, leather products and footwear	173.6	136.3	-37.3	34.0	13.0
Manufacture of wood and of products of wood and cork, except furniture;	155.6	150.6	-4.9	22.0	17.0
Manufacture of pulp, paper, and paper products	160.7	152.6	-8.1	29.0	19.0
Publishing, printing, and reproduction	171.1	160.7	-10.3	33.0	23.0
Manufacture of coke and refined petroleum products	191.2	180.2	-11.0	44.0	38.0
Manufacture of chemicals and chemical products	183.9	160.2	-23.7	37.0	25.0
Manufacture of pharmaceutical products	192.0	174.4	-17.6	42.0	29.0
Manufacture of rubber and plastic products	152.2	147.5	-4.7	22.0	17.0
Manufacture of glass and glass products, ceramic	163.2	161.0	-2.2	27.0	25.0
Metal production and processing	164.2	158.3	-5.9	30.0	22.0
Manufacture of fabricated metal products	160.0	153.3	-6.7	25.0	17.0
Manufacture of computer equipment, electronic and optical products.	192.4	169.5	-22.9	47.0	35.0
Manufacture of electrical equipment	180.1	158.5	-21.6	40.0	23.0
Mechanical engineering	178.4	159.7	-18.7	38.0	22.0
Manufacture of motor vehicles and motor vehicle parts	171.0	154.8	-16.3	33.0	22.0
Other vehicle manufacture	204.8	194.2	-10.6	52.0	39.0
Manufacture of furniture	155.2	149.9	-5.3	22.0	15.0
Manufacture of other products	162.5	153.5	-9.0	27.0	18.0
Repair and installation of machinery and equipment	190.0	170.3	-19.7	44.0	31.0
Electricity, gas, steam, and air conditioning supply	193.2	198.0	4.8	55.0	57.0
Water supply	184.3	166.5	-17.7	50.0	29.0
Waste water treatment	173.2	171.8	-1.4	34.0	31.0
Collection, treatment, and disposal of waste	145.9	149.4	3.5	16.0	15.0
Remediation activities	156.9	153.6	-3.3	22.0	18.0
Construction of buildings	171.1	164.0	-7.0	31.0	24.0
Civil engineering	161.8	160.6	-1.1	28.0	24.0
Specialized construction activities	162.8	160.6	-2.2	24.0	23.0
Trade, maintenance, and repair of motor vehicles	166.6	161.1	-5.5	28.0	22.0
Wholesale trade	173.0	162.0	-11.0	34.0	25.0
Retail trade	164.3	161.1	-3.2	26.0	23.0
Land transport and transport via pipelines	144.8	150.1	5.3	13.0	15.0
Shipping	191.9	208.1	16.2	43.0	58.0
Aviation	199.2	199.1	-0.1	44.0	54.0
Warehousing, other transport services	155.4	147.3	-8.0	22.0	16.0
Postal and courier services	147.4	146.9	-0.4	12.0	11.0
Accommodation	160.4	165.4	5.0	23.0	24.0
Catering trade	145.8	153.4	7.6	17.0	15.0
Publishing	187.4	180.5	-6.9	50.0	44.0
Film and audio industry	177.7	169.8	-7.8	38.0	30.0
Broadcasting	215.6	219.0	3.4	63.0	65.0
Telecommunications	193.6	188.2	-5.4	56.0	54.0
Provision of information technology services	201.0	193.4	-7.6	59.0	55.0
Information services	192.6	151.8	-40.8	51.0	17.0
Financial services	198.8	184.5	-14.3	65.0	48.0
Insurance companies, pension funds	192.6	176.8	-15.7	58.0	46.0
Activities auxiliary to financial service activities	195.0	185.0	-9.9	57.0	52.0
Real estate activities	183.4	174.4	-9.0	41.0	31.0
Legal and accounting activities	180.9	175.0	-5.8	39.0	32.0
Activities of head offices; management consultancy activities	204.8	177.5	-27.3	59.0	36.0
Architectural and engineering activities; laboratories	202.1	196.2	-5.9	57.0	58.0
Research and development	229.7	228.1	-1.6	70.0	67.0
Advertising and market research	178.8	169.8	-9.0	38.0	32.0
Other professional, scientific, and technical activities	184.3	179.9	-4.4	44.0	46.0
Veterinary services	193.7	191.8	-1.9	39.0	36.0

Table 6 continued

Tätigkeitsstruktur nach Wirtschaftszweigen 2013

	Index ¹ of occupation structure			Proportion of management executives and highly skilled workers to total workforce in percent	
	Western Germany	Eastern Germany	East-west difference	Western Germany	Eastern Germany
Rental and leasing activities	168.1	165.0	-3.2	31.0	25.0
Labor recruitment and provision of personnel	129.4	129.6	0.3	9.0	6.0
Travel agencies, tour operators etc.	171.1	162.2	-8.8	30.0	19.0
Security services and investigation	125.1	124.7	-0.5	4.0	3.0
Services to buildings and landscape	144.8	147.3	2.5	19.0	18.0
Administrative and support service activities	158.5	144.4	-14.1	25.0	16.0
Public administration	187.5	185.9	-1.6	52.0	52.0
Provision of services to the community as a whole	171.1	160.9	-10.2	35.0	25.0
Compulsory social security	192.2	183.2	-9.0	62.0	53.0
Pre-primary education	153.6	151.1	-2.5	21.0	18.0
Secondary education	248.7	248.7	-0.0	92.0	92.0
Tertiary and post-secondary non-tertiary education	261.9	261.1	-0.7	78.0	78.0
Human health activities	186.6	183.5	-3.1	39.0	36.0
Residential care activities	163.7	171.7	8.0	31.0	34.0
Social work activities without accommodation	174.1	176.4	2.4	38.0	37.0
Creative, arts, and entertainment activities	180.6	187.0	6.4	46.0	55.0
Libraries, archives, museums, and other cultural activities	181.8	180.0	-1.8	40.0	40.0
Gambling and betting activities	140.6	143.6	2.9	18.0	20.0
Sports, amusement, and recreation activities	171.1	176.7	5.6	31.0	34.0
Activities of membership organizations	196.1	182.2	-13.9	51.0	43.0
Repair of personal and household goods	162.2	158.2	-4.0	27.0	24.0
Other personal service activities	152.7	153.2	0.5	20.0	19.0

¹ For a definition of the index, see footnote 15 in the main text.
Sources: Federal Statistical Office; calculations by DIW Berlin.

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ment executives to workers that require no training for their occupations.¹⁵ Taking all economic sectors together, the share of management executives and workers with highly skilled occupations is much lower in eastern Germany than in the west. Instead, the occupational structure indicates more workers with intermediate qualifications (see Table 5). In contrast, very simple jobs can be found somewhat more frequently in western Germany.

More detailed sectoral information exists only for full-time employees likely to dominate the occupational structure. For a more simplistic representation, a code was assigned to the qualification structure: the higher the value on a scale from 100 to 325, the more demanding the occupation on average in the respective sector.¹⁶

households. See Federal Statistical Office, "Verdienste und Arbeitskosten. Arbeitnehmerverdienste," Fachserie 16 (2.3).

15 The training requirements for employees in the individual output groups are likely to vary considerably between sectors; this is especially true for specialist employees, particularly management executives.

16 The benchmark for the code is the average hourly wage in the individual output groups of all sectors in Germany. Employees with the lowest requirements were assigned a value of 1 and employees in the other output groups were given a value corresponding to a multiple of the hourly wage of the employees with the lowest requirements. Since management executives in

In most sectors, the index for eastern Germany is lower than in western Germany (see Table 6). In manufacturing, the occupation structure in the east is less favorable in all sectors, and this applies to the great majority of branches within the service sector. Notable exceptions include coal mining and energy; these industries have been more productive in the east than in the west. In addition, some areas of social services and the hospitality industry have a relatively favorable occupational structure in the east.

One reason for the still significant difference in productivity between western and eastern Germany might also be the different sizes of the enterprises. Larger operational units can achieve productivity benefits since they produce larger quantities and are therefore able to reduce unit costs. This can be illustrated with reference to the manufacturing sector. The larger the enterprise,

the general economy earn, for example, an average of 3.25 times the income of an employee with a simple occupation, they would be given a value of 3.25. The respective employee percentage was then multiplied by these values according to the individual output groups in each sector—separated into eastern Germany and western Germany. If, for example, one sector contained management executives only, the occupational structure would have the value $3.25 \cdot 100 = 325$.

the higher the GVA per worker—that applies to Germany in general (see Table 7). Eastern Germany has a far larger share of workers in smaller enterprises than in the west.¹⁷ In the overall economy, the enterprise size structure in the east is characterized by its relatively large number of small operating units.¹⁸ There may be a close link between this small-scale industry structure and the relatively low proportion of higher-level occupations in the eastern German economy: very few major companies have headquarter functions there.

Another aspect ought to be considered in regional comparisons of economic strength and productivity. All measurements of economic performance and productivity factor in prices. In regional terms, prices not only reflect the economic strength of an area but also its respective purchasing power. This applies in particular to goods that cannot be traded across regions. If, for example, an eastern German hairdresser—e.g., in the Uckermark—can only charge half as much as a western German hairdresser—e.g., in the Munich area—for the same haircut, objectively speaking, the eastern German hairdresser is considered only half as productive as her/his counterpart in the west. This self-reinforcing effect consequently influences economic power estimations: low economic power means weak purchasing power and therefore low prices—and, according to statistical evidence, comparatively weak per capita economic output.

Moreover, larger and long-standing businesses can command relatively low purchasing prices and charge relatively high selling prices due to their strong market positions. Such companies are still rare in eastern Germany—accordingly, they are often at a disadvantage when compared to western German companies.¹⁹

Income Gap Remains Unchanged

Directly after the Wende, per capita incomes in eastern Germany rose very quickly—by about 50 percent from 1991 to 1995 (see Figure 11). What should be taken into account, however, is that price rises in the east were also very strong at that time: consumer prices rose by a third—not least because of the removal of subsidies, for example, for housing rents. After this first phase of improvement in income, it then developed more slow-

¹⁷ Using enterprises to compare economic output and businesses (local units) to compare workforce size categories could lead to inaccuracies. Enterprises may include several locally distributed businesses. Essentially, the comparison should certainly not be distorted.

¹⁸ K. Brenke, "20 ans après Unité," in: Isabelle Bourgeois, eds., *Allemagne, les chemins de l'unité* (Cergy-Pontoise, 2011): 112.

¹⁹ See G. Müller, "Schmalere Produktionslücke bei Beachtung von Preiseffekten," *Wirtschaft im Wandel*, no. 5 (1998).

Table 7

Enterprise Size Structure in the Manufacturing Sector

	Workforce in enterprises in September 2013 in percent		GVA per worker in companies
	In Germany in 2012 in euros	Westdeutschland	
	Eastern Germany	Western Germany	
1 to 49	17.0	9.9	478,5101
50 to 99	17.1	11.2	53,435
100 to 248	27.1	19.5	59,698
250 to 499	17.2	15.8	71,005
500 or more	21.7	43.6	105,729
Total	100	100	81,816

¹ Only for companies with 20 to 50 employees.

Source: Federal Statistical Office; calculations by DIW Berlin.

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Large firms are more productive than small ones on average, and in the east there are many small businesses compared to the west.

ly and the gap between income in eastern and western Germany remained virtually unchanged.

Unlike in western Germany, disposable income in the east, i.e., remaining household income for consumption and saving, is almost as high as gross income earned in the economic process (primary income), i.e., the sum of employee remuneration and mixed and unearned income before taxes and social security contributions. This is due to the differences in the composition of income. In the east, social security benefits account for a larger share of disposable household income than in the west, although this share has decreased in the past ten years (see Figure 12). On the other hand, eastern German households pay less in taxes and social security contributions because the gross income they earn from the market is far lower than that of western German households (see Table 8). The gap in unearned income between western and eastern Germany is especially large. Total disposable income per inhabitant in eastern Germany is 83 percent of the western German level. This ratio has not changed at all since the late 1990s.

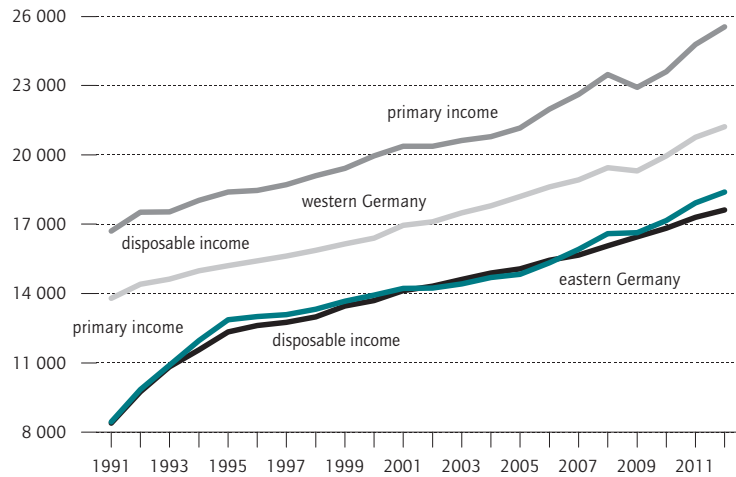
Fewer Regional Differences in East than West

Household incomes are not a precise mirror image of the economic power of the regions in which the households are located. This applies to disposable income due to the compensatory effects of social security benefits. But it also affects primary income because in some cases this is

Figure 11

Primary Income and Disposable Income Per Capita in Western and Eastern Germany

In euros



Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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Disposable incomes in eastern Germany are higher than gross incomes earned in the economic process.

earned in other regions. This is of particular importance in eastern Germany since many of its residents who are gainfully employed work in the west. There are statistical data on those commuting to the west from employees' social insurance contributions according to which, in mid-2013, almost seven percent of workers who lived in eastern Germany had a paid occupation in the west (see Table 9). In Thuringia and Mecklenburg-Western Pomerania, the proportion of commuters is well above the average. Commuter flows from west to east, however, are much lower.

In regional terms, income and economic performance are more evenly distributed within eastern Germany than in western Germany (see Table 10). This is true regardless of whether one considers districts, labor market regions, spatial planning regions, or entire states (Länder).²⁰ Very few regional inequalities in disposable income exist in eastern Germany due to the large proportion of social transfers. Even within western Germa-

²⁰ The Hoover inequality coefficient was used to measure the inequality. It shows what percentage of the total sum (e.g., income) would have to be redistributed within a population for each element of the population (e.g., regions) to receive exactly the same proportional share of the total sum (e.g., calculated per capita). The Hoover inequality coefficient can assume values between 0 and 50; the higher the figure, the greater the inequality.

ny, these transfers have a regional balancing effect, albeit much smaller than in the east.

Lower Wages Than in the West Even for Similar Occupations

In the GDR, wages increased sharply even before monetary union.²¹ Shortly thereafter, further increases were successfully negotiated, the objective being to bring union wages into line with western German levels in just a few years. But that did not happen—mainly because more and more companies were turning away from employers' associations, thus circumventing collective wage determination based on bargaining agreements.²² Nevertheless, wages rose steeply in the first half of the '90s (see Figure 13), after which the convergence to western German wage levels slowed. The average per capita wage in eastern Germany is now 83 percent of the average wage in western Germany. In the case of hourly wages, the convergence is less pronounced at 77 percent; on average individuals work longer in eastern Germany than in the west mainly due to the comparatively

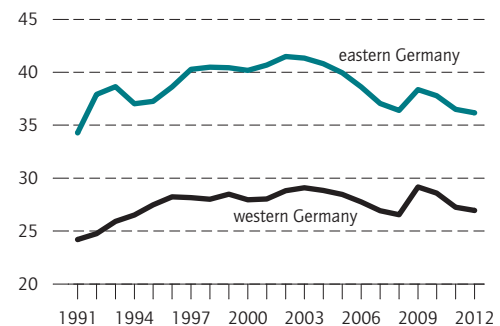
²¹ Brenke, "Die Jahre 1989 und 1990," 24 ff.

²² See DIW, IAB, IfW, IWH, and ZEW, "Fortschrittsbericht wirtschaftswissenschaftlicher Institute über die wirtschaftliche Entwicklung in Ostdeutschland," Sonderheft des IWH no. 3 (2002): 186 ff.

Figure 12

Percentage of Social Security Benefits to Disposable Household Income in Western and Eastern Germany

In percent



Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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Households in the east receive social transfers to a greater extent than those in the west.

low proportion of part-time employment and what are known as mini-jobs (salary up to 450 euros per month).

To some extent, the wage gap is also due to differences in the occupational structures between east and west. If the occupational structure were the same as in the west, the difference in gross hourly pay would only be approximately three percentage points lower (see Table 11).²³ More important than the structural effect is the fact that all employees across all occupation groups working in the east are paid less than their counterparts in the west. In more demanding occupations, the pay gap is even greater than it is for simpler jobs.

Situation In Labor Market Improved

Due to the sharp decline in production after the introduction of monetary union, the number of unemployed in eastern Germany grew rapidly—by half a million to 640,000 from June 1990 until the end of that year. This increase would have been much greater if many employed workers had not been forced into retirement or into working on short time. The following year, the number of unemployed topped the one million mark; by the end of 1991 even more (1.4 million) were put in training and job creation schemes which were installed quickly to counteract the rise in unemployment.

²³ Calculated using data from official statistics on earnings. According to these figures, the wage gap between east and west is greater than that of the national accounts. Earnings statistics contain no information about the hourly wages of workers in firms with fewer than ten employees, mini-job employees, and workers in agriculture and households.

Table 8

Household Income Per Inhabitant

In euros

	1991	2001	2012
Eastern Germany			
Employee remuneration	7,000	10,891	13,388
Operating income, net income from selfemployment	645	1,435	2,050
Unearned income	806	1,897	2,949
Primary income	8,451	14,223	18,387
Social security benefits received	2,875	5,750	6,369
<i>of which: pensions</i>	1,466	3,360	4,023
Income and wealth taxes	556	1,404	1,937
Social security contributions paid	2,402	4,466	5,295
Disposable income	8,388	14,131	17,614
Western Germany			
Employee remuneration	11,867	14,500	17,669
Operating income, net income from selfemployment	2,419	2,511	2,987
Unearned income	2,411	3,368	4,893
Primary income	16,697	20,378	25,549
Social security benefits received	3,336	4,755	5,718
<i>of which: pensions</i>	1,956	3,084	3,600
Income and wealth taxes	2,237	2,685	3,210
Social security contributions paid	3,967	5,442	6,894
Disposable income	13,786	16,958	21,225
Eastern Germany (western Germany = 100)			
Employee remuneration	59	75	76
Operating income, net income from selfemployment	27	57	69
Unearned income	33	56	60
Primary income	51	70	72
Social security benefits received	86	121	111
<i>of which: pensions</i>	75	109	112
Income and wealth taxes	25	52	60
Social security contributions paid	61	82	77
Disposable income	61	83	83

Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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Unearned incomes are particularly low in the east.

Table 9

Workers Subject to Social Security Insurance Commuting to and from Eastern Germany at the End of June 2013

Commuters to western Germany	Commuters from western Germany		Einpendler aus Westdeutschland		Net commuters
	Number of people	Proportion of commuters in relation to total number of employees living in given state in percent	Number of people	Proportion of commuters in relation to total number of employees working in given state in percent	
65,292	5.9	44,465	3.6	-20,827	-20,827
40,462	4.4	9,918	1.3	-30,544	-30,544
54,681	9.3	11,050	2.0	-43,631	-43,631
69,252	4.6	15,109	1.0	-54,143	-54,143
75,292	9.0	14,328	1.9	-60,964	-60,964
92,372	11.0	22,867	3.0	-69,505	-69,505
397,351	6.8	117,737	2.1	-279,614	-279,614

Source: Federal Employment Agency; calculations by DIW Berlin.

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There are approximately 280,000 net commuters traveling from east to west.

Table 10

Extent of Regional Inequality of Income Per Capita

Hoover inequality distribution coefficient¹

	Districts, non-district cities	Labor market regions	Planning regions	Federal states
Within eastern Germany				
Primary income in 2011	3.39	3.05	2.66	2.31
Disposable income in 2011	1.57	1.23	1.00	0.74
GDP in 2012	8.97	6.88	5.55	4.77
Within western Germany				
Primary income in 2011	5.64	5.38	4.80	3.35
Disposable income in 2011	3.99	3.62	3.18	2.22
GDP in 2012	14.16	9.38	8.18	5.00

¹ The Hoover coefficient indicates what percentage of income would have to be redistributed between regions for the per capita income to be exactly the same in each region. The coefficient can assume values between 0 and 50; the higher the figure, the greater the inequality. Source: Working Group on National Accounts of the Länder; calculations by DIW Berlin.

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Regional inequality is less pronounced in the east than in the west.

Such measures were then widely utilized, especially in the 1990s, with the result that unemployment figures did not sufficiently reflect the extent of underemployment. After the transition phase, however, the number

of registered unemployed exceeded the number of participants in such measures by far.²⁴ Even though unemployment figures are only a limited indicator, they still clearly show the severe lack of employment opportunities over many years in the east. By the middle of the last decade, unemployment rates in the east were almost always twice as high as in western Germany (see Figure 14). Since then, increased employment, among other things, has led to a greater decline in the unemployment rate in eastern Germany than in western Germany, where, since the beginning of 2012, the unemployment rate has in fact stagnated. Nevertheless, unemployment in eastern Germany remains far higher at 10.9 percent in August 2014 compared with 6.6 percent in the west.

In the GDR as in other Eastern bloc countries, labor force participation was much higher than in the west. This is especially true for women.²⁵ After the Wende, the

²⁴ Sometimes labor market policy measures were used as political pawns. For example, unemployment rose throughout 1997 massively because the measures were dismantled for cost reasons, with an eye on meeting the Maastricht criteria at the end of that year. They were rapidly reintroduced some months before the Bundestag elections in 1998. See K. Brenke, U. Ludwig, and J. Ragnitz, Analyse der Schlüsselentscheidungen im Bereich der Wirtschaftspolitik und ihre Wirkung auf die ökonomische Entwicklung der vergangenen zwei Jahrzehnte im Land Brandenburg, report commissioned by the Enquete Commission on "Aufarbeitung der Geschichte und Bewältigung von Folgen der SED-Diktatur und des Übergangs in einen demokratischen Rechtsstaat im Land Brandenburg," (2011): 81 ff.

²⁵ In 1989, the proportion of employed workers to total working-age population (16-64 years) in the GDR was 78.8 percent for women and 82 percent for men (calculated on the basis of population and employment data from the Statistical Office of the GDR). The corresponding figures for West Germany were 63.8 percent and 80.3 percent (employment rates according to micro-census).

Figure 13

Gross Wages and Working Hours of Employees in Eastern Germany

Index for western Germany = 100



Source: Federal Statistical Office; calculations by DIW Berlin.

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Working hours in eastern Germany are more than seven percent higher than in the west.

Table 11

Gross Hourly Wages of Full-Time and Part-Time Workers¹ by Output Group in 2013

In euros

	Eastern Germany	Western Germany ²	Eastern Germany (western Germany ² = 100)
Full-time workers			
Management executives	32.38	42.68	75.9
Highly skilled workforce	20.76	27.21	76.3
Workforce	14.06	19.16	73.4
Semi-skilled	11.61	15.66	74.1
Unskilled	10.47	13.07	80.1
Total	16.67	23.31	71.5
Assuming identical employment structure as in western Germany	17.48	-	75.0
Part-time workers			
Management executives	27.79	31.18	89.1
Highly skilled workforce	19.48	23.81	81.8
Workforce	14.02	17.62	79.6
Semi-skilled	10.75	13.40	80.2
Unskilled	9.17	11.30	81.2
Total	14.41	18.16	79.4
Assuming identical employment structure as in western Germany	14.66	-	80.7
Full- and part-time workers together			
Management executives	31.88	41.57	76.7
Highly skilled workforce	20.57	26.76	76.9
Workforce	14.06	18.91	74.4
Semi-skilled	11.40	15.20	75.0
Unskilled	10.04	12.53	80.1
Total	16.25	22.47	72.3
Assuming identical employment structure as in western Germany	16.85	-	75.0

¹ All sectors excluding agriculture, households, and mini-jobs.

² Including Berlin.

Sources: Federal Statistical Office; calculations by DIW Berlin.

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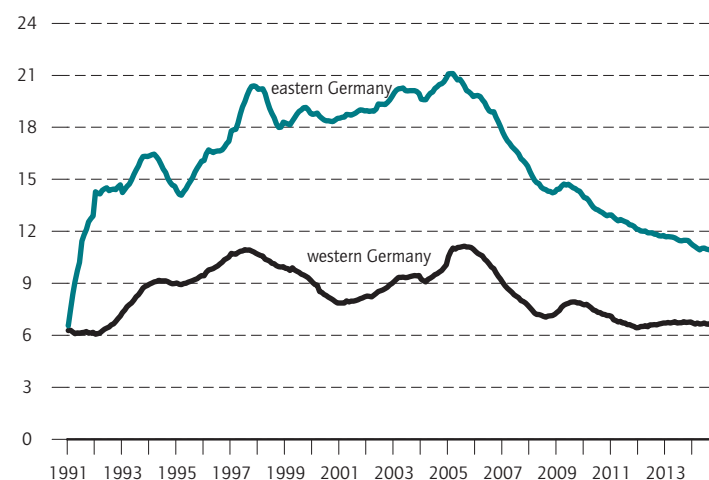
Wages in the east are lower than in the west across all output groups.

employment rate declined; the employment rate is defined as the percentage of the labor force, i.e., those persons in the total working-age population carrying out or seeking gainful employment (see Figure 15). Early retirement programs and the intensive use of further training measures have also contributed here. Nevertheless, labor force participation remained significantly higher than in the former West German Länder, despite the steady increases seen in the west. Since the turn of the millennium, labor force participation in the east has also been on the rise once again and is now even higher than at the beginning of the 1990s. It should be noted, however, that in eastern Germany absolute employee numbers have decreased since the middle of the last decade a result of the population decline (see Figure 16). This decrease is due solely to the fall in the number of young people in the labor force; since 2007, this figure has fallen by more than a third or almost 400,000.²⁶ This is likely to have contributed significantly to the relatively sharp decrease in the unemployment rate in the east seen in re-

Figure 14

Unemployment Rate¹ in Western and Eastern Germany

In percent



¹ Seasonally adjusted monthly values.

Source: Federal Employment Agency; calculations by DIW Berlin.

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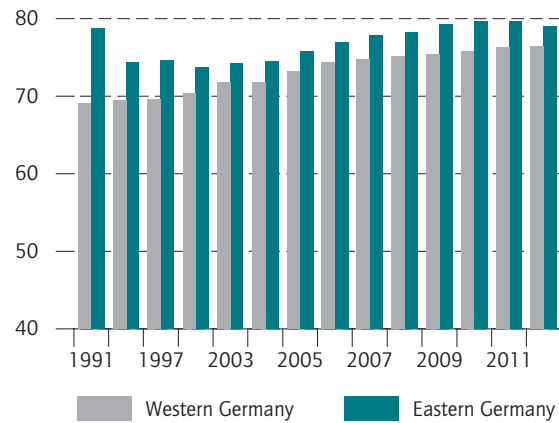
The unemployment rate is higher in eastern Germany than in the west, but it has fallen more sharply in the east than in the west in recent years.

²⁶ Source: micro-census.

Figure 15

Proportion of Labor Force to Total Population Aged 15 to 64 Years

In percent



Source: Federal Statistical Office (micro-census).

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Labor force participation is higher in eastern Germany than in western Germany.

cent years. In the former West German Länder, however, the potential labor force is on the increase.

In western Germany, unemployment is in many ways also a qualified workforce issue. In August of this year, 51 percent of all the unemployed in western Germany had no job training. In eastern Germany, this only applies to one-third (excluding Berlin, where the figure is slightly more than one-quarter). Nevertheless, in eastern Germany, unemployed people with no job training also find it very hard to find employment because there are not enough job offers for unskilled workers. In eastern Germany, the proportion of people with no training to total workforce is only half as much as in western Germany (see Figure 17). The number of people with job training or a university degree in eastern Germany is also relatively high. A lack of formal qualifications among the potential labor force can therefore not be the reason for the significant gap in productivity between east and west, as well as the far higher unemployment rate in the east.

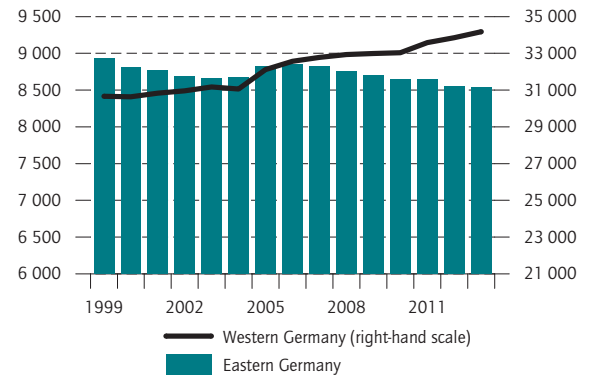
Conclusion

Expectations among GDR citizens were very high. Once political freedom had been won, unification of the two states should have rapidly led to the east achieving economic power and living standards similar to the west.

Figure 16

Size of Labor Force

In 1,000s



Source: Federal Statistical Office (micro-census).

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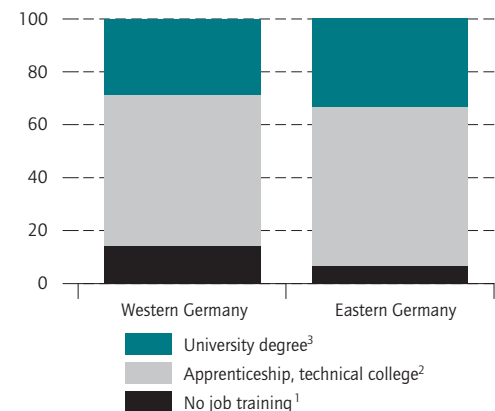
The size of the labor force has been decreasing since 2005; in the west, by comparison, it has been rising steadily.

Monetary union came as a shock. A new economic base had to be created because significant sections of the East German economy proved to be uncompetitive. Given the renewal and recovery that can be seen everywhere, there is no doubt that significant progress has been made. Nevertheless, 25 years after the fall of the Wall, eastern Ger-

Figure 17

Structure of Labor Force by Education in 2013

Shares in percent



1 ISCED 0 to 2.

2 Including high-school diploma (Abitur), ISCED 3 to 4.

3 Including Master Craftsman (Meister), ISCED 5 to 6.

Source: Eurostat (micro-census); calculations by DIW Berlin.

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The labor force in eastern Germany is better qualified on average than employees in the former West German states.

many is still a long way from matching the economic power of western Germany or the income earned there. After initially high growth rates, the catch-up process with western Germany proved to be increasingly sluggish. In terms of economic output per capita and productivity (per hour worked), eastern Germany has achieved 71 percent and 74 percent of the western German levels, respectively. These figures have remained virtually unchanged in the past ten years.

Measured in terms of expectations at the time of the *Wende*, many are disappointed that, in economic terms, eastern Germany is lagging far behind the former West German *Länder*. Expectations, however, were unrealistic from the outset because the bar had been set too high. Indeed, it was assumed that a traditionally sparsely populated transition region could catch up with one of the world's most powerful economies in a very short time. It has now been shown that this has not been possible even over the course of an entire generation. Nevertheless, much has been achieved. In fact, the process of re-industrialization was a success and eastern Germany is now mid-table among regions of the European Union in terms of industrial density. There are, however, signs of some serious structural problems. There are relatively few highly skilled jobs on offer in the eastern German economy and its structure is relatively compartmentalized. Above all, very few major companies have head offices there.

The unemployment rate in eastern Germany has decreased significantly in recent years, such that the dependence of households on social transfers has also declined. But this is only partly due to increasing employment. Another important reason for this is that the potential labor force is getting smaller, which reduces the demand for jobs. The labor market now clearly shows the traces of demographic changes in the period immediately after the fall of the Wall, when strong migrations and a dramatic decline in the birth rate occurred. Where the situation on the labor market to date was dominated by a labor surplus, the opposite might soon be the case.

To increase the attractiveness of eastern Germany as a location, educational and job training opportunities need to be improved; it would be counterproductive to make cuts, for example, at universities—especially since eastern Germany is dependent on migration. Attractive pay packages are the key to retaining or attracting a qualified workforce. The problem with this, however, is that the only firms in a position to offer high salaries are those with high productivity levels, which in turn calls for increased innovation by companies.

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