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DIW Economic Bulletin

Provided in Cooperation with:
German Institute for Economic Research (DIW Berlin)

Suggested Citation: Brenke, Karl (2016) : The Berlin labor market since 2005: Strong employment growth yet unemployment remains high, incomes low, DIW Economic Bulletin, ISSN 2192-7219, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin, Vol. 6, Iss. 29/30, pp. 327-338

This Version is available at:
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The Berlin labor market since 2005: strong employment growth yet unemployment remains high, incomes low

By Karl Brenke

Over the past ten years, the number of employed in Berlin has increased more dynamically than it has anywhere else in the country, resulting in a decrease in unemployment. But because the city's potential labor force has also experienced considerable growth, Berlin's unemployment rate remains well above the national average. Since jobs requiring intermediate qualifications have become more prevalent, this high unemployment rate is being influenced more and more by the increasing numbers of Hartz-IV recipients and low-skilled workers as well as academics.

Berlin's strong employment growth has been facilitated by the fact that the productivity gains are low, even in a nationwide comparison. This is also likely one of the reasons that Berlin is still behind when it comes to wages. The weak productivity development also indicates an insufficient innovation capacity that is preventing Berlin from achieving the economic power and income levels that would befit a national capital. Now and in the future, such a transformation requires a well-qualified workforce—which is why policymakers' highest and most urgent priorities should include combating the glaring lack of apprenticeships as well as improving the quality of local schools and vocational training.

Berlin's economy experienced uneven development in the years following the reunification. When the Wall came down, euphoria swelled among the people. The future looked bright: the real estate market was booming, and the state government was spending with abandon. But it wasn't long before investors' expectations proved to be overblown, and by the mid-'90s, the construction industry had collapsed. Berlin's politicians realized that unless they were able to get municipal spending under control, they were going to run the city into the ground.

After the illusory boom, the structural problems of the Berlin economy became more and more apparent. In Berlin's former East—like everywhere else in the former GDR—industry suffered from insufficient competitiveness. In the West, a major part of industry was only able to establish itself with high levels of subsidies, and only built subsidiary functions of production *[Werkbankfunktionen]*. The service sector was focusing almost exclusively on the regional market, and the public sector was carrying great importance. Berlin did benefit from being designated as the new German capital, but due to high levels of debt, the city had to start implementing austerity measures. This ushered in decade-long economic downturn that was only briefly interrupted by an economic peak around the turn of the millennium—though this moment of prosperity was relatively weak in Berlin. It wasn't until 2005 that this situation began to change.

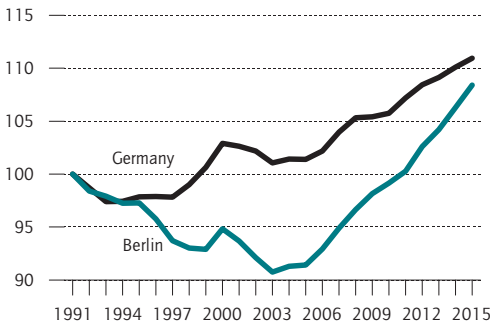
The following analysis focuses primarily on the time period since then. Structures and developments in Berlin are compared with those in Germany on the whole as well as similar cities, depending on the data available.

The past ten years: above-average employment growth

Due to the massive job loss in East Berlin that resulted from the structural transformation, the number of employed persons in Berlin dropped immediately after the reunification (Figure 1), and by the mid-'90s, Germa-

Figure 1

Development of Employment
Index 1991 = 100



Source: Arbeitskreis Volkswirtschaftliche Gesamtrechnung der Länder; DIW Calculations.

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Since 2005, clearly above average growth of employment in Berlin.

ny's capital was completely disconnected from the rest of the country's overall economic development. The period following this prolonged downswing—which lasted until 2005—was characterized by a process of convergence. Since the mid-'00s, Berlin's employment rate has not only bounced back, but it has also grown even faster than in the rest of the country: in the past decade, the real GDP in Berlin increased by an annual average of 2.1 percent, while in Germany overall, this figure amounted to only 1.4 percent (Table 1).

But the powerful increase in economic performance was not the only cause. The average number of per-capita working hours in Berlin sank at a higher-than-average rate, and since fewer hours were being worked per person, the volume of work was being spread out across more employees.

Another factor that must be taken into account is productivity. Berlin's per-hour economic output increased in the period between 2005 and 2015 by an annual average of 0.9 percent—similar to Germany on the whole (0.8 percent). What is notable is the difference in how this played out time-wise: in the past five years, the growth momentum of hourly productivity was significantly weaker it had been in the previous five years. A zero-growth situation is sufficient to maintain the current employment figures, partly because the number of per-capita working hours is decreasing. Between 2010 and 2015, however, in Germany an annual GDP growth rate of 0.6 percent—also quite low—was necessary.[1] In Berlin, the recent employment growth was accompanied by a particularly weak increase in productivity and a relatively large reduction in the average working hours.

At the same time, Berlin exhibits a relatively high number of per-capita working hours: in 2005, this figure amounted to 1,399 hours per year, while in the rest of Germany, this figure was 28 hours less (Figure 2). Ten years earlier, the difference between these figures amounted to 69 hours. Across the country, the average working time has decreased significantly, and in this respect, the development in Berlin could be interpreted as an adaptation to the general trend. However, the volume of work—that is, the amount of work performed—has increased at above-average rates in Berlin, since the number of employees has increased comparatively strongly.

Recently, however, the opposite development was observable in working hours. The average per-capita working hours in Germany overall have been increasing since 2014, while this trend was not observable in Berlin until 2015, and then only to a limited extent. Whether this constitutes a trend reversal remains to be seen.

Table 1

Average yearly growth rates of GDP, productivity, and employment
In percent

	Real GDP	Real GDP per employed persons	Real GDP per working hour	Employed persons	Working hours per employed persons
Berlin					
2005 to 2010	2.4	0.7	1.3	1.6	–0.6
2010 to 2015	1.8	0.0	0.5	1.8	–0.5
2005 to 2015	2.1	0.3	0.9	1.7	–0.6
Germany					
2005 to 2010	1.2	0.4	0.7	0.8	–0.3
2010 to 2015	1.5	0.6	0.8	1.0	–0.3
2005 to 2015	1.4	0.5	0.8	0.9	–0.3

Source: Arbeitskreis Volkswirtschaftliche Gesamtrechnung der Länder; DIW calculations.

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Productivity growth in Berlin has been very slow.

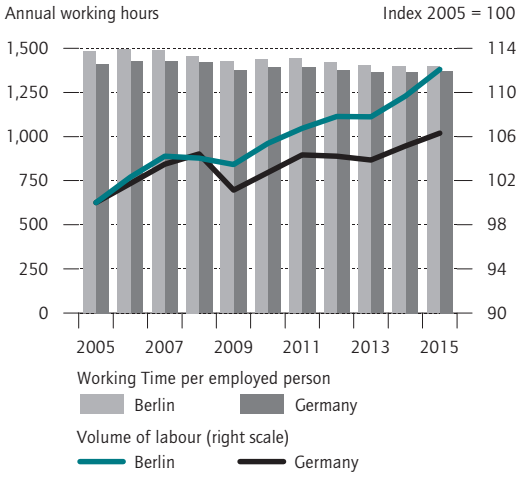
Strong growth in social security-obligated employment

In Germany on the whole, the increase in employed persons over the past ten years was caused solely by the increase in social security-obligated employment;

1 Between 1995 and 2005, the employment threshold stood at 0.9 percent.

Figure 2

Volume of labor and working time per employed



Source: Arbeitskreis Volkswirtschaftliche Gesamtrechnung der Länder; DIW Calculations.

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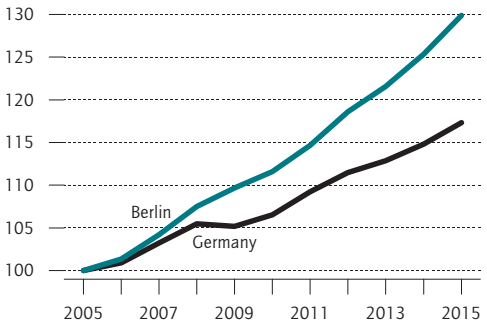
Berlin's labor volume has also experienced a strong increase.

Figure 3

Number of social security-obligated employees

Index 2005 = 100



Source: Federal Labour Agency; DIW Calculations.

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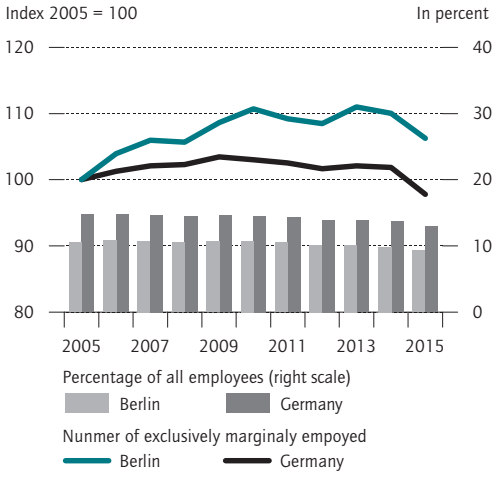
Sharp growth in the number of social security-obligated employees.

in Berlin this was the primary reason, though not the only one. The increase in social security-obligated employees in Berlin was stronger than it was in the overall economy (Figure 3), and this high growth rate has hardly changed over time. Unlike the rest of Germany, Berlin was not hit hard by the 2008–2009 global financial crisis, since the city's economy has relatively little to do with foreign trade, which was particularly affected during the crisis. [2]

Minor employment experienced a different kind of development. The number of mini-jobbers picked up considerably in Berlin between 2005 and 2010, yet stagnated nationwide (Figure 4). Since then, the development of minor employment has trended sideways (with fluctuations) in Berlin while decreasing in Germany as a whole. In both cases, a major slump materialized in 2015—no doubt due to the introduction of the minimum wage. (The implementation of the minimum wage caused mini-jobs to lose their attractiveness to employers, who were no longer able to pay mini-jobbers lower wages with the excuse that such employees pay lower taxes overall.) The decline in mini-jobs is likely to have contributed to the recent increase in the average number of working hours overall; in Berlin, however, mini-jobs are underrepresented.

Figure 4

Exclusively marginally employed persons (mini-jobbers)



Source: Federal Labour Agency; DIW Calculations.

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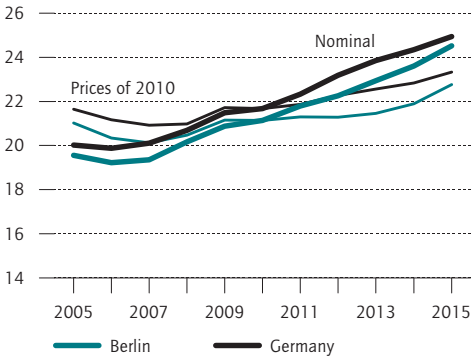
Mini-jobs are less prevalent in Berlin.

2 The financial crisis had the most powerful impact on export-dependent manufacturing. In 2015, this sector comprised eight percent of all social security-obligated employees in Berlin; in Germany overall, this rate amounted to 21 percent.

Figure 5

Gross wages per hour
In euros



Source: Arbeitskreis Volkswirtschaftliche Gesamtrechnung der Länder; Federal Statistical Office; Amt für Statistik Berlin-Brandenburg; DIW Calculations.

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Wages: Berlin still lags behind.

Table 2

Gross wages per hour by occupational groups resp. job grades[1]

	Euro			Average annual growth rate (percent)	
	2007	2010	2015	2010 to 2015	2007 to 2015
Berlin					
Managerial personnel, executives	35.23	35.63	40.28	2.5	1.7
Highly qualified personnel	21.98	22.86	25.53	2.2	1.9
Skilled workers	16.04	16.32	17.92	1.9	1.4
Semiskilled workers	12.07	12.09	13.31	1.9	1.2
Unskilled workers	9.67	9.82	10.86	2.0	1.5
Total	19.12	19.57	21.47	1.9	1.5
Germany					
Managerial personnel, executives	35.16	37.64	43.01	2.7	2.6
Highly qualified personnel	23.05	24.49	27.49	2.3	2.2
Skilled workers	16.39	17.25	18.79	1.7	1.7
Semiskilled workers	13.47	13.93	15.10	1.6	1.4
Unskilled workers	10.98	11.51	12.61	1.8	1.7
Total	19.14	20.30	22.42	2.0	2.0
Berlin, Germany = 100					
Managerial personnel, executives	100.2	94.7	93.7		
Highly qualified personnel	95.4	93.3	92.9		
Skilled workers	97.9	94.6	95.4		
Semiskilled workers	89.6	86.8	88.1		
Unskilled workers	88.1	85.3	86.1		
Total	99.9	96.4	95.8		

1 Excluding employees in small companies, the agricultural sector, and in private households as well as marginally employed workers (mini-jobbers).

Source: Federal Statistical Office; DIW calculations.

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Berlin: wages in all job grades lag behind.

Civil servants also count as dependent employees; however, no adequate information is available as to how many of them are working in Berlin. Data are only available for civil servants working—directly or indirectly—for the individual states (as opposed to the Federal Government). Such civil servants make up the vast majority of those working in Berlin. Since 2005, the number of these civil servants working in Berlin declined steadily and evenly by approximately 12,000 people, or 15 percent,[3] while the stock of social security-obligated employees in Berlin's public administration increased by 6,000 people.

Berlin wages still below national average

Both in Berlin and Germany on the whole, wages have grown significantly since 2010 (Figure 5). The relatively low inflation of the past few years has resulted in a rise in nominal wages, with the result that wages have also been increasing in real terms. This has been the case since 2010 nationwide, and since 2013 in Berlin.

In 2005, the nominal gross hourly wages in Berlin were 2.3 percent below the national average. This difference has persisted in the years since, and at times has even been more significant (4 percent in 2014 and 3.7 percent in 2007). Recently, however, this gap has begun to converge somewhat: the wage difference between Berlin's workforce and that of Germany on the whole was reduced to 1.7 percent in the case of nominal gross hourly wages, and 2.4 percent in the case of real wages.

A breakdown of employee wages according to function and/or occupation offers deeper insight into the structure and development of wages. However, such statistics have only been being compiled since 2007, and the breakdown is rather rough; as well, small businesses, certain sectors (agriculture and private households), and minijobs are excluded from these data.

The gross hourly wages for all job categories in Berlin fall below the national average (Table 2). This gap is particularly apparent in the case of "simple" jobs—that is, occupations for semi-skilled and unskilled workers—and has been widening over time. Berlin is also relatively far behind when it comes to compensation for skilled workers, or those working jobs that require an academic education. The development in wages for such workers has also been weaker in Berlin than it has in Germany on the whole. The same is true for executives' incomes. The only exceptions are occupations that usually require an apprenticeship or a secondary special education, because in those cases, wages—at least from 2010 onwards—have experienced above-average increases in

3 Source: Statistical Office Berlin-Brandenburg.

Berlin. Nevertheless, even their total gross hourly wages are lagging behind the national average.

It is evident that in Germany overall, simple jobs have been losing prevalence (Table 3). This is hardly the case in Berlin, however. Occupations for executives and specialists have decreased proportionately nationwide, but in Berlin, this decline turned out to be more significant than the national average. This might have contributed to the fact that wages in Berlin are still below average, despite the strong growth in employment.

Berlin: a stronghold for sole contractors

Between 2005 and 2015, Berlin also experienced an increase in the number of self-employed workers (including family workers), albeit to a moderate extent (Figure 6). This figure reached a peak in 2012, decreased significantly in 2013, and has been rising slightly since then. Such figures make Berlin an outlier, because in Germany on the whole, the total number of self-employed workers has clearly been on the decline since 2012, and there are now fewer self-employed workers overall than there were a decade ago.

In Germany overall, the development of self-employment has primarily been influenced by the increase in solo self-employed workers—that is, sole contractors. In contrast, the number of self-employed workers with dependent employees stagnated.[4]

No corresponding data have been published for Berlin specifically. To compensate for this gap, individual data from the Microcensus were used. These data, however, are only available up until 2013.[5] According to these data, the number of sole contractors in Berlin increased by nearly 90 percent in the period between 2005 and 2013, up to nearly 200,000 individuals. The number of self-employed workers with dependent employees, however, decreased by one-sixth. Due to this development, sole contractors started accounting for a larger and larger share of all self-employed workers, and by 2013, their share amounted to nearly three-quarters—significantly higher than that of Germany on the whole as well as comparable large cities such as Hamburg (Table 4). Berlin is a stronghold for sole contractors: in 2013, nearly nine percent of Germany's sole contractors were living in Berlin. To put this into perspective, Berlin's share of Germany's total labor force amounted to just over four percent.

Table 3

Structure of employees[1] by occupational groups resp. job grades

	In percent			Change in percentage points	
	2007	2010	2015	2010 to 2015	2007 to 2015
Berlin					
Managerial personnel, executives	12.6	12.6	11.9	−0.7	−0.7
Highly qualified personnel	24.9	25.1	23.1	−2.0	−1.8
Skilled workers	40.3	41.5	43.2	1.7	2.9
Semiskilled workers	13.8	13.2	15.4	2.2	1.6
Unskilled workers	8.5	7.7	6.4	−1.3	−2.1
Total	100	100	100		
Germany					
Managerial personnel, executives	10.6	10.5	10.4	−0.1	−0.2
Highly qualified personnel	22.9	23.0	22.0	−1.0	−0.9
Skilled workers	41.6	42.7	44.1	1.4	2.5
Semiskilled workers	16.1	15.3	15.1	−0.2	−1.0
Unskilled workers	8.8	8.3	8.4	0.1	−0.4
Total	100	100	100		

1 Excluding employees in small companies, the agricultural sector, and in private households as well asmarginally employed workers (misni-jobbers).

Source: Federal Statistical Office; DIW calculations.

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The structure of job grades has been shifting to medium-skilled workers.

Figure 6

Number of self-employed workers

Source: Arbeitskreis Volkswirtschaftliche Gesamtrechnung der Länder; DIW Calculations.

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Self-employed: different developments between Berlin and Germany on the whole.

4 Brenke, Karl and Martin Beznoska: "Solo-Selbständige in Deutschland: Strukturen und Erwerbsverläufe." Forschungsbericht Nr. 465 of the Federal Ministry of Labour and Social Affairs, Berlin 2016.

5 We are grateful to the staff of the Research Data Centre of the Statistical Office for Berlin-Brandenburg for their kind assistance with the data analysis.

Table 4

Self-employed without employees (sole contractors) in Berlin, Hamburg, and Germany

	Percentage of all self-employed	Part-time—percentage of all self-employed without employees	Personal monthly net income of self-employed without employees	
			Mean in euros	Median in euros
Berlin				
2005	53	26	1,560	1,100–1,300
2013	72	30	1,780	1,300–1,500
Hamburg				
2005	68	23	1,890	1,300–1,500
2013	65	27	2,060	1,500–1,700
Germany				
2005	56	24	1,680	1,100–1,300
2013	56	31	1,900	1,300–1,500

Source: Microcensus; DIW Calculations.

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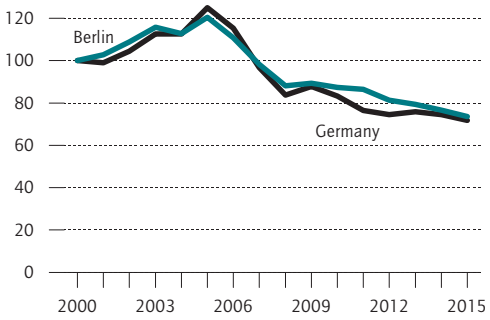
Many self-employed workers without employees earn low incomes.

Figure 7

Number of unemployed workers
Index 2000 = 100



Source; Federal Labour Office; DIW Calculations.

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The number of unemployed workers declined at the same pace in both Berlin and Germany on the whole.

The incomes of sole contractors in Berlin, however, are still lower than the national average and significantly lower than those in Hamburg: in 2013, half the sole contractors in Berlin were netting no more than 1300–1500 euros per month. If one takes into account the increase in consumer prices, this figure is barely higher than it was in 2005. The mean income value—in a rough calculation[6]—was just under 1,800 Euros, which indicates that at the upper end of this income scale, there were some very well paid sole contractors.

Migration and increasing labor force participation expand potential labor force

The number of unemployed individuals in Berlin has decreased significantly over the past ten years, though this decline has not been more pronounced than it has in Germany overall (Figure 7). Given the employment upswing that was especially dynamic in Berlin, this result is surprising. Clearly the number of individuals in Berlin's potential labor force—that is, people who have a job or are looking for one—experienced a particularly strong increase.

The development of the potential labor force is influenced by two factors: labor force behavior and demographic trends. Because the working-age share of the population has grown, labor force behavior has changed considerably. The share of potential workers between the ages of 15 and 64 (that is the participation rate) in Germany rose from 73.8 percent in 2005 to 77.6 percent in 2013, only to stagnate thereafter (Figure 8). Although the corresponding figures for Berlin started off at a slightly lower level, the city experienced an identical development. The somewhat lower employment rate is also likely due to the fact that in Berlin, a relatively large number of working-age people are students and therefore not available to the labor market.

The reasons for the particularly strong growth of Berlin's potential labor force can thus be traced solely to population development. The problem is that the currently available official time series poorly reflect the actual development. In the 2011 census, it was found that the number of people recorded in the population registries was too high, especially in Berlin. The records were revised according to the census and population statistics were updated using the new basis. What were not adjusted, however, were the data collected or updated prior to the 2011 census. This situation has caused a break in the time series that is especially apparent for Berlin.

6 In the Microcensus surveys that collected the data used here, exact incomes are not specified; rather, workers are assigned specified income brackets. In order to make these data more manageable, the arithmetic mean of each income bracket is calculated, and this value is used as the exact individual income of each person (the income value for the highest category was "more than 25,000 euros"). This method relies on the assumption that all individuals within an income group have the same income, which is largely inaccurate; rather, each income category is likely to contain a scatter, which means that this method is rather imprecise. However, since the ranges within the respective income classes are small, this imprecision is not significant and the calculations sufficiently reflect the actual facts.

Figure 8

Participation rates[1] and employment rates
In percent

1 Population from 15 to 64 years.

Source: Eurostat.

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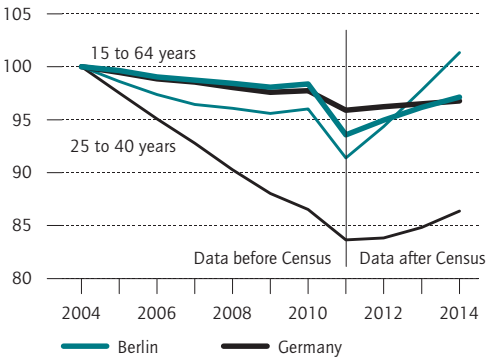
Increases in the participation rates.

Figure 9

Population development
Index, End of 2004 = 100



Source: Federal Statistical Office; DIW Calculations.

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Strong population increases, especially in Berlin.

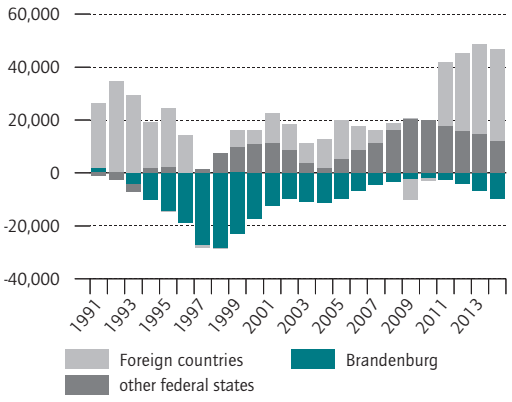
From 2011 onward, the population increase in Berlin has been well above the national average. This applies to individuals aged 15 to 64, as well as those aged 25 to 40—a group that generally has very high labor participation rates (Figure 9).

The biggest influences on the demographically induced developments in the labor force have been short- and medium-term migration. Throughout the past few decades, Berlin recorded migration surpluses—sometimes in quite significant amounts—almost without exception. The origins and destinations of these migrants have varied over time.

After the Wall fell, Berlin experienced a catch-up migration from the city center outwards. Many Berliners moved to the countryside, causing the city to suffer migration losses (Figure 10). This development reached its peak at the end of the '90s; thereafter, Berlin's migration loss through the population exchange with the Brandenburg regions around the city began to decrease. It was only recently that this migration loss was on the rise once again. In comparison to the rest of the country, however, Berlin's migration gains over the past two decades has been dependent on its economy: in times of an employment upswing, Berlin's migration gains rose, and when labor demand weakened, they declined. In population exchanges with foreign countries, Berlin almost always came out with migration surpluses. This was particularly noticeable in the first half of the '90s, when the biggest influxes comprised asylum seekers from the Eastern

Figure 10

Migration balance of Berlin
Number of persons



Source: Amt für Statistik Berlin-Brandenburg; DIW Calculations.

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Berlin's net migration has been growing since 2000.

Bloc as well as migrants reuniting with family members who were already living in Berlin. Berlin has also experienced strong migration gains since 2011, when the freedom of movement for citizens of countries that joined the EU in 2004 was established.

Table 5

Social security-obligated employees and commuters in Berlin
In 1,000 persons

	Employees living in Berlin	and working ...		Employees working in Berlin	*From those:* living outside of Berlin	Net number of commuters
		in Berlin	outside of Berlin			
2005[1]	927.4	812.0	115.4	1,013.8	201.8	86.4
2006[1]	933.6	814.1	119.6	1,024.5	210.4	90.8
2007[1]	953.8	826.9	126.9	1,047.8	220.9	94.0
2008[1]	983.9	849.5	134.4	1,081.7	232.1	97.8
2009[1]	1,002.8	865.7	137.2	1,106.2	240.5	103.4
2010[1]	1,021.8	880.3	141.5	1,123.2	242.8	101.3
2011[1]	1,050.4	903.0	147.4	1,151.3	248.3	100.9
2012[1]	1,088.9	936.0	152.8	1,190.3	254.2	101.4
2013[1]	1,117.4	961.2	156.2	1,220.8	259.5	103.4
2013	1,111.4	957.4	154.0	1,228.3	270.9	116.9
2014	1,143.9	986.1	157.8	1,269.1	283.1	125.3
2015	1,199.8	1,033.0	166.8	1,311.1	278.1	111.3
Avarage yearly growth rate (percent)						
2005 to 2013[1]	2.4	2.1	3.9	2.3	3.2	2.3
2013 to 2015	3.9	3.9	4.1	3.3	1.3	−2.4

1 Before last data revision.

Source: Federal Labour Agency; DIW calculations.

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Starting at a low level, the number of workers commuting to Berlin increased.

Since people do not always live where they work, commuting times must also be taken into account. As is the case with other metropolitan centers, many people who reside outside of Berlin commute to the city for work (Table 5). Their numbers were increasing up until 2014, but in the past year they have experienced a marked decline for reasons not yet known.

In 2015, 111,000 social security-obligated employees—that is, roughly eight percent of Berlin's workers in this category—were commuting to the city. Nearly three quarters of commuters were coming from Brandenburg; in other words, over one-fifth of all Brandenburgers work in Berlin. At the same time, relatively few workers are commuting from outside the greater Berlin-Brandenburg area. This kind of long-distance commuting can be found in other cities, such as Hamburg, where 25 percent of all social security-obligated workers reside outside the city. Spatial-structural differences do play a role, however, and the fact that Berlin is a large city surrounded by a rather sparsely populated region does affect these figures.

Unemployment in Berlin still exceeds national average

Despite the strong growth in employment, Berlin's unemployment rate remains high. In May of this year, the unemployment rate stood at just under ten percent—nearly four percentage points above the national average. In Berlin—as is the case nationwide—men are more heavily affected by unemployment than are women (Table 6) and foreigners more heavily than Germans, although the extent of the latter discrepancy falls below the national average. Older workers account for only a relatively small portion of unemployed persons in Berlin. It is particularly striking that a very large proportion (80 percent) of unemployed workers in Berlin are also Hartz IV recipients (Table 7). These include individuals who have been unemployed for a long time or those who are ineligible to receive unemployment benefits because they did not make unemployment deposits. Over time, their share has been steadily increasing in Berlin (as well as in Germany on the whole). This indicates a structural "hardening" of the unemployed population.

This hardening is also evidenced by the fact that the share of unemployed individuals who have not undergone vocation training—in Berlin as well as Germany on the whole—has risen steadily. In Berlin, such individuals now make up more than half of all unemployed people. The unemployment structure is being influenced not only by the prevalence of low-skilled workers, but also by the ubiquity of highly qualified workers—that is, those with university degrees. In Berlin, where one out of every seven unemployed people is an academic, this is a major factor. Unemployment is also growing among academics in Berlin, but the rate of this increase is below the national average.

Berlin workforce highly qualified compared to Germany overall

The growing share of unemployed university-educated workers goes hand in hand with an overall academization of the potential labor force. This is particularly evident in Berlin, where more than one out of every three people seeking employment possesses an academic degree. In Germany as a whole, this ratio amounts to one in four (Table 8). No other state—including the city-states—has such a large proportion of academically trained individuals in the workforce than does Berlin.

The situation is different when it comes to low-skilled workers: the proportion of those without qualifications in Berlin's employed labor force was equal to the national average, but in Berlin's potential labor force, this share was below the national average. This reflects both

Table 6

Unemployed workers according to selected characteristics

In percent

	Unemployment rate[1]						Percentage of all unemployed	
	Total	Men	Women	Germans	Foreigners	Younger Persons (up to 24 years)	Older Persons (55 to 64 years)	Persons with Hartz IV benefits
Berlin								
2005	19.0	20.5	17.4				10.8	70.5
2006	17.5	18.9	15.9				10.3	77.4
2007	15.5	16.7	14.1				9.9	80.4
2008	13.8	15.0	12.6	12.4	25.9	14.8	10.0	81.1
2009	14.0	15.2	12.7	12.5	26.6	15.2	11.3	80.7
2010	13.6	14.7	12.3	12.1	25.5	13.8	11.8	80.9
2011	13.3	14.3	12.1	11.7	25.2	13.4	13.1	82.4
2012	12.3	13.2	11.3	10.8	23.4	13.3	13.9	80.6
2013	11.7	12.5	10.9	10.3	22.3	12.0	14.7	79.0
2014	11.1	11.8	10.3	9.6	21.2	10.8	15.4	79.3
2015	10.7	11.4	9.8	9.0	21.4	10.0	16.1	80.7
May 2016	9.7	10.4	8.9	8.2	18.8	9.3	16.7	80.8
Germany								
2005	11.7	11.7	11.8				12.0	57.0
2006	10.8	10.5	11.0				12.7	62.9
2007	9.0	8.5	9.6				12.6	66.9
2008	7.8	7.4	8.2	7.1	15.8	7.0	13.1	69.1
2009	8.1	8.3	7.9	7.4	16.6	7.8	14.5	65.1
2010	7.7	7.9	7.5	7.0	15.7	6.8	16.4	66.8
2011	7.1	7.1	7.0	6.4	14.6	5.9	18.2	70.0
2012	6.8	6.9	6.8	6.2	14.3	5.9	18.8	68.9
2013	6.9	7.0	6.7	6.2	14.4	6.0	19.3	67.1
2014	6.7	6.8	6.6	6.0	14.3	5.7	20.0	67.8
2015	6.4	6.6	6.2	5.6	14.6	5.3	20.3	69.3
May 2016	6.0	6.3	5.7	5.1	14.7	5.0	20.8	71.0

1 Percentage of the total civilian labour force

Source: Federal Labour Agency; DIW calculations.

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More than 80 percent of the unemployed in Berlin receive Hartz IV benefits.

Table 7

Structure of unemployed workers by vocational training level

Share in percent

	Berlin				Germany			
	Unskilled	Skilled			Unskilled	Skilled		
		Total	Upper secondary and post-secondary education	Tertiary education		Total	Upper secondary and post-secondary education	Tertiary education
May 2009	50.4	49.6			44.0	56.0		
May 2010	48.3	51.7			42.7	57.3		
May 2011	49.6	50.4	40.7	9.8	44.8	55.2	49.4	5.8
May 2012	50.3	49.7	39.1	10.6	45.4	54.6	48.4	6.2
May 2013	50.3	49.7	37.5	12.2	45.5	54.5	47.7	6.7
May 2014	50.4	49.6	36.6	13.0	46.4	53.6	46.4	7.1
May 2015	51.3	48.7	35.1	13.5	47.7	52.3	44.8	7.5
May 2016	52.1	47.9	34.0	13.9	49.5	50.5	42.9	7.7

Source: Federal Labour Agency; DIW calculations.

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The structure of the unemployed has been shifting to the unskilled.

Table 8

Structure of the workforce and employed workers by vocational training level[1]
In percent

	Active Population			Employed Persons		
	Lower than upper secondary education[1]	Upper secondary and post-secondary education[2]	Tertiary education[3]	Lower than upper secondary education[1]	Upper secondary and post-secondary education[2]	Tertiary education[3]
Berlin						
2005	17.3	47.9	34.8	13.5	47.8	38.7
2010	14.5	49.2	36.3	11.5	49.2	39.4
2015	13.4	48.8	37.7	11.0	49.3	39.8
Germany						
2005	17.7	57.7	24.5	16.1	57.8	26.1
2010	14.7	58.7	26.6	13.4	58.8	27.8
2015	13.3	59.0	27.8	12.4	59.2	28.4
Other Bundesländer						
Baden-Württemberg	15.2	55.0	29.8	14.5	55.2	30.3
Bavaria	12.4	58.6	29.0	12.0	58.7	29.3
Brandenburg	6.8	64.7	28.5	6.2	64.3	29.5
Bremen	17.9	55.0	27.1	16.5	55.8	27.7
Hamburg	13.8	50.9	35.4	12.9	51.0	36.1
Hesse	14.4	55.8	29.8	13.6	56.2	30.3
Mecklenburg-Western Pomerania	7.8	66.4	25.8	6.9	65.8	27.3
Lower Saxony	13.9	62.2	23.9	13.1	62.6	24.4
North Rhine-Westphalia	16.3	58.3	25.4	15.0	58.9	26.1
Rhineland-Palatinate	15.4	59.2	25.4	14.4	59.7	25.9
Saarland	15.4	63.4	21.1	13.9	64.2	21.9
Saxony	5.2	65.2	29.6	4.4	64.9	30.7
Saxony-Anhalt	7.5	68.2	24.3	6.2	68.0	25.8
Schleswig-Holstein	12.7	63.8	23.5	11.7	64.3	24.0
Thuringia	5.4	67.6	27.0	4.8	67.3	27.9

1 International Standard Classification of Education (ISCED) 0 to 2.
2 ISCED 3 to 4.
3 ISCED 5 and higher.

Source: Eurostat; DIW calculations.

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Relatively well qualified workforce in Berlin.

the employment structure that is particular to Berlin as well as job-related problems faced by low-skilled workers.

A look at the individual German states reveals there are quite a few untrained workers in the west. This is especially true for the city-states—but even in some of the non-city states, the proportion of lower-skilled workers is higher than it is in Berlin. In the East German non-city states, on the other hand, there are relatively few workers without vocational training.

Far too few internships available

It has become clear that in Berlin as well as in Germany overall, the employment structure is shifting in favor of occupations that require intermediate-level qualifications. Correspondingly, unemployment has been especially prevalent among individuals with training certificates and or professional degrees. For years, the Chamber of Commerce and Industry of Berlin (IHK Berlin) has been voicing concerns about a shortage of executives, most recently this past April.[7] This dilemma calls the efficacy of Berlin's dual training system into question.

At the beginning of the current academic year—that is, in autumn 2015—the number of internships in Berlin was well below the demand: for every available spot, there were 1.5 applicants (Figure 11). No other individu-

7 See: "Personalnot in Berlin." Der Tagesspiegel, April 5, 2016. http://www.tagesspiegel.de/wirtschaft/fachkraeftemangel-personalnot-in-berlin/13401896.html

al state had such an unfavorable ratio, and in Germany overall, supply and demand were more or less in sync, at least quantitatively. Apart from Berlin, North Rhine-Westphalia, Hesse, Brandenburg, and Saxony are also suffering from a dearth of available internships, while Mecklenburg-Western Pomerania, Thuringia, Bavaria, Hamburg, and Baden-Württemberg actually have too few applicants for the available internships.

For Berlin, not only is the gap between the supply and demand of internships particularly significant, but there is also an unfavorable ratio between new trainees and already employed workers with trainee certificates: for every 100 of Berlin's social security-obligated employees with apprenticeship certificates or professional degrees, there are only two apprentices. This ratio is significantly higher in Germany overall: 2.7 apprentices for every 100 social security-obligated employees. This indicates that in Berlin, not enough is being done in terms of vocational training, both for Berlin's younger generation as well as companies' future replacement and expansion needs.

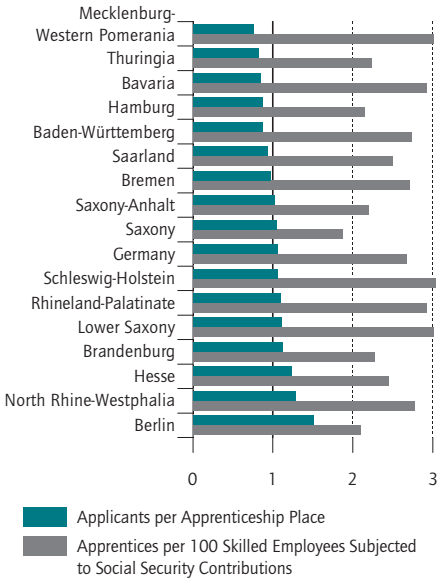
Conclusions

In recent years, Berlin has experienced a powerful employment growth rate that has surpassed the nationwide average, primarily due to an increase in social security-obligated employment. In the course of this development, unemployment in Berlin decreased considerably, but not to the same degree that it did in Germany on the whole. The reason for this discrepancy is that Berlin's potential labor force has expanded powerfully as a result of migration and an overall increased labor market participation. Increases in the number of employees in Berlin can also be explained with low GDP growth figures, however. Due to the very weak productivity development, it only takes a slight increase in economic performance to achieve this. The low productivity gains may also be the reason why the city still lags behind the national average in wages. There are also other reasons: for example, jobs for executives and highly qualified workers in Berlin have become even more scarce.

Berlin—as well as Germany overall—needs to focus on innovation, and such a change requires corresponding specialists. Berlin's potential labor force does exhibit a high level of qualification compared to other states, but this does not mean that policy can be lax: significant weaknesses also exist. Such weaknesses are not simply due to the prevalence of unemployed low-skilled individuals in the city, but also to the fact that companies are not offering sufficient training opportunities. At the same time, changes in the employment structure indicate that more workers with intermediate-level qualifications are needed.

Figure 11

Ratio between apprenticeship applicants and available apprenticeships and professional training intensity, September 2015
Relations



Source: Federal Statistical Office, Federal Labour Agency; DIW Calculations.

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Berlin lacks available apprenticeships.

Berlin therefore needs a alliance for education, especially for more dual vocational training and better schooling. Attention should be directed to schools: for many years, the Berlin school system was like a ground for experimentation, with one reform replacing the next. And yet despite all these changes, success has failed to materialize: in a nationwide comparison among all states, Berlin's students usually end up at or near the bottom.[8] In addition, the proportion of young people in Berlin who leave school without completing their secondary modern school qualification *(Hauptschulabschluss)* is far above the national average.[9] Additionally, many training contracts

8 See, for example: Titz, Christoph: "Mathe und Naturwissenschaften: Leistungsgefälle zwischen Schülern in Ost und West ist gravierend." Spiegel-Online, October 11, 2013. http://www.spiegel.de/schulspiegel/wissen/laendervergleich-ostdeutsche-schueler-in-mathe-besser-als-westdeutsche-a-927216.html

9 In the 2014–2015 school year, 9.2 percent of all students dropped out of general education schools in Berlin, while only 5.8 percent of all students dropped out of such schools nationwide. See: Federal Statistical Office: Education and Culture. General education schools. School year 2014–2015. Subject-matter series 11, Row 1.

in Berlin are terminated prematurely: in 2014, for every three new training contract there was one cancellation of an existing contract, while in Germany as a whole, this ratio was three-to-one.[10] This imbalance indicates a need for more comprehensive career guidance, which is best begun in high school.

10 See: Federal Statistical Office: Education and Culture. Vocational training. 2014. Subject-matter series 11, Row 3.

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JEL: R10, R23, R28

Keywords: Berlin, employment, wages, unemployment, vocational training

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Layout and Composition
eScriptum GmbH & Co KG, Berlin

Sale and distribution
DIW Berlin
ISSN 2192-7219

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