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# Weekly Report

### Real Wages in Germany: Numerous Years of Decline

Net real wages in Germany have hardly risen since the beginning of the 1990s. Between 2004 and 2008 they even declined. This is a unique development in Germany—never before has a period of rather strong economic growth been accompanied by a decline in net real wages over a period of several years. The key reason for this decline is not higher taxes and social-insurance contributions, as many would hold, but rather extremely slow wage growth, both in absolute terms and from an international perspective. This finding is all the more striking in light of the fact that average employee education levels have risen, which would on its face lead one to expect higher wage levels. In contrast to the prevailing wage trend, income from self-employment and investment assets has risen sharply in recent years, such that compensation of employees makes up an ever shrinking percentage of national income. Inflation-adjusted compensation of employees as a share of national income reached a historic low of 61% in 2007 and 2008. As in previous recessions, however, investment income has been under greater downward pressure in recent months than wages.

When analyzing wage trends, one must differentiate between compensation of employees, gross wages, and net wages. Compensation of employees is comprised of all wage costs borne by the employer. Gross wages, by contrast, are equal to compensation of employees minus employer contributions to social insurance and other employee benefits. If one then subtracts the income tax and social-insurance contributions borne by the employee, one arrives at the net wage. In the following discussion, wages are examined based on hours worked (to the extent that such data are available) in order to take into account the fact that employee working hours—and, therefore, effective compensation—vary across time.

#### Weak Wage Growth Since 2000

In recent years, nominal wages per hour worked have hardly risen in Germany, and have even fallen when one takes inflation into account. This finding applies to compensation of employees as well as gross and net wages (see Figure 1).<sup>1</sup> In terms

1 In order to adjust for inflation this study primarily makes use of the private consumption deflator from national accounts data. An alternative would be to use the price index for household expenditures maintained by the German Federal Statistical Office. The use of this index creates problems for long-term analysis, however, as it was modified in 1991. The index is appropriate for the comparative assessment of inflation-adjusted wages in East and West Germany,

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**Keywords:** Development of wages in Germany of compensation of employees and gross wages, the downward trend began in 2003; net wages began to decline one year later.

In general, the health of the economy determines wage trends. In times of economic expansion, employees and unions enjoy a strong bargaining position. This position tends to weaken when the economy falters. The first oil crisis represented an exception to this rule—employees had a strong hand throughout the 1970s, a decade marked by quite high nominal wage growth (see Figure 2) Then, wage trends followed a normal business-cycle pattern from the beginning of the 1980s to the end of the previous recession in Germany in 2004.<sup>2</sup> However, in the last expansionary period, which extended from 2004 to 2008, real wages did not rise as expected, but instead fell.

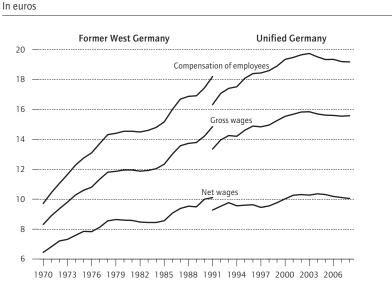
In the first half of the 1980s, there was a temporary decline in net hourly wages in West Germany. This was primarily attributable to a considerable jump in income tax rates, together with only small gains in compensation of employees. In the middle of the 1990s, net wages declined again alongside a significant rise in labor costs; in this case as well, a sharp increase in wage deductions was the cause. In West Germany real wages have been on a overall downward trend since the beginning of the 1990s, with declines accelerating in recent years (see Figure 3).<sup>3</sup>

### Level of Wage Deductions Steady in Recent Years

For employers, wages—or, more precisely, compensation of employees—represent a cost. Employees, by contrast, focus primarily on the size of their paycheck after taxes and social-insurance contributions are deducted—in other words, on their net wages. Last year compensation of employees per hour worked in Germany was 25.26 euros. Net wages per hour worked, on the other hand, amounted to 13.23 euros. In this way, income taxes and social-insurance contributions accounted for 48% of compensation

#### Figure 1

### Inflation-adjusted<sup>1</sup> compensation of employees, gross wages, and net wages per hour



1 With the deflator for private consumption expenditures.

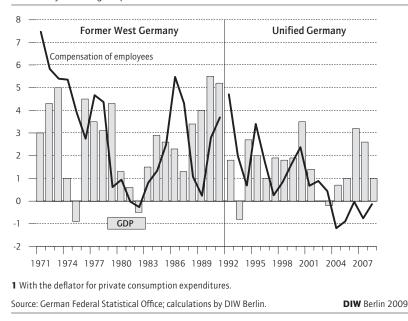
Source: German Federal Statistical Office; calculations by DIW Berlin.

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Figure 2
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#### Inflation-adjusted<sup>1</sup> compensation of employees per hour and GDP

Year-over-year change in percent



of employees (see Figure 4). This percentage has essentially remained unchanged in recent years.

because, on the one hand, wage data for East Germany are only available from 1991 onward, and, on the other, divergent rates of inflation were reported for East and West Germany up to 1997. To determine real wages and their rate of change in individual EU countries, Eurostat's harmonized consumer price index—the standard indicator—is used.

**<sup>2</sup>** Special factors in the years immediately following German reunification do disrupt the normal pattern, however.

**<sup>3</sup>** Figure 3 displays inflation-adjusted gross wage growth. As data on net wages are not available for West and East German states, only growth trends in compensation of employees and gross wages can be shown for these regions. In addition, regional data for hours worked is only available back to 1998. As wage deductions have by no means declined, but rose particularly in the mid-1990s, it can be expected that real net wages in West Germany have fallen more sharply that real gross wages since the beginning of the 1990s.

In the early 1970s, income taxes and social-insurance contributions were markedly lower. There were three periods of time in which the tax and socialinsurance burden increased at a particularly rapid rate. The first was between 1972 and 1977, when social-insurance contributions—particularly those borne by employers—were increased (in no small part due to the rapidly rising unemployment rate). Second, between 1981 and 1985, income tax rates were hiked considerably. Finally, between 1993 and 1997, taxes and social-insurance contributions were significantly increased in order to finance the costs of reunifying Germany.

Over the last ten years employee social-insurance contributions per hour worked have continued to increase steadily (see Figure 5). While this trend also applied to the contributions paid by employers up to 2003, since then the employer burden has been stagnant. One reason for this is that the burden placed on employers for the financing Germany's statutory health insurance system was reduced. The employee burden, however, was not reduced in kind. Employer contributions for other social benefits such as the maternity allowance and accident insurance may also have fallen. A different picture is presented by income taxes, however: While the income tax burden per hour worked fell between 2002 and 2004—probably in large part due to tax reforms-the burden has increased significantly since then.

In comparison to previous decades, the income tax and social-insurance burden has grown at a rather mild rate (see Table 1). Deduction increases of the magnitude witnessed in the 1970s and 80s would have been nearly impossible to implement politically due to the already high level of wage deductions in place. With a view to the negative incentives that higher deductions create, further increases would also have been undesirable economically.

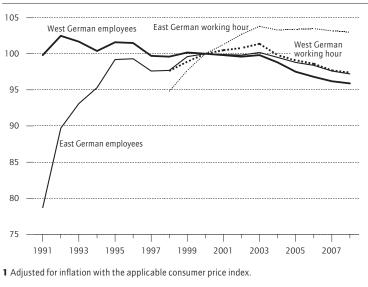
When evaluating employee taxes and social-insurance contributions, it is important to recognize that the deduction level imposed on certain groups is extremely low due to certain labor law provisions. For example, Beamte (a type of tenured civil servant) are not required to pay any social-insurance contributions. The marginally employed, for their part, pay relatively low income taxes and socialinsurance contributions. This implies that the tax burden imposed on regular full-time employees is higher than the average of 48%. The number of Beamte has fallen slightly since the mid-1990s.<sup>4</sup>

## **4** No data is available concerning the number of Beamte employed by the former federal post office (which was privatized in 1994). It is likely that the number of Beamte has fallen considerably, however, as many employees have taken early retirement and no new employees have

#### Figure 3

#### Real<sup>1</sup> gross wages per employee and per working hour in East and West Germany

Index: 2000 = 100

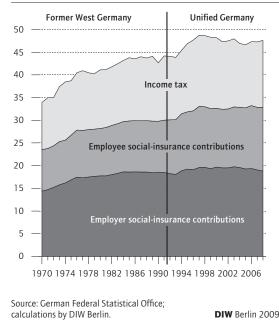


Source: Federal state income and expenditure data; German Federal Statistical Office; calculations by DIW Berlin. **DIW** Berlin 2009

Figure 4

### Social-insurance contributions and income taxes levied on wages

Burden in percent



been granted Beamten status since privatization. It can also be assumed that natural workforce fluctuations have further thinned the ranks.

A rapid increase in the number of marginally employed was experienced up to 2004, but since then has hardly risen. By contrast, the number of regular full-time employees has followed a cyclical pattern, and rose considerably during the last phase of economic growth (see Figure 6). The rise in the income-tax share was likely the main result of this development.

It is not possible to determine the degree to which changes in the relative size of each of these employee groups have impacted wage trends. Large structural effects are unlikely to have taken place, however, as certain developments have counterbalanced one another: the increase in the number of marginally employed individuals—one group with a low wage burden—has been accompanied by a decrease in the number of Beamte—the other group with a low wage burden. Furthermore, the macroeconomic significance of the marginally employed should not be overestimated. The 2006 Microcensus, for example, determined that the marginally employed accounted for just 4% of the volume of work performed by all workers.

#### Large Differences in Pay Depending on Industry and Position

Wages vary considerably between industries. For the purpose of comparison, the wages earned by employees who belong to what official German statistics refer to as the "mid-range performance group" (mittlere Leistungsgruppe) were assessed. This group is composed of jobs that require professional training and, in some instances, extensive career experience. The highest wages are paid by the petroleum extraction industry, followed by the petroleum refining industry—two branches of the economy certainly not subject to strong competi-

#### Figure 5

### Compensation of employees, social-insurance contributions, and income tax per hour worked

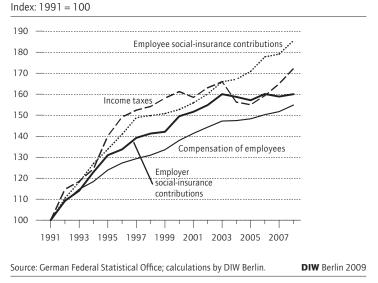


Figure 6

#### Workforce according to employee groups

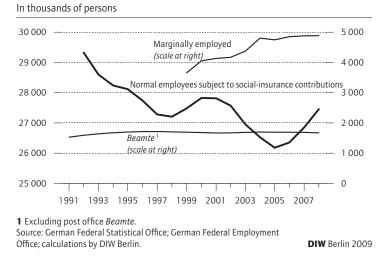


Table 1

#### Wages, social-insurance contributions, and income tax per hour worked

Average annual change in percent

Period	compensation of employees	Employer social-insurance contributions	Employee social-insurance contributions	Income tax	Inflation- adjusted net wages	Deflator for private consumption expenditures	Hours worked	Unemployed	Real GDP
Former West Germany									
1970 to 1980	9.5	11.8	11.0	11.9	2.9	5.2	-0.3	16.7	2.9
1981 to 1991	4.5	4.9	5.3	5.6	1.6	2.3	0.3	4.7	2.8
Unified Germany									
1991 to 2000	3.6	4.6	4.8	5.5	0.9	1.7	-0.7	4.2	1.7
2000 to 2008	1.5	0.9	2.5	0.8	0.0	1.6	-0.1	0.0	1.2
2004 to 2008	1.2	0.2	2.7	2.5	-0.8	1.7	0.6	-6.8	1.9
Source: German Federal St	atistical Office; Th	e Research Institute	e of the Federal Em	ployment Ad	gency (IAB); calc	ulations by DIW		DI	<b>W</b> Berlin 2009

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tion (see Figure 7). The same applies to the energy supply industry. In the industrial production sector, particularly high wages are earned by employees in the automotive and tobacco-processing industries. Employees in the food production industry, by contrast, earn particularly low wages. The bottom end of the wage scale is occupied by the hotel and catering industry and other service industries such as retail. Temporary-worker compensation is also particularly low.

Of course, pay levels don't just depend on the industry in which an employee works, but also to large extent on the position that he or she occupies. In general, however, if mid-level employees in a given industry are well paid, other employees also tend to enjoy above-average wages. For example, managerial employees (performance group 1) in the energy supply industry are paid much better than their counterparts in the restaurant and catering industry. In fact, untrained workers (performance group 5) in the energy supply industry earn higher wages than trained employees in the construction sector and other industries. Semi-skilled employees (performance group 4) in the manufacturing sector are also paid better than skilled employees in other industries. A specialist employee in the manufacturing sector earns more than a managerial employee in the education sector. Of course, it must be taken into account that job positions are difficult to compare across branches.

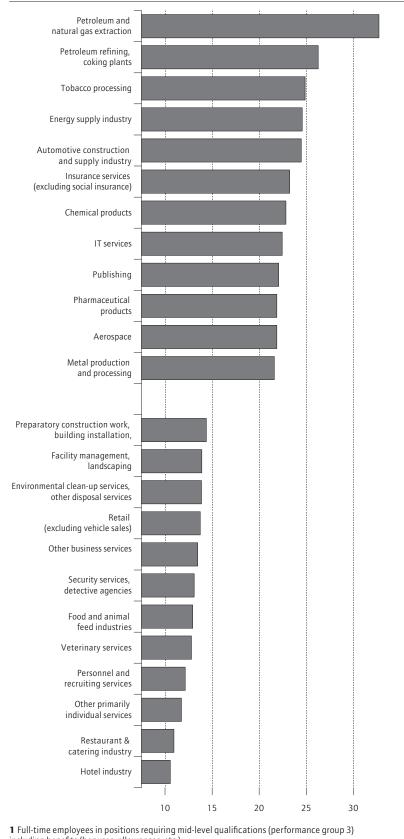
#### A Shift to Better Educated Employees

One possible explanation for the weak wage growth of recent years could be a process of sectoral transformation in which employment increases in lowpaying branches and decreases in high-paying ones. In order to explore this possibility, official statistics for 15 sectors were evaluated with regard to hours worked and wages. The analysis simulated how wages for the economy as a whole would have developed if the relative volume of work performed by each sector in 1995 had remained constant.<sup>5</sup> Data were only available up to 2007. Under this scenario, higher wage growth is in fact witnessed-the difference is minimal, however (see Figure 8). The average nominal compensation of employees in the scenario is 45 cents higher in 2007 (about 2%), and gross wages are 31 cents higher (also just over 2%). The results of this analysis are strongly influenced by two sectors which have experienced major declines in employment since 1995: the manufacturing

#### Figure 7

In euros

hourly wages, 2008<sup>1</sup>



Branches of the economy with low and high gross

including benefits (bonuses, allowances, etc.).

**<sup>5</sup>** 1995 was selected as the structural disruptions in East Germany were for the most part over by this point in time.

sector, which pays above-average wages, as well as the construction industry, which pays comparatively low wages. It must also be taken into account that the categorization of sectors used in the analysis is rather imprecise. Due to a lack of accurate data, this categorization does not reflect the rapid expansion of the temporary work industry, which pays its employees relatively low wages.

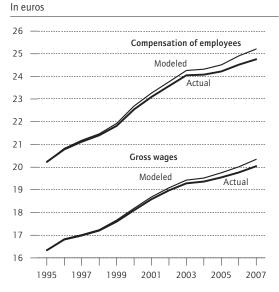
Another potential cause of the weak wage growth seen in recent years is the fact that the occupational structure has experienced a shift in favor of rather simple and thus low paid occupations. In order to test this possibility, information provided by Microcensus survey participants about the workplace activities they perform were classified and assessed.<sup>6</sup>

Several findings are noteworthy. First, professions in which manual labor is performed have declined in significance—this is true of both simple occupations and jobs that require professional training (see Table 3). Jobs that involve simple non-manual activities have also diminished in importance. By contrast, non-manual professions that require midlevel qualifications are strongly on the rise.

**6** This classification is based to large extent on the classification of professions developed by Schimpl-Neimanns, B: Mikrodaten-Tools: Umsetzung der Berufsklassifikation von Blossfeld auf die Mikrozensen 1973– 1998. Zuma-Methodenbericht 10/2003.

#### Figure 8

#### Impact of structural change<sup>1</sup> on hourly compensation of employees and gross wages



1 Actual wage trend compared with modeled wage trend supposing the relative volume of work performed by each sector in 1995 had remained constant.

Source: German Federal Statistical Office; German Federal Employment Office; calculations by DIW Berlin. **DIW** Berlin 2009

#### Table 2

#### Gross hourly compensation<sup>1</sup> of full-time employees broken down by economic branch and performance group, 2008

In euros

	<b>T</b> . 1	Performance group <sup>2</sup>					
	Total	1	2	3	4	5	
Hotel and restaurant industry	11.47	23.72	15.43	10.72	9.35	8.53	
Miscellaneous business services	12.50	35.83	20.62	13.47	9.87	8.52	
Miscellaneous services	17.73	35.28	21.66	14.48	11.21	9.22	
Construction industry	16.51	30.18	19.03	14.56	13.30	11.84	
Public administration, defense, social insurance	17.93	29.26	20.36	15.32	12.68	10.70	
Health and social services	18.93	35.80	19.88	15.47	12.37	10.86	
Transportation and storage	16.46	40.06	23.49	15.53	12.97	11.18	
Education	22.17	26.21	21.26	15.65	13.47	9.88	
Municipal water and garbage services	17.03	35.04	22.01	16.03	13.71	11.23	
Art, entertainment, and leisure	22.10	55.00	23.88	16.04	13.89	8.83	
Motor vehicle repair and maintenance	18.96	40.13	23.86	16.16	12.79	10.98	
Real estate and property management services	22.48	44.96	24.07	18.25	15.14	12.23	
Freelance scientific and technical services	26.46	46.01	27.56	18.28	15.09	11.68	
Mineral mining and extraction	21.13	37.71	24.07	18.36	18.05	20.46	
Manufacturing	21.90	41.13	26.45	19.03	16.21	14.11	
Finance and insurance services	29.47	49.99	30.78	20.30	16.87	14.94	
nformation and communications	27.52	44.17	29.86	21.69	15.36	10.01	
Energy supply services	28.40	41.99	30.35	24.56	22.09	18.56	

1 Including benefits (bonuses, allowances, etc.).

2 Definition of performance groups: 1 = Managerial employees; 2 = Specialist employees; 3 = Skilled employees; 4 = Semi-skilled employees; 5 = Unskilled employees.

Source: German Federal Statistical Office.

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		Employees		Volume of work performed by employees <sup>2</sup>			
	1996	2001	2006	1996	2001	2006	
Simple manual labor	20.5	19.9	19.7	20.2	19.3	18.6	
Qualified manual labor	17.7	15.9	14.9	18.7	17.0	16.2	
Master craftsman, technician	2.2	2.1	1.9	2.2	2.3	2.1	
Simple non-manual labor	13.1	13.2	12.6	11.8	11.5	10.6	
Qualified non-manual labor	35.0	36.7	39.6	34.3	36.2	39.4	
Highly qualified positions; engineers, executives	11.6	12.2	11.2	12.7	13.7	13.1	
Total	100	100	100	100	100	100	

Table 3

#### Structure of paid employment<sup>1</sup> in Germany according to occupation

1 Excluding trainees.

Normal weekly work time.

Source: 1996 Microcensus (scientific use file); 2001 Microcensus (scientific use file); 2006 Microcensus; calculations by DIW Berlin.

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On the whole there can be little doubt that the employment structure has shifted in favor of qualified positions. This is true with regard to the number of employees and—to an even greater extent—with regard to the volume of work. This indicates that changes in the occupational structure cannot be the cause as to why wages have grown at a rather slow rate in recent years. In fact, one would expect the opposite to be the case, i.e. that robust wage increases would be witnessed on account of the increasing percentage of qualified employees.

#### **Germany Compared Internationally**

Data concerning wage growth in other countries are fragmentary. According to Eurostat, the EU's statistical office, real compensation of employees on a per employee basis fell by 9% in Germany in 2000-2008. No other EU-15 member state experienced worse wage declines over this period (see Figure 9). Wages also fell in Spain, Italy, and Austria. However, other countries such as Britain, Ireland, and Finland enjoyed robust wage growth.

The fact that Germany has taken a step backwards in terms of wages is also reflected in labor costs per hour worked (see Table 4). When compared to other countries for which data are available, Germany lands in last place. Only Belgium has had similarly weak wage growth, but the wage levels in Belgium are higher than they are in Germany.

#### Income Distribution Shifts in Favor of the Self-Employed and the Recipients of Investment Income

The weak wage growth of recent years is also manifest in the distribution of economic proceeds between: i) wages from employment, and ii) income from self-employment and investment assets. To measure this distribution, the wage share (i.e. the ratio of compensation of employees to national in-

#### Figure 9

### Compensation of employees<sup>1</sup> per employee in the EU, 2000-2008

Change in percent

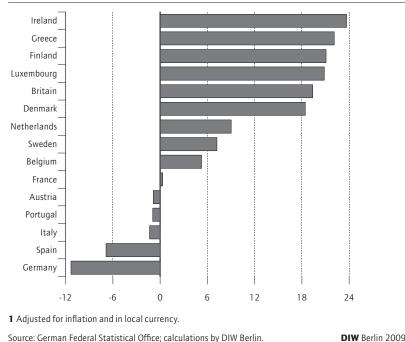


Table 4

#### Compensation of employees per hour worked in selected high-wage countries

In euros

	Belgium	Germany	Austria	Finland	Sweden	Britain	Switzerland
2000	_	25.10	23.09	22.13	_	23.27	31.07
2001	_	25.70	23.58	-	-	23.93	-
2002	-	26.30	24.06	23.40	-	24.66	34.73
2003	-	26.80	24.80	24.36	-	23.19	-
2004	29.19	26.90	25.15	24.87	29.00	24.49	33.42
2005	29.67	27.10	26.06	26.15	29.44	24.89	-
2006	30.56	27.50	26.83	28.75	30.21	25.86	34.26
Change in percent							
2006/2000	-	9.6	16.2	29.9	-	11.1	10.3
2006/2004	4.7	2.2	6.7	15.6	4.2	5.6	2.5
nflation-adjusted cl	hange <sup>1</sup> in percent						
2006/2000	-	-0.6	4.2	19.8	-	1.1	4.42
2006/2004	-0.2	-1.5	2.7	13.3	1.8	1.2	3.3 <sup>2</sup>
Inflation-adjusted c	hange1 in percent in loc	cal currency					
2006/2000	-	-0.7	3.9	19.7	-	13.1	5.6 <sup>2</sup>
2006/2004	-0.2	-1.5	2.7	13.3	3.2	1.7	2.12

Figure 10

Adjusted for inflation with the EU-narmonized consumer price index.
Adjusted for inflation with the respective national consumer price index.

Source: German Federal Statistical Office; Swiss Federal Statistical Office; calculations by DIW Berlin.

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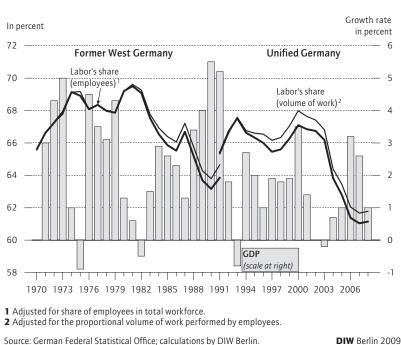
come) is normally used.7 Because the number of employees as a percentage of the working population changes over time, the wage share is normally adjusted for this fluctuation. In this analysis, an additional structural adjustment was carried out in order to account for the fact that the volume of work performed by employees and the self-employed has not remained constant. This analysis shows that the wage share has fallen since 2000. Thus, wage earners were unable to take advantage of the last expansionary period in Germany in order to secure a higher share of economic proceeds (see Figure 10). Starting in 2004, as the last period of growth began to gain traction, the wage share sank rapidly, and in 2007 it reached an all-time low of 61%. The wage share adjusted for the percentage of employees is lower than that adjusted for the volume of work. This is due to the fact that wage employees work fewer hours on average than the self-employed.

In the 1980s, as well, the wage share followed a generally downward course. Following German reunification the wage share jumped temporarily, a development partially attributable to the fact that the self-employed in East Germany tended to earn rather low incomes. In the early 1990s there were considerable financial losses in certain sectors of the

7 The wage share only provides insight into the distribution of each income type. It does not provide information concerning who receives income. Thus, a person or household which supports itself primarily from income received from normal employment relations can also collect income from capital assets—for example, interest from savings deposits or dividends from stocks.

East German economy; compensation of employees in the manufacturing sector, for example, was higher than gross value added in 1991-1993.

Over time the wage share has followed a countercyclical trend. In periods of economic contraction, proceeds from self-employment and investment as-



#### Adjusted labor's share of national income and real GDP

sets tend to shrink more rapidly than wages, which leads the wage share to increase. This has proven true in the current recession, as demonstrated by last year's rise in the wage share. Since the 1980s the wage share has typically fallen in times of economic expansion, as wages do not grow as quickly as overall national income. The year 2000 represented an exception: the wage share increased considerably at the peak of the boom. However, this was not due to the fact that wage employees benefited from rising production to a greater extent than the self-employed and recipients of investment proceeds. Rather, it was because investment returns dropped sharply as a result of the tech crash.

#### Conclusion

The weak wage growth of recent years has without a doubt strengthened the international competitiveness of German companies and encouraged exports. Taken on its face, this has had a positive effect on employment-provided that one overlooks the impacts on domestic consumption, and, as a consequence, on labor demand. The low wage increases in the industrial sector-a bellwether of the German economy in terms of wage negotiations, and a sector that pays relatively high wages-certainly left a mark on the wage contracts and compensation agreements signed in other sectors. Furthermore, there are indications that as a result of labor market reforms, the unemployed-particularly those with little or no qualifications-are more willing to accept a job that pays a relatively low wage. This is a welcome development.

As the present study demonstrates, weak wage growth in Germany is in no way the result of negative wage pressure on low-skilled employees. Rather, real wages have declined in recent years for wage earners as a whole, despite the fact that the qualification structure has improved. In this way, it would appear that the problems associated with employing the unqualified are continually broached as an issue in order to constrain general demands for higher wages. In addition, many factors suggest that one cannot solve these problems with wage policies alone, but that better social and educational policies are also required. Be that as it may: the distribution of income in Germany has increasingly shifted in favor of the recipients of investment proceeds and the self-employed.

In Germany's last expansionary phase there was a surprising constellation of trends: employment increased, the unemployment rate dropped considerably for the first time in many years, and GDP growth was impressive—these were all factors that should serve to strengthen the bargaining position of employees and their representatives. Nevertheless, employees were forced to accept significant declines in real net wages over several years, declines of an order of magnitude never witnessed in the history of the Federal Republic of Germany.

Wage negotiations are the domain of industry and employee representatives, and their results are generally an expression of the balance of power between unions and industry associations. The power of Germany's unions has clearly declined in recent years. It can be assumed that structural change in the economy has increased the pressure on Germany's unions-even though the available data do not provide unequivocal support for this assumption (particularly due to the fact that such data do not provide a sufficiently differentiated view of the economy's various sectors). The decline of manufacturing, and, in particular, of industrial manufacturing-the sector in which the union movement came into being and in which it still plays a significant role-has undoubtedly weakened the position of the unions. The influence of unions has traditionally been weaker in the service sector, particularly due to the fact that there are many small firms in the tertiary sector, and typically the employees of smaller firms have more difficulty forming or joining unions. Furthermore, social perceptions have changed. Increasing individualism and the dissolution of traditional sociocultural structures have weakened the appeal of large organizations. Membership in large organizations is on the decline-this is not only true of unions, but of political parties and the church as well.

Yet such trends are also evident in other industrialized nations. Why, then, has wage growth in Germany been so low from an international perspective? GDP growth is of key importance in answering this question: since the mid-1990s Germany's economy has usually grown slower than the European average. For many years, Germany occupied a position near the bottom of the list when it came to rates of growth in the EU; it was only in the last three years that Germany advanced to the middle of the pack. Production and wage trends are closely related to one another. Consequently, weak nominal wage growth undoubtedly improved the international competitiveness of German companies, particularly that of the industrial sector. On the other hand, weak wage growth acted as a brake on private consumption-as a result, Germany's domestic consumption has lagged considerably behind that of other countries.

Real hourly wages are in fact rising for the first time in years in the current crisis. This is not the result of robust wage gains, however, but due to flagging inflation. Yet in terms of wages per employee, a different picture is offered, as the number of short-time workers in the labor market has increased dramatically. The sum of wages and salaries is being pushed downward due to a falling number of employees. The labor's of national income share will increase this year, as profits have collapsed. This is normal for a recession, however—and, as experience shows, only a temporary phenomenon.

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