

# KIEL INSTITUTE ECONOMIC OUTLOOK

**German Economy**Winter 2017

Finalized December 13, 2017

No. 38 (2017 | Q4)

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#### **GERMAN ECONOMY AT FULL STEAM**

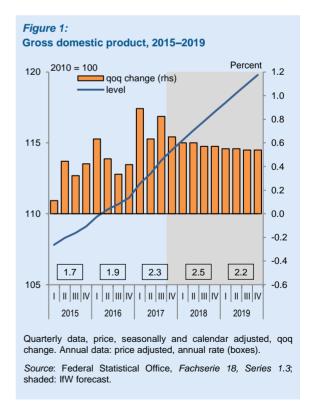
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The German economy is running at full steam. Economic activity has further accelerated in the current year and leading indicators suggest that the rapid pace of expansion will continue in the coming year. We expect gross domestic product (GDP) to grow by 2.3 percent in 2017 (calendar-adjusted: 2.6 percent) and by 2.5 percent in 2018 (calendar-adjusted: 2.6 percent); this is an upward revision by 0.3 percentage points in both years compared to our forecast in September. With capacity utilization already well above normal levels, the German economy is, thus, approaching a boom period. Tensions are becoming more and more apparent on the labor market. As a result, higher wages will boost the income gains of private households while employment growth is likely to slow down a bit. The inflation rate is expected to rise and to reach 2 percent in 2019. The expansion of the German economy is broad-based. Private consumption will continue to expand at a relatively high rate due to high income growth. The boom in the construction sector is ongoing, although capacity constraints will lead to a considerable increase in construction prices. Exports are likely to be further stimulated by the strong upswing in the global economy. Moreover, business investment is becoming an additional pillar of the expansion as firms increasingly move away from their previously observed wait-and-see approach, in view of high capacity utilization and favorable business prospects. Cyclical factors will lead to a high budget surplus of about 1.5 percent relative to GDP. The scope for additional expenditures is very limited, however, since the increase in revenues is only a temporary phenomenon and demographic developments will cause considerable budgetary burdens in the future.

#### Economic momentum has further accelerated.

Gross domestic product expanded with high rates in the last quarters and is expected to increase by 2.3 percent in the current year, after an increase of 1.9 percent in 2016 (Figure 1). Leading indicators signal that the upswing is set to continue in the next year. Business climate is at historical highs and survey indicators show that the upswing is broad-based and involves the service, manufacturing, and construction sectors. Moreover, domestic and foreign incoming orders are increasing with high rates. Overall, we expect GDP to grow by 2.5 percent in the next year and by 2.2 percent in 2019.

The German economy is approaching a boom period. Capacity utilization is already above normal levels. Our output gap estimate from autumn indicates that the output gap is currently around +1 percent. This estimate is supported by several indicators. For example, firms in the manufacturing sector report that capacity utilization is already considerably above normal levels and is in tendency increasing. Capacity utilization in the construction sector has been close to historical highs for some



time already. Moreover, according to survey data, "lack of demand" as a limit to production is close to historical lows in the service, the manufacturing, and the constructing sectors. Given that GDP is



expected to grow by considerably higher rates than potential output (in our medium-run projection we estimate potential output to grow by about 1.5 percent), capacity utilization is set to increase further. According to our projection, the output gap will be close to historical highs at the end of the forecast horizon, indicating significant downside risks for economic activity in the future.

Foreign trade continues its brisk expansion. German exports have been on a pronounced expansionary track for the last four consecutive quarters and this trend is set to continue. By the end of this year, exports are expected to grow markedly, but at a somewhat slower pace than in the third quarter. Albeit nominal exports of goods slightly declined in October, this slowdown was likely owed to bank holidays and, thus, temporary. Soft indicators continue to point to a positive picture: In November, both export expectations of German manufacturers and production expectations in German export markets reached their highest levels since 2011. We forecast exports to grow at a solid, though slightly decreasing pace over the entire forecast horizon. This is in line with a vivid expansion in German export markets, which reaches its peak over the current year and the next year. German price competitiveness is set to worsen due to the appreciation of the euro in the current year, but will improve gradually over the course of the upcoming two years, providing additional tailwind. German imports slowed down somewhat in the third quarter, after a strong increase in the second quarter. We expect the pace of imports to pick up towards the end of this year, as nominal imports in goods increased strongly in October. Over the next two years, we forecast imports to expand markedly in line with vivid exports and accelerating business investment.

Consumer price inflation stays on course towards acceleration. In November, we saw a 1.8 percent year-on-year rise in the CPI. While recent marked increases of oil prices supported overall inflation, base effects will contribute to a weakening of year-on-year rates in the beginning of 2018. After that, however, the underlying inflationary pressures will resurface, such that the CPI rises by about 1.7 percent in both the current and next year and by 2 percent in 2019 (Table 1). These developments will take place against the background of an increasing overutilization of production capacities and only a very gradual exit from the ECB's extraordinary monetary policy measures. Though their pace will be reduced to EUR 30 bn per month in January, net asset purchases will continue at least until September 2018, and standard refinancing operations will continue to be conducted in "fixed rate, full allotment" mode until the end of 2019. We do not expect an increase in the ECB's policy rate before the second half of 2019. Interest rates on credit and capital markets, however, should slowly start to reverse their downward trajectory and rise slightly over the forecast period.

Tak	ole	1:		
Key	/ in	dicators,	2016	<b>-20</b> 19

-				
	2016	2017	2018	2019
Gross domestic product (GDP), price-adjusted	1.9	2.3	2.5	2.2
Gross domestic product, deflator	1.3	1.5	1.7	2.1
Consumer prices	0.5	1.7	1.7	2.0
Labor productivity (per hour worked)	1.3	1.0	1.2	1.2
Employment (1,000 persons)	43,638	44,291	44,842	45,337
Unemployment rate (percent)	6.1	5.7	5.3	5.1
in relation to nominal GDP				
Public sector net lending	0.8	1.4	1.5	1.6
Gross public debt	68.1	65.3	61.6	58.3
Current account balance	8.5	8.0	7.8	7.8

GDP, consumer prices, labor productivity: percentage change on previous year; unemployment rate: as defined by the Federal Employment Agency.

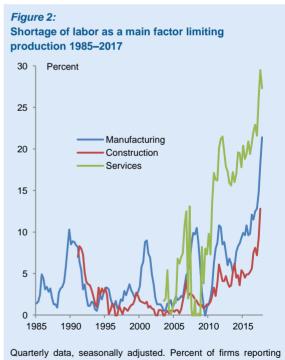
Source: Federal Statistical Office, Fachserie 18, Series 1.2; Federal Employment Agency, Monthly Bulletin; Federal Employment Agency, Employment Statistics; shaded: IfW forecast.



Strong income growth spurs private consumption. Income of private households is expected to grow with high rates. This is in particular due to the good shape of the labor market that comes along with increasing employment and accelerating wages. Disposable income is further supported by slight reductions in social contribution and income taxes. Disposable income is expected to increase by 3.8 percent this year, after an increase by 2.9 percent in 2016. In the next two years, disposable income will somewhat decelerate. The main reason behind this is that this year's unusually strong increase of other primary income (operating surplus/mixed income, net property income) is expected to moderate in the following years. However, growth rates of disposable income will remain high with rates of 3.3 percent (2018) and 3.6 percent (2019). Real disposable income is dampened somewhat by accelerating consumer prices. Overall, we expect private consumption to increase by 1.7 percent in 2018 and 2019, after an increase by 2.1 percent in the current year.

Business investment is becoming an additional pillar of the expansion. Business investment has been unusually weak in Germany in past years in view of the high economic momentum. Recently, however, there are increasingly signs that business investment has gained momentum and that firms will expand their investments more strongly in the future. Extensive revisions of official data in autumn also revealed that growth in business investment in the past was higher than previously reported and already accelerated in 2016. The construction sector experiences a boom period. According to surveys, construction companies in reunified Germany have never operated as close to their capacity limits as they currently do and never considered their business prospects to be so favorable. The high capacity utilization is increasingly noticeable in construction prices, which rise considerably faster than in previous years.

The labor market shows more and more signs of overheating. In the third quarter of this year, employment continued to increase and unemployment continued to decrease along their respective paths. As a result of the by now exceptionally longlasting upswing on the labor market, signs of overheating are becoming more and more visible. Both the number of posted vacancies per unemployed person and the number of days an open position remains vacant have been regularly hitting all-time highs (for unified Germany) for quite some time now. The same is true for the number of firms that, according to business surveys, view a shortage of labor as a limit to production or as the most important risk to their business activities (Figure 2). The higher labor market tightness has also been affecting wage developments. Both nominal and real gross wages and salaries per employee have been rising with above-average rates since 2010. At the same time, the growth rate of these effective wages has been increasingly higher than the growth rate of collectively agreed wages. The positive and widening wage drift could be, for example, due to extra payments and bonuses. We expect effective wages and salaries to accelerate further, with rates



that shortage of labor is currently a main factor limiting their production (manufacturing), their building activity (construction), or their business (services).

Source: European Commission, European Business Survey.

of 3.1 percent (2018) and 3.3 percent (2019), after 2.8 percent in 2017. Employment is forecast to grow further as well. Leading indicators for labor demand have reached levels unseen for several decades or even all-time highs, and the economic upswing is set to continue over the entire forecast horizon. However, large employment gains become increasingly unlikely, as labor supply growth is set to decline due to demographic reasons and smaller gains from migration. Against this background, we

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expect the overall unemployment rate to decline further until 2019, albeit by less than employment increases.

Government budget surplus strongly increases in 2017 despite extra payments of EUR 7 bn due to the refund of nuclear power tax. Overall, the strong business cycle conditions lead to higher revenues. Moreover, government consumption increased less than previously expected and taxes on profits increase even faster than overall profits imply. In 2018, surplus will further increase. However, expenditures pick up a bit, partly because transfer payments to the EU are planned to increase substantially. Thus, the structural budget balance will deteriorate. In 2019, the government budget surplus will reach almost EUR 60 bn (1.6 percent relative to GDP). The surplus will mainly be driven by the cyclical position and soaring revenues. We expect that several municipalities and states will use the surpluses for extra investment and government consumption. Thus, the structural budget balance may again decrease and is expected to exhibit a surplus of merely EUR 11 bn in 2019.



#### **Data annex**

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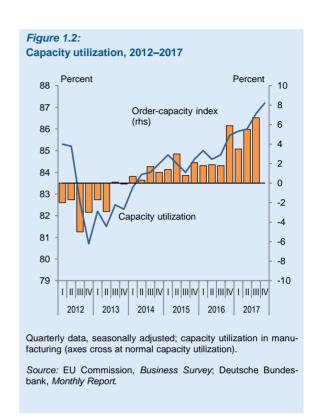
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#### 1. Leading indicators

Figure 1.1: Leading indicators, 2009-2017 Incoming orders in manufacturing 2010=100 140 130 120 110 100 Total From abroad 90 80 70 60 2009 2010 2011 2012 2013 2014 2015 2016 2017 Production 2010=100 140 130 120 110 Manufacturing Construction 100 2009 2010 2011 2012 2013 2014 2015 2016 2017 Business climate 2005=100 130 125 120 115 110 105 100 95 Situation 90 Expectations 85 2009 2010 2011 2012 2013 2014 2015 2016 2017 Monthly data, seasonally adjusted; incoming orders in manufacturing and production: 3-month moving average. Source: Deutsche Bundesbank, Saisonbereinigte Wirtschafts-

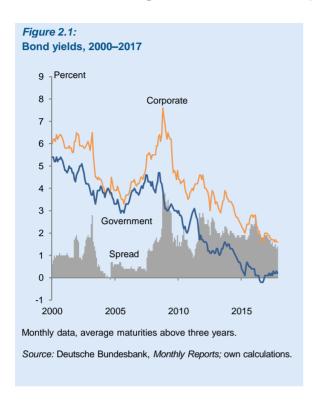
zahlen; ifo, Konjunkturperspektiven; own calculations

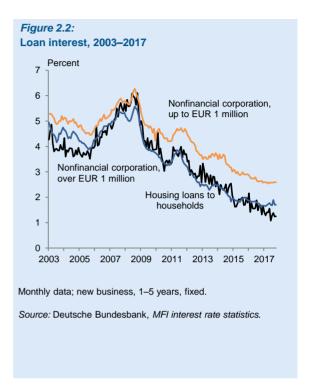


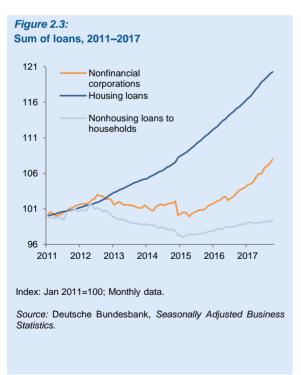


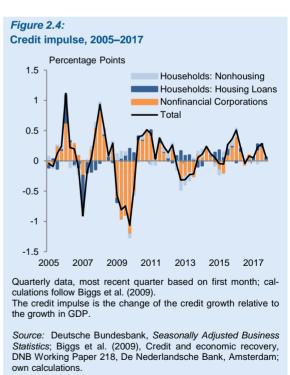


#### 2. Monetary conditions and prices

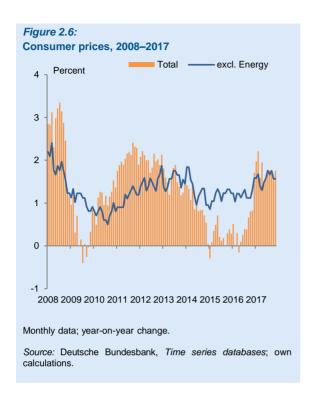












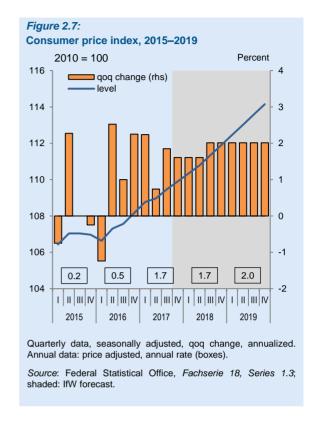


Table 2.1:
Projections and assumptions on the international environment, 2016–2019

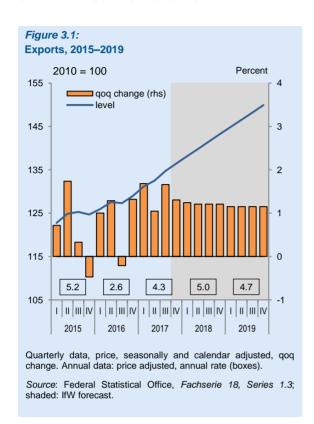
		2016				20	2018					2019				
	1	Ш	Ш	IV	1	Ш	Ш	IV	- 1	Ш	Ш	IV	ı	Ш	Ш	IV
ECB key interest rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25
Long-term interest rate	0.1	0.0	-0.1	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8
US-dollar/euro exchange rate	1.10	1.13	1.12	1.07	1.07	1.10	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
Price competitive- ness	86.8	87.2	87.1	86.8	86.2	86.9	89.0	88.8	88.8	88.7	88.6	88.5	88.4	88.3	88.2	88.1
Export markets Oil price	0.4 35.3	0.6 46.8	0.5 47.0	0.8 49.5	0.7 53.6	0.9 49.6	0.8 52.1	0.7 60.9	0.7 63.2	0.7 63.5	0.6 63.7	0.6 64.0	0.6 64.2	0.6 64.5	0.6 64.7	0.6 65.0

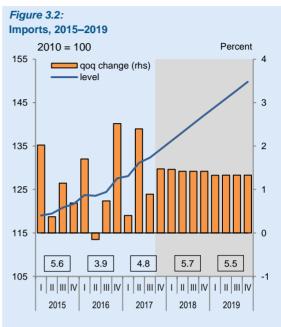
ECB key interest rate: main refinancing operations; long-term interest rate on 9–10 year bonds; price competitiveness: against 37 trading partners, based on the deflators of total sales, index: 1991: I = 100, increasing values indicate deterioration of price competitiveness; export markets: GDP growth in 41 countries, weighted with shares in German exports, change over previous quarter. Oil Price: US-dollar per barrel North Sea Brent.

Source: ECB, Monthly Bulletin; Deutsche Bundesbank, Monthly Bulletin; IMF, International Financial Statistics; own calculations; shaded: IfW forecast or assumption.



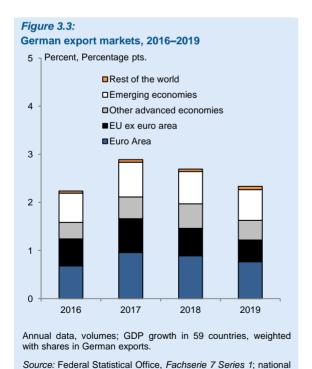
#### 3. External trade



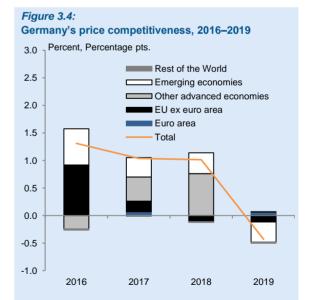


Quarterly data, price, seasonally and calendar adjusted, qoq change. Annual data: price adjusted, annual rate (boxes).

Source: Federal Statistical Office, Fachserie 18, Series 1.3; shaded: IfW forecast.



sources; own calculations; 2017-2019: IfW forecast.

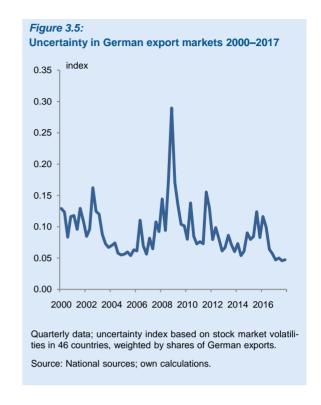


Annual data; against 51 countries based on consumer prices; weights according to Germany's price competitiveness indicator against 56 trading partners based on consumer price indices from the Deutsche Bundesbank. Increase implies worsening of price competitiveness.

Source: Bundesbank, Monthly Report 8.2017; national sources; own calculations; 2017–2019: IfW forecast.

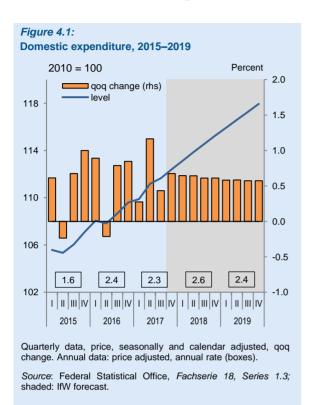


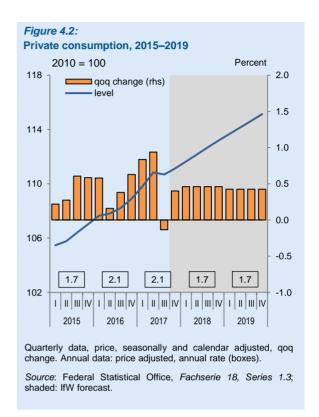


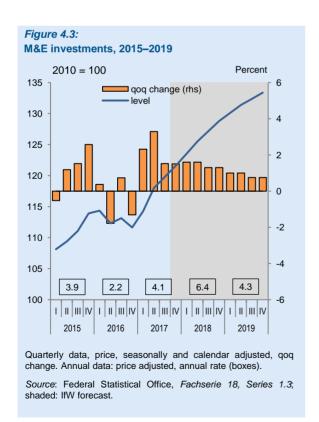




#### 4. Domestic expenditure







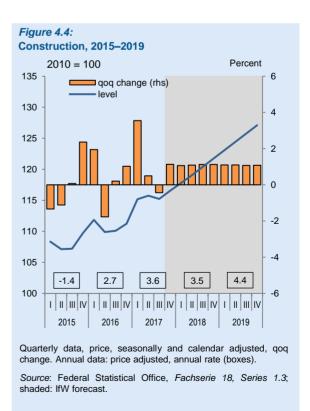


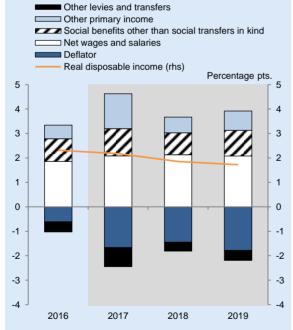


Figure 4.5: Investment cycles, 1991-2019 Output gap (rhs) Percent 25 GFCF Machinery and equipment 20 4 15 10 5 0 -5 -2 -10 -15 -20 -25 -6 1991 1995 1999 2003 2007 2011 Annual data; GFCF, machinery and equipment: volumes, change

Annual data; GFCF, machinery and equipment: volumes, change on previous year; output gap: in percent of potential output, estimation taken from autumn 2017 projection.

Source: Federal Statistical Office, Fachserie 18, Series 1.2; own calculations; shaded: IfW forecast.

Figure 4.7: Contributions to changes in real disposable income, 2016–2019



Annual data. Other levies and transfers: Levies on social benefits, taxes on consumption and other transfers received (net); Deflator: Deflator of private consumption.

Quelle: Federal Statistical Office, Fachserie 18, Series 1.2; own calculations; shaded: IfW forecast.

Figure 4.6: Contributions to change in private consumption, 2016-2019 Percentage pts. 10 10 ☐ Savings rate 8 Deflator of private consumption 8 Disposable income 6 Private consumption (rhs) 6 4 4 n -2 -2 -4 -6 1992 1996 2000 2004 2008 2012 2016 Annual data; disposable income including adjustment for the change in pension entitlements. Source: Federal Statistical Office, Fachserie 18, Series 1.2; own calculations, shaded: IfW forecast.

Table 4.1:
Gross fixed capital formation, 2016–2019

•				
	2016	2017	2018	2019
Total	3.1	3.8	4.6	4.4
Corporate investment	2.7	3.7	4.7	3.9
Machinery and				
equipment	2.2	4.1	6.4	4.3
Construction				
(nondwellings)	0.0	2.9	0.6	2.0
Other	5.5	3.7	4.6	4.5
Dwellings	4.0	4.5	5.0	5.7
Public (nondwellings)	2.7	0.4	1.7	3.2
Memorandum item:				
Construction	2.7	3.6	3.5	4.4

Volumes; change over previous year in percent.

Source: Federal Statistical Office, Fachserie 18, Series 1.2; shaded: IfW forecast.



#### 5. Industries

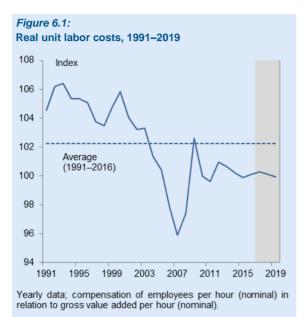
Table 5.1:
Gross value added for industries 2017–2018

		2017		2018			
	II	III	IV	I	II	111	
			-	alendar ad change in			
Gross domestic product	0.6	0.8	0.7	0.6	0.6	0.6	
Gross value added	0.7	1.0	0.7	0.6	0.6	0.0	
Industry excluding construction	1.2	1.9	0.6	0.7	0.7	0.6	
Manufacturing	1.1	2.4	0.6	0.7	0.7	0.6	
Construction	0.7	0.4	0.6	0.6	0.6	0.6	
Trade, transport, accommodation, and food services	0.9	0.4	0.9	0.9	0.9	0.9	
Information and communication	0.8	1.3	1.6	1.6	1.6	1.0	
Financial and insurance services	0.0	0.2	0.0	-0.1	-0.1	-0.	
Real estate activities	-0.2	0.7	0.5	0.4	0.4	0.4	
Business services	0.2	1.2	0.9	0.6	0.6	0.0	
Public services, education, health	0.8	0.5	0.3	0.3	0.3	0.3	
Other services	0.1	0.7	0.2	0.2	0.2	0.2	

Source: Federal Statistical Office, Fachserie 18, Series 1.2 and 1.3; shaded: IfW forecast.



#### 6. Wages



Source: Federal Statistical Office, Fachserie 18, Series 1.2; shaded: IfW forecast.

Vages and productivity, 2016–2019

	2016	2017	2018	2019
Per hour				
Negotiated wages	2.1	2.1	2.4	2.6
Gross wages and				
salaries	3.1	2.9	3.0	3.4
Wage drift	1.0	0.7	0.6	0.8
Compensation of				
employees	2.9	2.7	2.8	3.2
Labor productivity	1.3	1.0	1.2	1.2
Unit labor costs	1.5	1.7	1.5	1.9
Unit labor costs (real)	0.2	0.2	-0.2	-0.1
Per capita				
Negotiated wages	2.1	2.1	2.4	2.6
Gross wages and				
salaries	2.4	2.8	3.1	3.3
Wage drift	0.3	0.7	0.7	0.7
Compensation of				
employees	2.2	2.7	2.9	3.1
Labor productivity	0.6	8.0	1.3	1.1
Unit labor costs	1.6	1.9	1.6	2.0
Unit labor costs (real)	0.2	0.4	-0.1	-0.1

Change over previous year in percent; wage drift: difference between change of negotiated wages and change of gross wages and salaries in percentage points; labor productivity: real GDP per hour or per capita; unit labor costs: compensation of employees (per hour or per capita) in relation to labor productivity; unit labor costs (real): unit labor costs deflated by GDP deflator.

Source: Federal Statistical Office, Fachserie 18, Series 1.2; Deutsche Bundesbank, Negotiated Pay Rate Statistics; shaded: IfW forecast.

Figure 7.2:

3.0

28

2.6

2.4

2.2

2.0

Million

Unemployment, 2015-2019

qoq change (rhs)

- level

-104

1 | 11 | 111 | 17

2016

-104

2015

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1,000

40

20

0

-20

-40

-60

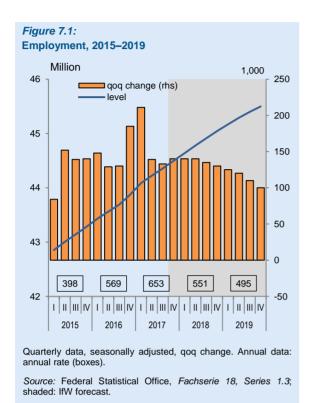
-80

-100

-112

2019

#### 7. Employment



Quarterly data, seasonally adjusted, qoq change. Annual data: annual rate (boxes).

2017

-158

-127

2018

1 | 11 | 111 | 117 | 1 | 11 | 111 | 117

 ${\it Source} : {\it Federal Employment Agency}, {\it Monthly Bulletin}; {\it shaded: IfW forecast}.$ 



	2015	2016	2017	2018	2019
Hours worked (domestic concept, million hours)	58,924	59,285	60,049	60,828	61,424
Persons in employment (domestic concept)	43,069	43,638	44,291	44,842	45,337
Self-employed	4,360	4,333	4,309	4,303	4,303
Employees (domestic concept)	38,710	39,305	39,983	40,539	41,034
Employees subject to social security contributions	30,853	31,514	32,230	32,817	33,352
Minijobs	4,849	4,803	4,754	4,720	4,680
Net commuting	79	93	103	102	102
Persons in employment (national concept)	42,990	43,545	44,189	44,740	45,235
Employees (national concept)	38,631	39,211	39,880	40,437	40,932
Unemployed persons (registered)	2,795	2,691	2,533	2,406	2,293
Unemployment rate (registered; percent)	6.4	6.1	5.7	5.3	5.1
Unemployment rate (ILO; percent)	4.3	3.9	3.5	3.1	2.7

Self-employed: including family workers; unemployed persons (registered): definition of the Federal Employment Agency (BA).

Source: Federal Statistical Office, Fachserie 18, Series 1.2; Federal Employment Agency, Monthly Bulletin; Federal Employment Agency, Employment Statistics; shaded: IfW forecast.



#### 8. Public finances

Table 8.1: Revenues and expenditures of the general government, 2015–2019 (€ bn)

	2015	2016	2017	2018	2019
Revenues	1,354.3	1,414.2	1,477.5	1,533.4	1,594.1
relative to GDP	44.5	45.0	45.3	45.1	44.9
Taxes	698.0	732.0	770.5	8.008	834.2
relative to GDP	22.9	23.3	23.6	23.5	23.5
Social contributions	500.8	523.8	548.1	569.6	593.3
relative to GDP	16.5	16.7	16.8	16.7	16.7
Other revenues	155.4	158.5	158.8	163.0	166.6
relative to GDP	5.1	5.0	4.9	4.8	4.7
Expenditures	1,334.9	1,388.6	1,432.5	1,482.7	1,535.9
relative to GDP	43.9	44.2	43.9	43.6	43.3
Compensation of employees	229.2	236.5	246.2	255.0	264.9
Intermediate consumption	142.2	150.0	153.8	158.7	164.7
Social transfers in kind	252.4	268.6	278.4	287.9	299.8
Gross capital formation	64.2	66.8	69.8	74.2	78.3
Capital transfers	46.4	41.6	39.0	37.0	36.2
Social benefits	469.9	486.3	505.9	521.6	540.7
Subsidies	27.0	27.8	27.9	28.7	29.5
Other current transfers	74.8	75.7	73.4	86.1	88.6
Other capital transfers and investment grants	30.0	36.4	39.4	34.7	34.5
Other expenditures	-1.3	-1.3	-1.4	-1.4	-1.4
Net lending/net borrowing	19.4	25.7	45.0	50.7	58.2
relative to GDP	0.6	0.8	1.4	1.5	1.6
Revenues of central, state, and local					
governments	880.0	918.7	958.3	993.5	1,003.2
Net of transfers from social security funds	879.0	917.7	957.2	992.5	1,002.1
Fransfers from social security funds	1.1	1.1	1.1	1.1	1.1
Expenditures of central, state, and local					
governments	863.3	901.3	924.3	957.3	964.7
Net of transfers to social security funds	758.8	791.0	8.808	839.0	845.5
Fransfers to social security funds	104.6	110.3	115.5	118.3	119.2
Net lending/net borrowing central, state, and					
local government	16.7	17.4	34.0	36.2	38.5
Revenues of social security funds	579.9	606.9	635.7	659.3	665.0
Net of transfers from central, state, and local	373.3	000.5	000.1	000.0	000.0
governments	475.3	496.6	520.3	541.0	545.8
Expenditures of social security funds	577.2	598.6	624.8	644.8	650.6
Net of transfers to central, state, and local	F70.4	F07.0	000.7	040.7	040.0
governments	576.1	597.6	623.7	643.7	649.6
Net lending/net borrowing social security					
funds	2.7	8.2	11.0	14.5	14.3

Sums may deviate due to rounding.

Source: Federal Statistical Office, internal worksheet, shaded: IfW forecast.



#### 9. GDP and its components

Table 9.1: Quarterly data, 2017–2019

,, ,												
		2017				20	18			20	19	
	1	II	Ш	IV	1	II	III	IV	1	II	Ш	IV
Gross domestic product	0.9	0.6	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5
Private consumption	0.8	0.9	-0.1	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4
Government consumption	0.2	0.2	0.0	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.5
Machinery and equipment	2.3	3.3	1.5	1.5	1.6	1.6	1.3	1.3	1.0	1.0	0.8	0.7
Constructions	3.5	0.5	-0.4	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Other investment	2.0	0.9	0.6	1.0	1.3	1.3	1.3	1.3	1.0	1.0	1.0	1.0
Change in inventories	-0.8	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic expenditure	0.3	1.2	0.4	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Exports	1.7	1.0	1.7	1.3	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1
Imports	0.4	2.4	0.9	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.3
Net exports	0.6	-0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Employment (domestic)	44,085	44,224	44,357	44,497	44,637	44,777	44,912	45,042	45,167	45,287	45,397	45,497
Unemployment (registered)	2,586	2,544	2,523	2,478	2,453	2,417	2,390	2,363	2,335	2,308	2,280	2,252

Volumes, seasonally and working-day adjusted. Change on previous quarter in percent; change in inventories, net exports: Lundberg component (contribution to GDP growth); employment, unemployment: seasonally adjusted, 1,000 persons; unemployment: as defined by the Federal Employment Agency (BA).

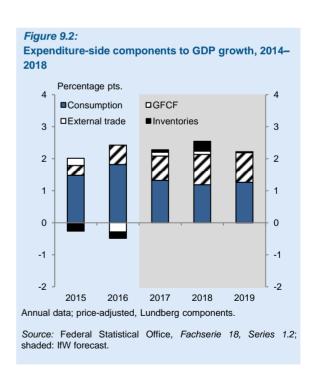
Source: Federal Statistical Office, Fachserie 18, Series 1.3; Federal Employment Agency, Monthly Bulletin; shaded: IfW forecast.

GDP: volumes, change over previous year. Point forecasts: orange lines. Forecast intervalls greay shaded areas with confidence levels of 33, 66, and 95 percent. Confidence levels calculated based on historical forecast errors of the Kiel Institute in the fourth quarter 1994–2016 .

2018

Source: Own calculations.

2017





# 10. The German economy, 2016–2019

	2017	2016	2017	2018	2019
	€ bn	Change	over previ	ous year ir	percent
GDP (constant prices)		1.9	2.3	2.5	2.2
Private consumption expenditure		2.1	2.1	1.7	1.7
Public consumption expenditure		3.7	1.1	1.6	1.9
Total fixed investment		3.1	3.8	4.6	4.4
Machinery and equipment		2.2	4.1	6.4	4.3
Construction		2.7	3.6	3.5	4.4
Other equipment		5.5	3.7	4.6	4.5
Changes in stocks		-0.2	0.1	0.3	0.0
Domestic Demand		2.4	2.3	2.6	2.4
Exports		2.6	4.3	5.0	4.7
Imports		3.9	4.8	5.7	5.5
Net exports		-0.3	0.1	0.1	0.0
GDP (current prices)	3,263.1	3.3	3.8	4.3	4.3
Private consumption expenditure	1,737.6	2.7	3.8	3.1	3.5
Public consumption expenditure	636.8	4.8	3.5	3.5	4.0
Total fixed investment	665.9	4.3	5.7	7.0	6.8
Machinery and equipment	214.7	2.5	4.3	7.1	4.9
Construction	325.4	4.6	6.9	7.1	8.1
Other equipment	125.8	6.4	5.1	6.7	6.5
Changes in stocks (€ bn)		-26.4	-22.6	-13.1	-13.3
Domestic Demand	3,017.7	3.3	4.3	4.4	4.4
Exports	1,536.1	1.6	5.9	5.9	5.6
Imports	1,290.7	1.4	7.6	6.5	5.9
Net exports (€ bn)		250.6	245.4	251.3	260.7
Gross national income	3,321.8	3.1	3.9	4.2	4.3
Deflator of GDP		1.3	1.5	1.7	2.1
Private consumption expenditure		0.6	1.7	1.4	1.8
Public consumption expenditure		1.1	2.3	1.9	2.1
Investment in machinery and equipment		0.4	0.2	0.6	0.5
Investment in construction		1.9	3.2	3.5	3.5
Investment in other equipment		0.8	1.3	2.0	1.9
Exports		-1.0	1.6	0.8	0.8
Imports		-2.5	2.7	0.7	0.4
Addendum: Consumer prices		0.5	1.7	1.7	2.0
Income distribution					
National income	2,434.0	3.2	4.1	4.7	4.7
Employment income	1,670.4	3.8	4.4	4.3	4.4
in percent of national income		68.4	68.6	68.4	68.1
Entrepreneurial and property income	763.6	2.1	3.5	5.5	5.5
Disposable income of private households	1,874.4	2.9	3.8	3.3	3.6
Savings rate		9.7	9.7	9.8	9.7
Wages and salaries	1,370.8	4.0	4.5	4.6	4.6
Wage per hour		3.1	2.9	3.0	3.4
Unit labor costs		1.5	1.7	1.5	1.9
Productivity per hour		1.3	1.0	1.2	1.2
Unemployment (1,000)		2,691.0	2,532.6	2,405.7	2,293.3
Rate of unemployment (percent)		6.1	5.7	5.3	5.1
Total employment (1,000)		43,637.8	44,291.0	44,842.3	45,337.3
Public sector budget balance (€ bn)		25.7	45.0	50.7	58.2
Public sector budget balance (in percent of GDP)		0.8	1.4	1.5	1.6
Public debts (in percent)		68.1	65.3	61.6	58.3

Change in stocks, net exports: contribution to GDP growth.

Source: Federal Statistical Office, Fachserie 18, Series 1.2; shaded: IfW forecast.



#### 11. National accounts

Forecast period: 2017 to 2019				ı		ı	
	2017	2018	2019	20 H1	17 H2	H1	18 H2
				111	112	1111	112
1. Production							
Change over the same period of the preceding year in							
Persons in employment	1.5	1.2	1.1	1.5	1.5	1.3	1.2
Hours worked	1.3	1.3	1.0	1.5	1.1	1.3	1.3
Hours worked by person in employment	- 0.2	0.1	- 0.1	0.0	- 0.4	0.0	0.0
Labor productivity 1	1.0	1.2	1.2	0.6	1.3	1.2	1.2
Gross domestic product, price-adjusted	2.3	2.5	2.2	2.2	2.4	2.6	2.5
2. Use of gross domestic product at current pr a) EUR bn.	ices						
Consumption expenditure	2 374.4	2 451.0	2 541.0	1 160.5	1 213.8	1 194.6	1 256.4
Private households <sup>2</sup>	1 737.6	1 792.0	1 855.4	850.5	887.0	873.5	918.5
Government	636.8	658.9	685.5	310.0	326.8	321.1	337.8
Gross fixed capital formation	665.9	712.6	760.9	320.8	345.1	341.2	371.4
Machinery and equipment	214.7	230.0	241.2	101.7	113.0	108.9	121.0
Construction	325.4	348.5	376.8	157.8	167.7	167.2	181.2
Other products Changes in inventories <sup>3</sup>	125.8 - 22.6	134.2 - 13.1	143.0 - 13.3	61.3 - 6.4	64.5 - 16.2	65.1 2.0	69.1 - 15.0
Domestic expenditure	3 017.7	3 150.5	3 288.6	1 475.0	1 542.7	1 537.8	1 612.7
Net experts	245.4	251.3	260.7	127.5	117.9	133.4	117.9
Exports	1 536.1	1 626.2	1 717.0	761.2	774.9	804.6	821.6
Imports	1 290.7	1 374.9	1 456.3	633.7	657.0	671.1	703.8
Gross domestic product	3 263.1	3 401.8	3 549.3	1 602.5	1 660.6	1 671.2	1 730.6
b) Change over the same period of the preceding year	ır in %						
Consumption expenditure	3.7	3.2	3.7	3.9	3.5	2.9	3.5
Private households <sup>2</sup>	3.8	3.1	3.5	4.0	3.6	2.7	3.6
Government	3.5	3.5	4.0	3.5	3.4	3.6	3.4
Gross fixed capital formation	5.7	7.0	6.8	5.2	6.2	6.4	7.6
Machinery and equipment	4.3	7.1	4.9	2.7	5.7	7.1	7.2
Construction	6.9	7.1	8.1	7.0	6.8	6.0	8.1
Other products	5.1	6.7	6.5	4.9	5.3	6.1	7.2
Domestic expenditure	4.3	4.4	4.4	4.3	4.3	4.3	4.5
Exports Imports	5.9 7.6	5.9 6.5	5.6 5.9	6.0 8.8	5.8 6.5	5.7 5.9	6.0 7.1
Gross domestic product	3.8	4.3	4.3	3.4	4.1	4.3	4.2
3. Use of gross domestic product, price-adjust	•						
a) EUR bn. Consumption expenditure	2 157.8	2 193.0	2 231.5	1 061.7	1 096.0	1 076.1	1 117.0
Private households <sup>2</sup>	1 598.9	1 625.5	1 653.4	784.8	814.1	795.6	829.9
Government	558.6	567.3	577.8	276.7	281.8	280.3	287.0
Gross fixed capital formation	593.9	621.5	648.9	286.9	307.0	298.6	322.8
Machinery and equipment	207.7	221.0	230.6	97.9	109.8	104.3	116.7
Construction	273.4	282.8	295.4	133.5	139.9	136.8	146.0
Other products	113.5	118.7	124.1	55.6	58.0	57.8	60.9
Domestic expenditure	2 719.7	2 791.3	2 857.2	1 340.6	1 379.0	1 374.5	1 416.8
Exports	1 454.6	1 527.9	1 600.4	720.5	734.1	757.4	770.5
Imports Gross domestic product	1 254.6 2 920.3	1 326.6 2 994.4	1 400.1 3 060.7	613.2 1 447.5	641.3 1 472.8	647.6 1 484.4	679.0 1 510.0
•	•	2 334.4	3 000.1	1 447.5	1472.0	1 404.4	1 310.0
b) Change over the same period of the preceding year				2.2		- 10	
Consumption expenditure	1.8	1.6	1.8	2.0	1.6	1.3	1.9
Private households <sup>2</sup>	2.1	1.7	1.7	2.2	1.9	1.4	1.9
Government Gross fixed capital formation	1.1 3.8	1.6 4.6	1.9 4.4	1.4 3.4	0.9 4.1	1.3 4.1	1.8 5.1
Machinery and equipment	4.1	4.6 6.4	4.4	2.5	4.1 5.6	6.6	6.3
Construction	3.6	3.5	4.3	4.0	3.2	2.5	4.4
Other products	3.7	4.6	4.5	3.7	3.8	4.1	5.1
Domestic expenditure	2.3	2.6	2.4	2.4	2.3	2.5	2.7
Exports	4.3	5.0	4.7	4.1	4.4	5.1	5.0
	1			•		•	
Imports	4.8 2.3	5.7 2.5	5.5 2.2	5.0 2.2	4.7	5.6 2.6	5.9 2.5



National Accounts (cont.) Forecast period: 2017 to 2019											
	2017	2018	2019	2017		2018					
	2017	2010	2019	H1	H2	H1	H2				
4. Deflators (2010=100) Change on the same period of the preceding year in %											
Private consumption <sup>2</sup>	1.7	1.4	1.8	1.7	1.6	1.3	1.6				
Government consumption	2.3	1.9	2.1	2.1	2.5	2.3	1.5				
Gross fixed capital formation	1.8	2.3	2.3	1.7	2.0	2.2	2.4				
Machinery and equipment	0.2	0.6	0.5	0.3	0.2	0.5	0.8				
Construction Exports	3.2 1.6	3.5 0.8	3.5 0.8	2.9 1.9	3.4 1.3	3.4 0.5	3.5 1.0				
Imports	2.6	0.8	0.8	3.7	1.7	0.3	1.0				
Gross domestic product	1.5	1.7	2.1	1.2	1.7	1.7	1.7				
5. National income											
a) EUR bn.											
Primary income of private households <sup>2</sup>	2 273.1	2 357.4	2 448.7	1 120.0	1 153.1	1 162.2	1 195.1				
Employers social contributions	299.6 1 370.8	309.2 1 433.4	319.9 1 498.6	145.1 653.2	154.6 717.5	149.9 684.3	159.3 749.1				
Gross wages and salaries Other primary income 4	602.7	614.8	630.1	321.6	281.1	328.1	286.7				
Primary income of other sectors	477.9	514.7	551.4	219.0	258.9	236.6	278.1				
Net national income	2 751.0	2 872.1	3 000.1	1 338.9	1 412.1	1 398.8	1 473.2				
Consumption of fixed capital	570.7	590.1	610.7	283.3	287.4	293.0	297.1				
Gross national income	3 321.7	3 462.2	3 610.8	1 622.2	1 699.4	1 691.8	1 770.4				
memorandum item:	0.465.5	0.5:	0.00= 0	4.465.5	4.050.0	4.000.0	4.040				
Net national income (factor costs)	2 433.9	2 547.6	2 667.0	1 180.6	1 253.3	1 236.9	1 310.7				
Property and entrepreneurial income Compensation of employees	763.5 1 670.4	805.0 1 742.6	848.5 1 818.5	382.3 798.3	381.2 872.1	402.8 834.2	402.3 908.4				
<del>- ' '</del>	•	1 742.0	1 010.5	190.5	072.1	034.2	300.4				
b) Change over the same period of the preceding year in			0.0		4.0	0.0	0.0				
Primary income of private households <sup>2</sup> Employers social contributions	4.4 3.7	3.7 3.2	3.9 3.5	4.6 3.8	4.2 3.7	3.8 3.3	3.6 3.1				
Gross wages and salaries	4.5	4.6	4.6	3.6 4.5	4.5	3.3 4.7	4.4				
per employee	2.8	3.1	3.3	2.7	2.8	3.3	3.0				
Other primary income <sup>4</sup>	4.5	2.0	2.5	5.0	3.9	2.0	2.0				
Primary income of other sectors	2.2	7.7	7.1	- 1.4	5.4	8.1	7.4				
Net national income	4.0	4.4	4.5	3.6	4.5	4.5	4.3				
Consumption of fixed capital	3.3	3.4	3.5	3.3	3.4	3.4	3.4				
Gross national income memorandum item:	3.9	4.2	4.3	3.5	4.3	4.3	4.2				
Net national income (factor costs)	4.1	4.7	4.7	3.5	4.7	4.8	4.6				
Property and entrepreneurial income	3.5	5.4	5.4	1.6	5.5	5.4	5.5				
Compensation of employees	4.4	4.3	4.4	4.4	4.4	4.5	4.2				
6. Disposable income of private households <sup>2</sup>											
a) EUR bn.					===						
Mass income	1 351.9 906.7	1 405.6 946.6	1 463.2 987.6	650.5 427.7	701.4 479.1	676.6 447.5	729.1 499.1				
Net wages and salaries Social benefits other than social transfers in kind	564.9	581.8	987.6 602.1	427.7 282.5	479.1 282.4	290.1	291.7				
less: Levies on social benefits,	119.8	122.8	126.4	59.7	60.1	61.0	61.8				
taxes on consumption					••••						
Other primary income 4	602.7	614.8	630.1	321.6	281.1	328.1	286.7				
Other transfers received (net) <sup>5</sup>	- 80.1	- 84.0	- 88.2	- 38.7	- 41.4	- 40.6	- 43.5				
Disposable income	1 874.4	1 936.4	2 005.2	933.4	941.0	964.1	972.3				
Change in pension entitlements	49.5	49.9	50.3	24.5	25.1	24.7	25.3				
Consumption expenditure	1 737.6	1 792.0	1 855.4	850.5	887.0	873.5	918.5				
Saving	186.4	194.3	200.1	107.3	79.1	115.3	79.0				
Saving ratio (%) <sup>6</sup>	9.7	9.8	9.7	11.2	8.2	11.7	7.9				
b) Change over the same period of the preceding year in	%										
Mass income	4.1	4.0	4.1	4.2	3.9	4.0	3.9				
Net wages and salaries	4.3	4.4	4.3	4.3	4.4	4.6	4.2				
Social benefits other than social transfers in kind	3.7	3.0	3.5	4.3	3.1	2.7	3.3				
less: Levies on social benefits,	4.3	2.5	3.0	5.6	3.1	2.2	2.8				
taxes on consumption Other primary income <sup>4</sup>	4.5	2.0	2.5	5.0	3.9	2.0	2.0				
Disposable income	3.8	3.3	3.6	4.2	3.9	3.3	3.3				
·											
Consumption expenditure	3.8 3.7	3.1 4.2	3.5	4.0 5.1	3.6 1.9	2.7 7.4	3.6				
Saving	3.1	4.2	3.0	J. I	1.9	7.4	- 0.1				



·		2212	2212	2017		2018	
	2017	2018	2019	H1	H2	H1	H2
7. Revenue and expenditure by general governme	nt <sup>7</sup>						
a) EUR bn.							
Revenue							
Taxes	770.5	8.008	834.2	385.1	385.4	400.0	400.8
Social contributions	548.1	569.6	593.3	265.7	282.4	276.3	293.3
Property income	17.0	18.0	18.0	8.6	8.4	9.7	8.3
Other current transfers	21.7	21.9	22.3	10.1	11.6	10.2	11.8
Capital transfers	10.9	10.6	10.7	5.4	5.5	5.3	5.4
Sales	109.0	112.2	115.4	52.2	56.8	53.4	58.8
Other subsidies	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Total	1 477.5	1 533.4	1 594.1	727.3	750.1	754.9	778.5
Expenditure							
Intermediate consumption <sup>8</sup>	432.3	446.8	464.6	210.0	222.3	216.9	229.9
Compensation of employees	432.3 246.2	255.0	264.9	118.4	127.8	122.6	132.5
Property income (interest)	39.0	37.0	36.2	19.9	19.0	18.9	18.0
Subsidies	27.9	28.7	29.5	13.5	14.4	13.9	14.8
Social benefits	505.9	521.6	29.5 540.7	253.2	252.7	260.2	261.4
Other current transfers	73.4	86.1	88.6	40.9	32.5	46.3	39.8
Capital transfers	73.4 39.4	34.7	34.5	20.7	18.8	13.9	20.8
Gross capital formation	59.4 69.8	74.2	78.3	30.1	39.7	31.7	42.6
·	- 1.4	- 1.4	70.3 - 1.4	- 0.7	- 0.8	- 0.7	- 0.8
Net acquisitions of non-produced non-financial assets  Total	1 432.5	1 482.7	1 535.9	706.1	726.4	723.7	759.0
Net lending	45.0	50.7	58.2	21.2	23.7	31.2	19.6
rectioning	40.0	50.1	30.2	21.2	20.1	01.2	10.0
b) Change over the same period of the preceding year in	%						
Revenue							
Taxes	5.3	3.9	4.2	5.6	4.9	3.9	4.0
Social contributions	4.7	3.9	4.2	4.8	4.5	4.0	3.9
Property income	- 5.6	5.7	0.1	- 9.9	- 0.9	12.7	- 1.5
Other current transfers	9.1	1.1	1.6	12.9	6.0	0.4	1.7
Capital transfers	- 29.3	- 2.6	0.2	- 28.6	- 30.0	- 2.9	- 2.3
Sales	3.8	3.0	2.8	4.8	3.0	2.3	3.7
Other subsidies	2.5	0.0	0.0	6.9	- 0.9	0.0	0.0
Total	4.5	3.8	4.0	4.8	4.2	3.8	3.8
Expenditure							
Intermediate consumption 8	3.2	3.3	4.0	3.3	3.1	3.3	3.4
Compensation of employees	4.1	3.6	3.9	4.4	3.9	3.5	3.6
Property income (interest)	- 6.3	- 5.1	- 2.2	- 3.8	- 8.8	- 5.0	- 5.3
Subsidies	0.2	2.9	2.9	- 0.6	0.9	2.9	2.9
Social benefits	4.0	3.1	3.7	4.8	3.3	2.8	3.4
Other current transfers	- 3.1	17.4	2.9	2.3	- 9.2	13.2	22.6
Capital transfers	8.3	- 11.8	- 0.6	31.9	- 9.6	- 32.5	10.9
Gross capital formation	4.5	6.3	5.5	4.1	4.8	5.0	7.3
Net acquisitions of non-produced non-financial assets	6.8	0.0	0.0	25.4	- 5.3	0.0	0.0
	0.0	0.0	0.0	4.4	0.0	0.0	4.5

3.5

3.2

3.6

Total

Source: Federal Statistical Office, Fachserie 18: National Accounts; own calculations.

4.5

2.5

Price-adjusted gross domestic product per hour worked.

<sup>&</sup>lt;sup>2</sup> Incl. nonprofit institutions serving households.

<sup>&</sup>lt;sup>3</sup> Incl. acquisitions less disposals of valuables.

<sup>4</sup> Operating surplus/mixed income, net property income

<sup>&</sup>lt;sup>5</sup> Received less payed other current transfers.

<sup>&</sup>lt;sup>6</sup> Savings in percent of disposable income (incl. change in pension entitlements).

<sup>&</sup>lt;sup>7</sup> Central, regional, local and social security funds.

<sup>8</sup> Incl. social transfers in kind and other production taxes.