

KIEL INSTITUTE **ECONOMIC OUTLOOK**

German Economy Summer 2017

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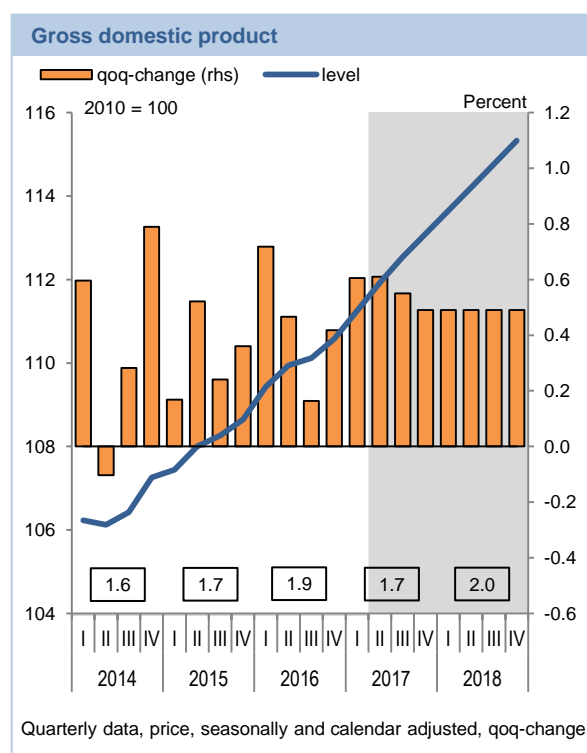
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Salomon Fiedler, Dominik Groll,
Nils Jannsen, Stefan Kooths, and
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GERMAN ECONOMY HEATING UP

Martin Ademmer, Jens Boysen-Hogrefe, Salomon Fiedler, Dominik Groll, Nils Jannsen, Stefan Kooths, and Galina Potjagailo

The momentum of the expansion of the German economy is strong. Unchanged from our winter and spring forecasts, we expect a rise in gross domestic product by 1.7 percent in the current year and by 2 percent in 2018. This implies that throughout the forecasting period the expansion of aggregate output will remain higher than potential output growth, where the latter represents the long-term sustainable economic development. With capacity utilization already above normal levels, an overheating of the German economy is at the horizon. Against this background, the downward risks for the economy increase. Overall, the German economy will expand on a broad front. Exports are expected to accelerate further, owing to an upswing of the global economy. Construction activity continues to be boosted by the very favorable financing conditions. Moreover, companies are set to expand their investments more quickly due to the favorable business outlook. Private consumption, however, is likely to expand more slowly compared to previous years, mainly because higher inflation has a negative impact on the purchasing power of households' disposable income. Employment continues to rise, and wages are expected to grow more dynamically. Germany's general budget surplus will probably surpass the record level of the previous year. As the high surplus is only a temporary phenomenon resulting from high cyclical dynamics and low interest rates, fiscal policy should refrain from measures that permanently increase expenditures or decrease revenues, unless offsetting actions are taken simultaneously.

The upswing in Germany is set to continue—overheating is at the horizon. We continue to expect GDP to grow by 1.7 percent this year and by 2 percent next year. The somewhat lower growth in the current year is due to the lower number of working days; adjusted for calendar effects GDP will grow by 2 percent. Overall, GDP is expected to grow faster than potential output. According to survey indicators capacity utilization is already above normal levels. These indicators include high capacity utilization in the manufacturing, construction, and service sector as well as the low share of firms reporting that a lack of demand is limiting their production. This assessment is supported by our own estimate of German potential output (based on the production function approach of the European Commission) which indicates that the output gap will rise from 0.8 percent in 2016 to close to 2 percent in 2018; higher values for the output gap were only observed before the Global Financial Crisis and after German Reunification.



German foreign trade remains on an expansionary track. After a strong increase over the winter, German exports are expected to grow further at a pronounced rate over the current quarter. The marked growth of nominal exports of goods in April backs this picture. Also, export expectations of

German firms have been at high levels since the beginning of the year and improved further in May; and producers in German export markets remain optimistic regarding their future production levels. We forecast exports to grow at a solid pace over the entire forecast horizon, primarily backed by a broad-based upturn of the global economy and, to a smaller extent, by a slight improvement of German price competitiveness over the current year. German imports grew at a subdued rate during the first quarter of the year, after a strong increase at the end of the previous year. We expect imports to pick up pace in the current quarter and to grow dynamically over the forecast horizon, supported by the expansion of exports and by business investment gaining momentum.

Consumer prices continue their upward movement. Prices for consumers rose by 1.5 percent year-on-year in May. Thus, inflation was somewhat weaker than in April, when it had come in at 2 percent. Energy prices contributed noticeably to this development: whilst they increased by 5.1 percent in the previous month, they rose by 2 percent in May. Additionally, price increases for services excluding rents softened again; here, temporary effects associated with calendrical shifts of the Easter holidays played a role. However, prices picked up momentum in the areas of goods excluding energy—food, especially—and rents. The lower dynamism of the energy component can be explained by oil price movements: after increasing over the turn of the year, such that oil temporarily cost more than 57 dollar per barrel, developments were muted since then, with the oil price falling below the 50-dollar mark recently. Looking ahead, there are no indications of a significant increase in oil prices over the course of the forecasting period. Nevertheless, the increasing overutilization of production capacities in Germany should strengthen the upswing of prices, such that we expect inflation rates of 1.7 percent both for this and for next year.

Private consumption is expanding with somewhat lower rates as the oil price increase leads to losses in purchasing power. Private consumption is expected to grow by 1.1 percent this year and by 1.5 percent in 2018, after having reached rates of 2 percent in both 2015 and 2016. This deceleration is expected to take place although growth in wages and salaries is set to accelerate due to the good shape of the labor market. However, as inflation is markedly picking up, mainly due to the oil price increase, growth in real disposable income will decelerate from above 2 percent in 2016 to 1.1 percent in the current year and 1.5 percent in 2018. This deceleration will only partly be absorbed by the savings rate, which we expect to slightly decline from 9.7 in 2016 to 9.5 percent in 2018 due to the increase in oil prices and low interest rates. A further factor weighing on disposable income in the current year will be a decline in property and entrepreneurial income. In the current environment of high growth rates and above normal capacity utilization such a decline is very unusual. One important reason behind this is the low number of working days in the current year, which has a more pronounced effect on firms' output than on compensation of employees.

Investment will expand at higher rates. Investment in machinery and equipment increased by 1.2 percent in the first quarter of 2017, after having declined for three consecutive quarters. As the dampening effects of policy uncertainty continue to recede, supportive cyclical dynamics will increasingly gain traction. We forecast investment in machinery and equipment to expand by 1.2 percent in the current year and by around 5 percent in 2018. Construction investment is expected to increase by 3.4 percent in the current year and by around 4 percent in the upcoming year, owing to the persistently very favorable financing conditions, the good shape of the labor market, and the increasing demand for additional housing units. Given the already very high levels of capacity utilization in the construction industry, the upswing is likely to cause a considerable increase in construction prices.

Employment is expected to grow further, but likely to decelerate somewhat. Employment growth was exceptionally strong in the fourth and first quarter, witnessing the highest rates since 2008. While

rising further over the entire forecasting horizon, we expect employment to decelerate somewhat. On the one hand, labor costs are expected to accelerate, while labor productivity and domestic prices will tend to be rather weak, resulting in a less favorable relation between labor costs and productivity. On the other hand, labor supply is set to slow down due to demographic reasons as well as smaller gains from migration and labor participation, making large employment gains increasingly unlikely. While the number of refugees without a job has risen significantly in 2016, most of them are not counted as unemployed, since they are participating in integration courses and in active labor market measures. All in all, with continuing strong employment growth, we expect the overall unemployment rate to decline further in 2017 and 2018, albeit less than proportional compared to the increase in employment.

The general government budget will reach further record surpluses in 2017 and 2018. In 2016 a marked increase in corporate tax revenues and the roaring labor market more than offset the additional expenditures due to the refugee influx and led to a record high budget surplus of 26 bn Euros (0.8 percent in relation to GDP). In 2017 both expenditures and revenues will grow at a lower rate. Because of the favorable economic situation, the budget surplus will increase even further, even though the federal government has to refund the tax on nuclear fuel. In 2018 the ongoing upswing will induce a further increase in the surplus, which is, however, dampened by a remarkable jump in planned transfer payments to the EU. Overall, surpluses are due to business cycle conditions and low interest payments.

Table 1:
Key indicators, 2015–2018

	2015	2016	2017	2018
Gross domestic product (GDP), price-adjusted	1.7	1.9	1.7	2.0
Gross domestic product, deflator	2.0	1.4	1.1	1.8
Consumer prices	0.2	0.5	1.7	1.7
Labor productivity (per hour worked)	0.8	0.9	1.1	1.2
Employment (1,000 persons)	43,057	43,594	44,215	44,665
Unemployment rate (percent)	6.4	6.1	5.7	5.4
<i>in relation to nominal GDP</i>				
Public sector net lending	0.7	0.8	1.0	1.1
Gross public debt	71.2	68.3	65.5	61.9
Current account balance	8.5	8.5	7.9	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.

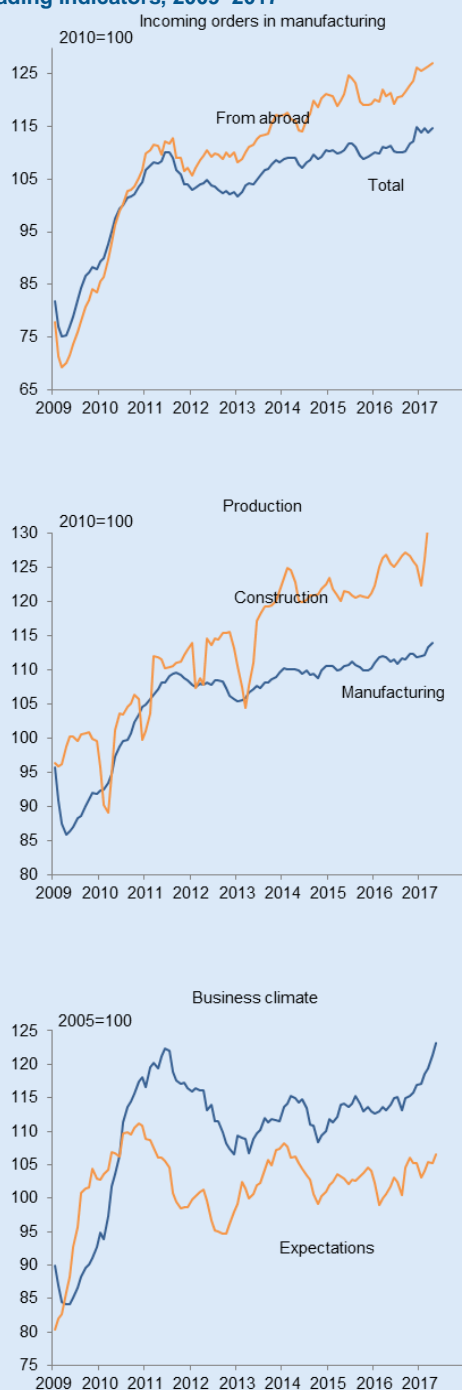
Data annex

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1. Leading indicators

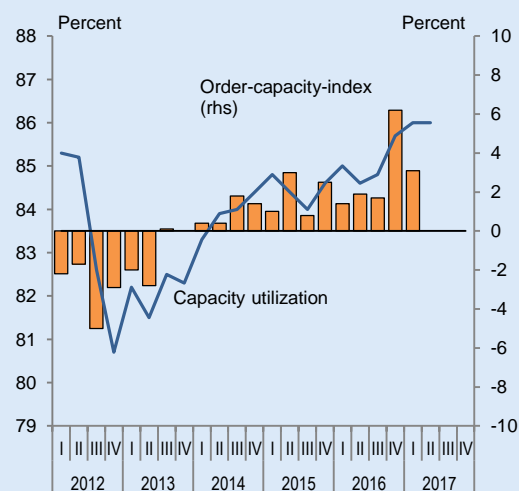
Figure 1.1:
Leading indicators, 2009–2017



Monthly data, seasonally adjusted; incoming orders in manufacturing and production: 3-month moving average.

Source: Deutsche Bundesbank, *Saisonbereinigte Wirtschaftszahlen*; ifo, *Konjunkturperspektiven*; own calculations.

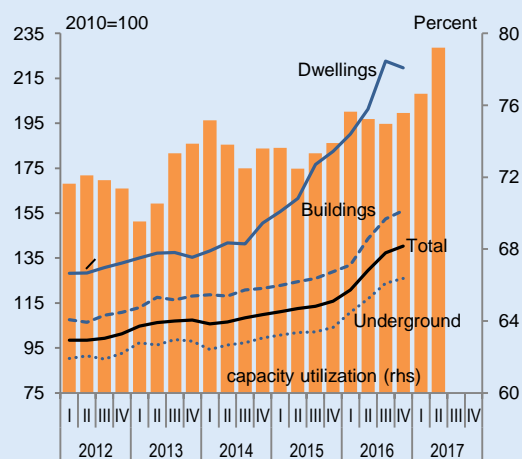
Figure 1.2:
Capacity utilization, 2012–2017



Quarterly data, seasonally adjusted; capacity utilization in manufacturing (axes cross at normal capacity utilization).

Source: EU Commission, Business Survey; Deutsche Bundesbank, *Monthly Report*.

Figure 1.3:
Order stocks and capacity utilization in construction industry, 2012–2017

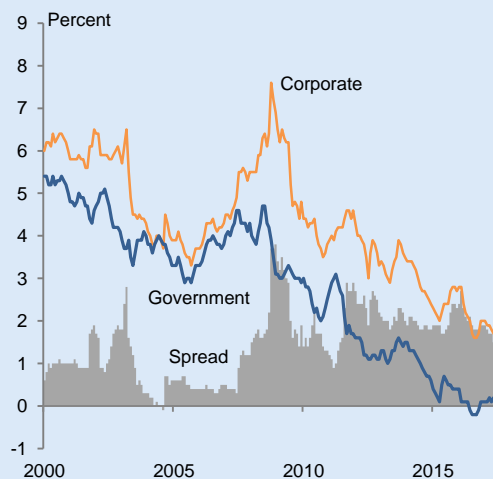


Quarterly data. Capacity utilization: seasonally adjusted (2014-Q4: October/November); order stocks: price, seasonally and working-day adjusted.

Source: Federal Statistical Office, *GENESIS database*; ifo, *Konjunkturperspektiven*.

2. Monetary conditions and prices

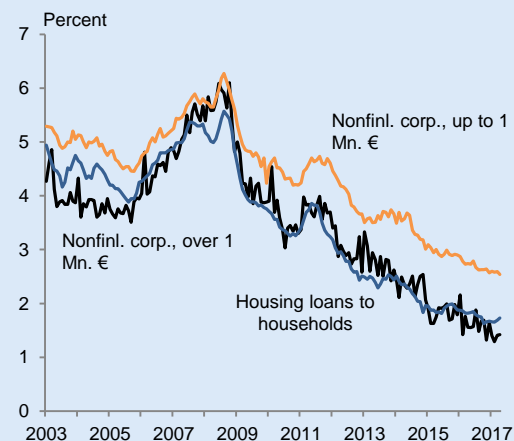
Figure 2.1:
Bond yields, 2000–2017



Monthly data, average maturities above three years.

Source: Deutsche Bundesbank, *Monthly Reports*; own calculations.

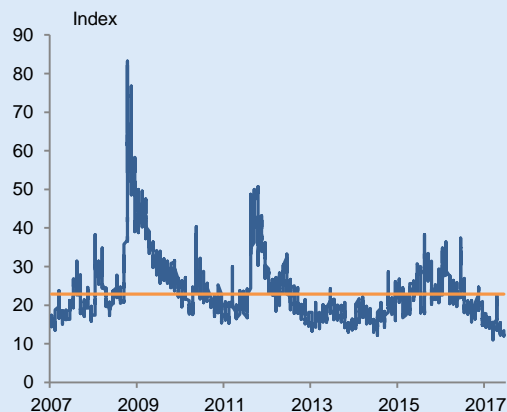
Figure 2.2:
Loan interest, 2003–2017



Monthly data; new business, 1-5 years, fixed.

Source: Deutsche Bundesbank: MFI interest rate statistics.

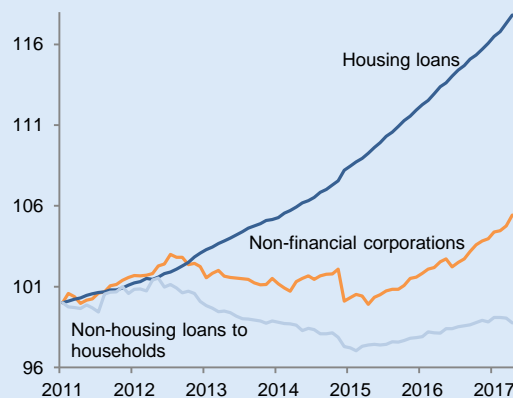
Figure 2.3:
VDAX, 2007–2017



Daily data; orange line: average since 01-01-1992.

Source: Deutsche Börse, VDAX-NEW.

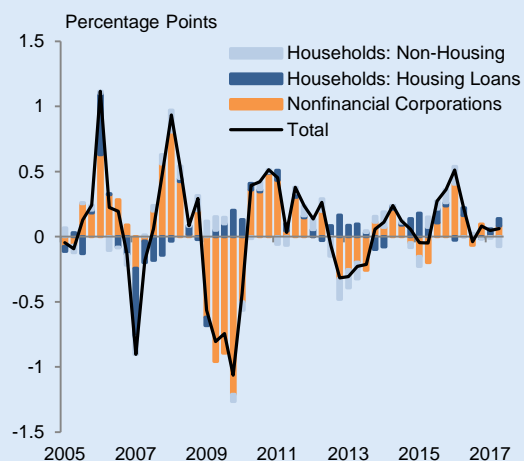
Figure 2.4:
Sum of loans, 2011–2017



Index: Jan 2011=100; Monthly data.

Source: Deutsche Bundesbank, *Seasonally Adjusted Business Statistics*.

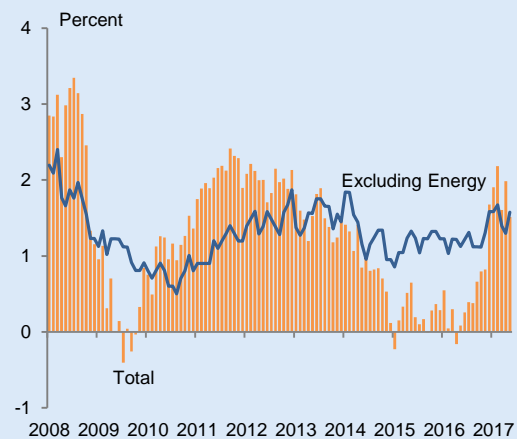
Figure 2.5:
Credit impulse, 2005–2017



Quarterly data, most recent quarter based on first month; calculations follow Biggs et al. (2009). The credit impulse is the change of the credit growth relative to the growth in GDP.

Source: Deutsche Bundesbank, *Seasonally Adjusted Business Statistics*; own calculations.

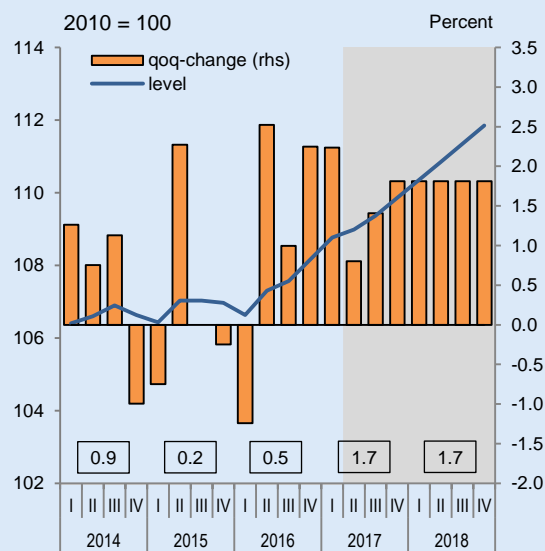
Figure 2.6:
Consumer prices, 2008–2017



Monthly data; year-on-year change.

Source: Deutsche Bundesbank, *Time series databases*; own calculations.

Figure 2.7:
Consumer price index, 2014–2018



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

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

Table 2.1:
Projections and assumptions on the international environment, 2015–2018

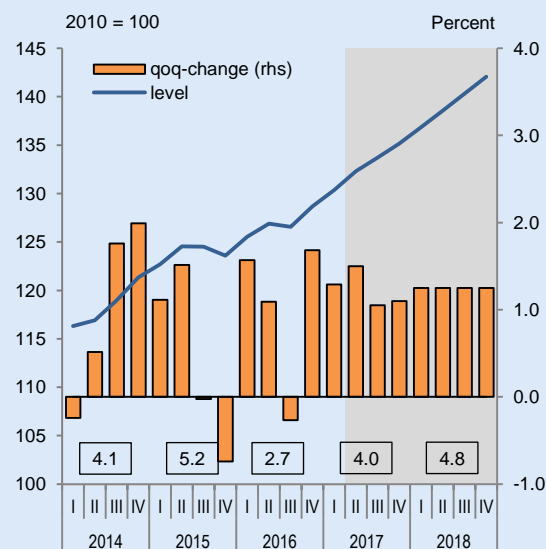
	2015				2016				2017				2018			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
ECB key interest rate	0.05	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Long-term interest rate	0.4	0.5	0.5	0.5	0.1	0.0	-0.1	0.2	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.6
US-dollar/euro exchange rate	1.13	1.10	1.12	1.09	1.10	1.13	1.12	1.07	1.07	1.11	1.13	1.13	1.13	1.13	1.13	1.13
Price competitiveness	82.9	82.3	83.2	83.3	84.1	84.4	84.3	84.1	83.4	84.1	83.9	83.9	83.8	83.8	83.7	83.6
Export markets	0.69	0.48	0.55	0.54	0.44	0.62	0.54	0.79	0.62	0.66	0.59	0.60	0.60	0.62	0.60	0.58
Oil price	54.1	62.1	47.0	49.5	35.3	46.8	47.0	49.5	54.7	51.9	52.2	52.4	52.7	52.9	53.2	53.4

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

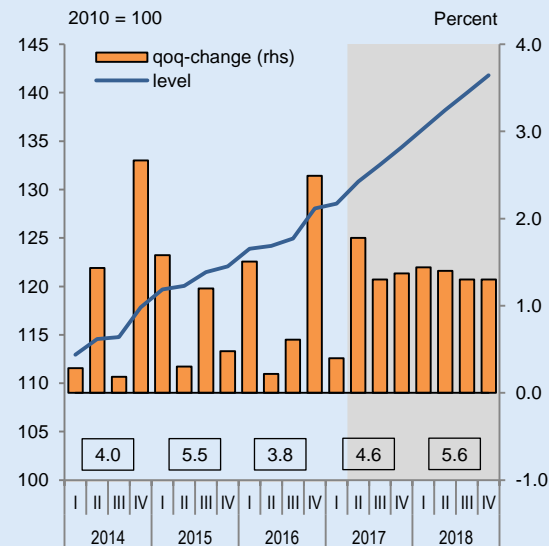
Figure 3.1:
Exports, 2014–2018



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.

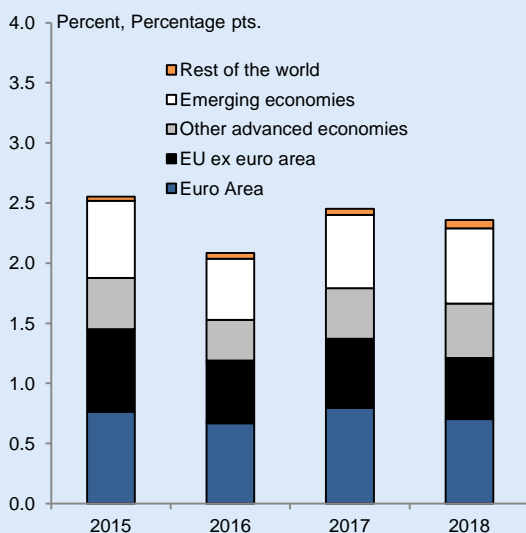
Figure 3.2:
Imports, 2014–2018



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.

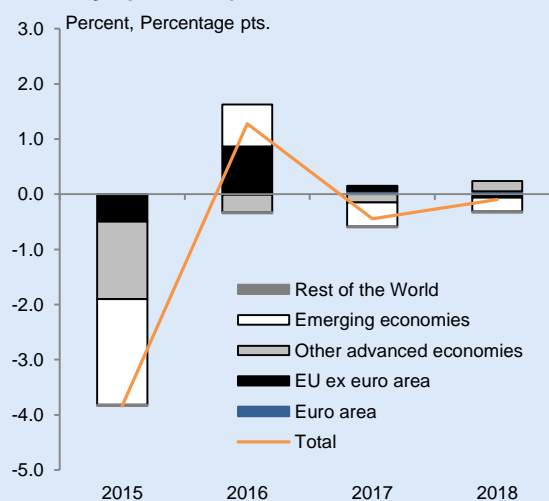
Figure 3.3:
German export markets, 2015–2018



Annual data, volumes; GDP growth in 59 countries, weighted with shares in German exports.

Source: Federal Statistical Office, *Fachserie 7 Series 1*; national sources; own calculations; 2016–2018: IfW forecast.

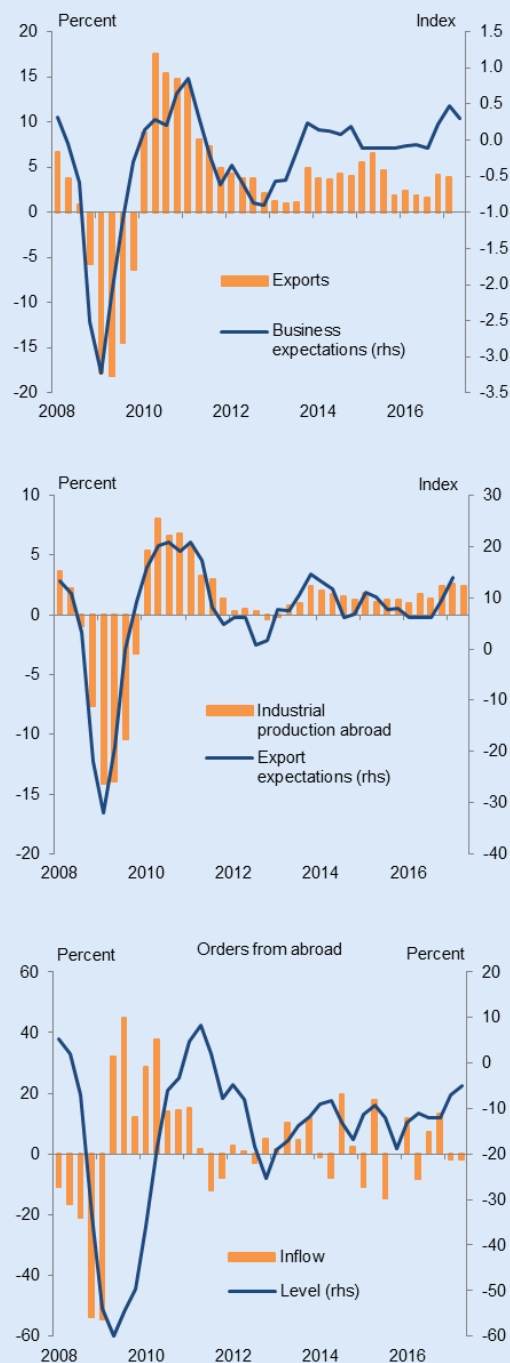
Figure 3.4:
Germany's price competitiveness, 2015–2018



Annual data; against 59 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 8.2015*; national sources; own calculations; 2016–2018: IfW forecast.

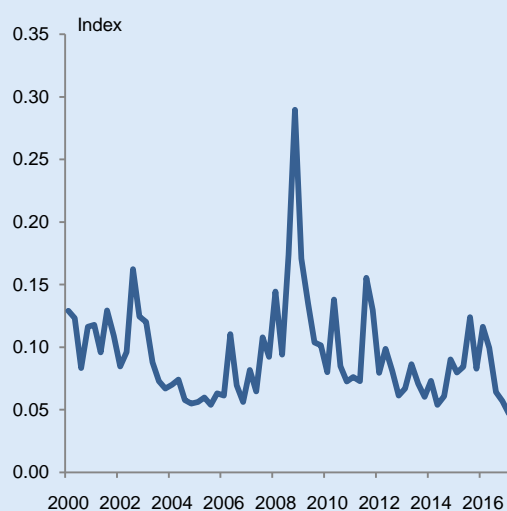
Figure 3.5:
Export indicators, 2008–2017



Quarterly data; exports, industrial production, order inflow: volumes, change on previous year; export expectations, foreign orders on hand: volumes; business expectations, industrial production: based on 41 countries weighted by shares of German exports.

Source: Deutsche Bundesbank, *Saisonbereinigte Wirtschaftszahlen*; Thomson Financial Datastream; ifo, *Konjunkturperspektiven*; own calculations.

Figure 3.6:
Uncertainty in German export markets 2000–2017



Quarterly data; uncertainty index based on stock market volatilities in 46 countries, weighted by shares of German exports.

Source: National sources; own calculations.

4. Domestic expenditure

Figure 4.1:
Domestic expenditure, 2014–2018

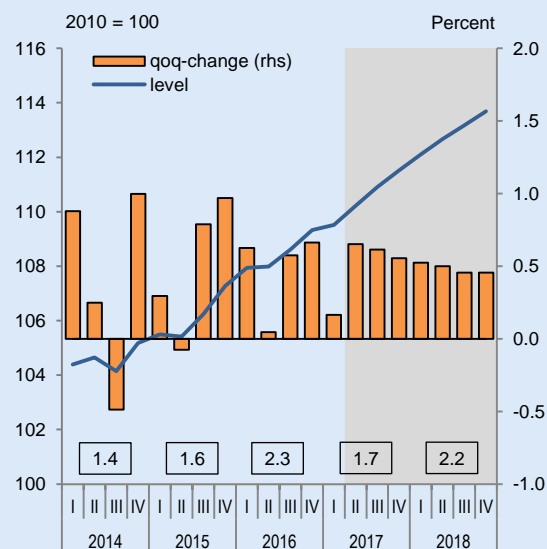


Figure 4.2:
Private consumption, 2014–2018

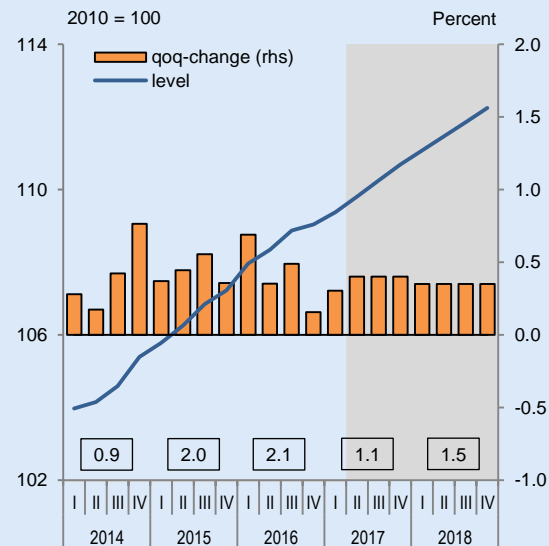


Figure 4.3:
M&E investments, 2014–2018

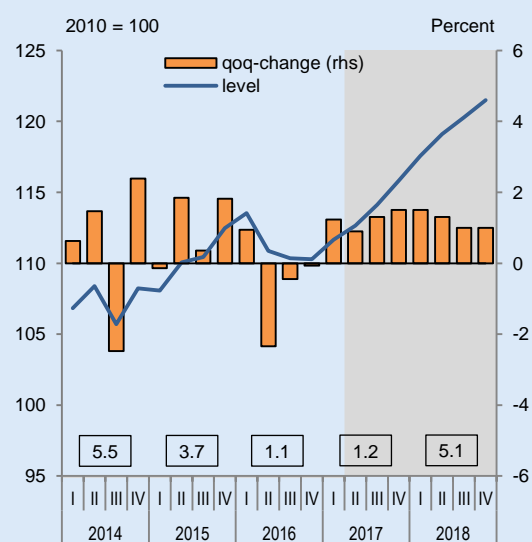


Figure 4.4:
Constructions, 2014–2018

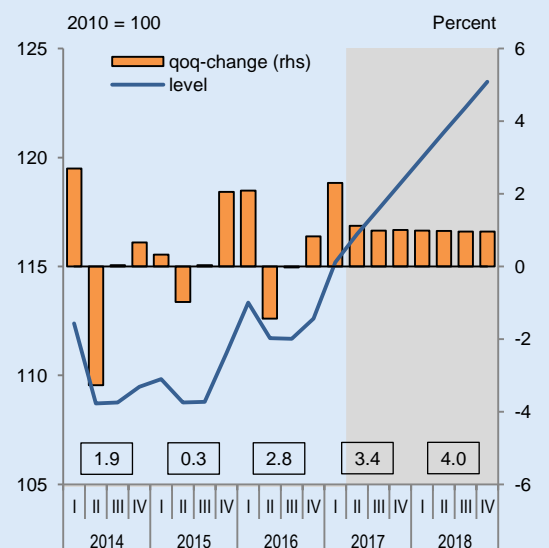
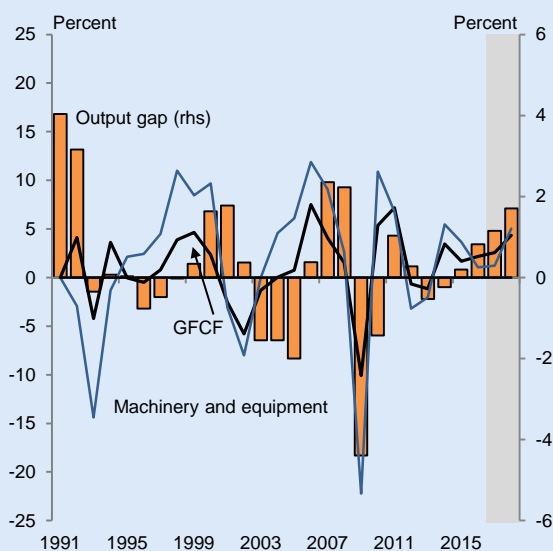


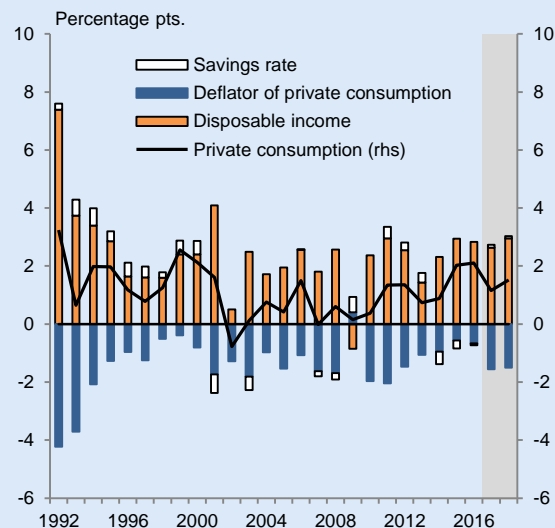
Figure 4.5:
Investment cycles, 1991–2018



Annual data; GFCF, machinery and equipment: volumes, change on previous year; output gap: in percent of potential output.

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

Figure 4.6:
Contributions to changes in real disposable income, 1992–2018



Annual data; disposable income including adjustment for the change in pension entitlements.

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

Table 4.1:
Gross fixed capital formation, 2015–2018

	2015	2016	2017	2018
Total	1.7	2.2	2.6	4.2
Corporate investment	2.0	1.3	2.4	3.9
Machinery and equipment	3.7	1.1	1.2	5.1
Construction (non-dwellings)	-1.8	0.0	4.8	2.3
Other	1.9	2.6	2.8	3.0
Dwellings	1.5	4.1	2.9	5.1
Public (non-dwellings)	-0.4	2.6	2.7	2.1
Memorandum item:				
Construction	0.3	2.8	3.4	4.0

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, 2016–2018

	2016	2017				2018
	IV	I	II	III	IV	I
Seasonally and calendar adjusted, quarter-on-quarter change in percent						
Gross domestic product	0.4	0.6	0.6	0.6	0.5	0.5
Gross value added	0.3	0.5	0.6	0.6	0.5	0.5
Industry excluding construction	-0.2	0.4	0.7	0.5	0.5	0.5
Manufacturing	-0.2	0.6	0.7	0.5	0.5	0.5
Construction	-0.6	1.8	0.9	0.9	0.8	0.8
Trade, transport, accommodation, and food services	1.1	0.2	0.9	0.7	0.7	0.7
Information and communication	0.1	0.6	1.3	1.3	1.2	1.2
Financial and insurance services	0.2	0.9	0.1	0.1	0.1	0.0
Real estate activities	0.3	0.6	0.4	0.4	0.4	0.4
Business services	0.5	1.2	0.9	0.7	0.5	0.5
Public services, education, health	0.6	0.1	0.3	0.3	0.3	0.3
Other services	0.5	0.2	0.2	0.2	0.2	0.2

Quarterly data, volumes.

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

6. Wages

Figure 6.1:
Real unit labor costs, 1991–2018

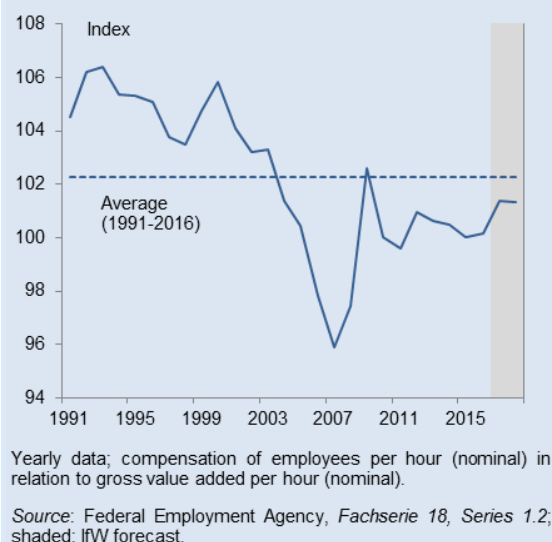


Table 6.1:
Wages and productivity, 2015–2018

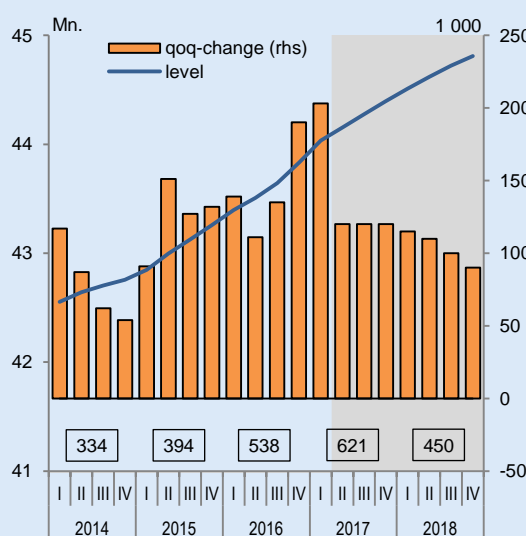
	2015	2016	2017	2018
<i>Per hour</i>				
Negotiated wages	2.2	2.1	2.2	2.5
Gross wages and salaries	2.5	2.8	3.6	3.1
Wage drift	0.3	0.7	1.4	0.6
Compensation of employees	2.3	2.6	3.4	3.0
Labor productivity	0.8	0.9	1.1	1.2
Unit labor costs	1.5	1.7	2.3	1.7
Unit labor costs (real)	-0.4	0.2	1.2	-0.1
<i>Per capita</i>				
Negotiated wages	2.2	2.1	2.2	2.5
Gross wages and salaries	2.7	2.5	2.6	3.0
Wage drift	0.5	0.4	0.4	0.5
Compensation of employees	2.4	2.3	2.5	2.8
Labor productivity	0.8	0.6	0.3	1.0
Unit labor costs	1.6	1.7	2.2	1.8
Unit labor costs (real)	-0.3	0.2	1.1	0.0

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.

7. Employment

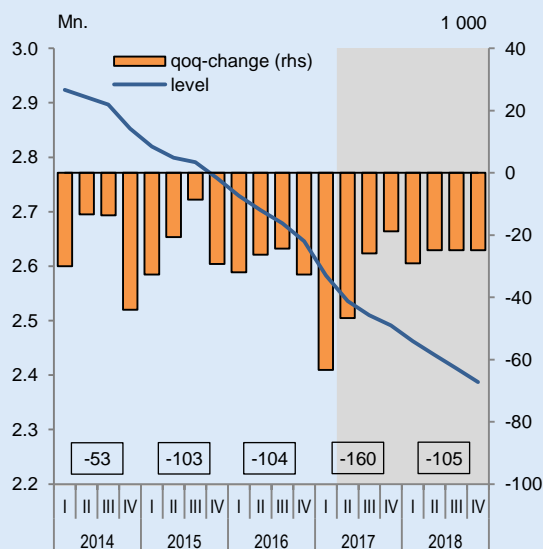
Figure 7.1:
Employment, 2014–2018



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

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

Figure 7.2:
Unemployment, 2014–2018



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

Source: Federal Employment Agency, *Monthly Bulletin*; shaded: IfW forecast.

Table 7.1:
Employment, 2014–2018 (1,000 persons)

	2014	2015	2016	2017	2018
Hours worked (domestic concept, mn. hours)	58,343	58,895	59,444	59,806	60,297
Persons in employment (domestic concept)	42,663	43,057	43,594	44,215	44,665
Self-employed	4,402	4,336	4,305	4,285	4,285
Employees (domestic concept)	38,261	38,721	39,289	39,930	40,380
Employees subject to social security contributions	30,219	30,853	31,511	32,131	32,641
Minijobs	5,028	4,849	4,804	4,769	4,762
Net commuting	61	78	82	82	82
Persons in employment (national concept)	42,602	42,979	43,512	44,133	44,583
Employees (national concept)	38,200	38,644	39,207	39,848	40,298
Unemployed persons (registered)	2,896	2,793	2,689	2,529	2,424
Unemployment rate (registered; percent)	6.7	6.4	6.1	5.7	5.4
Unemployment rate (ILO; percent)	4.7	4.3	3.9	3.6	3.3

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

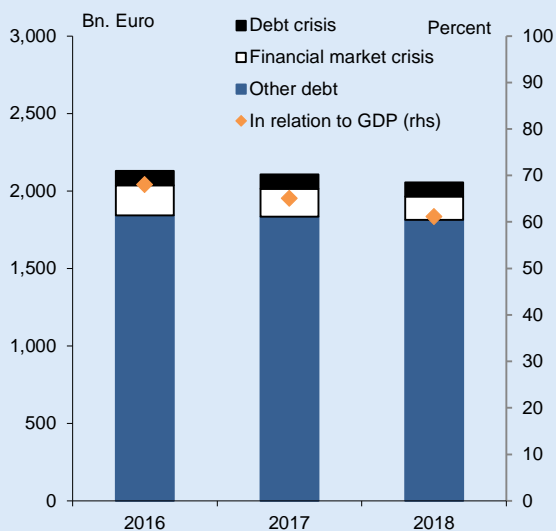
Table 8.1:
Revenues and expenditures of the general government, 2014–2018 (bn. euro)

	2014	2015	2016	2017	2018
Revenues	1,306.8	1,354.8	1,414.7	1,463.0	1,515.6
➤ relative to GDP	44.7	44.7	45.1	45.4	45.2
Taxes	668.6	700.0	731.8	759.5	788.1
➤ relative to GDP	22.9	23.1	23.3	23.6	23.5
Social contributions	482.0	500.8	523.3	546.3	567.1
➤ relative to GDP	16.5	16.5	16.7	17.0	16.9
Other revenues	156.1	154.0	159.7	157.2	160.4
➤ relative to GDP	5.3	5.1	5.1	4.9	4.8
Expenditures	1,298.2	1,333.9	1,388.4	1,430.2	1,479.0
➤ relative to GDP	44.4	44.0	44.3	44.4	44.1
Compensation of employees	224.1	228.6	236.7	243.3	250.3
Intermediate consumption	134.3	139.5	150.1	153.4	157.2
Social transfers in kind	240.0	252.4	268.0	280.7	292.2
Gross capital formation	60.9	64.3	66.3	70.4	74.0
Capital transfers	52.0	47.3	43.2	41.0	39.4
Social benefits	452.5	471.0	487.3	505.0	519.3
Subsidies	26.0	27.5	27.0	26.9	27.1
Other current transfers	72.3	75.2	75.5	74.4	86.4
Other capital transfers and investment grants	37.2	29.7	35.4	40.2	34.7
Other expenditures	-1.4	-1.8	-1.3	-5.2	-1.9
Net lending/net borrowing	8.6	20.9	26.3	32.7	36.7
➤ relative to GDP	0.3	0.7	0.8	1.0	1.1
Revenues of central, state, and local governments	852.1	881.0	919.4	945.4	978.0
Net of transfers from social security funds	851.0	880.0	918.3	944.3	977.0
Transfers from social security funds	1.1	1.1	1.1	1.1	1.1
Expenditures of central, state, and local governments	846.5	862.2	901.1	924.1	955.6
Net of transfers to social security funds	744.7	758.0	790.8	807.3	835.5
Transfers to social security funds	101.8	104.2	110.3	116.9	120.1
Net lending/net borrowing central, state, and local government	5.5	18.8	18.3	21.3	22.4
Revenues of social security funds	557.6	579.1	606.7	635.5	658.8
Net of transfers from central, state, and local governments	455.8	474.9	496.4	518.6	538.7
Expenditures of social security funds	554.6	577.0	598.7	624.1	644.6
Net of transfers to central, state, and local governments	553.5	575.9	597.6	623.0	643.5
Net lending/net borrowing social security funds	3.0	2.1	8.0	11.4	14.2

Sums may deviate due to rounding.

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

Figure 8.1:
Government gross debt, 2016–2018

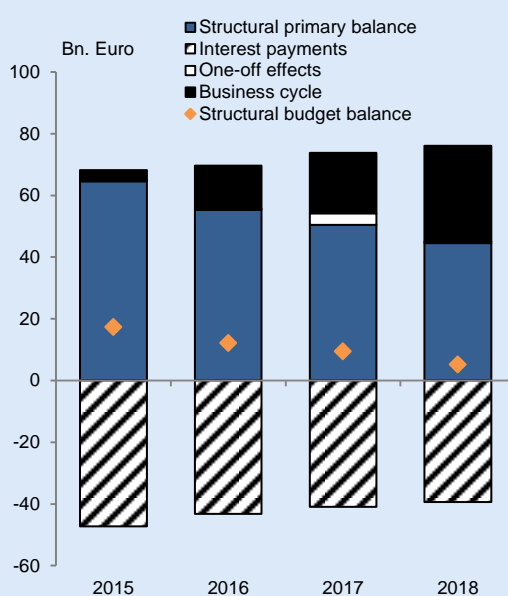


Debt crisis: Liabilities due to first Greece adjustment programme, deposits at the ESM, guarantees for EFSF credits.

Financial market crisis: Liabilities due to bank rescue packages.

Source: Bundesbank, *Monatsbericht*; BMF, *Monatsbericht*; own calculations and forecasts.

Figure 8.2:
Structural budget balance, 2015–2018



Source: Europäische Kommission, AMECO; own calculations and forecasts.

9. GDP and its components

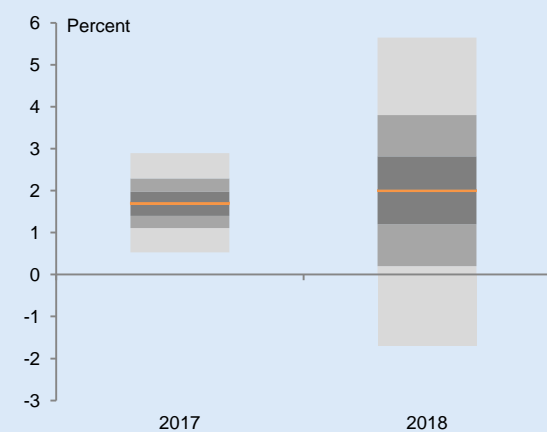
Table 9.1:
Quarterly data, 2016–2018

	2016				2017				2018			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	0.7	0.5	0.2	0.4	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Private consumption	0.7	0.4	0.5	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3
Government consumption	1.6	0.7	0.1	0.3	0.4	0.8	0.7	0.3	0.5	0.4	0.4	0.3
Machinery and equipment	0.9	-2.3	-0.5	-0.1	1.2	0.9	1.3	1.5	1.5	1.3	1.0	1.0
Constructions	2.1	-1.4	0.0	0.8	2.3	1.1	1.0	1.0	1.0	1.0	1.0	1.0
Other investment	0.9	0.7	0.6	0.3	0.8	0.8	0.8	0.8	0.8	0.7	0.6	0.6
Change in inventories	-0.4	0.0	0.3	0.4	-0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic expenditure	0.6	0.0	0.6	0.7	0.2	0.7	0.6	0.6	0.5	0.5	0.5	0.5
Exports	1.6	1.1	-0.3	1.7	1.3	1.5	1.0	1.1	1.3	1.2	1.3	1.3
Imports	1.5	0.2	0.6	2.5	0.4	1.8	1.3	1.4	1.4	1.4	1.3	1.3
Net exports	0.1	0.4	-0.4	-0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Employment (domestic)	43,396	43,507	43,642	43,832	44,035	44,155	44,275	44,395	44,510	44,620	44,720	44,810
Unemployment (registered)	2,729	2,703	2,679	2,646	2,583	2,536	2,510	2,491	2,462	2,437	2,412	2,387

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.

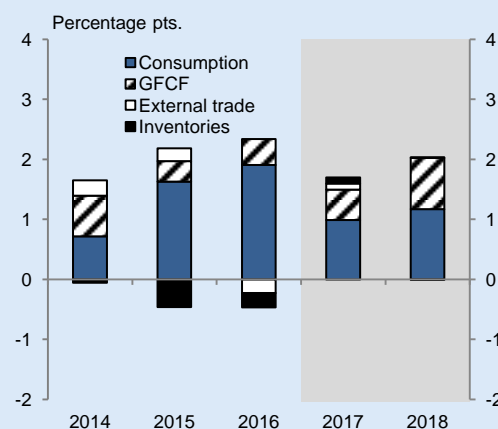
Figure 9.1:
Forecast intervals for GDP growth, 2017–2018



GDP: volumes, change over previous year. Point forecasts: orange lines. Forecast intervals gray 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 second quarter 1994–2016.

Source: Own calculations.

Figure 9.2:
Expenditure-side components to GDP growth, 2014–2018



Annual data; price-adjusted, Lundberg components.

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

10. The German economy, 2015–2018

	2016	2015	2016	2017	2018
	€ bn.	Change over previous year in percent			
GDP (constant prices)		1.7	1.9	1.7	2.0
Private consumption expenditure		2.0	2.1	1.1	1.5
Public consumption expenditure		2.8	4.0	1.9	1.8
Total fixed investment		1.7	2.2	2.6	4.2
Machinery and equipment		3.7	1.1	1.2	5.1
Construction		0.3	2.8	3.4	4.0
Other equipment		1.9	2.6	2.8	3.0
Changes in stocks		-0.5	-0.2	0.1	0.0
Domestic Demand		1.6	2.3	1.7	2.2
Exports		5.2	2.7	4.0	4.8
Imports		5.5	3.8	4.6	5.6
Net exports		0.2	-0.2	0.1	0.0
GDP (current prices)	3,134.1	3.7	3.3	2.8	3.9
Private consumption expenditure	1,681.5	2.6	2.8	2.7	3.0
Public consumption expenditure	615.3	4.0	5.4	3.7	3.4
Total fixed investment	626.1	3.2	3.7	4.6	6.6
Machinery and equipment	204.4	4.6	2.1	2.0	6.4
Construction	308.7	2.2	4.7	6.4	7.4
Other equipment	112.9	3.5	3.9	4.3	5.1
Changes in stocks (€ bn.)		-20.2	-27.6	-26.6	-27.4
Domestic Demand	2,895.3	2.6	3.3	3.4	3.9
Exports	1,442.2	6.3	1.7	5.9	5.5
Imports	1,203.5	3.9	1.2	7.9	5.8
Net exports (€ bn.)		229.5	238.8	228.0	236.6
Gross national income	3,198.7	3.7	3.2	2.7	3.8
Deflator of GDP		2.0	1.4	1.1	1.8
Private consumption expenditure		0.6	0.7	1.6	1.5
Public consumption expenditure		1.3	1.3	1.8	1.5
Investment in machinery and equipment		0.9	1.0	0.8	1.2
Investment in construction		1.9	1.8	3.0	3.3
Investment in other equipment		1.6	1.3	1.5	2.0
Exports		1.1	-1.0	1.8	0.7
Imports		-1.4	-2.5	3.2	0.2
<i>Addendum: Consumer prices</i>		0.2	0.5	1.7	1.7
Income distribution					
National income	2,339.2	3.8	3.4	2.5	4.1
Employment income	1,598.4	3.7	3.8	4.2	4.0
in percent of national income		68.0	68.3	69.5	69.4
Entrepreneurial and property income	740.8	4.2	2.4	-1.1	4.4
Disposable income of private households	1,813.9	3.1	2.9	2.7	3.0
Savings rate		9.7	9.7	9.6	9.5
Wages and salaries	1,311.0	3.9	4.0	4.3	4.2
Wage per hour		2.5	2.8	3.6	3.1
Unit labor costs		1.5	1.7	2.3	1.7
Productivity per hour		0.8	0.9	1.1	1.2
Unemployment (1,000)		2,793	2,689	2,529	2,424
Rate of unemployment (percent)		6.4	6.1	5.7	5.4
Total employment (1,000)		43,057	43,594	44,215	44,665
Public sector budget balance (€ bn.)		20.9	26.4	32.7	36.7
Public sector budget balance (in percent of GDP)		0.7	0.8	1.0	1.1
Public debts (in percent)		71.2	68.3	65.5	61.9

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: 2016 to 2018

Forecast period: 2016 to 2018							
	2016	2017	2018	2017		2018	
				H1	H2	H1	H2
1. Production							
Change over the same period of the preceding year in %							
Persons in employment	1.2	1.4	1.0	1.5	1.4	1.1	1.0
Hours worked	0.9	0.6	0.8	1.1	0.1	0.7	0.9
Hours worked by person in employment	- 0.3	- 0.8	- 0.2	- 0.3	- 1.2	- 0.4	0.0
Labor productivity ¹	0.9	1.1	1.2	0.5	1.6	1.3	1.2
Gross domestic product, price-adjusted	1.9	1.7	2.0	1.7	1.7	1.9	2.1

2. Use of gross domestic product at current prices

a) EUR bn.

Consumption expenditure	2 296.8	2 365.4	2 439.4	1 154.1	1 211.3	1 189.0	1 250.4
Private households ²	1 681.5	1 727.4	1 779.9	843.8	883.6	868.2	911.8
Government	615.3	638.0	659.5	310.3	327.7	320.8	338.7
Gross fixed capital formation	626.1	654.8	698.3	314.7	340.1	335.5	362.8
Machinery and equipment	204.4	208.4	221.8	99.3	109.1	105.5	116.3
Construction	308.7	328.6	352.8	158.1	170.4	169.7	183.1
Other products	112.9	117.8	123.7	57.3	60.5	60.3	63.5
Changes in inventories ³	- 27.6	- 26.6	- 27.4	- 4.5	- 22.1	- 4.3	- 23.1
Domestic expenditure	2 895.3	2 993.6	3 110.4	1 464.4	1 529.2	1 520.2	1 590.2
Net exports	238.8	228.0	236.6	120.0	108.0	124.3	112.3
Exports	1 442.2	1 526.9	1 610.3	755.6	771.3	794.6	815.7
Imports	1 203.5	1 298.9	1 373.7	635.6	663.4	670.3	703.4
Gross domestic product	3 134.1	3 221.5	3 347.0	1 584.4	1 637.1	1 644.5	1 702.5

b) Change over the same period of the preceding year in %

Consumption expenditure	3.5	3.0	3.1	3.0	3.0	3.0	3.2
Private households ²	2.8	2.7	3.0	2.8	2.7	2.9	3.2
Government	5.4	3.7	3.4	3.5	3.9	3.4	3.4
Gross fixed capital formation	3.7	4.6	6.6	3.6	5.5	6.6	6.7
Machinery and equipment	2.1	2.0	6.4	0.6	3.2	6.2	6.6
Construction	4.7	6.4	7.4	5.5	7.3	7.3	7.4
Other products	3.9	4.3	5.1	3.9	4.7	5.2	4.9
Domestic expenditure	3.3	3.4	3.9	3.4	3.4	3.8	4.0
Exports	1.7	5.9	5.5	6.0	5.8	5.2	5.8
Imports	1.2	7.9	5.8	8.7	7.2	5.5	6.0
Gross domestic product	3.3	2.8	3.9	2.6	3.0	3.8	4.0

3. Use of gross domestic product, price-adjusted (chain-linked, 2010=100)

a) EUR bn.

Consumption expenditure	2 123.8	2 152.5	2 186.8	1 056.6	1 095.9	1 074.0	1 112.9
Private households ²	1 572.5	1 590.6	1 614.7	779.2	811.4	790.7	824.0
Government	550.9	561.3	571.5	277.1	284.3	283.3	288.7
Gross fixed capital formation	567.2	581.6	606.0	280.4	301.2	292.2	313.8
Machinery and equipment	196.8	199.2	209.4	94.6	104.6	99.3	110.1
Construction	267.6	276.6	287.6	134.1	142.5	139.5	148.2
Other products	103.0	105.8	109.0	51.7	54.2	53.3	55.7
Domestic expenditure	2 655.6	2 701.6	2 760.2	1 333.1	1 368.4	1 362.0	1 398.2
Exports	1 389.1	1 445.2	1 514.3	716.3	728.9	748.7	765.6
Imports	1 200.6	1 255.7	1 325.9	614.1	641.6	648.3	677.7
Gross domestic product	2 843.4	2 891.7	2 950.2	1 434.9	1 456.7	1 462.8	1 487.4

b) Change over the same period of the preceding year in %

Consumption expenditure	2.6	1.4	1.6	1.3	1.4	1.6	1.6
Private households ²	2.1	1.1	1.5	1.1	1.2	1.5	1.6
Government	4.0	1.9	1.8	1.6	2.2	2.1	1.6
Gross fixed capital formation	2.2	2.6	4.2	1.8	3.3	4.2	4.2
Machinery and equipment	1.1	1.2	5.1	- 0.1	2.4	5.0	5.3
Construction	2.8	3.4	4.0	2.7	4.0	4.0	4.0
Other products	2.6	2.8	3.0	2.6	3.0	3.2	2.8
Domestic expenditure	2.3	1.7	2.2	1.7	1.7	2.2	2.2
Exports	2.7	4.0	4.8	4.1	4.0	4.5	5.0
Imports	3.8	4.6	5.6	4.7	4.5	5.6	5.6
Gross domestic product	1.9	1.7	2.0	1.7	1.7	1.9	2.1

National Accounts (cont.)

Forecast period: 2016 to 2018

	2016	2017	2018	2017		2018	
				H1	H2	H1	H2

4. Deflators (2010=100)

Change on the same period of the preceding year in %

Private consumption ²	0.7	1.6	1.5	1.6	1.5	1.4	1.6
Government consumption	1.3	1.8	1.5	1.9	1.6	1.3	1.8
Gross fixed capital formation	1.5	2.0	2.4	1.8	2.1	2.3	2.4
Machinery and equipment	1.0	0.8	1.2	0.8	0.8	1.2	1.2
Construction	1.8	3.0	3.3	2.7	3.2	3.2	3.3
Exports	- 1.0	1.8	0.7	1.8	1.7	0.6	0.7
Imports	- 2.5	3.2	0.2	3.8	2.6	- 0.1	0.4
Gross domestic product	1.4	1.1	1.8	0.9	1.2	1.8	1.8

5. National income

a) EUR bn.

Primary income of private households ²	2 188.0	2 256.4	2 331.7	1 111.4	1 145.0	1 147.5	1 184.2
Employers social contributions	287.3	297.6	307.2	144.2	153.4	148.8	158.4
Gross wages and salaries	1 311.0	1 367.4	1 424.2	652.9	714.4	679.7	744.5
Other primary income ⁴	589.6	591.4	600.2	314.2	277.2	318.9	281.3
Primary income of other sectors	458.7	459.2	491.7	212.5	246.7	227.6	264.1
Net national income	2 646.7	2 715.6	2 823.3	1 323.8	1 391.7	1 375.1	1 448.3
Consumption of fixed capital	552.0	569.4	587.6	283.1	286.3	292.2	295.4
Gross national income	3 198.7	3 285.0	3 410.9	1 606.9	1 678.0	1 667.2	1 743.7
memorandum item:							
Net national income (factor costs)	2 339.2	2 397.4	2 495.9	1 165.3	1 232.1	1 212.0	1 283.9
Property and entrepreneurial income	740.8	732.4	764.5	368.1	364.3	383.4	381.1
Compensation of employees	1 598.4	1 665.0	1 731.4	797.2	867.8	828.6	902.9

b) Change over the same period of the preceding year in %

Primary income of private households ²	3.3	3.1	3.3	3.2	3.1	3.2	3.4
Employers social contributions	2.9	3.6	3.2	3.8	3.4	3.2	3.3
Gross wages and salaries	4.0	4.3	4.2	4.5	4.1	4.1	4.2
... per employee	2.5	2.6	3.0	2.7	2.5	2.9	3.1
Other primary income ⁴	2.1	0.3	1.5	0.3	0.2	1.5	1.5
Primary income of other sectors	2.9	0.1	7.1	- 1.9	1.9	7.1	7.0
Net national income	3.3	2.6	4.0	2.3	2.9	3.9	4.1
Consumption of fixed capital	3.0	3.1	3.2	3.2	3.1	3.2	3.2
Gross national income	3.2	2.7	3.8	2.5	2.9	3.8	3.9
memorandum item:							
Net national income (factor costs)	3.4	2.5	4.1	2.1	2.9	4.0	4.2
Property and entrepreneurial income	2.4	- 1.1	4.4	- 2.5	0.3	4.2	4.6
Compensation of employees	3.8	4.2	4.0	4.4	4.0	3.9	4.0

6. Disposable income of private households ²

a) EUR bn.

Mass income	1 296.3	1 347.7	1 397.7	649.4	698.3	672.6	725.1
Net wages and salaries	868.7	905.4	942.6	428.2	477.2	445.5	497.1
Social benefits other than social transfers in kind	542.4	560.8	576.3	280.4	280.5	287.6	288.7
less: Levies on social benefits, taxes on consumption	114.8	118.5	121.2	59.2	59.3	60.5	60.7
Other primary income ⁴	589.6	591.4	600.2	314.2	277.2	318.9	281.3
Other transfers received (net) ⁵	- 72.0	- 76.7	- 79.6	- 38.8	- 37.8	- 40.4	- 39.3
Disposable income	1 813.9	1 862.4	1 918.3	924.7	937.7	951.2	967.2
Change in pension entitlements	48.5	48.9	49.3	24.2	24.7	24.4	24.9
Consumption expenditure	1 681.5	1 727.4	1 779.9	843.8	883.6	868.2	911.8
Saving	180.9	183.9	187.7	105.1	78.8	107.4	80.3
Saving ratio (%) ⁶	9.7	9.6	9.5	11.1	8.2	11.0	8.1

b) Change over the same period of the preceding year in %

Mass income	3.5	4.0	3.7	4.3	3.6	3.6	3.8
Net wages and salaries	3.8	4.2	4.1	4.5	4.0	4.0	4.2
Social benefits other than social transfers in kind	3.1	3.4	2.8	4.0	2.8	2.6	3.0
less: Levies on social benefits, taxes on consumption	3.9	3.3	2.2	4.3	2.3	2.0	2.4
Other primary income ⁴	2.1	0.3	1.5	0.3	0.2	1.5	1.5
Disposable income	2.9	2.7	3.0	2.7	2.6	2.9	3.1
Consumption expenditure	2.8	2.7	3.0	2.8	2.7	2.9	3.2
Saving	3.2	1.7	2.1	1.8	1.5	2.2	1.9

National Accounts (cont.)

Forecast period: 2016 to 2018

	2016	2017	2018	2017		2018	
				H1	H2	H1	H2

7. Revenue and expenditure by general government ⁷

a) EUR bn.

Revenue							
Taxes	731.8	759.5	788.1	381.1	378.4	395.3	392.8
Social contributions	523.3	546.3	567.1	265.1	281.3	274.9	292.2
Property income	19.3	18.4	19.1	9.4	9.1	10.2	8.9
Other current transfers	20.3	21.0	21.3	9.9	11.1	9.9	11.4
Capital transfers	15.4	11.2	10.5	5.6	5.6	5.2	5.3
Sales	104.5	106.4	109.3	50.0	56.4	50.9	58.5
Other subsidies	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Total	1 414.7	1 463.0	1 515.6	721.0	741.9	746.5	769.1
Expenditure							
Intermediate consumption ⁸	418.4	434.2	449.6	209.6	224.6	216.7	233.0
Compensation of employees	236.7	243.3	250.3	116.9	126.3	120.1	130.2
Property income (interest)	43.2	41.0	39.4	20.5	20.5	19.7	19.7
Subsidies	27.0	26.9	27.1	13.1	13.8	13.2	13.9
Social benefits	487.3	505.0	519.3	252.6	252.3	259.3	260.0
Other current transfers	75.5	74.4	86.4	39.4	35.0	45.4	41.0
Capital transfers	35.4	40.2	34.7	14.0	26.2	15.1	19.6
Gross capital formation	66.3	70.4	74.0	30.2	40.1	31.8	42.2
Net acquisitions of non-produced non-financial assets	- 1.3	- 5.2	- 1.9	- 4.4	- 0.8	- 1.1	- 0.8
Total	1 388.4	1 430.2	1 479.0	692.1	738.1	720.2	758.8
Net lending	26.3	32.7	36.7	28.9	3.8	26.4	10.3

b) Change over the same period of the preceding year in %

Revenue							
Taxes	4.5	3.8	3.8	4.5	3.1	3.7	3.8
Social contributions	4.5	4.4	3.8	4.6	4.2	3.7	3.9
Property income	- 11.6	- 4.6	3.8	- 6.7	- 2.3	9.1	- 1.7
Other current transfers	4.2	3.4	1.3	4.4	2.5	0.0	2.5
Capital transfers	26.2	- 27.1	- 5.8	- 25.9	- 28.3	- 6.6	- 4.9
Sales	4.2	1.8	2.8	1.7	1.8	1.8	3.6
Other subsidies	- 12.4	2.0	0.0	4.6	0.0	0.0	0.0
Total	4.4	3.4	3.6	3.9	3.0	3.5	3.7
Expenditure							
Intermediate consumption ⁸	6.7	3.8	3.5	3.3	4.2	3.4	3.7
Compensation of employees	3.5	2.8	2.9	2.9	2.6	2.7	3.0
Property income (interest)	- 8.6	- 5.1	- 3.9	- 3.6	- 6.6	- 3.9	- 3.9
Subsidies	- 1.7	- 0.5	0.8	- 1.7	0.7	0.8	0.8
Social benefits	3.5	3.6	2.8	4.4	2.9	2.6	3.1
Other current transfers	0.3	- 1.4	16.1	- 1.1	- 1.8	15.2	17.1
Capital transfers	19.0	13.8	- 13.8	- 14.9	38.9	7.3	- 25.1
Gross capital formation	3.1	6.2	5.1	4.9	7.2	5.0	5.3
Net acquisitions of non-produced non-financial assets	- 27.3	284.9	- 63.9	718.2	0.0	- 75.8	0.0
Total	4.1	3.0	3.4	2.1	3.9	4.0	2.8

¹ Price-adjusted gross domestic product per hour worked.

² Incl. non-profit institutions serving households.

³ Incl. acquisitions less disposals of valuables.

⁴ Operating surplus/mixed income, net property income

⁵ Received less paid other current transfers.

⁶ Savings in percent of disposable income (incl. change in pension entitlements).

⁷ Central, regional, local and social security funds.

⁸ Incl. social transfers in kind and other production taxes.

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