

KIEL INSTITUTE **ECONOMIC OUTLOOK**

German Economy Winter 2016

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EXPANSION IS SET TO CONTINUE

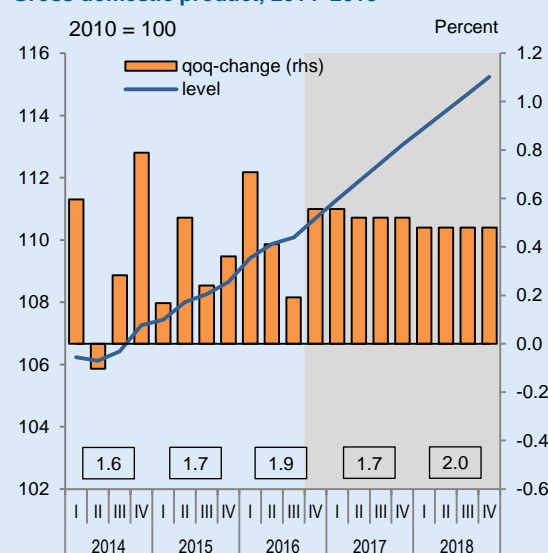
Jens Boysen-Hogrefe, Salomon Fiedler, Dominik Groll, Nils Jannsen, Stefan Kooths, Martin Plödt, and Galina Potjagailo

The expansion in Germany is set to continue despite headwinds from abroad. We leave our forecast as of autumn unchanged and expect GDP to grow by 1.9 percent in 2016 and by 1.7 percent in 2017. The effects of the Brexit-vote on the German economy will be modest in this period. The long-run effects of the presidential election in the United States and the Italian referendum are difficult to gauge. In the short run the impact on the German economy will most likely be small. Against this backdrop, we expect exports to regain some momentum and to support the economic upswing in Germany. However, domestic drivers remain the dominant factors. Construction activity will grow with high rates as financing conditions remain very accommodative. Private consumption expenditures are fueled by high growth rates in private income due to the strong labor market and expanding public transfer payments. However, growth in private consumption is expected to decelerate somewhat over the next two years. With dampening effects of the oil price slump phasing out inflation accelerates and weighs on real disposable income of private households. In 2018, we expect consumer price inflation to be close to 2 percent, after 0.5 percent in the current year. Business investment will regain momentum as the weakness in the second and the third quarter reflected temporary factors, such as the uncertain international environment dampening investment activity of export-oriented firms in particular. Moreover, the general environment for business investment is still favorable with the business outlook being good and with capacity utilization above normal levels. General government budget balance will remain in positive territory close to 0.5 percent relative to GDP, with both expenditures and revenues increasing strongly over the entire forecast period. The labor market remains in good shape. By 2018, we expect employment to have increased to 44.5 million and the unemployment rate approaching 5.5 percent.

The upswing in Germany regains momentum. In the third quarter GDP increased by 0.2 percent (Figure 1). This deceleration in GDP growth was mainly due to declines in exports and in investment in machinery and equipment. Going forward, leading indicators signal strong increases in GDP in the coming quarters. Business sentiment has considerably increased in recent months. In the construction sector and the service sector business sentiment is close to all-time highs. New industry orders and retail sales strongly increased in October. Unfilled orders in the construction sector and building permissions are also at very high levels. However, industrial production and exports increased only moderately in October after pronounced fluctuations due to calendar effects. Overall, we expect GDP to grow by 0.6 percent in the fourth quarter and at a similar pace in subsequent quarters.

The Brexit vote will only moderately dampen GDP growth in Germany. The Brexit vote influences GDP growth in the short run mainly via the trade channel

Figure 1:
Gross domestic product, 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.

and via an increase in uncertainty that may dampen business investment. In the third quarter, nominal exports to the UK declined by 3 percent the main reason being the depreciation of the pound sterling whereas GDP in the UK grew solidly by 0.5 percent in the third quarter. Even though we have revised our forecast for UK GDP growth upwards, we still expect the Brexit vote to dampen German GDP growth to some extent. Given that the pound sterling has further depreciated since our last forecast, we leave our estimate of the effect of the Brexit vote on German exports by and large unchanged. By the end of 2018 German exports to the UK are expected to be about 10 percent lower and overall German exports less than 1 percent lower due to the Brexit vote. Taking into account the lower demand for imported intermediate goods, we expect the Brexit vote to dampen German GDP via the bilateral trade channel by about 0.25 percent until the end of 2018. While an increase in uncertainty probably has contributed to the weakness in business investment in Germany in the past two quarters, the contribution of the Brexit vote to increased uncertainty seems to be limited and concentrated on the third quarter. Overall, we continue to expect that the Brexit vote will affect economic activity in Germany only mildly. In the next year it might subtract about 0.2 percentage points from German GDP growth. By the end of 2018, the overall negative impact on the GDP level is expected to be below 0.5 percent.

German foreign trade is expected to pick up after temporary weakness. After a slight decline in the third quarter, exports are expected to grow again towards the end of the year. Export expectations of German firms strongly increased in October and, despite a partial correction in November, are at higher levels now than last summer. Also production expectations in German export markets, an early indicator of foreign demand for German exports, showed pronounced increases during the past months. We anticipate exports to expand at a moderate pace throughout the forecast period, backed by the economic upswing in the United States, the ongoing recovery in the Euro area, and the improved outlook for emerging markets, on the one hand, and by the expected moderate improvement of German price competitiveness, on the other hand. German imports will see a marked improvement as well and will increase at rather high rates, driven by the vivid domestic economy and by the expansion in exports.

Consumer price inflation will increase in the coming years. In the current and previous year, the most important factor behind the low inflation rate was the slump in oil prices. By now, oil prices have stabilized and are expected to rise over the forecasting period. At the same time, the output gap is now by and large closed and will open in the next years as we expect GDP to expand faster than potential output. These factors will increasingly put upward pressure on prices. After a rise in consumer prices of 0.5 percent this year, we expect inflation to accelerate to 1.5 percent in 2017 and 1.8 percent in 2018.

Economic growth continues to be driven by the domestic economy. Construction investment will increase with high rates in the forecast period and is expected to accelerate from a growth rate of about 3 percent in the current year to about 4 percent in 2018. Residential investment will be a key driver of construction investment as market conditions are very accommodative due to favorable financing conditions, the good shape of the labor market, and the increasing need for additional living space. After an increase by about 2 percent in the past and in the current year, growth in private consumption is expected to decelerate somewhat to about 1.5 percent in the upcoming two years. However, these growth rates are still high in historical comparison. The main reason for the deceleration is the increase in inflation that will weigh on real disposable income of private households. Inflation is expected to pick up from 0.5 percent in 2016 to close to 2 percent in 2018 as the dampening effects of the oil price slump will phase out (Table 1). Business investment was weak in the past two quarters, partly because higher uncertainty resulting from international developments worsened the investment climate for export-oriented firms. However, the general environment for

business investment is still good with business expectations being optimistic and capacity utilization above normal levels. Therefore, we expect business investment to gain momentum again in the forecast period.

Employment growth is expected to return to robust rates after a slowdown in recent months, as labor market conditions remain very favorable. Employment growth has unexpectedly slowed in the second and third quarter, which is mainly due to a decline of social security jobs in the manufacturing sector, trade sector and financial and insurance services. Nonetheless, general labor market conditions remain very favorable. Leading indicators, such as job vacancies and employment plans of businesses, have further improved. Given the projected economic upswing, favorable nominal wages compared to prices and productivity, and the immigration-related increase in labor supply, we expect employment to robustly grow by 390,000 persons (2017) and 510,000 persons (2018). While the number of refugees without a job has risen significantly in 2016, most of them are not registered as unemployed since they are increasingly participating in integration courses and in active labor market measures, during which they are not counted as unemployed. We expect the overall unemployment rate to decline further in 2017 and 2018, albeit less than proportional compared to employment growth.

Government revenues and expenditures are forecast to expand with high growth rates. A hike in corporate tax revenues led to a strong increase in revenues in 2016. Due to spending related to the refugee inflow and a strong increase in pensions public expenditures increased even faster and led to a lower budget surplus compared to 2015. In 2017, both revenues and expenditures will slow down a bit. Tax revenues will expand less dynamically after the hike in 2016 because of lower income tax rates. Expenditures will slow down as impulses from spending for refugees will end and because the auction of frequency allocation licenses will negatively affect the expenditure side. The budget balance will stay almost unchanged. In 2018, the business cycle upswing is expected to boost revenues that will outpace expenditures despite of substantially higher EU contributions. Hence, the budget balance is projected to increase to roughly 15 billion euros.

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	1.2	2.0
Consumer prices	0.2	0.5	1.5	1.8
Labor productivity (per hour worked)	0.8	1.2	1.3	1.0
Employment (1,000 persons)	43,057	43,495	43,881	44,390
Unemployment rate (percent)	6.4	6.1	5.9	5.6
<i>in relation to nominal GDP</i>				
Public sector net lending	0.7	0.5	0.4	0.5
Gross public debt	71.2	68.2	65.8	62.7
Current account balance	8.4	8.7	8.2	8.2

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.

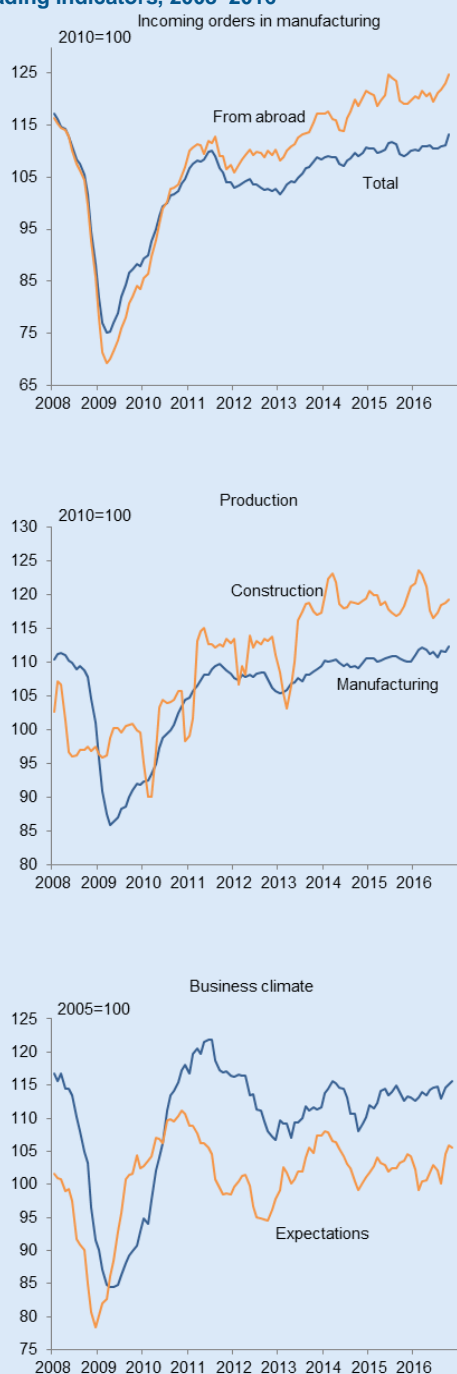
Data annex

CONTENTS

1. Leading indicators	6
2. Monetary conditions and prices	7
3. External trade.....	10
4. Domestic expenditure.....	12
5. Industries.....	14
6. Wages.....	15
7. Employment.....	16
8. Public finances.....	17
9. GDP and its components	18
10. The German economy, 2015–2018	19
11. National accounts	20

1. Leading indicators

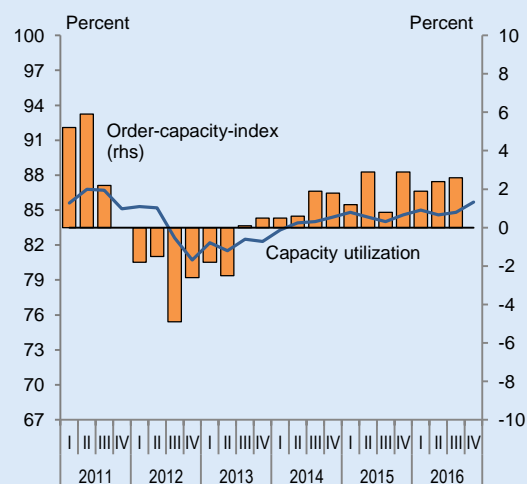
Figure 1.1:
Leading indicators, 2008–2016



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

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

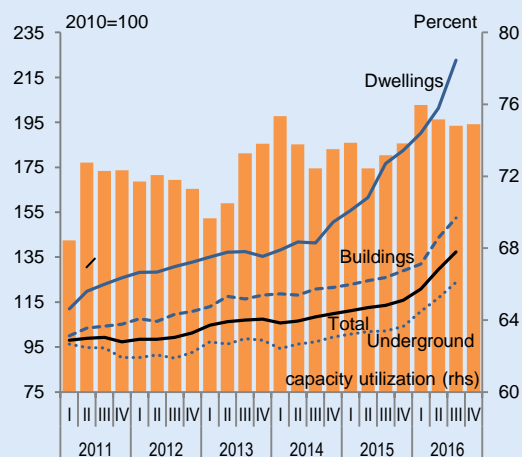
Figure 1.2:
Capacity utilization, 2011–2016



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, 2011–2016

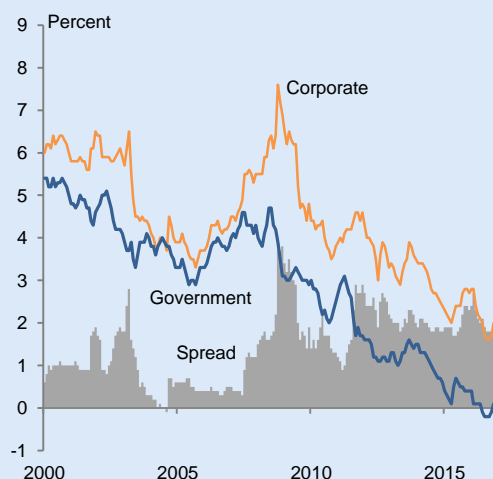


Quarterly data. Capacity utilization: seasonally adjusted (2014-Q4: october/november); order stocks: price, seasonally and working-day adjusted.

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

2. Monetary conditions and prices

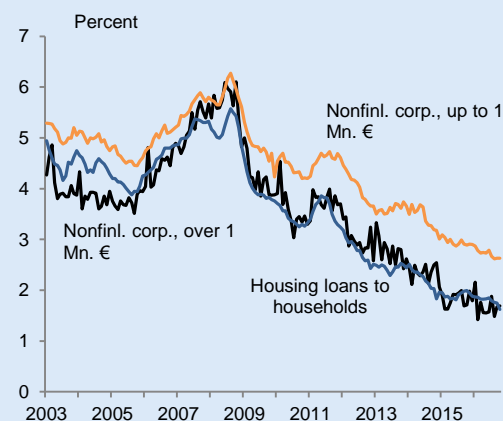
Figure 2.1:
Bond yields, 2000–2016



Monthly data, average maturities above three years.

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

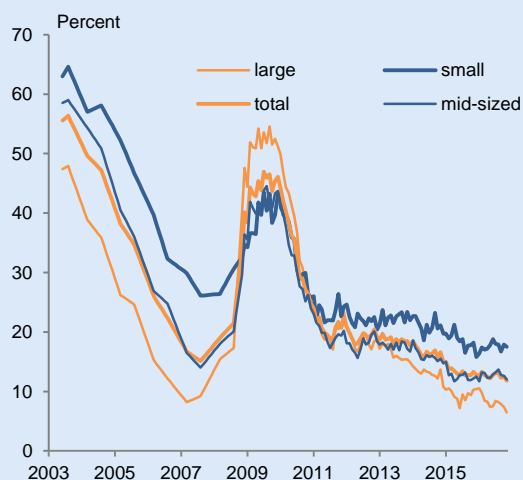
Figure 2.2:
Loan interest, 2003–2016



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

Source: Deutsche Bundesbank, *MFI interest rate statistics*.

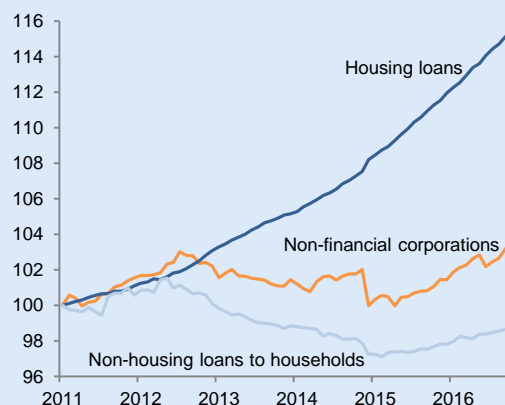
Figure 2.3:
Credit constraints by firm size, 2003–2016



Monthly data since November 2008; share of firms (manufacturing sector) assessing that credit access is restrictive.

Source: ifo, *Credit Constraint Indicator*.

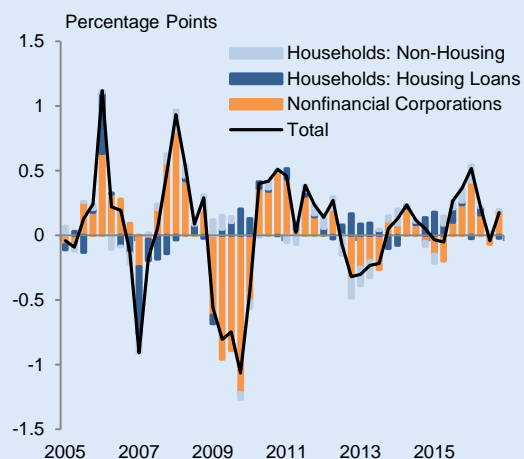
Figure 2.4:
Sum of loans, 2011–2016



Index: Jan 2011=100; Monthly data.

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

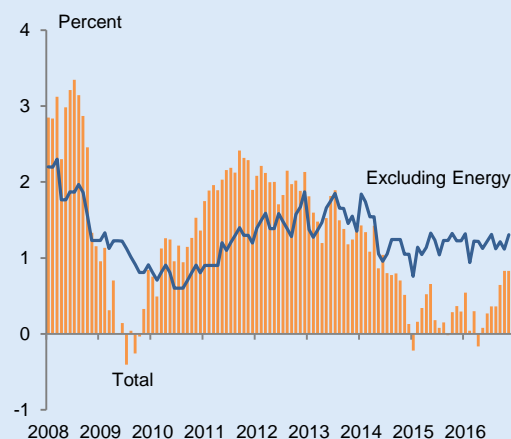
Figure 2.5:
Credit impulse, 2005–2016



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.

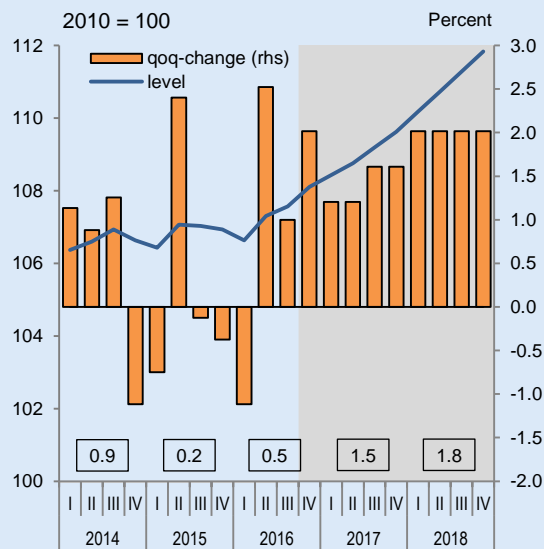
Figure 2.6:
Consumer prices, 2008–2016



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

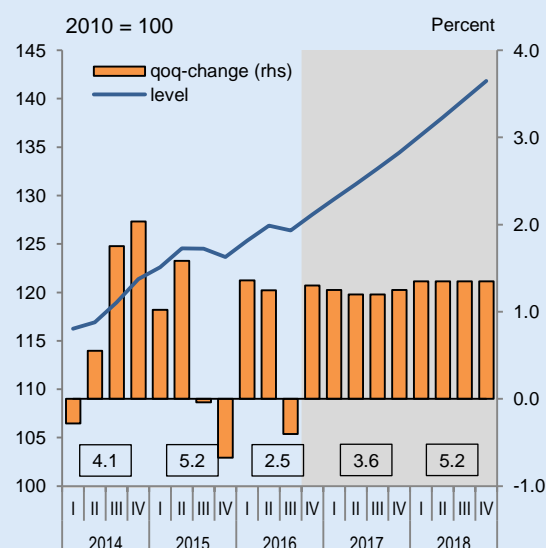
	2015				2016				2017				2018			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
ECB key interest rate	0.05	0.05	0.05	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Long-term interest rate	0.4	0.5	0.5	0.5	0.1	0.0	-0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.8	0.9
US-dollar/euro exchange rate	1.13	1.10	1.12	1.09	1.10	1.13	1.12	1.07	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Price competitiveness	83.1	82.5	83.5	83.5	84.3	84.6	84.7	84.6	84.3	84.0	83.8	83.6	83.6	83.6	83.5	83.5
Export markets	0.6	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
Oil price	54.1	62.1	47.0	50.4	35.3	46.8	47.0	50.5	52.0	52.6	53.2	53.8	54.5	55.0	55.5	56.0

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

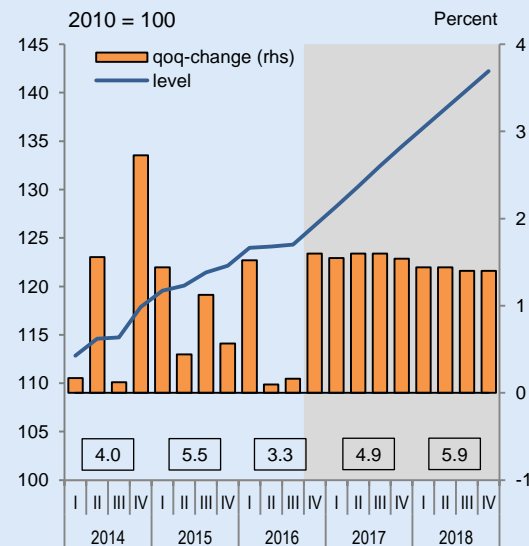
Figure 3.1:
Exports, 2014–2018



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.

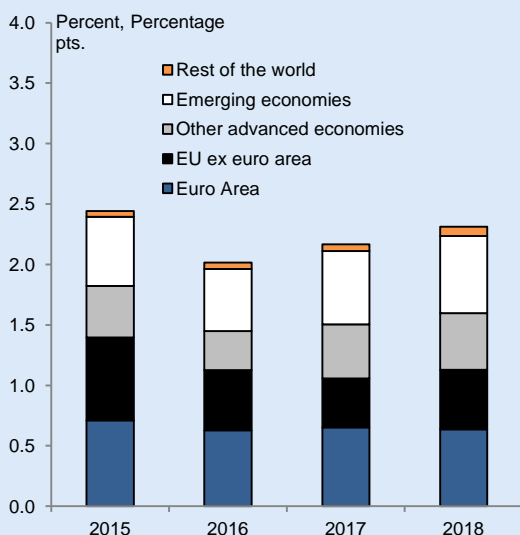
Figure 3.2:
Imports, 2014–2018



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.

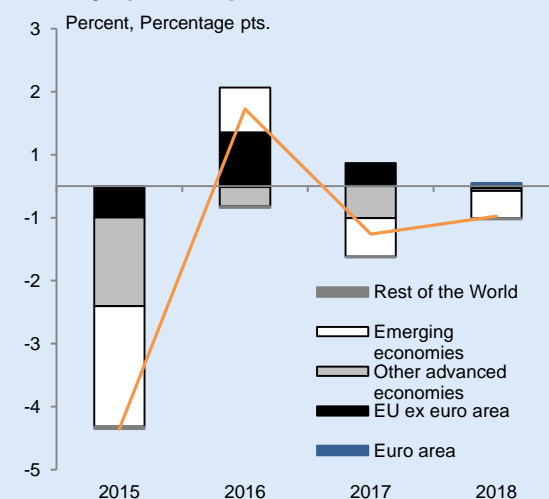
Figure 3.3:
German export markets, 2015–2018



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, 2008–2016

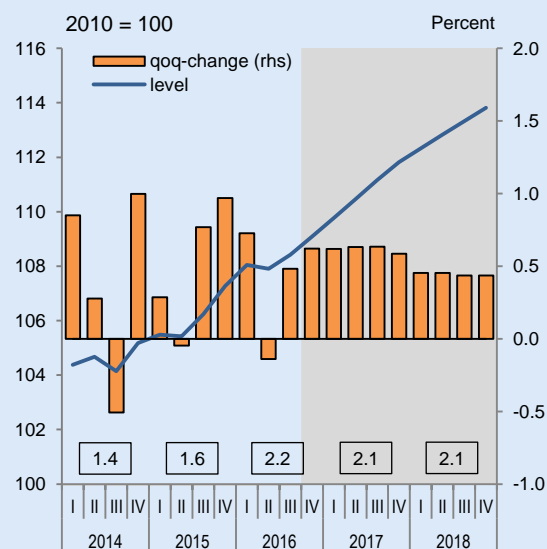


Quarterly data; exports, industrial production, order inflow: volumes, change on previous year; export expectations, foreign orders on hand: volumes; business expectations, industrial production: based on 41 countries weighted by shares of German exports.

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

4. Domestic expenditure

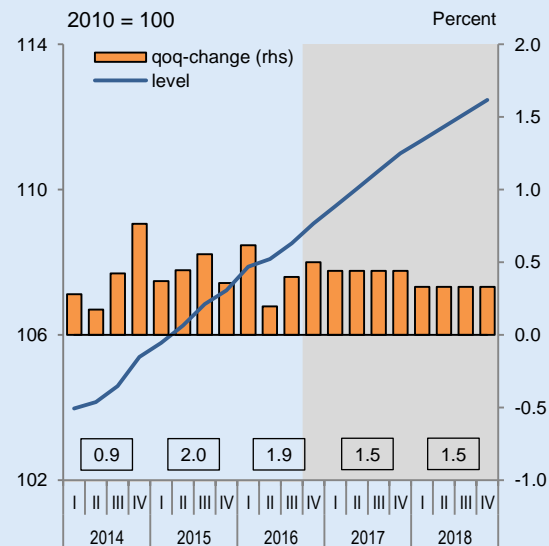
Figure 4.1:
Domestic expenditure, 2014–2018



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.

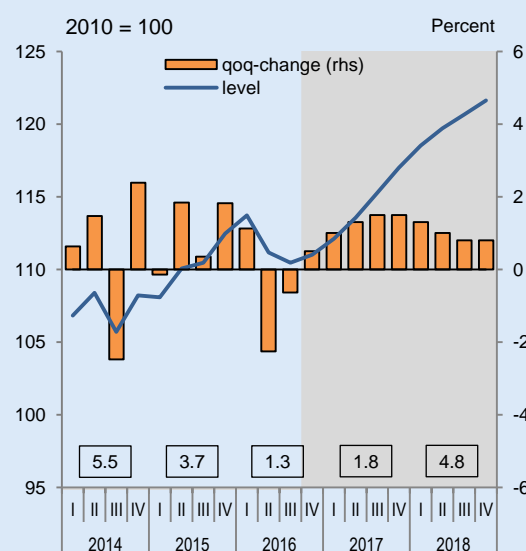
Figure 4.2:
Private consumption, 2014–2018



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.

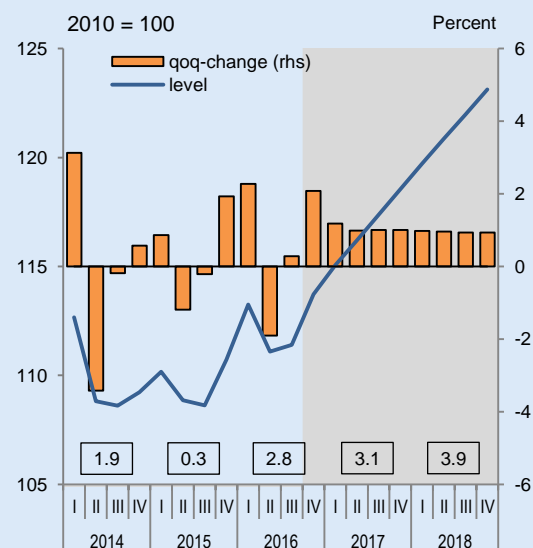
Figure 4.3:
M&E investments, 2014–2018



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.

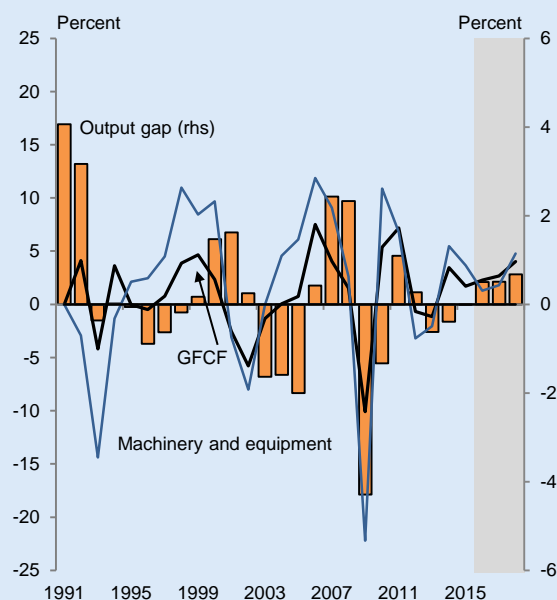
Figure 4.4:
Construction, 2014–2018



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.

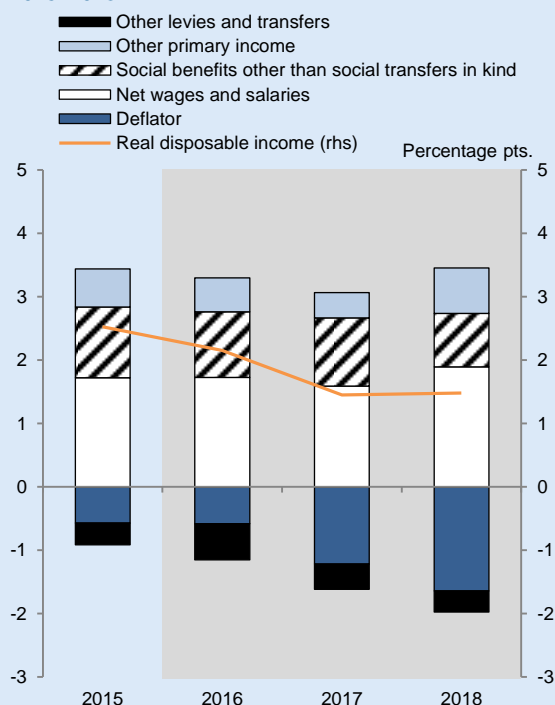
Figure 4.5:
Investment cycles, 1991–2018



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, 2015–2018



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

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	2.3	2.7	4.0
Corporate investment	2.0	1.3	1.8	3.7
Machinery and equipment	3.7	1.3	1.8	4.8
Construction (non-dwellings)	-1.8	-0.5	-0.1	2.3
Other	1.9	2.7	3.1	2.9
Dwellings	1.5	4.1	4.4	5.1
Public (non-dwellings)	-0.4	4.3	3.5	1.7
Memorandum item:				
Construction	0.3	2.8	3.1	3.9

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, 2016–2017

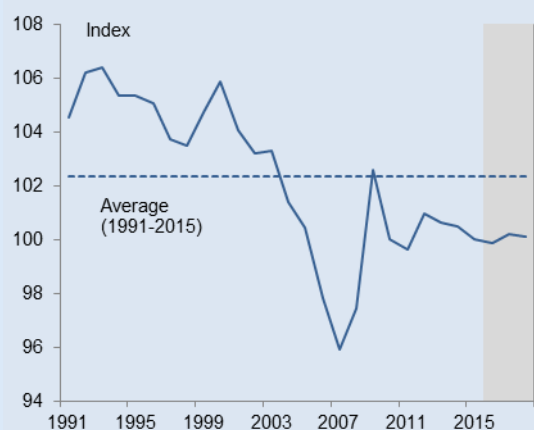
	2016			2017		
	II	III	IV	I	II	III
<i>Seasonally and calendar adjusted, quarter-on-quarter change in percent</i>						
Gross domestic product	0.4	0.2	0.6	0.6	0.5	0.5
Gross value added	0.4	0.1	0.6	0.6	0.5	0.5
Industry excluding construction	0.0	0.4	0.4	0.5	0.6	0.6
Manufacturing	-0.2	0.3	0.4	0.5	0.6	0.6
Construction	-0.7	0.2	1.7	1.2	1.0	1.0
Trade, transport, accommodation, and food services	0.5	-0.2	0.8	0.7	0.6	0.6
Information and communication	1.6	0.3	1.3	1.5	1.5	1.4
Financial and insurance services	-0.9	1.0	0.3	0.1	0.0	0.0
Real estate activities	0.5	-0.3	0.4	0.4	0.4	0.4
Business services	1.5	-0.3	0.5	0.6	0.7	0.7
Public services, education, health	0.2	0.5	0.2	0.3	0.3	0.3
Other services	1.3	-0.1	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



Yearly data; compensation of employees per hour (nominal) in relation to gross value added per hour (nominal).

Source: Federal Employment Agency, *Fachserie 18, Series 1.2*; shaded: IfW forecast.

Table 6.1:
Wages and productivity, 2015–2018

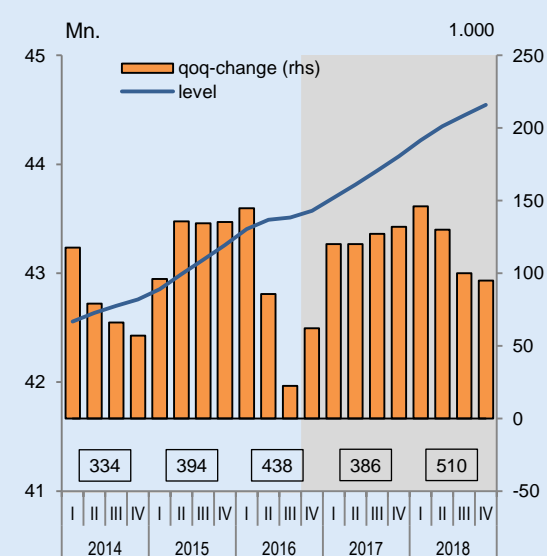
	2015	2016	2017	2018
<i>Per hour</i>				
Negotiated wages	2.3	2.1	2.2	2.5
Gross wages and salaries	2.5	2.6	3.1	3.0
Wage drift	0.2	0.5	0.9	0.5
Compensation of employees	2.3	2.4	2.9	2.8
Labor productivity	0.8	1.2	1.3	1.0
Unit labor costs	1.5	1.2	1.6	1.8
Unit labor costs (real)	-0.4	-0.2	0.4	-0.1
<i>Per capita</i>				
Negotiated wages	2.3	2.0	2.2	2.5
Gross wages and salaries	2.7	2.4	2.5	2.9
Wage drift	0.4	0.4	0.2	0.4
Compensation of employees	2.4	2.2	2.4	2.7
Labor productivity	0.8	0.9	0.8	0.8
Unit labor costs	1.6	1.4	1.6	1.9
Unit labor costs (real)	-0.3	0.0	0.4	-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.

7. Employment

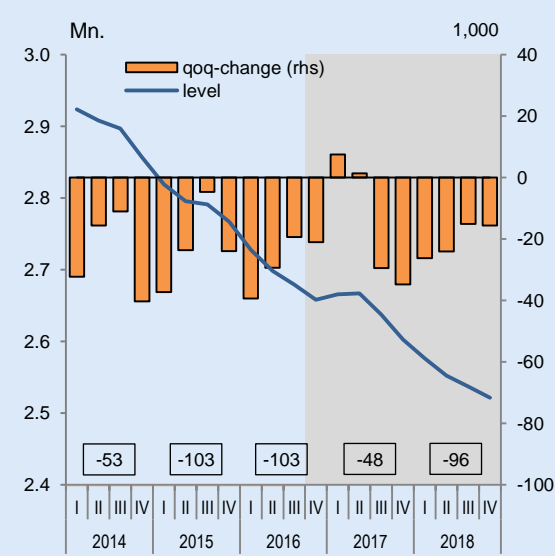
Figure 7.1:
Employment, 2014–2018



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	59,290	59,498	60,083
Persons in employment (domestic concept)	42,663	43,057	43,495	43,881	44,390
Self-employed	4,402	4,336	4,298	4,279	4,259
Employees (domestic concept)	38,261	38,721	39,197	39,601	40,131
Employees subject to social security contributions	30,219	30,853	31,384	31,785	32,315
Minijobs	5,028	4,849	4,805	4,787	4,787
Net commuting	61	78	82	80	80
Persons in employment (national concept)	42,602	42,979	43,413	43,800	44,310
Employees (national concept)	38,200	38,644	39,115	39,521	40,051
Unemployed persons (registered)	2,896	2,793	2,691	2,643	2,547
Unemployment rate (registered; percent)	6.7	6.4	6.1	5.9	5.6
Unemployment rate (ILO; percent)	4.7	4.3	4.0	3.7	3.1

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	1,405.0	1,446.8	1,500.8
➤ relative to GDP	44.7	44.7	44.9	44.8	44.7
Taxes	668.6	700.0	727.5	749.3	777.8
➤ relative to GDP	22.9	23.1	23.2	23.2	23.1
Social contributions	482.0	500.8	521.0	541.0	563.9
➤ relative to GDP	16.5	16.5	16.6	16.8	16.8
Other revenues	156.1	154.0	156.5	156.4	159.1
➤ relative to GDP	5.3	5.1	5.0	4.8	4.7
Expenditures	1,298.2	1,333.9	1,390.9	1,433.6	1,485.4
➤ relative to GDP	44.4	44.0	44.4	44.4	44.2
Compensation of employees	224.1	228.6	235.8	243.1	250.2
Intermediate consumption	134.3	139.5	150.7	153.5	157.3
Social transfers in kind	240.0	252.4	269.5	284.4	296.8
Gross capital formation	60.9	64.3	66.7	70.5	73.5
Capital transfers	52.0	47.3	43.4	40.2	38.4
Social benefits	452.5	471.0	488.9	507.3	521.9
Subsidies	26.0	27.5	28.5	29.3	30.1
Other current transfers	72.3	75.2	75.4	78.3	86.6
Other capital transfers and investment grants	37.2	29.7	33.1	31.9	31.9
Other expenditures	-1.4	-1.8	-1.2	-5.0	-1.4
Net lending/net borrowing	8.6	20.9	14.1	13.2	15.3
➤ relative to GDP	0.3	0.7	0.4	0.4	0.5
Revenues of central, state, and local governments	852.1	881.0	912.3	934.7	966.5
Net of transfers from social security funds	851.0	880.0	911.2	933.7	965.5
Transfers from social security funds	1.1	1.1	1.0	1.0	1.0
Expenditures of central, state, and local governments	846.5	862.2	902.5	922.4	956.2
Net of transfers to social security funds	744.7	758.0	793.2	808.1	838.7
Transfers to social security funds	101.8	104.2	109.3	114.3	117.5
Net lending/net borrowing central, state, and local government	5.5	18.8	9.8	12.3	10.3
Revenues of social security funds	557.6	579.1	603.1	627.4	652.8
Net of transfers from central, state, and local governments	455.8	474.9	493.8	513.1	535.3
Expenditures of social security funds	554.6	577.0	598.8	626.6	647.8
Net of transfers to central, state, and local governments	553.5	575.9	597.8	625.5	646.7
Net lending/net borrowing social security funds	3.0	2.1	4.3	0.9	5.0

Sums may deviate due to rounding.

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

9. GDP and its components

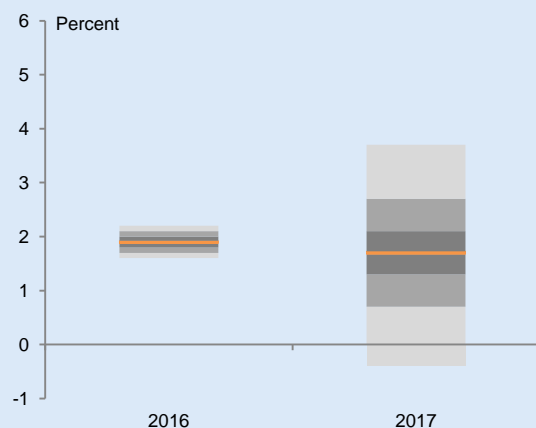
Table 9.1:
Quarterly data, 2016–2018

	2016				2017				2018			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	0.7	0.4	0.2	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Private consumption	0.6	0.2	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
Government consumption	1.1	1.2	1.0	0.1	0.6	0.8	0.7	0.3	0.2	0.3	0.3	0.4
Machinery and equipment	1.1	-2.3	-0.6	0.5	1.0	1.3	1.5	1.5	1.3	1.0	0.8	0.8
Constructions	2.3	-1.9	0.3	2.1	1.2	1.0	1.0	1.0	1.0	1.0	0.9	0.9
Other investment	0.9	0.7	0.6	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6
Change in inventories	-0.2	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic expenditure	0.7	-0.1	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.4	0.4
Exports	1.4	1.2	-0.4	1.3	1.3	1.2	1.2	1.2	1.3	1.3	1.3	1.3
Imports	1.5	0.1	0.2	1.6	1.5	1.6	1.6	1.5	1.4	1.4	1.4	1.4
Net exports	0.0	0.5	-0.3	0.0	0.0	-0.1	-0.1	0.0	0.1	0.1	0.1	0.1
Employment (domestic)	43,404	43,490	43,512	43,574	43,694	43,814	43,941	44,073	44,219	44,349	44,449	44,544
Unemployment (registered)	2,728	2,698	2,679	2,658	2,665	2,667	2,637	2,603	2,576	2,552	2,537	2,521

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.

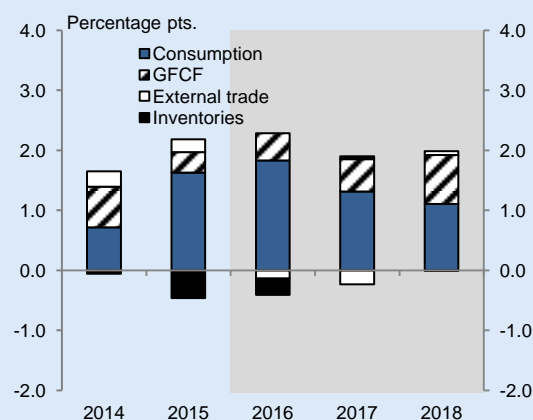
Figure 9.1:
Forecast intervals for GDP growth, 2016–2017



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 fourth quarter 1994–2015.

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	1.9	1.5	1.5
Public consumption expenditure		2.8	4.1	2.5	1.5
Total fixed investment		1.7	2.3	2.7	4.0
Machinery and equipment		3.7	1.3	1.8	4.8
Construction		0.3	2.8	3.1	3.9
Other equipment		1.9	2.7	3.1	2.9
Changes in stocks		-0.5	-0.3	0.0	0.0
Domestic Demand		1.6	2.2	2.1	2.1
Exports		5.2	2.5	3.6	5.2
Imports		5.5	3.3	4.9	5.9
Net exports		0.2	-0.1	-0.2	0.1
GDP (current prices)	3,132.4	3.7	3.3	2.9	4.0
Private consumption expenditure	1,677.3	2.6	2.5	2.8	3.2
Public consumption expenditure	617.1	4.0	5.7	4.1	3.5
Total fixed investment	626.5	3.2	3.7	4.8	6.4
Machinery and equipment	204.4	4.6	2.1	2.7	6.0
Construction	309.0	2.2	4.7	6.0	7.1
Other equipment	113.1	3.5	4.1	5.1	5.2
Changes in stocks (€ bn.)		-20.2	-30.3	-29.2	-29.0
Domestic Demand	2,890.5	2.6	3.1	3.6	4.0
Exports	1,437.9	6.3	1.3	4.4	6.0
Imports	1,196.0	3.9	0.6	6.2	6.4
Net exports (€ bn.)		229.5	241.9	231.0	239.6
Gross national income	3,198.9	3.7	3.2	2.9	3.9
Deflator of GDP		2.0	1.4	1.2	2.0
Private consumption expenditure		0.6	0.6	1.2	1.6
Public consumption expenditure		1.3	1.6	1.6	2.0
Investment in machinery and equipment		0.9	0.8	0.9	1.2
Investment in construction		1.9	1.9	2.8	3.1
Investment in other equipment		1.6	1.3	2.0	2.2
Exports		1.1	-1.1	0.8	0.8
Imports		-1.4	-2.6	1.3	0.4
<i>Addendum: Consumer prices</i>		0.2	0.5	1.5	1.8
Income distribution					
National income	2,340.6	3.8	3.4	2.9	4.3
Employment income	1,593.3	3.7	3.5	3.4	4.1
in percent of national income		68.0	68.1	68.4	68.3
Entrepreneurial and property income	747.3	4.2	3.3	1.8	4.7
Disposable income of private households	1,811.0	3.1	2.7	2.7	3.1
Savings rate		9.7	9.8	9.7	9.6
Wages and salaries	1,306.8	3.9	3.7	3.5	4.3
Wage per hour		2.5	2.6	3.1	3.0
Unit labor costs		1.5	1.2	1.6	1.8
Productivity per hour		0.8	1.2	1.3	1.0
Unemployment (1,000)		2,793	2,691	2,643	2,547
Rate of unemployment (percent)		6.4	6.1	5.9	5.6
Total employment (1,000)		43,057	43,495	43,881	44,390
Public sector budget balance (€ bn.)		20.9	14.2	13.2	15.3
Public sector budget balance (in percent of GDP)		0.7	0.5	0.4	0.5
Public debts (in percent)		71.2	68.2	65.8	62.7
Change in stocks, net exports: contribution to GDP growth.					
Source: Federal Statistical Office, <i>Fachserie 18</i> , Series 1.2; shaded: IfW forecast.					

11. National accounts

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	1.0	0.9	1.2	0.7	1.1	1.2	1.1
Hours worked	0.7	0.4	1.0	0.6	0.1	0.9	1.1
Hours worked by person in employment	- 0.3	- 0.5	- 0.2	- 0.1	- 0.9	- 0.3	0.0
Labor productivity ¹	1.2	1.3	1.0	1.1	1.5	1.0	1.0
Gross domestic product, price-adjusted	1.9	1.7	2.0	1.7	1.6	1.9	2.1

2. Use of gross domestic product at current prices

a) EUR bn.

Consumption expenditure	2 294.4	2 366.3	2 443.5	1 152.9	1 213.4	1 190.6	1 252.9
Private households ²	1 677.3	1 723.9	1 778.9	841.5	882.4	867.4	911.5
Government	617.1	642.4	664.6	311.4	330.9	323.2	341.4
Gross fixed capital formation	626.5	656.2	698.3	314.7	341.5	335.5	362.8
Machinery and equipment	204.4	210.0	222.6	99.8	110.2	106.1	116.4
Construction	309.0	327.4	350.7	157.1	170.3	168.4	182.2
Other products	113.1	118.9	125.0	57.7	61.1	60.9	64.1
Changes in inventories ³	- 30.3	- 29.2	- 29.0	- 4.1	- 25.1	- 4.4	- 24.6
Domestic expenditure	2 890.5	2 993.3	3 112.8	1 463.5	1 529.9	1 521.7	1 591.1
Net exports	241.9	231.0	239.6	123.4	107.6	125.3	114.4
Exports	1 437.9	1 501.4	1 591.6	742.5	759.0	784.7	806.9
Imports	1 196.0	1 270.5	1 352.0	619.1	651.4	659.5	692.5
Gross domestic product	3 132.4	3 224.3	3 352.4	1 586.9	1 637.5	1 646.9	1 705.5

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

Consumption expenditure	3.4	3.1	3.3	3.0	3.2	3.3	3.3
Private households ²	2.5	2.8	3.2	2.7	2.9	3.1	3.3
Government	5.7	4.1	3.5	4.1	4.1	3.8	3.2
Gross fixed capital formation	3.7	4.8	6.4	3.9	5.5	6.6	6.2
Machinery and equipment	2.1	2.7	6.0	1.2	4.2	6.3	5.7
Construction	4.7	6.0	7.1	5.5	6.4	7.2	7.0
Other products	4.1	5.1	5.2	4.8	5.4	5.5	4.9
Domestic expenditure	3.1	3.6	4.0	3.4	3.7	4.0	4.0
Exports	1.3	4.4	6.0	4.2	4.6	5.7	6.3
Imports	0.6	6.2	6.4	5.8	6.6	6.5	6.3
Gross domestic product	3.3	2.9	4.0	2.8	3.1	3.8	4.2

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

a) EUR bn.

Consumption expenditure	2 121.6	2 159.9	2 192.5	1 059.8	1 100.1	1 076.8	1 115.7
Private households ²	1 569.9	1 594.1	1 618.4	780.6	813.5	792.7	825.7
Government	551.3	565.1	573.4	278.8	286.3	283.7	289.7
Gross fixed capital formation	567.8	583.0	606.4	280.5	302.5	292.2	314.2
Machinery and equipment	197.2	200.8	210.3	95.1	105.7	100.0	110.4
Construction	267.7	276.0	286.9	133.5	142.6	138.8	148.2
Other products	103.1	106.3	109.4	51.9	54.4	53.5	55.9
Domestic expenditure	2 653.2	2 707.9	2 764.0	1 335.9	1 372.0	1 364.3	1 399.7
Exports	1 386.3	1 435.9	1 509.9	711.6	724.2	746.1	763.8
Imports	1 195.1	1 253.6	1 328.1	612.2	641.4	649.0	679.1
Gross domestic product	2 843.5	2 891.0	2 948.3	1 435.0	1 456.0	1 462.0	1 486.3

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

Consumption expenditure	2.5	1.8	1.5	1.8	1.8	1.6	1.4
Private households ²	1.9	1.5	1.5	1.5	1.6	1.6	1.5
Government	4.1	2.5	1.5	2.7	2.3	1.8	1.2
Gross fixed capital formation	2.3	2.7	4.0	2.1	3.2	4.2	3.9
Machinery and equipment	1.3	1.8	4.8	0.4	3.1	5.1	4.4
Construction	2.8	3.1	3.9	2.9	3.3	4.0	3.9
Other products	2.7	3.1	2.9	3.0	3.2	3.1	2.7
Domestic expenditure	2.2	2.1	2.1	1.9	2.2	2.1	2.0
Exports	2.5	3.6	5.2	3.5	3.7	4.8	5.5
Imports	3.3	4.9	5.9	4.3	5.5	6.0	5.9
Gross domestic product	1.9	1.7	2.0	1.7	1.6	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	0.6	1.2	1.6	1.2	1.3	1.5	1.8
Government consumption	1.6	1.6	2.0	1.3	1.8	2.0	2.0
Gross fixed capital formation	1.4	2.0	2.3	1.8	2.2	2.3	2.3
Machinery and equipment	0.8	0.9	1.2	0.8	1.0	1.1	1.2
Construction	1.9	2.8	3.1	2.5	3.0	3.1	3.0
Exports	- 1.1	0.8	0.8	0.7	0.9	0.8	0.8
Imports	- 2.6	1.3	0.4	1.4	1.1	0.5	0.4
Gross domestic product	1.4	1.2	2.0	1.1	1.4	1.9	2.0

5. National income

a) EUR bn.

Primary income of private households ²	2 180.4	2 242.5	2 323.1	1 105.2	1 137.3	1 142.3	1 180.8
Employers social contributions	286.5	295.3	304.8	143.2	152.1	147.5	157.3
Gross wages and salaries	1 306.8	1 352.9	1 410.5	646.4	706.5	672.0	738.5
Other primary income ⁴	587.1	594.3	607.7	315.7	278.7	322.8	284.9
Primary income of other sectors	467.1	480.4	510.7	223.0	257.4	237.3	273.4
Net national income	2 647.5	2 722.9	2 833.7	1 328.2	1 394.8	1 379.5	1 454.2
Consumption of fixed capital	551.5	568.3	586.5	282.6	285.7	291.7	294.8
Gross national income	3 198.9	3 291.2	3 420.2	1 610.8	1 680.4	1 671.2	1 749.0
memorandum item:							
Net national income (factor costs)	2 340.6	2 408.6	2 511.5	1 173.0	1 235.7	1 220.4	1 291.1
Property and entrepreneurial income	747.3	760.5	796.2	383.4	377.0	400.9	395.3
Compensation of employees	1 593.3	1 648.2	1 715.4	789.5	858.7	819.5	895.9

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

Primary income of private households ²	3.0	2.8	3.6	2.7	3.0	3.4	3.8
Employers social contributions	2.6	3.1	3.2	3.0	3.1	3.0	3.4
Gross wages and salaries	3.7	3.5	4.3	3.5	3.6	4.0	4.5
... per employee	2.4	2.5	2.9	2.6	2.3	2.5	3.2
Other primary income ⁴	1.6	1.2	2.3	1.0	1.5	2.3	2.3
Primary income of other sectors	4.8	2.9	6.3	2.8	2.9	6.4	6.2
Net national income	3.3	2.9	4.1	2.7	3.0	3.9	4.3
Consumption of fixed capital	2.9	3.1	3.2	3.0	3.1	3.2	3.2
Gross national income	3.2	2.9	3.9	2.8	3.0	3.7	4.1
memorandum item:							
Net national income (factor costs)	3.4	2.9	4.3	2.8	3.1	4.0	4.5
Property and entrepreneurial income	3.3	1.8	4.7	1.5	2.1	4.6	4.8
Compensation of employees	3.5	3.4	4.1	3.4	3.5	3.8	4.3

6. Disposable income of private households ²

a) EUR bn.

Mass income	1 296.4	1 341.1	1 389.3	645.7	695.5	666.6	722.7
Net wages and salaries	866.8	895.6	930.8	423.0	472.6	438.0	492.8
Social benefits other than social transfers in kind	544.2	563.7	579.4	281.8	281.9	288.9	290.5
less: Levies on social benefits, taxes on consumption	114.6	118.1	120.8	59.1	59.0	60.3	60.5
Other primary income ⁴	587.1	594.3	607.7	315.7	278.7	322.8	284.9
Other transfers received (net) ⁵	- 72.5	- 76.1	- 79.7	- 38.8	- 37.3	- 40.7	- 39.0
Disposable income	1 811.0	1 859.4	1 917.3	922.5	936.8	948.7	968.6
Change in pension entitlements	48.5	49.0	49.5	24.2	24.8	24.5	25.0
Consumption expenditure	1 677.3	1 723.9	1 778.9	841.5	882.4	867.4	911.5
Saving	182.3	184.5	188.0	105.3	79.2	105.8	82.2
Saving ratio (%) ⁶	9.8	9.7	9.6	11.1	8.2	10.9	8.3

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

Mass income	3.5	3.5	3.6	3.7	3.2	3.2	3.9
Net wages and salaries	3.6	3.3	3.9	3.3	3.4	3.5	4.3
Social benefits other than social transfers in kind	3.5	3.6	2.8	4.4	2.7	2.5	3.0
less: Levies on social benefits, taxes on consumption	3.7	3.1	2.3	3.9	2.2	2.0	2.5
Other primary income ⁴	1.6	1.2	2.3	1.0	1.5	2.3	2.3
Disposable income	2.7	2.7	3.1	2.6	2.7	2.8	3.4
Consumption expenditure	2.5	2.8	3.2	2.7	2.9	3.1	3.3
Saving	4.0	1.2	1.9	2.1	0.1	0.5	3.8

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	727.5	749.3	777.8	376.3	373.0	390.6	387.1
Social contributions	521.0	541.0	563.9	263.4	277.6	273.8	290.2
Property income	19.3	18.7	18.4	10.2	8.4	10.1	8.3
Other current transfers	19.2	19.2	19.2	9.2	10.0	9.2	10.0
Capital transfers	13.9	12.5	12.5	6.3	6.2	6.3	6.2
Sales	104.0	105.9	108.8	50.2	55.6	51.2	57.7
Other subsidies	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Total	1 405.0	1 446.8	1 500.8	715.8	731.0	741.2	759.5
Expenditure							
Intermediate consumption ⁸	420.4	438.1	454.3	210.8	227.3	219.1	235.2
Compensation of employees	235.8	243.1	250.2	117.0	126.1	120.3	129.8
Property income (interest)	43.4	40.2	38.4	20.0	20.2	19.0	19.4
Subsidies	28.5	29.3	30.1	14.4	14.9	14.8	15.3
Social benefits	488.9	507.3	521.9	253.8	253.4	260.4	261.5
Other current transfers	75.4	78.3	86.6	40.9	37.4	45.4	41.2
Capital transfers	33.1	31.9	31.9	13.5	18.3	13.6	18.3
Gross capital formation	66.7	70.5	73.5	30.3	40.1	31.6	41.8
Net acquisitions of non-produced non-financial assets	- 1.2	- 5.0	- 1.4	- 4.3	- 0.6	- 2.5	1.2
Total	1 390.9	1 433.6	1 485.4	696.4	737.2	721.7	763.8
Net lending	14.1	13.2	15.3	19.4	- 6.2	19.6	- 4.3

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

Revenue							
Taxes	3.9	3.0	3.8	2.9	3.1	3.8	3.8
Social contributions	4.0	3.8	4.2	4.0	3.7	3.9	4.5
Property income	- 11.7	- 3.1	- 1.5	- 3.9	- 2.3	- 1.3	- 1.7
Other current transfers	- 1.6	0.0	0.0	0.0	0.0	0.0	0.0
Capital transfers	14.3	- 10.3	0.0	- 11.2	- 9.5	0.0	0.0
Sales	3.6	1.8	2.8	1.8	1.8	1.8	3.6
Other subsidies	- 8.9	0.0	0.0	0.0	0.0	0.0	0.0
Total	3.7	3.0	3.7	2.9	3.0	3.6	3.9
Expenditure							
Intermediate consumption ⁸	7.2	4.2	3.7	4.1	4.4	3.9	3.5
Compensation of employees	3.1	3.1	2.9	3.3	3.0	2.8	3.0
Property income (interest)	- 8.3	- 7.3	- 4.5	- 7.8	- 6.7	- 5.0	- 4.0
Subsidies	3.6	2.8	2.8	2.8	2.8	2.8	2.8
Social benefits	3.8	3.8	2.9	4.7	2.8	2.6	3.2
Other current transfers	0.2	3.9	10.7	3.9	3.9	11.2	10.1
Capital transfers	11.4	- 3.8	0.2	- 11.8	3.1	0.2	0.2
Gross capital formation	3.8	5.6	4.3	4.8	6.2	4.4	4.2
Net acquisitions of non-produced non-financial assets	- 37.1	327.9	- 72.6	714.3	0.0	- 41.6	- 287.1
Total	4.3	3.1	3.6	2.9	3.3	3.6	3.6

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.