

KIEL INSTITUTE **ECONOMIC OUTLOOK**

German Economy Autumn 2018

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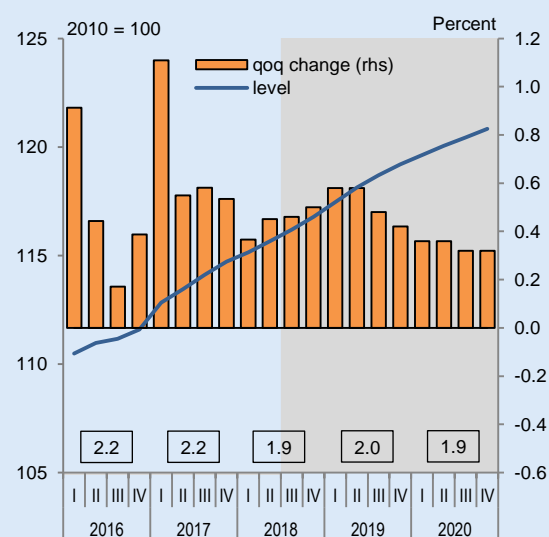
GERMANY'S BOOM IS MATURING

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

The economic upswing in Germany continues, although the expansion loses some steam. Compared to our summer forecast, we reduced our expectations for GDP growth by 0.1 and 0.3 percentage points in the current and next year, respectively, to 1.9 percent (2018) and 2.0 percent (2019). So for now, the boom in Germany persists. However, due to the already very high capacity utilization in many sectors, companies face increasing difficulties in continuing to expand their production at a brisk pace. This is especially palpable in the construction sector where in the face of very favorable circumstances production increases were quite restrained but prices rose markedly. The labor market also exhibits increasing shortages. Not least due to this, increases in employment should reduce over time. Next year, the expansionary fiscal policy will support the boom. The extensive tax reductions and spending increases will raise disposable incomes considerably, such that private consumption expenditures should grow by 2.2 percent—the fastest in 20 years. Because of the robust world economy after the phase of weakness at the beginning of the year, exports should also accelerate again. The additional temporary revenue of public authorities due to the current business cycle position is spent hand over fist on expenditures that are intended to persist in the long-run. The currently still sizeable structural budget surplus will therefore be eradicated by the year 2020.

Capacity constraints are increasingly weighing on GDP growth. Capacity utilization is close to record-high levels in many industries according to survey data. Other survey data indicate that labor supply shortages and—in the manufacturing sector—shortages in material and goods are limiting the production of a high share of firms, thus also pointing to increasing capacity constraints. Moreover, our potential output estimate, based on the European Commission's production function approach, indicates that the German economy has approached boom territory: in this year, the output gap reaches a level that was last observed immediately before the beginning of the Global Financial Crisis (Ademmer et al. 2018, *Deutsche Wirtschaft mit langsamerer Gang-art*, [Kieler Konjunkturberichte 48 \(2018|3\)](#)). At the same time, business climate increased in August and is still at very high levels, particularly in the service sector. Incoming orders in the manufacturing sector have been trending downwards since the beginning of the year. However, according to the order-capacity-index of the Deutsche Bundesbank, incoming orders are still higher than production capacities of firms, suggesting that lower orders will not be a drag on production growth in the next quarters. All in all, it has become increasingly difficult for firms to expand their production at the high pace of the last years. Nonetheless, GDP growth is expected not to decelerate over the next two years, mainly due to temporary effects: in 2019, fiscal policy will be very expansionary; in 2020, the high number of working days will contribute to GDP growth. Adjusted for working days, GDP in 2020 will only increase by 1.6 percent (unadjusted: 1.9 percent), according to our forecast (Figure 1).

Figure 1:
Gross domestic product, 2016–2020



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.

German foreign trade picks up again after temporary weakness. German exports grew mildly in the second quarter, after having slightly declined at the beginning of the year. Over the second half of the year, exports are expected to return to more vivid growth rates. Although soft indicators have descended from the extraordinary high levels that they had reached at the start of the year, they continuously show a positive picture. Export expectations of German firms increased in July and August, whereas production expectations in German export markets remain at a high level after a slight decline. Over the remaining forecast horizon, German exports are forecast to expand at pronounced, but decelerating rates, following the decelerating growth dynamics in German export markets. We expect minor improvements in German price competitiveness to provide slight tailwinds to exports over the forecast period. German imports grew strongly in the second quarter, after a slight decline at the beginning of the year. Over the forecast horizon, imports are set to grow vividly, but at a declining pace, in line with initially strong private consumption and with pronounced, but decelerating business investment and exports.

Business investment continues its moderate expansion course. Given the high level of capacity utilization and very favorable financing conditions, business investment has expanded rather modestly for some time compared to previous upswings. In the second quarter, business investment increased only slightly, dampened inter alia by heightened uncertainty due to the threat of escalating international trade conflicts. While we forecast business investment to accelerate a bit in the coming quarters, the general pace of expansion is likely to remain relatively moderate. Construction investment is increasingly limited by capacity bottlenecks. We expect this to hamper an otherwise stronger expansion over the forecast horizon and to result in significantly rising construction prices.

Fiscal stimulus will boost private consumption. Gross wages and salaries are expected to increase with high rates over the forecast period due to the good shape of the labor market. However, growth rates will slightly decline as employment growth will decelerate somewhat stronger compared to wage growth acceleration. Several measures of the new government (e.g., adjustments of the income tax, lower social security contributions and increasing transfer payments in the pension system) will stimulate income growth especially next year. Against this backdrop, net wages and salaries will increase at a much higher pace (5.2 percent) than gross wages and salaries (4.5 percent), and social benefits will accelerate considerably. Given that consumer prices will pick up only moderately, and based on our assumption that the savings rate will remain at its current level of 10.2 percent, private consumption will increase by 2.2 percent in 2019 and 1.9 percent in 2020, after an increase of 1.5 percent in the current year.

We expect stable consumer price inflation of around two percent throughout the forecast period. After a short downward intermezzo in August, the oil price as well as the Euros exchange rate vis-à-vis the US Dollar have returned to their previous levels. Headline inflation came in at 2.1 percent in August, thereby staying at or above 2 percent for the fourth month in a row. Energy prices were a main driver—excluding this component, prices rose by 1.5 percent. While energy price inflation is not expected to stay at its currently high level, underlying price pressures should increase in the forecast period, since production capacities in Germany will come under mounting stress and the ECB will exit its extraordinary monetary policy only gradually. After the end of net asset purchases at the close of 2018, the ECB will continue to reinvest maturing bonds. Furthermore, we expect the ECB to proceed very cautiously with policy rate hikes, and not start them before late 2019. Interest rates on loans and bonds should rise only slowly over the upcoming years, and financing conditions should still remain favorable.

Employment growth weakens gradually, wages accelerate further. Employers and employees in manufacturing, construction, and public services have agreed on stronger wage increases in the first half of this year. Total negotiated wages and salaries will rise by 2.9 percent in 2018, after 2.1 percent in 2017. Due to the growing tightness on the labor market, effectively paid gross wages and salaries continue to rise even faster (3.2 percent). As labor productivity falters due to the weakness in economic growth at the beginning of this year, unit labor costs accelerate noticeably. As a result, the relationship between unit labor costs and prices deteriorates, dampening the demand for labor. Employment will continue to rise throughout the forecasting horizon, but at declining rates. Short-term leading indicators for labor demand remain near levels unseen for several decades or even all-time highs. However, large employment gains will become increasingly unlikely, as labor-supply growth is

set to decline due to the ageing population and smaller gains from migration. All in all, we expect unemployment to shrink further until 2020, albeit at decreasing rates.

Government surplus will reach a new record high in 2018. Government revenues are on a strong upward trend mainly due to the ongoing upswing on the labor market. Furthermore, corporate taxes increase mainly due changes in the tax code. Government consumption was weak in the first half of the year. This may reflect, on the one hand, lower expenses in the area of refugee migration and, on the other hand, the fact that the prolonged coalition talks forced the federal government to operate with a preliminary budget only.

In 2019, fiscal policy is set to be much more expansionary due to the plans of the new coalition government. Apart from various measures that will affect the budget of the federal government, pensions will increase substantially, and the income tax rates will be reduced. On top, payments to the EU will rise remarkably. In sum, the surplus will shrink, although remaining at a high level. However, the structural balance will deteriorate sharply. In 2020, on the one hand, fiscal policy will become less expansionary; on the other hand, the upswing will reach its end and revenues will thus increase in a less dynamic manner. As a result, the budget balance will remain roughly unchanged.

Table 1:
Key indicators, 2017–2020

	2017	2018	2019	2020
Gross domestic product (GDP), price-adjusted	2.2	1.9	2.0	1.9
Gross domestic product, deflator	1.5	1.6	1.9	2.2
Consumer prices	1.7	1.9	2.0	2.0
Labor productivity (per hour worked)	0.9	0.4	1.0	0.8
Employment (1,000 persons)	44,269	44,858	45,307	45,636
Unemployment rate (percent)	5.7	5.2	4.9	4.6
in relation to nominal GDP				
Public sector net lending	1.0	1.6	1.1	0.9
Gross public debt	63.9	59.9	56.4	53.5
Current account balance	8.3	8.1	7.7	7.6

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.

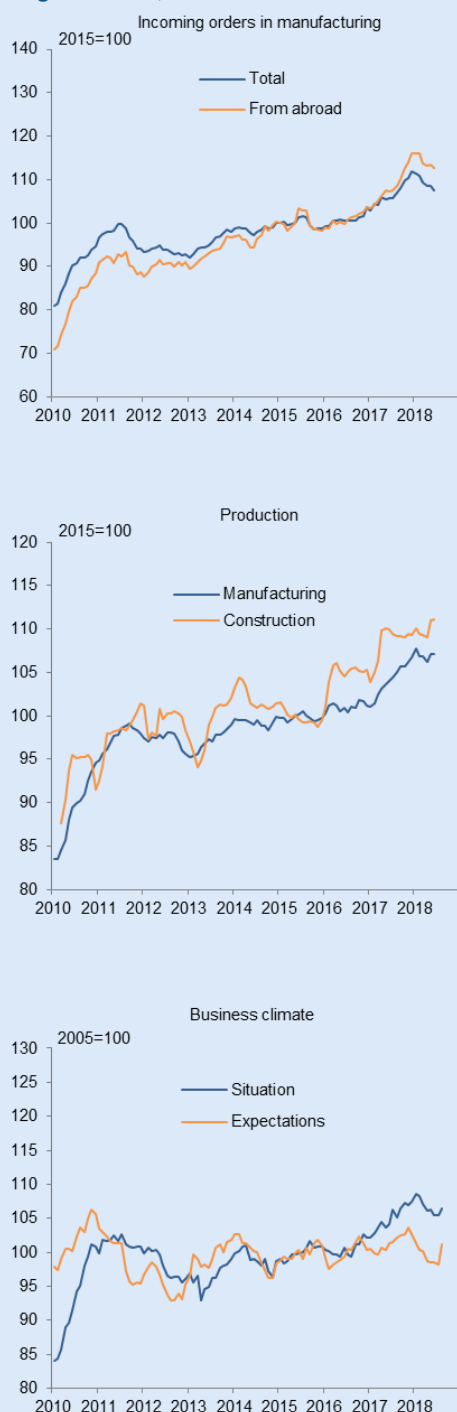
Data annex

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1. Leading indicators

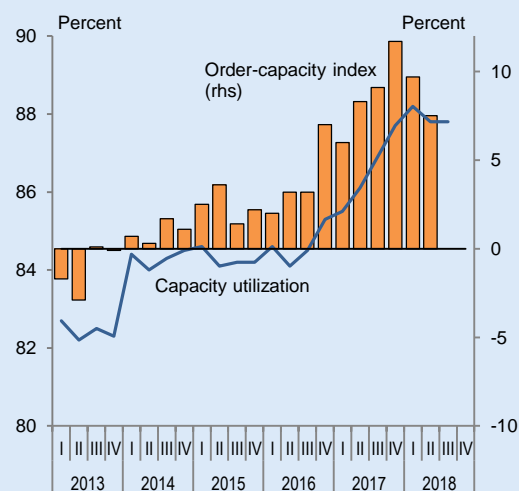
Figure 1.1:
Leading indicators, 2010–2018



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

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

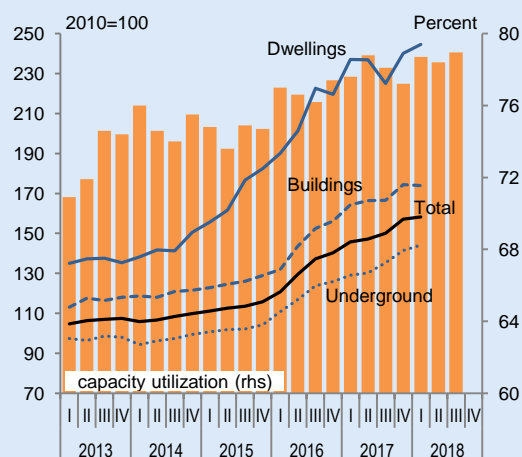
Figure 1.2:
Capacity utilization, 2013–2018



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, 2013–2018

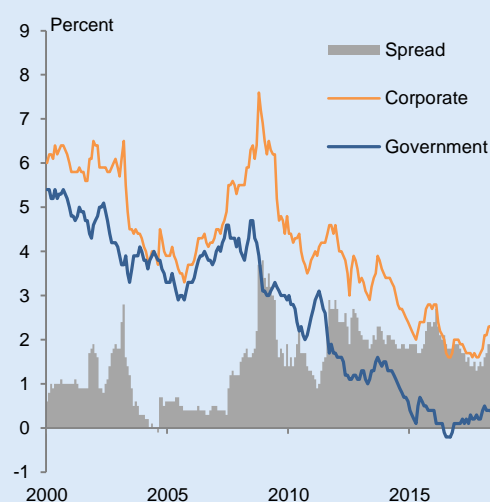


Quarterly data. Capacity utilization: seasonally adjusted (2014-Q4: October/November); order stocks: price, seasonally and working-day adjusted.

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

2. Monetary conditions and prices

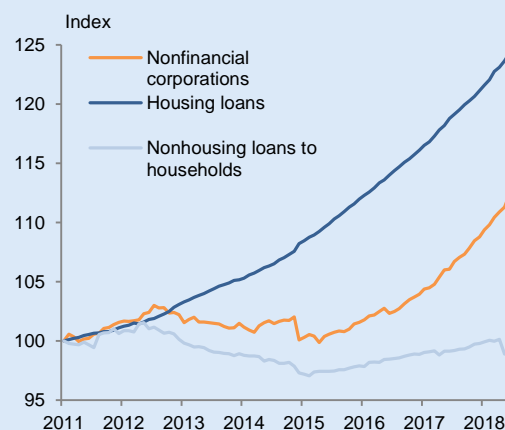
Figure 2.1:
Bond yields, 2000–2018



Monthly data, average maturities above three years.

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

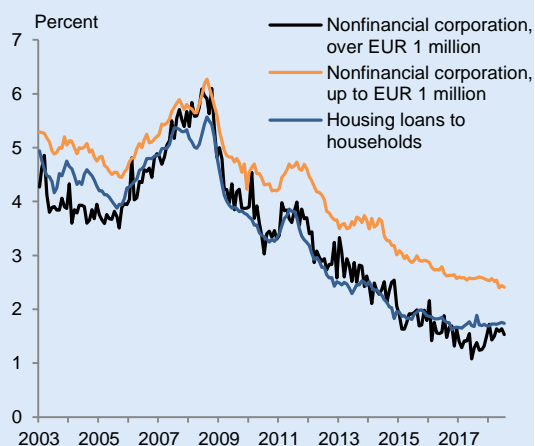
Figure 2.3:
Sum of loans, 2011–2018



Index: Jan 2011=100; Monthly data.

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

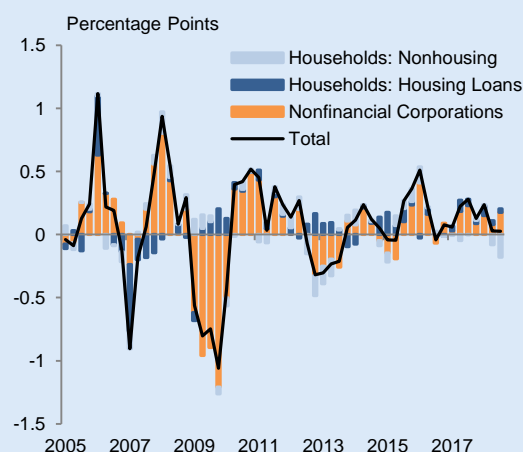
Figure 2.2:
Loan interest, 2003–2018



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

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

Figure 2.4:
Credit impulse, 2005–2018

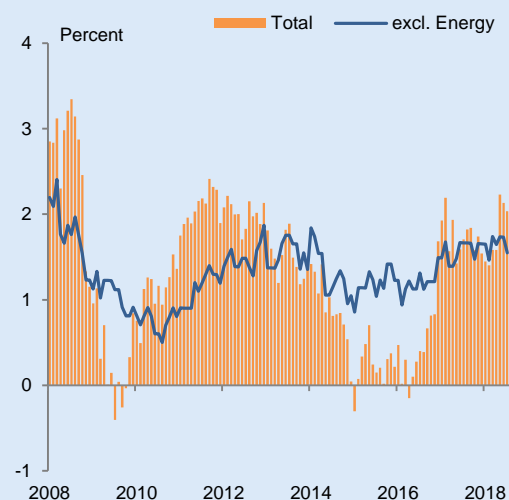


Quarterly data, most recent quarter based on first month; calculations follow Biggs et al. (2009), *Credit and economic recovery*, DNB Working Paper 218, De Nederlandsche Bank, Amsterdam.

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.

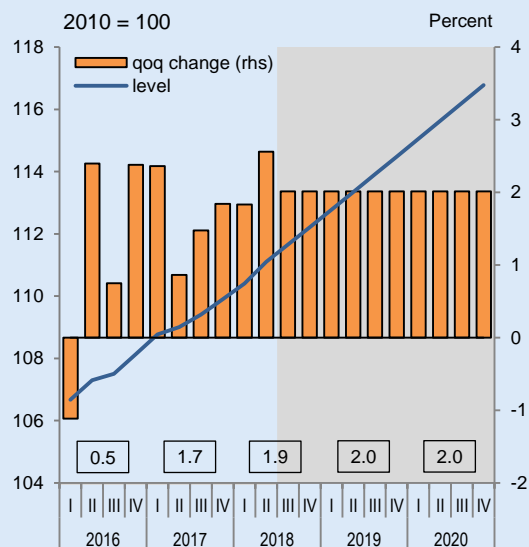
Figure 2.5:
Consumer prices, 2008–2018



Monthly data; year-on-year change.

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

Figure 2.6:
Consumer price index, 2016–2020



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, 2017–2020

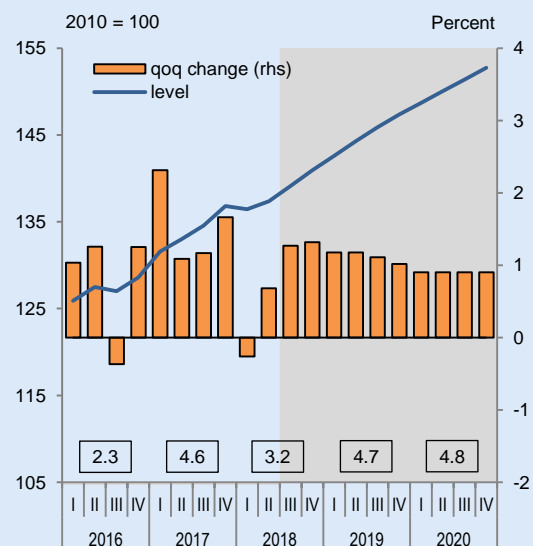
	2017				2018				2019				2020			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
ECB key interest rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.50	0.50	0.75	0.75
Long-term interest rate	0.30	0.30	0.40	0.40	0.60	0.50	0.40	0.40	0.40	0.50	0.50	0.60	0.60	0.70	0.70	0.80
US-dollar/euro exchange rate	1.07	1.10	1.18	1.18	1.23	1.19	1.16	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17
Price competitiveness	86.30	86.90	89.00	89.10	89.50	89.50	89.95	89.86	89.68	89.56	89.47	89.38	89.34	89.29	89.25	89.20
Export markets	0.81	0.92	0.79	0.78	0.69	0.79	0.72	0.68	0.64	0.62	0.58	0.55	0.55	0.55	0.55	0.55
Oil price	53.60	49.60	52.10	61.40	66.90	74.50	74.50	77.90	78.30	78.70	79.10	79.40	79.80	80.20	80.60	81.00

ECB key interest rate: main refinancing operations; long-term interest rate on 9–10 year bonds; price competitiveness: against 36 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

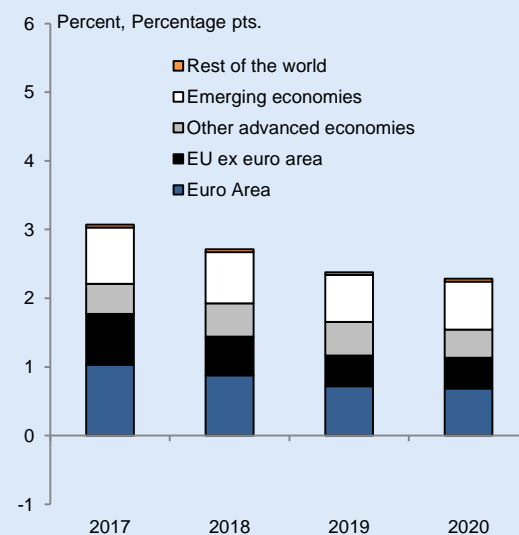
Figure 3.1:
Exports, 2016–2020



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.

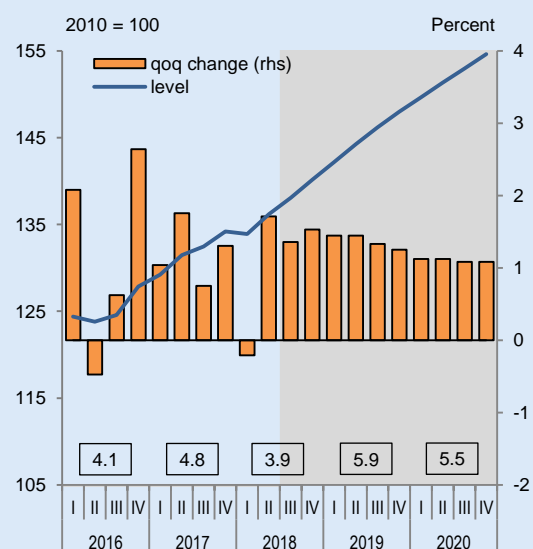
Figure 3.3:
German export markets, 2017–2020



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; 2017–2019: IFW forecast.

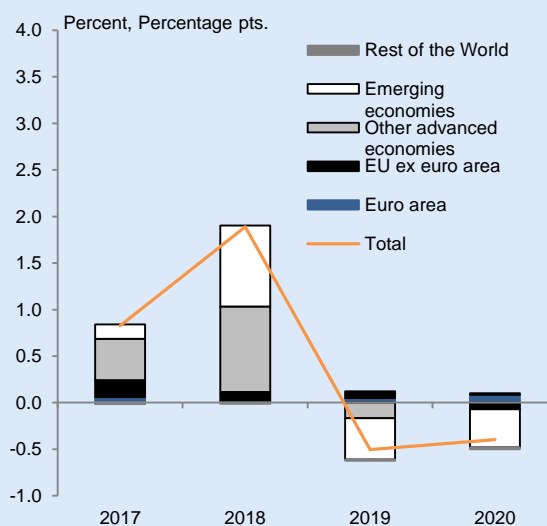
Figure 3.2:
Imports, 2016–2020



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.

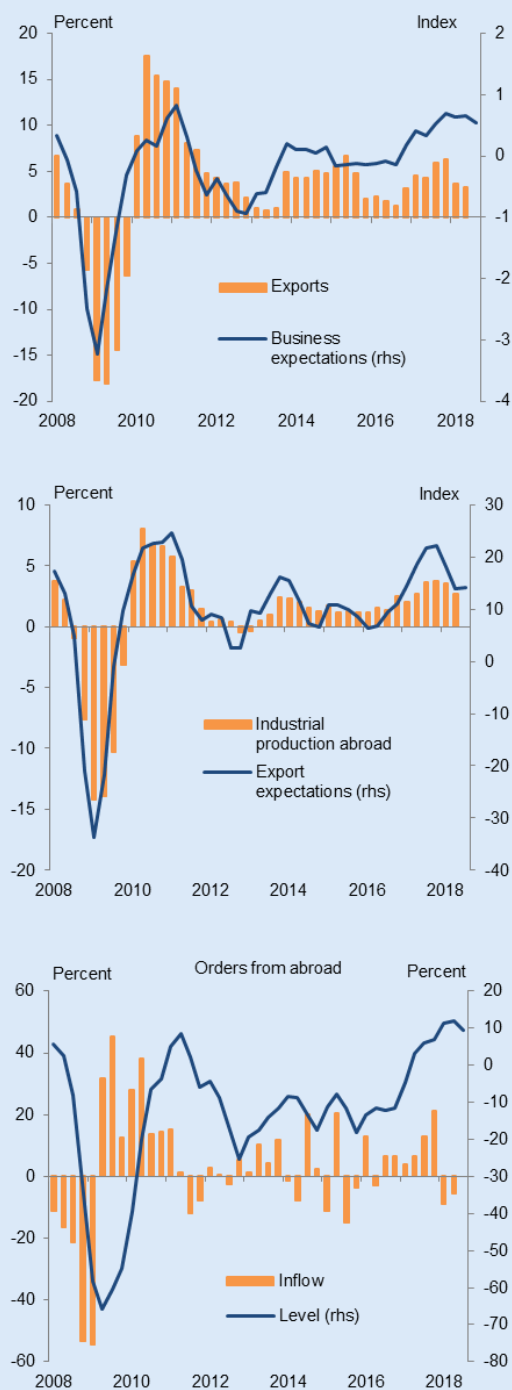
Figure 3.4:
Germany's price competitiveness, 2017–2020



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.

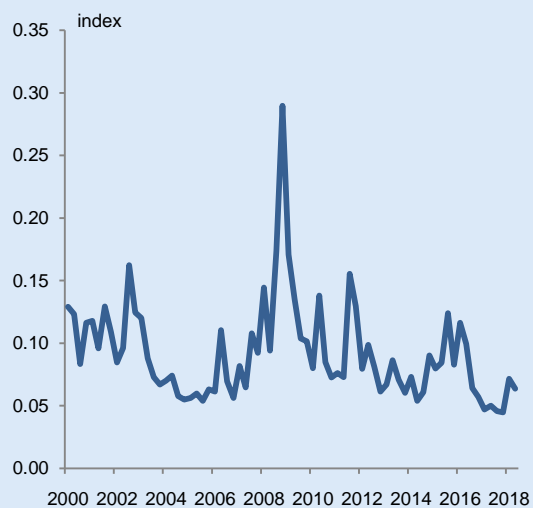
Figure 3.5:
Export indicators, 2008–2018



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 42 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, 2000–2018

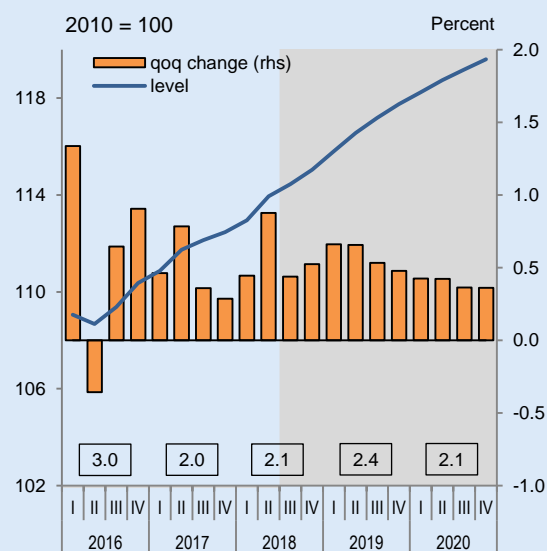


Quarterly data; uncertainty index based on stock market volatilities in 46 countries, weighted by shares of German exports.

Source: National sources; own calculations.

4. Domestic expenditure

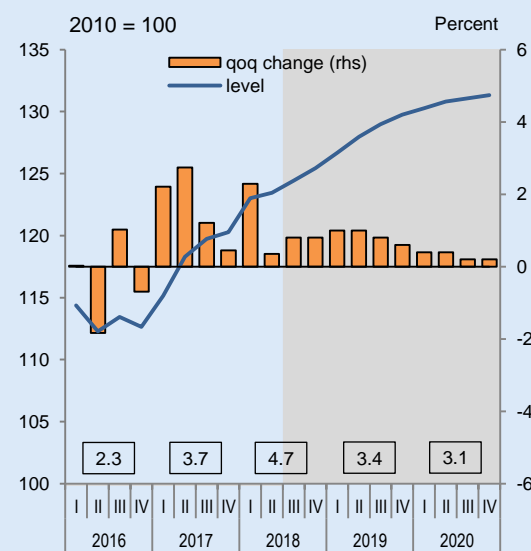
Figure 4.1:
Domestic expenditure, 2016–2020



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.

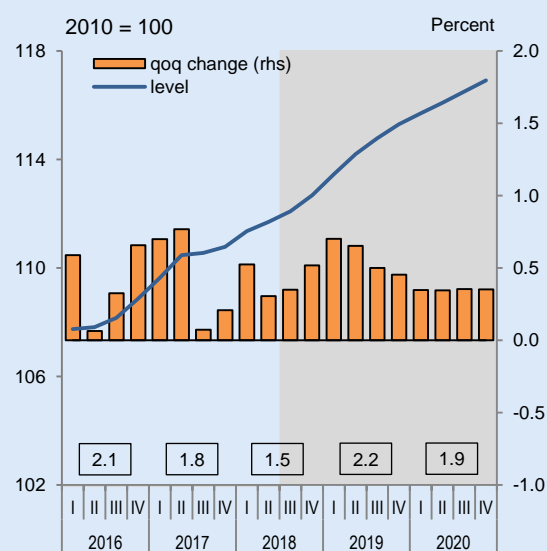
Figure 4.3:
M&E investments, 2016–2020



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.

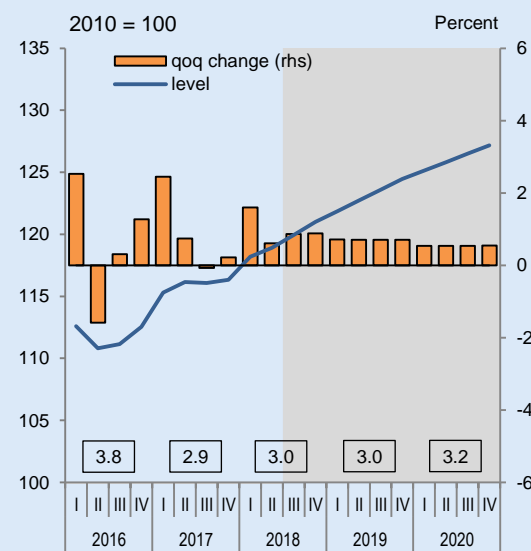
Figure 4.2:
Private consumption, 2015–2019



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.

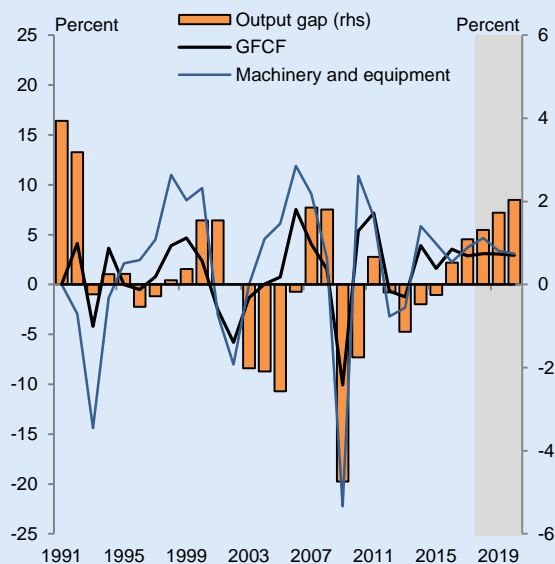
Figure 4.4:
Construction, 2016–2020



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.

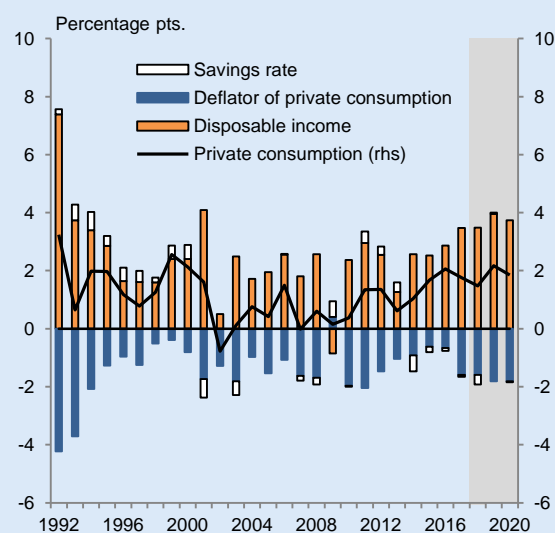
Figure 4.5:
Investment cycles, 1991–2019



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

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

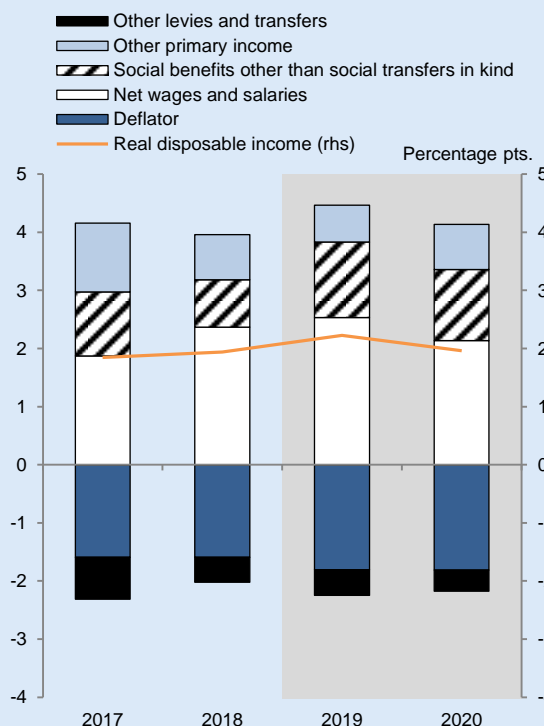
Figure 4.6:
Contributions to change in private consumption, 1992–2020



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.

Figure 4.7:
Contributions to changes in real disposable income, 2017–2020



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.

Table 4.1:
Gross fixed capital formation, 2017–2020

	2017	2018	2019	2020
Total	2.9	3.1	3.1	2.9
Corporate investment	2.9	2.7	2.8	2.5
Machinery and equipment	3.7	4.7	3.4	3.1
Construction (non-dwellings)	3.1	0.6	1.5	1.9
Other	1.3	0.6	2.6	1.8
Dwellings	3.0	3.6	3.4	3.5
Public (non-dwellings)	2.4	5.8	4.1	4.7
Memorandum item:				
Construction	2.9	3.0	3.0	3.2

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, 2018–2019

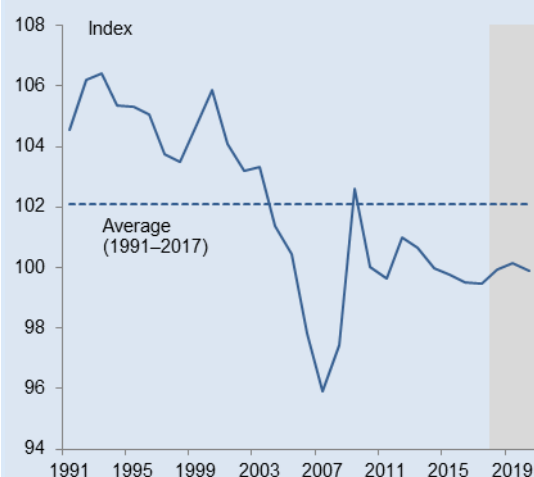
	2018				2019	
	I	II	III	IV	I	II
	Seasonally and calendar adjusted, quarter-on-quarter change in percent					
Gross domestic product	0.4	0.5	0.5	0.5	0.6	0.6
Gross value added	0.4	0.3	0.5	0.5	0.6	0.6
Industry excluding construction	-0.5	0.1	0.4	0.5	0.7	0.7
Manufacturing	-0.5	0.2	0.4	0.5	0.7	0.7
Construction	1.0	-0.1	0.7	0.7	0.5	0.5
Trade, transport, accommodation, and food services	0.7	0.4	0.6	0.7	0.8	0.8
Information and communication	1.4	1.2	0.9	0.9	1.0	1.0
Financial and insurance services	-0.1	0.1	0.0	0.0	0.1	0.0
Real estate activities	0.8	-0.1	0.4	0.4	0.4	0.4
Business services	0.9	0.9	0.4	0.4	0.6	0.6
Public services, education, health	0.6	0.2	0.3	0.3	0.4	0.4
Other services	0.2	0.9	0.1	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, 1991–2019



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

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

Table 6.1:
Wages and productivity, 2017–2020

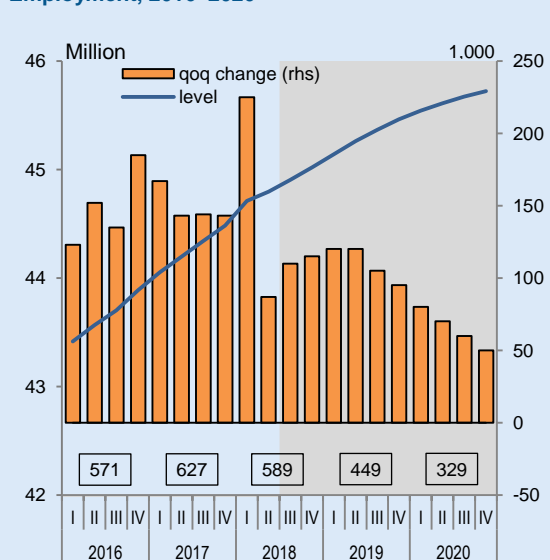
	2017	2018	2019	2020
<i>Per hour</i>				
Negotiated wages	2.2	2.8	2.7	2.9
Gross wages and salaries	2.4	2.8	3.2	2.9
Wage drift	0.3	0.0	0.6	0.0
Compensation of employees	2.5	2.5	3.2	2.7
Labor productivity	0.9	0.4	1.0	0.8
Unit labor costs	1.6	2.1	2.2	1.9
Unit labor costs (real)	0.1	0.5	0.2	-0.3
<i>Per capita</i>				
Negotiated wages	2.1	2.9	2.7	2.9
Gross wages and salaries	2.5	3.2	3.3	3.4
Wage drift	0.4	0.4	0.6	0.6
Compensation of employees	2.6	3.0	3.3	3.3
Labor productivity	0.7	0.6	1.0	1.2
Unit labor costs	1.8	2.5	2.2	2.0
Unit labor costs (real)	0.3	0.8	0.3	-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

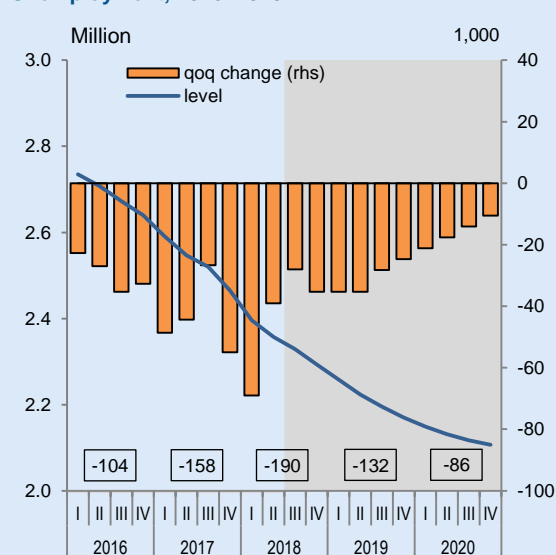
Figure 7.1:
Employment, 2016–2020



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, 2016–2020



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

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

Table 7.1:
Employment, 2016–2020 (1,000 persons)

	2016	2017	2018	2019	2020
Hours worked (domestic concept, mn. hours)	59,476	60,222	61,130	61,747	62,445
Persons in employment (domestic concept)	43,642	44,269	44,858	45,307	45,636
Self-employed	4,334	4,294	4,226	4,184	4,157
Employees (domestic concept)	39,308	39,975	40,633	41,123	41,480
Employees subject to social security contributions	31,538	32,266	32,964	33,496	33,892
Minijobs	4,802	4,739	4,686	4,647	4,607
Net commuting	92	114	127	126	126
Persons in employment (national concept)	43,550	44,155	44,731	45,181	45,510
Employees (national concept)	39,216	39,862	40,506	40,997	41,353
Unemployed persons (registered)	2,691	2,533	2,343	2,211	2,125
Unemployment rate (registered; percent)	6.1	5.7	5.2	4.9	4.6
Unemployment rate (ILO; percent)	3.9	3.5	3.2	2.9	2.8

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

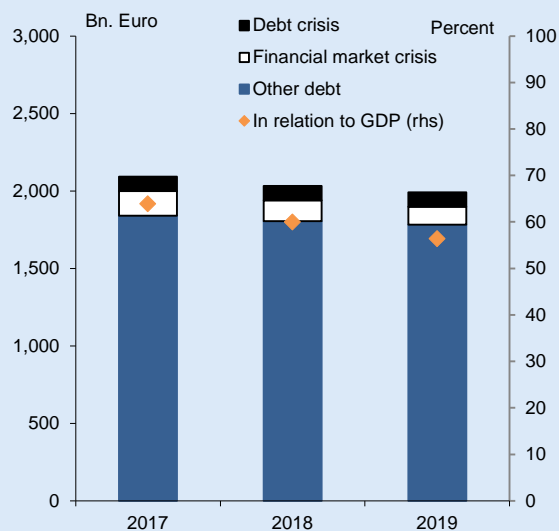
Table 8.1:
Revenues and expenditures of the general government, 2016–2020 (bn. euro)

	2016	2017	2018	2019	2020
Revenues	1,415.5	1,473.8	1,538.3	1,591.4	1,649.6
→relative to GDP	44.8	45.0	45.3	45.1	44.9
Taxes	731.7	766.4	798.8	826.6	857.3
→relative to GDP	23.2	23.4	23.5	23.4	23.3
Social contributions	523.9	548.6	571.7	593.9	618.2
→relative to GDP	16.6	16.7	16.8	16.8	16.8
Other revenues	159.9	158.9	167.8	170.9	174.1
→relative to GDP	5.1	4.8	4.9	4.8	4.7
Expenditures	1,386.8	1,439.8	1,485.6	1,551.4	1,616.9
→relative to GDP	43.9	43.9	43.8	43.9	44.0
Compensation of employees	237.8	246.7	255.9	265.4	274.8
Intermediate consumption	150.1	156.3	160.5	167.5	173.2
Social transfers in kind	268.4	278.4	287.1	300.8	315.4
Gross capital formation	68.2	72.4	80.1	86.6	93.4
Capital transfers	37.4	33.8	31.3	30.1	29.7
Social benefits	486.8	506.1	520.6	544.6	568.0
Subsidies	28.0	28.4	28.4	29.0	29.7
Other current transfers	75.5	75.2	81.6	90.3	93.5
Other capital transfers and investment grants	35.6	43.9	41.5	38.5	40.5
Other expenditures	-1.3	-1.6	-1.5	-1.5	-1.5
Net lending/ net borrowing	28.7	34.0	52.7	40.0	32.7
→relative to GDP	0.9	1.0	1.6	1.1	0.9
Revenues of central, state, and local governments	919.8	954.2	996.5	1,028.3	1,035.9
Net of transfers from social security funds	918.7	953.1	995.4	1,027.2	1,034.8
Transfers from social security funds	1.1	1.1	1.1	1.1	1.1
Expenditures of central, state, and local governments	899.2	930.3	957.3	995.8	1,005.3
Net of transfers to social security funds	789.0	815.1	838.5	873.0	881.5
Transfers to social security funds	110.3	115.1	118.8	122.8	123.8
Net lending/ net borrowing central, state, and local governments	20.5	23.9	39.2	32.5	30.6
Revenues of social security funds	607.1	635.9	661.7	687.0	693.5
Net of transfers from central, state, and local governments	496.8	520.8	542.9	564.2	569.8
Expenditures of social security funds	598.9	625.8	648.2	679.6	687.3
Net of transfers to central, state, and local governments	597.8	624.7	647.1	678.5	686.2
Net lending/ net borrowing social security funds	8.2	10.1	13.5	7.4	6.3

Sums may deviate due to rounding. Relative to GDP in per cent.

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

Figure 8.1:
Government gross debt, 2017–2019

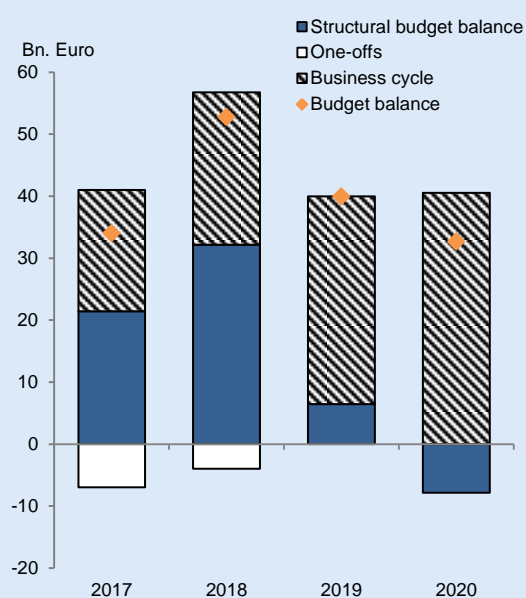


Debt crisis: Liabilities due to first Greece adjustment programme, deposits at the ESM, guarantees for EFSF credits.

Financial market crisis: Liabilities due to bank rescue packages.

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

Figure 8.2:
Structural budget balance, 2017–2020



Source: Europäische Kommission, AMECO; own calculations.

9. GDP and its components

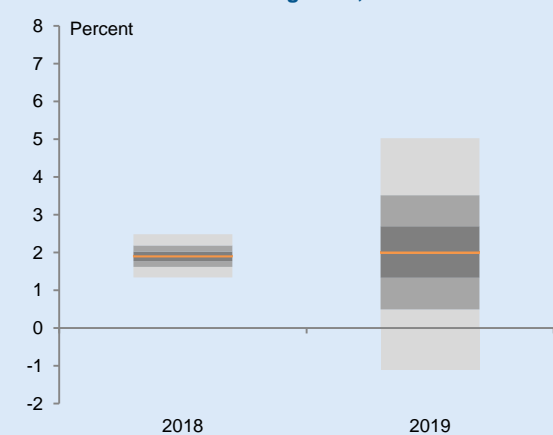
Table 9.1:
Quarterly data, 2018–2020

	2018				2019				2020			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	0.4	0.5	0.5	0.5	0.6	0.6	0.5	0.4	0.4	0.4	0.3	0.3
Private consumption	0.5	0.3	0.3	0.5	0.7	0.6	0.5	0.5	0.3	0.3	0.4	0.3
Government consumption	-0.3	0.6	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.4
Machinery and equipment	2.3	0.3	0.8	0.8	1.0	1.0	0.8	0.6	0.4	0.4	0.2	0.2
Constructions	1.6	0.6	0.9	0.9	0.7	0.7	0.7	0.7	0.5	0.5	0.5	0.5
Other investment	-0.5	0.3	0.6	0.6	0.8	0.8	0.5	0.5	0.4	0.4	0.4	0.4
Change in inventories	-0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic expenditure	0.4	0.9	0.4	0.5	0.7	0.7	0.5	0.5	0.4	0.4	0.4	0.4
Exports	-0.3	0.7	1.3	1.3	1.2	1.2	1.1	1.0	0.9	0.9	0.9	0.9
Imports	-0.2	1.7	1.4	1.5	1.4	1.4	1.3	1.3	1.1	1.1	1.1	1.1
Net exports	0.0	-0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Employment (domestic)	44,709	44,796	44,906	45,021	45,141	45,261	45,366	45,461	45,541	45,611	45,671	45,721
Unemployment (registered)	2,396	2,357	2,329	2,294	2,258	2,223	2,195	2,170	2,149	2,131	2,117	2,107

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.

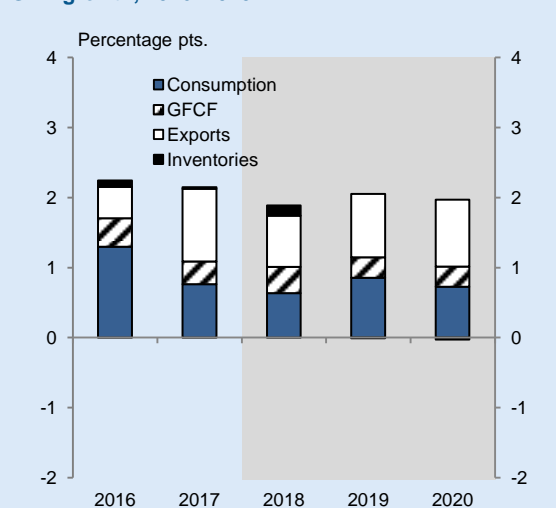
Figure 9.1:
Forecast intervals for GDP growth, 2018–2019



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 third quarter 1994–2017.

Source: Own calculations.

Figure 9.2:
Import adjusted expenditure-side contributions to GDP growth, 2016–2020



Annual data; price-adjusted, growth contribution of each expenditure component adjusted by import content; import content is estimated based on input/output tables.

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

10. The German economy, 2017–2020

	2017	2017	2018	2019	2020
	€ bn.	Change over previous year in percent			
GDP (constant prices)		2.2	1.9	2.0	1.9
Private consumption expenditure		1.8	1.5	2.2	1.9
Public consumption expenditure		1.6	1.1	2.2	2.0
Total fixed investment		2.9	3.1	3.1	2.9
Machinery and equipment		3.7	4.7	3.4	3.1
Construction		2.9	3.0	3.0	3.2
Other equipment		1.3	0.6	2.6	1.8
Changes in stocks		0.0	0.3	0.0	0.0
Domestic Demand		2.0	2.1	2.4	2.1
Exports		4.6	3.2	4.7	4.8
Imports		4.8	3.9	5.9	5.5
Net exports		0.3	0.0	-0.1	0.0
GDP (current prices)	3,277.3	3.7	3.6	4.0	4.1
Private consumption expenditure	1,732.2	3.4	3.1	4.0	3.7
Public consumption expenditure	638.9	3.8	3.4	4.3	4.2
Total fixed investment	665.7	5.0	6.0	6.0	5.6
Machinery and equipment	215.2	4.2	5.1	4.2	3.7
Construction	326.6	6.4	7.7	7.6	7.6
Other equipment	123.9	2.9	2.9	4.7	3.6
Changes in stocks (€ bn.)		-7.2	3.0	2.7	1.3
Domestic Demand	3,029.5	4.0	4.1	4.5	4.2
Exports	1,541.9	6.3	4.3	5.9	5.5
Imports	1,294.1	7.6	5.8	7.3	5.8
Net exports (€ bn.)		247.8	239.5	234.7	242.9
Gross national income	3,346.3	3.8	3.6	4.1	4.2
Deflator of GDP					
Private consumption expenditure		1.5	1.6	1.9	2.2
Public consumption expenditure		1.6	1.6	1.8	1.8
Investment in machinery and equipment		2.2	2.3	2.1	2.2
Investment in construction		0.5	0.4	0.8	0.5
Investment in other equipment		3.3	4.5	4.5	4.2
Exports		1.5	2.2	2.0	1.8
Imports		1.6	1.1	1.1	0.7
Addendum: Consumer prices		2.6	1.8	1.3	0.3
Income distribution		1.7	1.9	2.0	2.0
National income	2,456.4	3.9	3.5	4.1	4.2
Employment income	1,668.8	4.2	4.7	4.5	4.2
in percent of national income		67.9	68.7	69.0	68.9
Entrepreneurial and property income	787.6	3.3	1.0	3.2	4.4
Disposable income of private households	1,869.9	3.4	3.5	4.0	3.8
Savings rate		9.9	10.2	10.2	10.2
Wages and salaries	1,366.6	4.2	4.9	4.5	4.3
Wage per hour		2.4	2.8	3.2	2.9
Unit labor costs		1.6	2.1	2.2	1.9
Productivity per hour		0.9	0.4	1.0	0.8
Unemployment (1,000)		2,532.8	2,343.0	2,210.7	2,125.2
Rate of unemployment (percent)		5.7	5.2	4.9	4.6
Total employment (1,000)		44,268.8	44,858.0	45,307.3	45,636.0
Public sector budget balance (€ bn.)		34.0	52.7	40.0	32.7
Public sector budget balance (in percent of GDP)		1.0	1.6	1.1	0.9
Public debts (in percent)		63.9	59.9	56.4	53.5

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

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

11. National accounts

National Accounts

Forecast period: 2018 to 2019

forecast period: 2018 to 2019							
	2018	2019	2020	2018		2019	
				H1	H2	H1	H2
1. Production							
Change over the same period of the preceding year in %							
Persons in employment	1.3	1.0	0.7	1.4	1.2	1.0	1.0
Hours worked	1.5	1.0	1.1	1.5	1.5	0.7	1.3
Hours worked by person in employment	0.2	0.0	0.4	0.1	0.2	- 0.3	0.3
Labor productivity ¹	0.4	1.0	0.8	0.3	0.4	1.1	1.0
Gross domestic product, price-adjusted	1.9	2.0	1.9	1.9	1.9	1.8	2.3

2. Use of gross domestic product at current prices

a) EUR bn.

Consumption expenditure	2 446.3	2 546.3	2 643.7	1 193.1	1 253.2	1 238.5	1 307.8
Private households ²	1 785.7	1 857.4	1 926.0	872.8	912.9	904.9	952.5
Government	660.5	688.9	717.7	320.3	340.3	333.6	355.4
Gross fixed capital formation	705.4	747.7	789.9	339.1	366.3	358.1	389.6
Machinery and equipment	226.2	235.7	244.3	107.9	118.3	111.7	124.0
Construction	351.8	378.6	407.3	169.2	182.6	181.6	197.0
Other products	127.4	133.4	138.3	62.0	65.5	64.8	68.6
Changes in inventories ³	3.0	2.7	1.3	10.5	- 7.4	12.3	- 9.6
Domestic expenditure	3 154.7	3 296.7	3 434.9	1 542.7	1 612.0	1 608.9	1 687.8
Net exports	239.5	234.7	242.9	129.2	110.4	123.1	111.6
Exports	1 608.2	1 702.6	1 795.7	792.0	816.2	837.6	865.1
Imports	1 368.6	1 468.0	1 552.8	662.8	705.8	714.5	753.5
Gross domestic product	3 394.3	3 531.4	3 677.8	1 671.8	1 722.4	1 732.0	1 799.4

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

Consumption expenditure	3.2	4.1	3.8	3.0	3.4	3.8	4.4
Private households ²	3.1	4.0	3.7	2.8	3.4	3.7	4.3
Government	3.4	4.3	4.2	3.4	3.4	4.2	4.4
Gross fixed capital formation	6.0	6.0	5.6	5.6	6.3	5.6	6.4
Machinery and equipment	5.1	4.2	3.7	5.5	4.7	3.5	4.9
Construction	7.7	7.6	7.6	6.8	8.5	7.3	7.9
Other products	2.9	4.7	3.6	2.6	3.1	4.6	4.8
Domestic expenditure	4.1	4.5	4.2	3.8	4.4	4.3	4.7
Exports	4.3	5.9	5.5	3.8	4.8	5.8	6.0
Imports	5.8	7.3	5.8	4.2	7.3	7.8	6.8
Gross domestic product	3.6	4.0	4.1	3.7	3.4	3.6	4.5

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

a) EUR bn.

Consumption expenditure	2 187.8	2 235.2	2 277.4	1 074.9	1 112.8	1 095.6	1 139.6
Private households ²	1 618.2	1 653.3	1 683.8	794.1	824.1	808.8	844.5
Government	569.2	581.6	593.0	280.6	288.6	286.5	295.0
Gross fixed capital formation	611.2	629.9	648.4	295.2	316.0	303.2	326.7
Machinery and equipment	217.2	224.6	231.5	103.4	113.8	106.2	118.4
Construction	282.4	290.9	300.3	137.2	145.2	140.9	150.0
Other products	112.4	115.3	117.5	54.9	57.5	56.3	59.1
Domestic expenditure	2 789.1	2 854.8	2 914.0	1 376.9	1 412.2	1 407.5	1 447.4
Exports	1 503.9	1 574.8	1 649.8	744.0	759.9	775.7	799.1
Imports	1 306.8	1 383.6	1 459.5	637.1	669.6	673.2	710.4
Gross domestic product	2 987.8	3 049.1	3 108.5	1 483.8	1 504.0	1 510.8	1 538.2

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

Consumption expenditure	1.4	2.2	1.9	1.2	1.6	1.9	2.4
Private households ²	1.5	2.2	1.9	1.3	1.6	1.8	2.5
Government	1.1	2.2	2.0	0.9	1.3	2.1	2.2
Gross fixed capital formation	3.1	3.1	2.9	2.9	3.3	2.7	3.4
Machinery and equipment	4.7	3.4	3.1	5.1	4.3	2.7	4.0
Construction	3.0	3.0	3.2	2.4	3.7	2.7	3.3
Other products	0.6	2.6	1.8	0.4	0.9	2.6	2.7
Domestic expenditure	2.1	2.4	2.1	1.8	2.3	2.2	2.5
Exports	3.2	4.7	4.8	3.2	3.2	4.3	5.2
Imports	3.9	5.9	5.5	3.4	4.3	5.7	6.1
Gross domestic product	1.9	2.0	1.9	1.9	1.9	1.8	2.3

National Accounts (cont.)

Forecast period: 2018 to 2019

	2018	2019	2020	2018		2019	
				H1	H2	H1	H2

4. Deflators (2010=100)

Change on the same period of the preceding year in %

Private consumption ²	1.6	1.8	1.8	1.5	1.7	1.8	1.8
Government consumption	2.3	2.1	2.2	2.5	2.1	2.0	2.2
Gross fixed capital formation	2.8	2.9	2.6	2.7	2.8	2.8	2.9
Machinery and equipment	0.4	0.8	0.5	0.4	0.4	0.8	0.8
Construction	4.5	4.5	4.2	4.4	4.7	4.5	4.5
Exports	1.1	1.1	0.7	0.6	1.5	1.4	0.8
Imports	1.8	1.3	0.3	0.7	2.9	2.0	0.6
Gross domestic product	1.6	1.9	2.2	1.8	1.5	1.7	2.1

5. National income

a) EUR bn.

Primary income of private households ²	2 362.0	2 453.2	2 544.9	1 166.6	1 195.4	1 210.4	1 242.8
Employers social contributions	312.9	327.2	338.2	151.7	161.2	158.6	168.7
Gross wages and salaries	1 433.5	1 498.1	1 563.0	683.2	750.3	713.5	784.5
Other primary income ⁴	615.6	627.9	643.6	331.6	284.0	338.3	289.6
Primary income of other sectors	505.8	528.9	559.2	233.5	272.3	238.1	290.7
Net national income	2 867.8	2 982.1	3 104.1	1 400.0	1 467.7	1 448.5	1 533.6
Consumption of fixed capital	598.8	626.4	655.2	296.8	302.0	310.5	315.9
Gross national income	3 466.6	3 608.5	3 759.3	1 696.9	1 769.8	1 759.0	1 849.5
memorandum item:							
Net national income (factor costs)	2 541.9	2 646.6	2 758.4	1 236.5	1 305.4	1 280.4	1 366.2
Property and entrepreneurial income	795.5	821.3	857.1	401.6	393.9	408.3	413.0
Compensation of employees	1 746.4	1 825.3	1 901.2	834.9	911.5	872.1	953.2

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

Primary income of private households ²	4.1	3.9	3.7	4.3	3.8	3.8	4.0
Employers social contributions	3.6	4.6	3.4	3.7	3.4	4.5	4.6
Gross wages and salaries	4.9	4.5	4.3	4.9	4.9	4.4	4.6
... per employee	3.2	3.3	3.4	3.1	3.4	3.2	3.3
Other primary income ⁴	2.4	2.0	2.5	3.4	1.2	2.0	2.0
Primary income of other sectors	0.5	4.6	5.7	- 0.3	1.2	2.0	6.8
Net national income	3.4	4.0	4.1	3.5	3.3	3.5	4.5
Consumption of fixed capital	4.5	4.6	4.6	4.5	4.5	4.6	4.6
Gross national income	3.6	4.1	4.2	3.7	3.5	3.7	4.5
memorandum item:							
Net national income (factor costs)	3.5	4.1	4.2	3.5	3.4	3.5	4.7
Property and entrepreneurial income	1.0	3.2	4.4	1.3	0.7	1.7	4.9
Compensation of employees	4.7	4.5	4.2	4.6	4.7	4.4	4.6

6. Disposable income of private households ²

a) EUR bn.

Mass income	1 403.9	1 473.4	1 537.2	673.9	730.1	704.6	768.8
Net wages and salaries	947.2	996.2	1 039.3	446.5	500.6	467.5	528.8
Social benefits other than social transfers in kind	580.5	605.6	630.2	288.9	291.6	301.0	304.7
less: Levies on social benefits, taxes on consumption	123.7	128.4	132.3	61.6	62.2	63.8	64.6
Other primary income ⁴	615.6	627.9	643.6	331.6	284.0	338.3	289.6
Other transfers received (net) ⁵	- 83.6	- 87.4	- 90.8	- 43.1	- 40.5	- 44.3	- 43.1
Disposable income	1 935.9	2 014.0	2 090.0	962.4	973.5	998.6	1 015.4
Change in pension entitlements	52.9	53.7	54.5	26.1	26.8	26.5	27.2
Consumption expenditure	1 785.7	1 857.4	1 926.0	872.8	912.9	904.9	952.5
Saving	203.1	210.3	218.5	115.7	87.4	120.2	90.1
Saving ratio (%) ⁶	10.2	10.2	10.2	11.7	8.7	11.7	8.6

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

Mass income	4.2	4.9	4.3	3.9	4.5	4.6	5.3
Net wages and salaries	4.9	5.2	4.3	4.8	5.0	4.7	5.6
Social benefits other than social transfers in kind	2.7	4.3	4.1	2.2	3.2	4.2	4.5
less: Levies on social benefits, taxes on consumption	2.8	3.8	3.0	2.8	2.7	3.7	3.9
Other primary income ⁴	2.4	2.0	2.5	3.4	1.2	2.0	2.0
Disposable income	3.5	4.0	3.8	3.4	3.7	3.8	4.3
Consumption expenditure	3.1	4.0	3.7	2.8	3.4	3.7	4.3
Saving	7.0	3.5	3.9	7.3	6.6	3.9	3.1

National Accounts (cont.)

Forecast period: 2018 to 2019

	2018	2019	2020	2018		2019	
				H1	H2	H1	H2

7. Revenue and expenditure by general government ¹

a) EUR bn.

Revenue							
Taxes	798.8	826.6	857.3	403.5	395.3	417.5	409.2
Social contributions	571.7	593.9	618.2	277.0	294.7	287.6	306.3
Property income	18.3	18.8	18.6	11.2	7.1	11.8	7.1
Other current transfers	23.3	22.7	23.1	11.2	12.2	10.4	12.4
Capital transfers	11.9	10.9	10.9	5.5	6.4	5.5	5.4
Sales	114.0	118.2	121.4	53.3	60.7	55.8	62.4
Other subsidies	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Total	1 538.3	1 591.4	1 649.6	761.8	776.5	788.6	802.8
Expenditure							
Intermediate consumption ²	447.8	468.5	488.8	214.9	232.9	224.7	243.8
Compensation of employees	255.9	265.4	274.8	123.0	132.9	127.7	137.7
Property income (interest)	31.3	30.1	29.7	16.1	15.1	15.5	14.5
Subsidies	28.4	29.0	29.7	13.6	14.8	13.9	15.2
Social benefits	520.6	544.6	568.0	259.2	261.4	270.8	273.8
Other current transfers	81.6	90.3	93.5	39.4	42.2	43.7	46.6
Capital transfers	41.5	38.5	40.5	13.1	28.4	14.0	24.5
Gross capital formation	80.1	86.6	93.4	34.9	45.2	36.9	49.7
Net acquisitions of non-produced non-financial assets	- 1.5	- 1.5	- 1.5	- 0.6	- 0.9	- 0.6	- 0.9
Total	1 485.6	1 551.4	1 616.9	713.7	771.9	746.7	804.7
Net lending	52.7	40.0	32.7	48.1	4.6	41.9	- 2.0

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

Revenue							
Taxes	4.2	3.5	3.7	5.2	3.3	3.5	3.5
Social contributions	4.2	3.9	4.1	4.2	4.2	3.8	3.9
Property income	15.3	2.8	- 1.3	29.3	- 1.4	5.2	- 0.8
Other current transfers	7.1	- 2.6	1.6	13.8	1.6	- 7.3	1.6
Capital transfers	16.7	- 8.4	0.0	14.7	18.6	0.0	- 15.7
Sales	2.9	3.6	2.7	1.7	4.1	4.7	2.7
Other subsidies	- 1.0	0.0	0.0	- 2.2	0.0	0.0	0.0
Total	4.4	3.5	3.7	5.0	3.7	3.5	3.4
Expenditure							
Intermediate consumption ²	3.0	4.6	4.3	2.4	3.5	4.6	4.7
Compensation of employees	3.7	3.7	3.5	4.0	3.4	3.8	3.6
Property income (interest)	- 7.5	- 3.8	- 1.3	- 8.7	- 6.2	- 3.7	- 4.0
Subsidies	0.1	2.3	2.3	- 2.3	2.3	2.3	2.3
Social benefits	2.9	4.6	4.3	2.4	3.4	4.4	4.8
Other current transfers	8.4	10.7	3.6	- 1.0	19.1	10.9	10.5
Capital transfers	- 5.6	- 7.2	5.2	- 41.2	30.8	7.5	- 14.0
Gross capital formation	10.7	8.1	7.9	12.3	9.4	5.7	9.9
Net acquisitions of non-produced non-financial assets	- 3.7	0.0	0.0	- 9.0	0.0	0.0	0.0
Total	3.2	4.4	4.2	1.2	5.1	4.6	4.2

¹ Price-adjusted gross domestic product per hour worked.

² Incl. nonprofit 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.