

KIEL INSTITUTE **ECONOMIC OUTLOOK**

German Economy
Spring 2020

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GERMAN ECONOMY: V(IRUS)-SHAPED RECESSION AHEAD

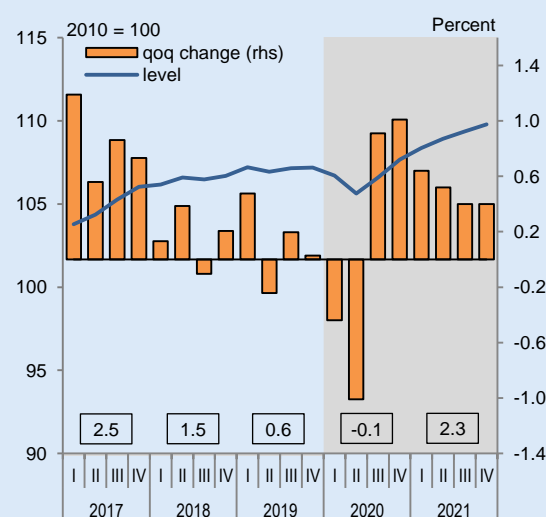
Jens Boysen-Hogrefe, Salomon Fiedler, Dominik Groll, Nils Jannsen, Stefan Kooths, and Saskia Möhle

The spread of the coronavirus will have a considerable impact on the German economy. The economy will be hit in a situation in which it was just about to regain footing after the downturn of the past year. Recently, signs have been increasing that industrial production is finding its bottom and is gradually emerging from recession. The actual economic damage caused by the coronavirus can hardly be quantified at present. First, the effects are not yet reflected in available leading indicators. Second, the further development of the pandemic is uncertain, especially as the economic consequences depend to a large extent on the measures taken to contain the virus. For our forecast, we assume that the coronavirus will dampen economic activity, especially in the first half of the year, and that there will be noticeable catch-up effects thereafter. In this scenario, the economic picture will resemble a pronounced V-shape in the course of this year. It is already foreseeable that foreign trade will be significantly affected in the coming months. Trade with China but also with other regions particularly affected by the virus is likely to decline significantly. In this regard, delivery problems for intermediate goods could lead to noticeable production shortfalls. In addition, the spread of the virus is also likely to have a significant impact on the domestic economy. In particular, private households will probably cut back on leisure spending in order to avoid infection. In light of the uncertain development of the pandemic, we expect firms to postpone investment projects. At the same time, the impact on employment is likely to be small if the largest negative effects are indeed limited to the first half of the year. All in all, we expect a slight decline in gross domestic product of 0.1 percent for the current year. In our most recent winter forecast, we had still assumed an increase of 1.1 percent. In 2021, GDP is projected to grow quite strongly by 2.3 percent, also due to catch-up effects. However, the downside risks to our forecast prevail and, depending on the further development of the corona pandemic, significantly more negative scenarios are also possible.

Regarding further easing measures, the European Central Bank's (ECB) options are limited. The key interest rates (currently the deposit rate is -0.5 percent, the main refinancing rate 0 percent and the prime refinancing rate 0.25 percent) are likely to be very close to their lower limit. If the central bank pushes its interest rates too far into negative territory, people will avoid them by shifting into cash. There is also the risk that an increase in the cost of holding liquidity due to a further reduction in the deposit rate will have a counterproductive effect, particularly in the current crisis situation. In addition to its low interest rate policy, the ECB conducts net purchases of securities on the open market, and it offers commercial banks targeted long-term refinancing operations (TLTRO) with very favorable terms. Due to the current Corona crisis, the ECB will want to take additional easing measures. However, the ECB's almost exhausted instruments will make it much more difficult to generate the desired economic stimulus.

Available leading indicators do not reflect the impact of the corona pandemic on the German economy yet. Leading indicators have improved recently. In particular, in the manufacturing sector

Figure 1:
Gross domestic product, 2017–2021



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: Kiel Institute forecast.

increasing new orders and stabilizing business sentiment indicated that the industrial recession could come to an end in the near future. Overall, leading indicators pointed to a solid increase of GDP in the first quarter. However, apparently not even the most recent available indicators – business surveys for February – reflect the impact of the corona virus. Nevertheless, it seems unavoidable that the German economy will face a recession in the first half of the year. Our forecast of a strong recovery in the second half of the year rests on the assumption that the largest impact of the corona pandemic will phase out until then and that the pandemic per se has mostly a temporary impact on the economy.

Private consumption is set to decline in the first half of the year. Disposable income of private households is expected to increase with a solid growth rate of 2.3 percent in this year. However, the coronavirus will be a major drag on consumption activity in the first half of the year, as private households will cut back on spending to avoid infection. For our forecast, we assumed that private consumption for all expenditure categories will decline by 0.5 percent in the first half of the year. As spending for some categories will remain stable (e.g. rents) or may even increase in the short-run (e.g. food), this implies that expenditures for other categories are set to decline more than proportionally. On top of that, we expect that consumption for leisure activities will decline more strongly. The categories of “leisure and culture”, “tourism” and “accommodation and restaurants” accounted for about 10 percent of total consumer spending in 2019. Assuming very large declines in this area in historical comparison (since 1991) implies a decline in private consumption expenditure by around 1 percent. Taken together, we expect private consumption to be dampened by 1.5 percent due to the coronavirus in the first half of the year. Most of this effect is likely to materialize in the second quarter. Unless concerns about the spread of the coronavirus increase further, private consumer spending will start to recover in the third quarter. Overall, we expect private consumption to grow only by 0.4 percent in this year, leading to a strong increase in the savings rate. In 2021, private consumption will increase by a much higher rate (2.2 percent) due to catch-up effects and due to the partial abolition of the “Solidaritätszuschlag”, which will increase disposable income.

Business investment is set to decline while construction investment will remain robust. Firms will cut back on investments in the first half of the year as production will decline and uncertainty related to the future developments of the corona pandemic remains high. As a consequence, business investment is set to decline in this year (0.9 percent) and—if the impact of the pandemic phases out in the course of this year—to rebound next year (3.6 percent). In contrast, in view of the large stock in orders construction investment will stay on an upward trend despite temporary negative factors. With capacity utilisation of construction firms at historically high levels, growth in construction investment has been so far restricted by the pace, in which firms have been able to expand their capacities. Against this backdrop, declining demand would initially be mainly reflected in lower price increases. At the same time, due to the high level of capacity utilization supply-side disruptions, for example as a result of a significant increase in sick leave, would probably have a direct impact on construction investment, as there are hardly any capacity reserves to compensate for such shortfalls. For the first quarter, leading indicators, such as construction output in January and surveys in the construction industry on current production, point to a significant increase in construction investment. Overall, we expect a growth rate of 3.6 percent for the current year. Next year, construction investment will increase by 2.6 percent.

German foreign trade will suffer noticeably from the global spread of the coronavirus and will only recover in the second half of the year. Exports decreased somewhat in the fourth quarter and overall only expanded weakly in 2019, mostly due to the continuing slump in global industrial production. Around the turn of the year, the global economy seemed to stabilize and so did several leading indicators for German foreign trade, suggesting a pick-up of exports. However, due to the corona pandemic and its effects on the global economy (Gern et al. 2019), we now expect a pronounced V-shaped development in the course of the year instead of a gradual increase in export activity. Both trade in goods and in services – most notably travel and transport services, but spillovers to other service areas are likely – will be severely affected. Despite the recovery in the second half of 2020, exports are projected to decrease for the first time since the financial crisis (by 1 percent), followed by a vivid expansion of 5.2 percent in 2021. Imports rose markedly at the end of 2019, following a period of weakness that had already begun in mid-2018. However, similar to exports the increase in imports in 2019 was also noticeably weaker than in previous years. Supply bottlenecks – 30 percent of German imports are intermediate goods – and the weakness of domestic and foreign demand caused by the corona pandemic will considerably affect imports in the short term. We expect

catch-up effects in the second half of the year leading to an overall expansion by 1.2 percent in 2020, followed by an increase of 5.8 percent in 2021.

Consumer price inflation is likely to be subdued in 2020, but will be boosted in 2021 by catch-up effects and the climate package. In January and February, consumer price inflation stood at 1.7 percent year-over-year. Above-average contributions came from food prices, but also the energy component. The now significantly lower oil price will slow inflation in the coming months. Corona-related slumps in demand are currently likely to depress prices significantly for certain services. However, we assume that in the aggregate this decline in inflation will at least be fully offset by reduced production on the supply side (due to sick leave, containment measures and disrupted supply chains) and increases in demand in other areas (e.g. health). For the second half of the year we expect a rapid increase of the currently depressed oil prices, supporting an increase of CPI inflation rates next year. Furthermore, 2021 will be the first year in which the impact of the climate package will be felt to a substantial degree: we estimate that by itself it will increase consumer prices by 0.3 percentage points in 2021 alone. Overall we expect the CPI to increase by 1.3 percent this year and 2.1 percent next year.

Wage growth decelerates notably. Current collective agreements indicate a deceleration of negotiated wages and salaries in 2020. Moreover, the ongoing negotiations in the important metal and electrical industry are likely to fix considerably lower wage increases in light of the enduring recession in the manufacturing sector, which will now be prolonged by the looming slump due to the coronavirus pandemic. We expect total negotiated wages and salaries to rise by 2.4 percent both in 2020 and 2021, after an increase of 2.9 percent in 2019. Gross wages and salaries per employee will decelerate to a greater extent, as we expect firms to resort to short-time work and other internal measures to cut labor costs in order to cushion pandemic-related sales losses (many collective agreements contain opening clauses to deviate from contractual wages and salaries). As these measures are reversed as soon as the economic recovery starts in the second half of this year, wages and salaries will bounce back. As a result, we forecast wage growth of 2.2 percent this year, followed by 3.1 percent next year. As labor productivity has been weak in the past two years, unit labor costs have increased considerably faster than domestic prices. Real unit labor costs have now reached a level last seen at the beginning of the 2000s. As a result, labor demand will turn out to be weaker than in much of the recent past.

While the economic slump will lead to a decline in total hours worked, its effect on the number of employed people will be muted considerably by short-time work and cost-cutting measures within firms. According to our forecast, total hours worked will decline by 0.3 percent (working-day adjusted) in 2020, marking the first decline since the Great Recession. However, we expect this decline to affect the number of employed people only to a limited extent. Given this truly exogenous and most likely temporary shock, firms will try to hold on to most of their work force by resorting to cost-cutting measures (like working-time accounts, leave provisions, and opening clauses in collective agreements) and short-time work, where employees receive up to two-thirds of their lost net wage income from the government. We assume that – as in the Great Recession – about a fifth of the decline in working time will be picked up by short-time work and the rest by in-company measures, and that the average decline in working time per short-time worker is one-fourth. Accordingly, the number of short-time workers will increase by 190,000 persons from 2019 to 2020 on average, peaking at around 400,000 persons on a monthly frequency. In 2021, the number will decline by 160,000 persons in line with the economic recovery. Against this background, the increase in the number of employed persons is set to slow down considerably in the coming months, but the extent will be limited relative to the decline in total hours worked. For the same reasons, unemployment will remain relatively stable throughout 2020 and 2021.

After high fiscal surplus in 2019, budget balance will drop significantly in 2020. Despite the expansionary stance of fiscal policy and the business cycle downturn the budget balance only deteriorated modestly in 2019. However, in 2020 the recession caused by the outbreak of the coronavirus will dampen government revenues and expenditure for labour market policies will increase. Further, several policy measures including additional investment expenditure, tax cuts and lower rates for social security contributions also affect the budget balance negatively. In sum, expenditures increase much faster than revenues and the balance drops sharply, but remains slightly positive.

In 2021, fiscal policy will remain expansionary and the surplus completely vanishes. Due to the recovery of the economy, revenues will increase at higher rates. Additionally, a tax on carbon dioxide is introduced. In contrast, the solidarity surcharge will be partly abolished leading to a shortfall as high as the additional revenues by the carbon dioxide tax. Despite the more dynamic increase of revenues, the budget balance will decrease again and will turn negative, since expenditures still rise at higher rates. This is also due to fiscal policy, which will take additional expansionary measures such as the introduction of a basic pension and additional measures in the field of climate policy.

Table 1:
Key indicators, 2018–2021

| | 2018 | 2019 | 2020 | 2021 |
|--|--------|--------|--------|--------|
| Gross domestic product (GDP), price-adjusted | 1.5 | 0.6 | -0.1 | 2.3 |
| Gross domestic product, deflator | 1.5 | 2.2 | 2.2 | 1.6 |
| Consumer prices | 1.7 | 1.4 | 1.3 | 2.1 |
| Labor productivity (per hour worked) | 0.3 | -0.0 | -0.3 | 1.4 |
| Employment (1,000 persons) | 44,854 | 45,251 | 45,438 | 45,722 |
| Unemployment rate (percent) | 5.2 | 5.0 | 5.0 | 4.9 |
| in relation to nominal GDP | | | | |
| Public sector net lending | 1.9 | 1.4 | 0.3 | -0.1 |
| Gross public debt | 61.7 | 58.7 | 57.0 | 55.2 |
| Current account balance | 7.4 | 7.7 | 7.2 | 6.9 |

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: Kiel Institute forecast.

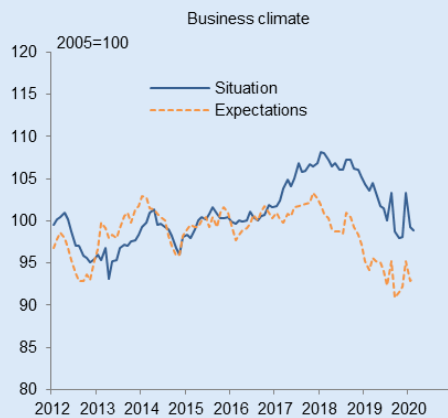
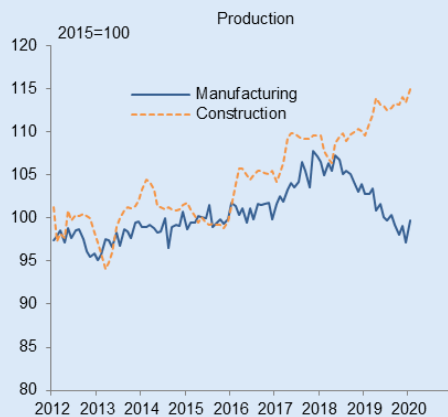
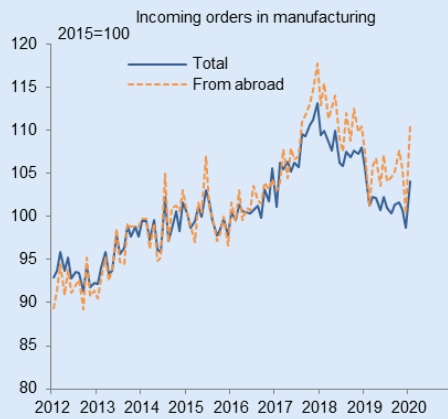
Data annex

Contents

| | |
|---|----|
| 1. Leading indicators | 7 |
| 2. Monetary conditions and prices | 8 |
| 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..... | 19 |
| 10. The German economy, 2018–2021 | 20 |
| 11. National accounts..... | 21 |

1. Leading indicators

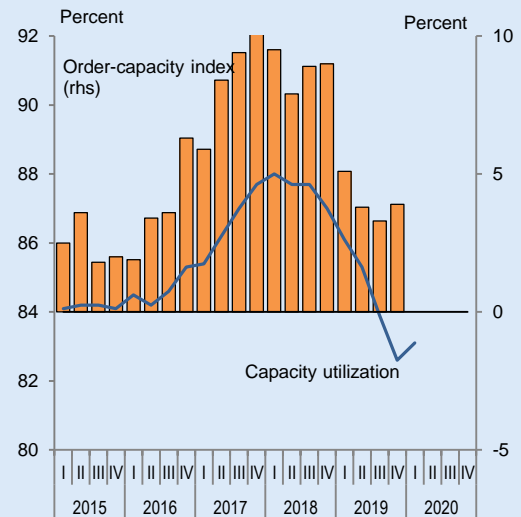
Figure 1.1:
Leading indicators, 2012–2020



Monthly data, seasonally adjusted.

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

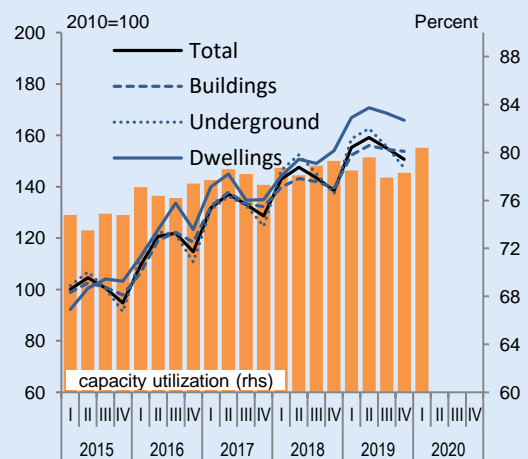
Figure 1.2:
Capacity utilization, 2015–2020



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, 2015–2020

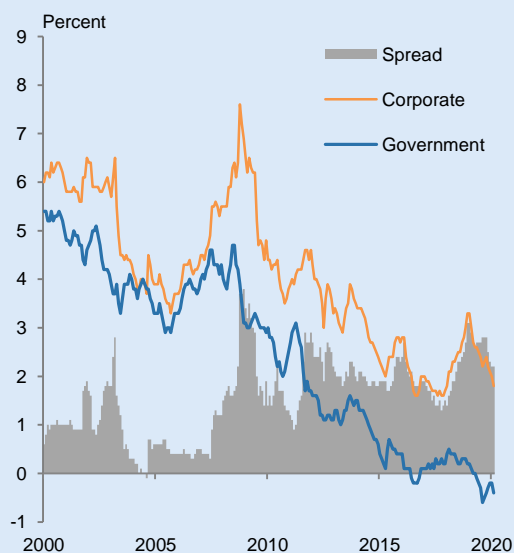


Quarterly data. Capacity utilization: seasonally adjusted (2014-Q4: October/November); order stocks: price, seasonally and working-day adjusted.

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

2. Monetary conditions and prices

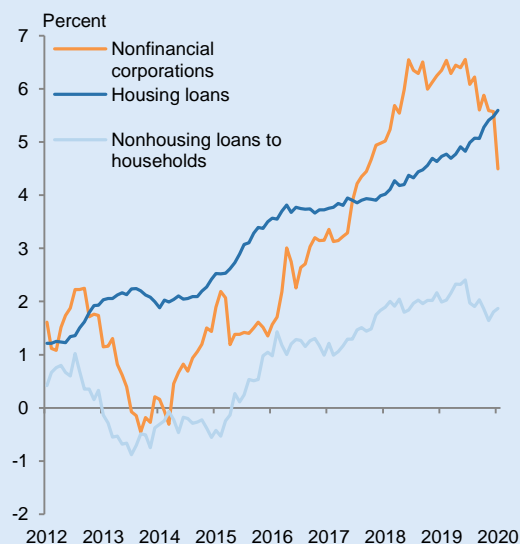
Figure 2.1:
Bond yields, 2000–2020



Monthly data, average maturities above three years.

Source: Deutsche Bundesbank, *Monthly Reports*; Kiel Institute calculations.

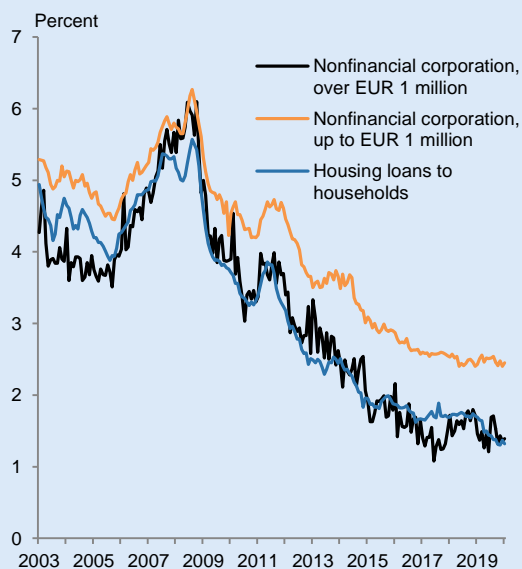
Figure 2.3:
Credit growth, 2012–2020



Change compared to one year ago; Monthly data.

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

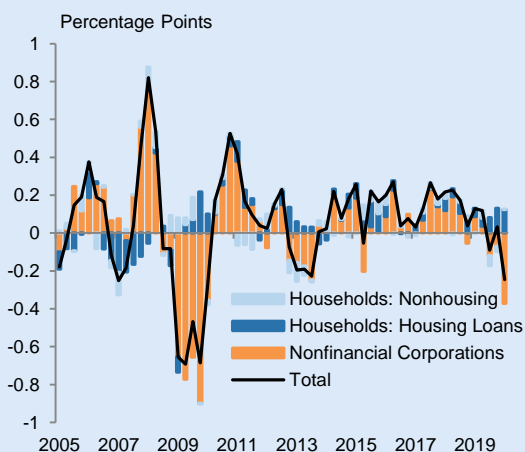
Figure 2.2:
Loan interest, 2003–2020



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

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

Figure 2.4:
Credit impulse, 2005–2020

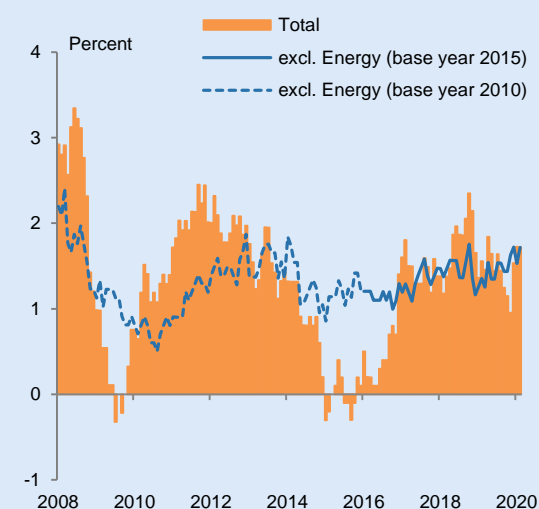


Quarterly data, most recent quarter based on first month; calculations follow Biggs et al. (2009), *Credit and economic recovery*, DNB Working Paper 218, De Nederlandsche Bank, Amsterdam.

The credit impulse is the change of the credit growth relative to the growth in GDP.

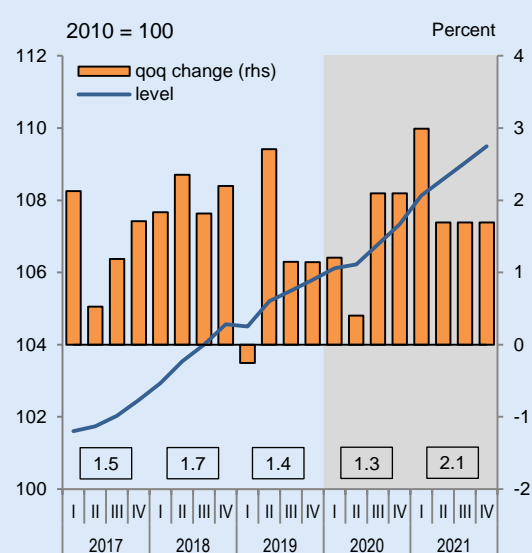
Source: Deutsche Bundesbank, *Seasonally Adjusted Business Statistics*; Kiel Institute calculations.

Figure 2.5:
Consumer prices, 2008–2020



Monthly data; year-on-year change.
After the introduction of the new base year 2015, the Statistisches Bundesamt has not yet published all new time series for the period before 2015. We therefore fall back on the old data for that period of time.
Source: Deutsche Bundesbank, *Time series databases*; Kiel Institute calculations.

Figure 2.6:
Consumer price index, 2017–2021



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

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

Table 2.1:
Projections and assumptions on the international environment, 2018–2021

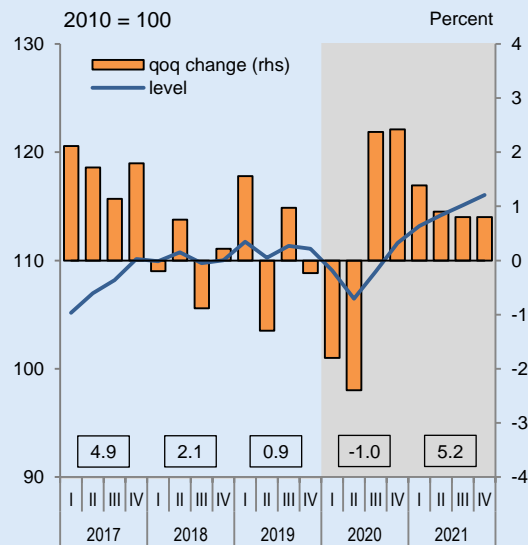
| | 2018 | | | | 2019 | | | | 2020 | | | | 2021 | | | |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | I | II | III | IV | I | II | III | IV | I | II | III | IV | I | II | III | IV |
| ECB key interest rate | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Long-term interest rate | 0.60 | 0.50 | 0.40 | 0.40 | 0.10 | -0.10 | -0.50 | -0.40 | -0.50 | -0.80 | -0.80 | -0.80 | -0.80 | -0.80 | -0.80 | -0.80 |
| US-dollar/euro exchange rate | 1.23 | 1.19 | 1.16 | 1.14 | 1.14 | 1.12 | 1.11 | 1.11 | 1.11 | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 |
| Price competitiveness | 90.1 | 90.0 | 90.8 | 90.4 | 89.3 | 89.4 | 89.2 | 88.6 | 88.2 | 88.2 | 88.2 | 88.0 | 87.9 | 87.7 | 87.5 | 87.4 |
| Export markets | 0.7 | 0.7 | 0.5 | 0.5 | 0.6 | 0.5 | 0.5 | 0.4 | -0.3 | -0.2 | 0.7 | 1.0 | 0.7 | 0.6 | 0.5 | 0.5 |
| Oil price | 66.90 | 74.50 | 75.10 | 68.80 | 63.20 | 68.90 | 61.90 | 63.40 | 52.50 | 39.70 | 48.00 | 58.70 | 60.30 | 60.60 | 60.90 | 61.20 |

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*; Kiel Institute calculations; shaded: Kiel Institute forecast or assumption.

3. External trade

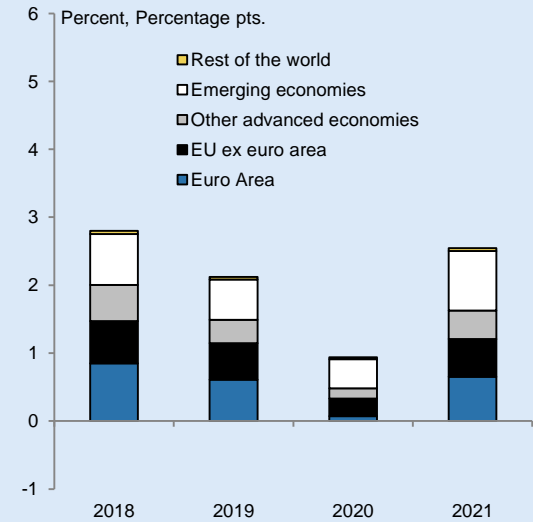
Figure 3.1:
Exports, 2017–2021



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: Kiel Institute forecast.

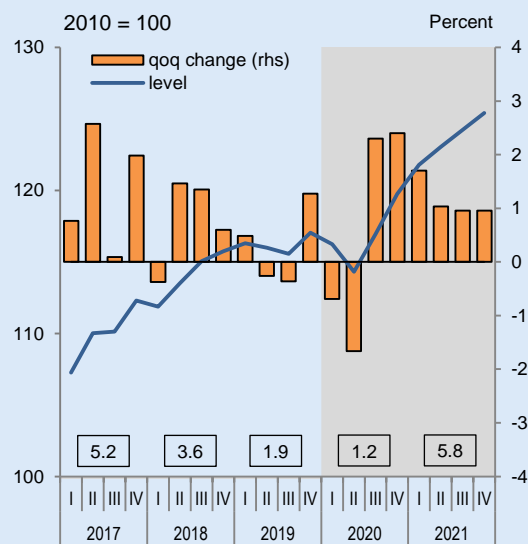
Figure 3.3:
German export markets, 2018–2021



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

Source: Federal Statistical Office, *Fachserie 7 Series 1*; national sources; Kiel Institute calculations and forecast.

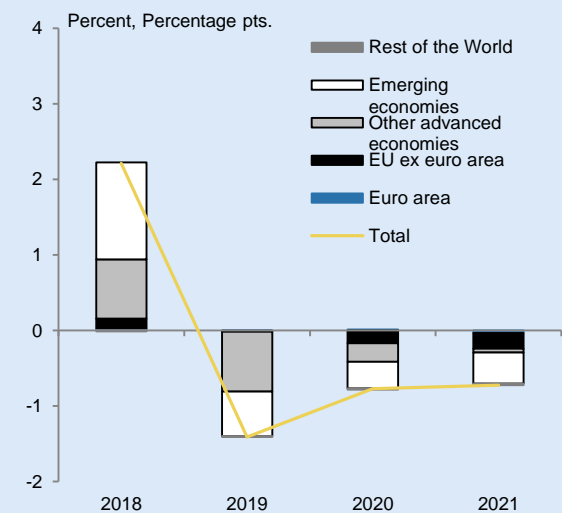
Figure 3.2:
Imports, 2017–2021



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: Kiel Institute forecast.

Figure 3.4:
Germany's price competitiveness, 2018–2021



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*; national sources; Kiel Institute calculations and forecast.

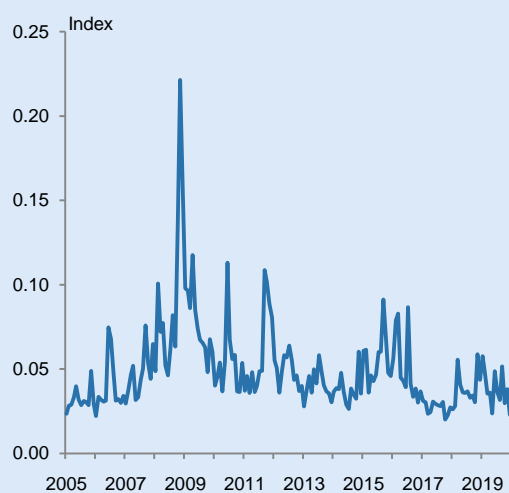
Figure 3.5:
Export indicators, 2008–2020



Quarterly data; exports, industrial production, volumes, change on previous year; order inflow: volumes, annualized change on previous quarter; 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*; Kiel Institute calculations.

Figure 3.6:
Uncertainty in German export markets, 2005–2019

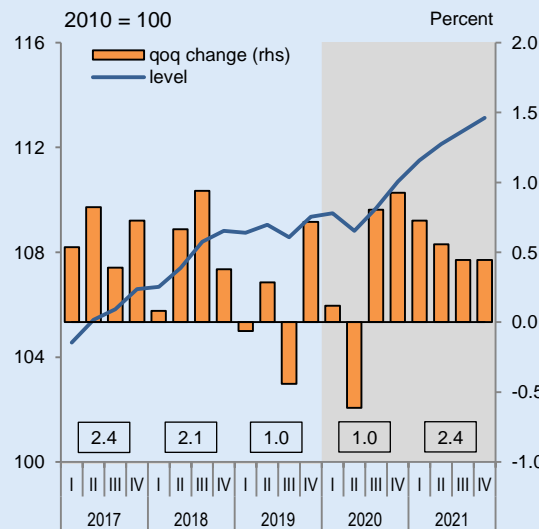


Monthly data; realized stock market volatilities based on daily stock price indices in 46 countries, weighted by shares of German exports. Last value: 09.03.2020

Source: National sources; Kiel Institute calculations.

4. Domestic expenditure

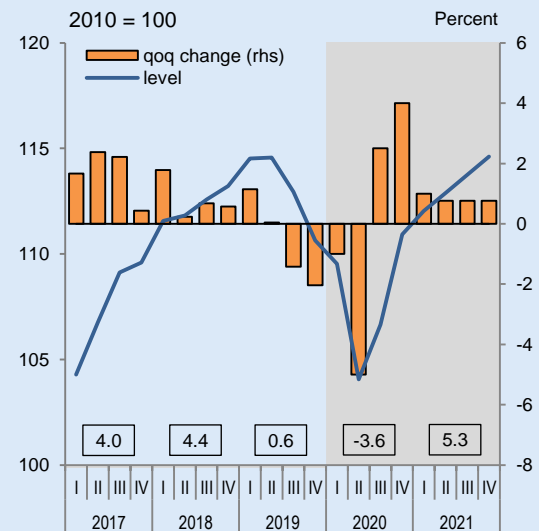
Figure 4.1:
Domestic expenditure, 2017–2021



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: Kiel Institute forecast.

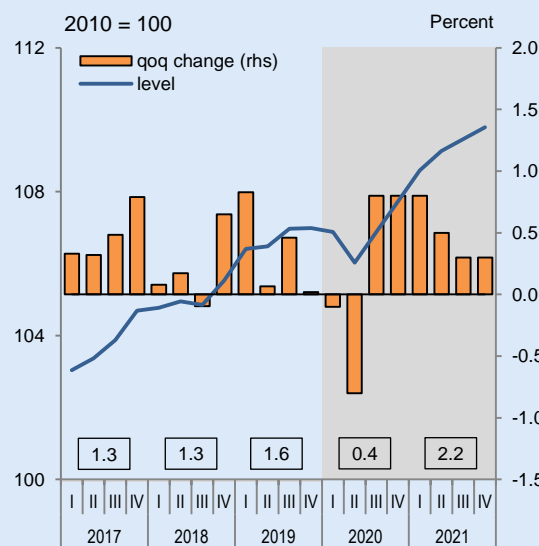
Figure 4.3:
M&E investments, 2017–2021



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: Kiel Institute forecast.

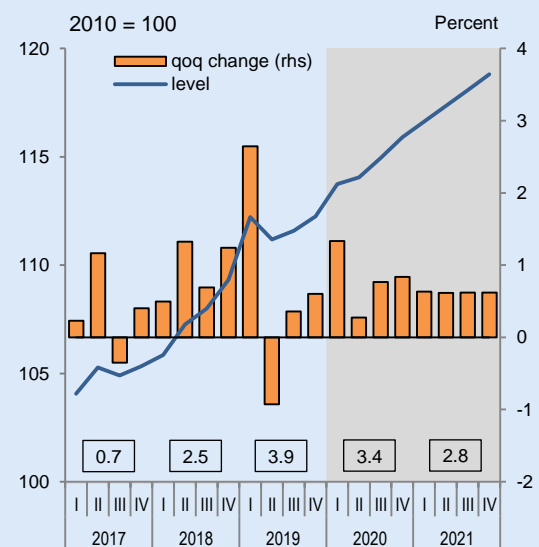
Figure 4.2:
Private consumption, 2017–2021



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: Kiel Institute forecast.

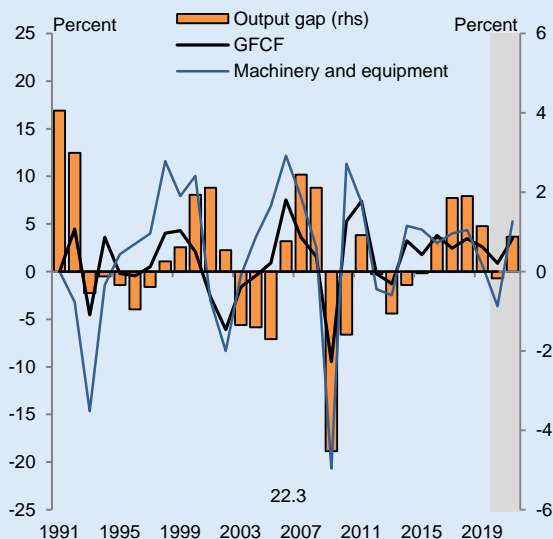
Figure 4.4:
Construction, 2017–2021



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: Kiel Institute forecast.

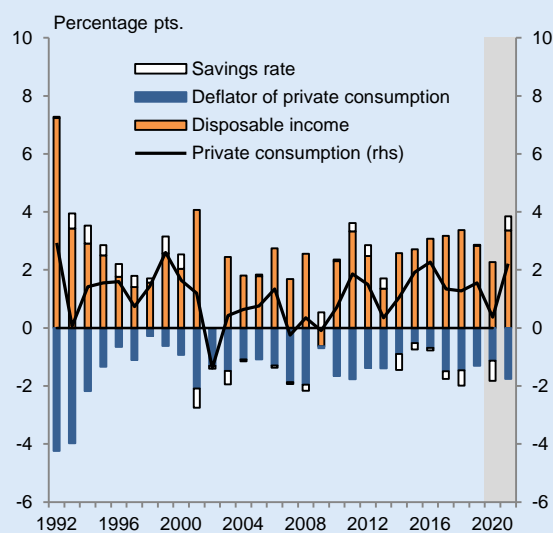
Figure 4.5:
Investment cycles, 1991–2021



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: Kiel Institute forecast.

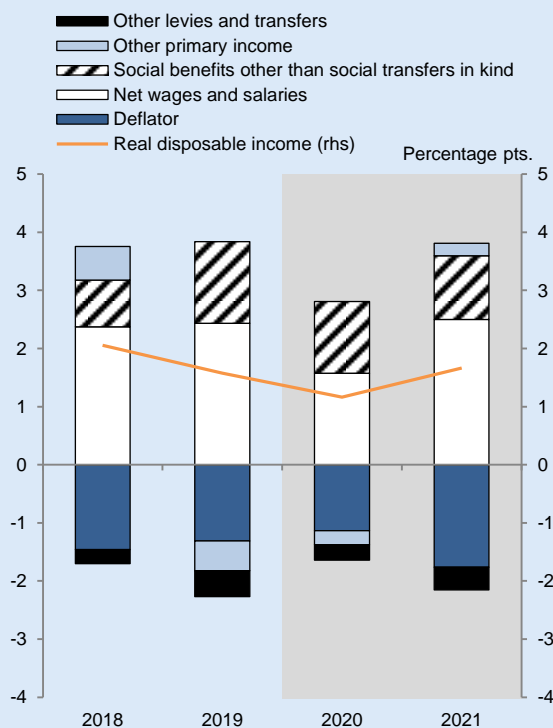
Figure 4.6:
Contributions to change in private consumption, 1992–2021



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

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

Figure 4.7:
Contributions to changes in real disposable income, 2018–2021



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*; Kiel Institute calculations; shaded: Kiel Institute forecast.

Table 4.1:
Gross fixed capital formation, 2018–2021

| | 2018 | 2019 | 2020 | 2021 |
|------------------------------|------|------|------|------|
| Total | 3.5 | 2.6 | 0.9 | 3.5 |
| Corporate investment | 3.6 | 1.6 | -0.9 | 3.6 |
| Machinery and equipment | 4.4 | 0.6 | -3.6 | 5.3 |
| Construction (non-dwellings) | 0.6 | 2.5 | 1.8 | 1.8 |
| Other | 4.3 | 2.7 | 1.9 | 2.3 |
| Dwellings | 3.0 | 4.1 | 3.2 | 2.5 |
| Public (non-dwellings) | 4.3 | 6.2 | 7.6 | 6.5 |
| <i>Memorandum item:</i> | | | | |
| Construction | 2.5 | 3.9 | 3.4 | 2.8 |

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, 2019–2020

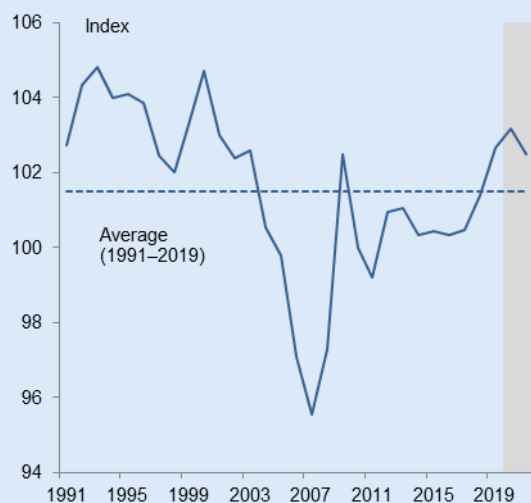
| | 2019 | | 2020 | | | |
|--|---|------|------|------|-----|-----|
| | III | IV | I | II | III | IV |
| | <i>Seasonally and calendar-adjusted, quarter-on-quarter change in percent</i> | | | | | |
| Gross domestic product | 0.2 | 0.0 | -0.4 | -1.0 | 0.9 | 1.0 |
| Gross value added | 0.0 | 0.1 | -0.4 | -1.0 | 0.9 | 1.0 |
| Industry excluding construction | -1.1 | -0.3 | -1.7 | -2.8 | 2.0 | 1.7 |
| Manufacturing | -0.9 | -0.9 | -1.7 | -2.8 | 2.0 | 1.7 |
| Construction | 1.3 | 0.5 | 1.9 | 0.3 | 0.5 | 0.6 |
| Trade, transport, accommodation, and food services | 0.1 | 0.2 | -0.6 | -1.0 | 0.9 | 1.1 |
| Information and communication | 1.8 | -0.1 | 0.5 | 0.3 | 0.8 | 1.0 |
| Financial and insurance services | 0.5 | 0.0 | 0.0 | -0.2 | 0.1 | 0.3 |
| Real estate activities | 0.3 | 0.3 | 0.5 | 0.6 | 0.4 | 0.4 |
| Business services | 0.0 | 0.0 | -0.7 | -1.7 | 1.2 | 1.4 |
| Public services, education, health | 0.6 | 0.6 | 0.2 | 0.1 | 0.2 | 0.3 |
| Other services | 0.0 | -0.3 | -0.4 | -0.8 | 0.3 | 0.5 |

Quarterly data, volumes.

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

6. Wages

Figure 6.1:
Real unit labor costs, 1991–2021



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: Kiel Institute forecast.

Table 6.1:
Wages and productivity, 2018–2021

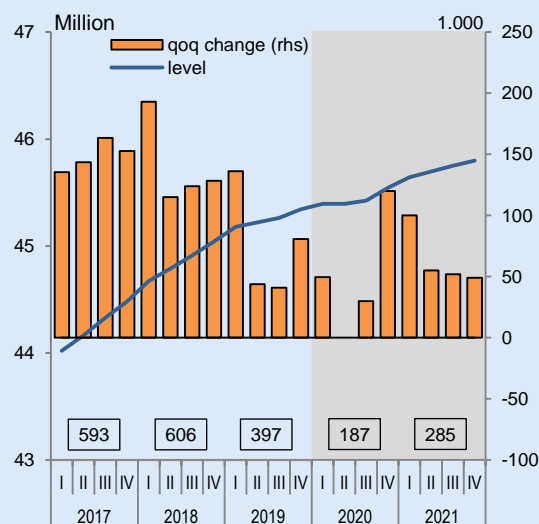
| | 2018 | 2019 | 2020 | 2021 |
|---------------------------|------|------|------|------|
| <i>Per hour</i> | | | | |
| Negotiated wages | 2.9 | 2.9 | 2.4 | 2.4 |
| Gross wages and salaries | 3.0 | 3.2 | 2.2 | 2.6 |
| Wage drift | 0.1 | 0.3 | -0.1 | 0.2 |
| Compensation of employees | 2.7 | 3.4 | 2.1 | 2.6 |
| Labor productivity | 0.3 | 0.0 | -0.3 | 1.4 |
| Unit labor costs | 2.4 | 3.4 | 2.4 | 1.2 |
| Unit labor costs (real) | 0.9 | 1.2 | 0.2 | -0.4 |
| <i>Per capita</i> | | | | |
| Negotiated wages | 2.9 | 2.9 | 2.4 | 2.4 |
| Gross wages and salaries | 3.2 | 3.0 | 2.2 | 3.1 |
| Wage drift | 0.3 | 0.1 | -0.2 | 0.7 |
| Compensation of employees | 2.9 | 3.2 | 2.1 | 3.1 |
| Labor productivity | 0.2 | -0.3 | -0.5 | 1.7 |
| Unit labor costs | 2.7 | 3.5 | 2.6 | 1.4 |
| Unit labor costs (real) | 1.2 | 1.4 | 0.4 | -0.3 |

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: Kiel Institute forecast.

7. Employment

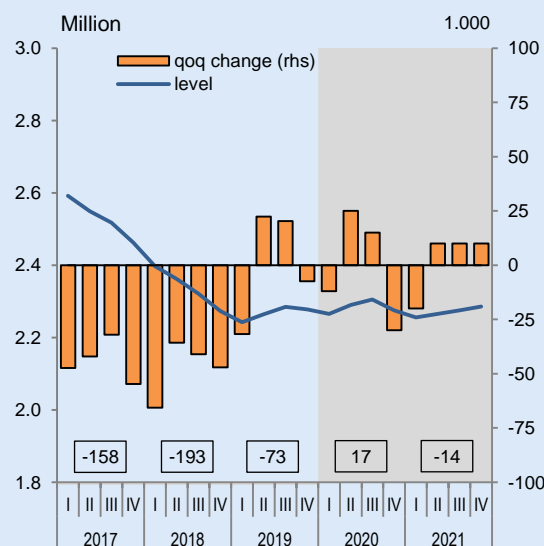
Figure 7.1:
Employment, 2017–2021



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

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

Figure 7.2:
Unemployment, 2017–2021



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

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

Table 7.1:
Employment, 2017–2021 (1,000 persons)

| | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|--------|--------|--------|--------|--------|
| Hours worked (domestic concept, mn. hours) | 61,564 | 62,344 | 62,720 | 62,859 | 63,440 |
| Persons in employment (domestic concept) | 44,248 | 44,854 | 45,251 | 45,438 | 45,722 |
| Self-employed | 4,273 | 4,224 | 4,150 | 4,071 | 4,024 |
| Employees (domestic concept) | 39,976 | 40,631 | 41,102 | 41,366 | 41,698 |
| Employees subject to social security contributions | 32,266 | 32,992 | 33,541 | 33,828 | 34,220 |
| Minijobs | 4,739 | 4,668 | 4,572 | 4,477 | 4,417 |
| Net commuting | 121 | 144 | 151 | 153 | 153 |
| Persons in employment (national concept) | 44,127 | 44,710 | 45,100 | 45,284 | 45,569 |
| Employees (national concept) | 39,855 | 40,486 | 40,951 | 41,213 | 41,545 |
| Unemployed persons (registered) | 2,533 | 2,340 | 2,267 | 2,284 | 2,270 |
| Unemployment rate (registered; percent) | 5.7 | 5.2 | 5.0 | 5.0 | 4.9 |
| Unemployment rate (ILO; percent) | 3.5 | 3.2 | 3.0 | 3.1 | 3.2 |

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: Kiel Institute forecast.

8. Public finances

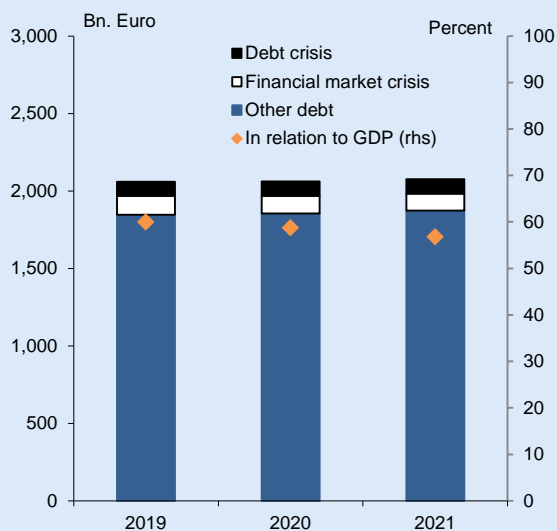
Table 8.1:
Revenues and expenditures of the general government, 2017–2021 (bn. euro)

| | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|----------------|----------------|----------------|----------------|----------------|
| Revenues | 1,481.7 | 1,552.9 | 1,608.6 | 1,644.8 | 1,703.0 |
| →relative to GDP | 45.7 | 46.4 | 46.8 | 46.9 | 46.5 |
| Taxes | 766.6 | 800.9 | 825.8 | 839.9 | 872.0 |
| →relative to GDP | 23.6 | 23.9 | 24.0 | 23.9 | 23.8 |
| Social contributions | 549.5 | 572.5 | 597.8 | 613.5 | 638.5 |
| →relative to GDP | 16.9 | 17.1 | 17.4 | 17.5 | 17.5 |
| Other revenues | 165.7 | 179.5 | 184.9 | 191.4 | 192.4 |
| →relative to GDP | 5.1 | 5.4 | 5.4 | 5.5 | 5.3 |
| Expenditures | 1,441.4 | 1,490.5 | 1,558.8 | 1,633.5 | 1,707.5 |
| →relative to GDP | 44.4 | 44.6 | 45.4 | 46.5 | 46.7 |
| Compensation of employees | 250.0 | 259.3 | 271.7 | 282.2 | 290.9 |
| Intermediate consumption | 162.9 | 169.4 | 179.8 | 188.0 | 195.9 |
| Social transfers in kind | 278.3 | 285.9 | 299.7 | 313.7 | 326.4 |
| Gross capital formation | 71.9 | 78.4 | 85.3 | 92.2 | 100.0 |
| Capital transfers | 34.3 | 31.7 | 27.5 | 24.7 | 23.6 |
| Social benefits | 506.6 | 520.2 | 546.2 | 569.8 | 591.2 |
| Subsidies | 27.9 | 29.6 | 31.7 | 34.4 | 43.2 |
| Other current transfers | 67.0 | 74.9 | 78.3 | 87.9 | 93.1 |
| Other capital transfers and investment grants | 44.0 | 42.2 | 39.6 | 41.6 | 44.2 |
| Other expenditures | -1.6 | -1.3 | -1.3 | -1.3 | -1.3 |
| Net lending/ net borrowing | 40.3 | 62.4 | 49.8 | 11.3 | -4.6 |
| →relative to GDP | 1.2 | 1.9 | 1.4 | 0.3 | -0.1 |
| Revenues of central, state, and local governments | 961.2 | 1,010.5 | 1,042.3 | 1,063.9 | 1,097.9 |
| Net of transfers from social security funds | 960.1 | 1,009.3 | 1,041.2 | 1,062.8 | 1,096.7 |
| Transfers from social security funds | 1.1 | 1.1 | 1.1 | 1.1 | 1.2 |
| Expenditures of central, state, and local governments | 931.9 | 963.9 | 1,002.4 | 1,050.0 | 1,102.6 |
| Net of transfers to social security funds | 816.7 | 845.6 | 879.7 | 923.3 | 970.0 |
| Transfers to social security funds | 115.2 | 118.3 | 122.8 | 126.8 | 132.6 |
| Net lending/ net borrowing central, state, and local governments | 29.3 | 46.6 | 39.9 | 13.9 | -4.7 |
| Revenues of social security funds | 636.9 | 661.9 | 690.2 | 708.8 | 738.8 |
| Net of transfers from central, state, and local governments | 521.6 | 543.6 | 567.4 | 582.1 | 606.3 |
| Expenditures of social security funds | 625.9 | 646.1 | 680.3 | 711.4 | 738.7 |
| Net of transfers to central, state, and local governments | 624.8 | 644.9 | 679.2 | 710.3 | 737.5 |
| Net lending/ net borrowing social security funds | 11.0 | 15.9 | 9.9 | -2.6 | 0.1 |

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

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

Figure 8.1:
Government gross debt, 2019–2021

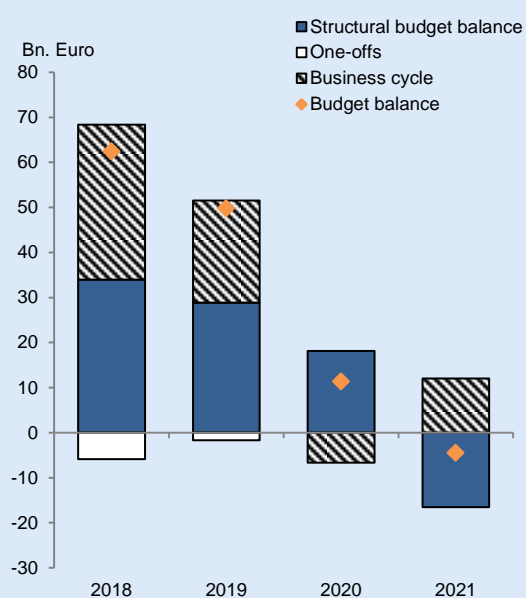


Debt crisis: Liabilities due to first Greece adjustment programme, deposits at the ESM, guarantees for EFSF credits.

Financial market crisis: Liabilities due to bank rescue packages.

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

Figure 8.2:
Structural budget balance, 2018–2021



Source: Europäische Kommission, AMECO; Kiel Institute calculations.

9. GDP and its components

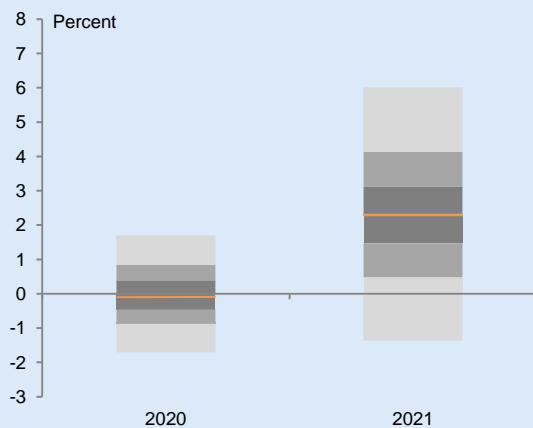
Table 9.1:
Quarterly data, 2019–2021

| | 2019 | | | | 2020 | | | | 2021 | | | |
|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | I | II | III | IV | I | II | III | IV | I | II | III | IV |
| Gross domestic product | 0.5 | -0.2 | 0.2 | 0.0 | -0.4 | -1.0 | 0.9 | 1.0 | 0.6 | 0.5 | 0.4 | 0.4 |
| Private consumption | 0.8 | 0.1 | 0.5 | 0.0 | -0.1 | -0.8 | 0.8 | 0.8 | 0.8 | 0.5 | 0.3 | 0.3 |
| Government consumption | 1.0 | 0.5 | 1.3 | 0.3 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.3 |
| Machinery and equipment | 1.2 | 0.0 | -1.4 | -2.0 | -1.0 | -5.0 | 2.5 | 4.0 | 1.0 | 0.8 | 0.8 | 0.8 |
| Constructions | 2.6 | -0.9 | 0.4 | 0.6 | 1.3 | 0.3 | 0.8 | 0.8 | 0.6 | 0.6 | 0.6 | 0.6 |
| Other investment | -0.5 | 1.0 | 1.0 | 1.1 | 0.5 | -0.5 | 0.2 | 0.5 | 0.8 | 0.8 | 0.8 | 0.8 |
| Change in inventories | -1.0 | 0.2 | -0.9 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Domestic expenditure | -0.1 | 0.3 | -0.4 | 0.7 | 0.1 | -0.6 | 0.8 | 0.9 | 0.7 | 0.6 | 0.4 | 0.4 |
| Exports | 1.6 | -1.3 | 1.0 | -0.2 | -1.8 | -2.4 | 2.4 | 2.4 | 1.4 | 0.9 | 0.8 | 0.8 |
| Imports | 0.5 | -0.3 | -0.4 | 1.3 | -0.7 | -1.7 | 2.3 | 2.4 | 1.7 | 1.0 | 1.0 | 1.0 |
| Net exports | 0.5 | -0.5 | 0.6 | -0.7 | -0.6 | -0.4 | 0.1 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Employment (domestic) | 45,178 | 45,222 | 45,263 | 45,343 | 45,393 | 45,393 | 45,423 | 45,543 | 45,643 | 45,698 | 45,750 | 45,799 |
| Unemployment (registered) | 2,242 | 2,264 | 2,285 | 2,277 | 2,265 | 2,290 | 2,305 | 2,275 | 2,255 | 2,265 | 2,275 | 2,285 |

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: Kiel Institute forecast.

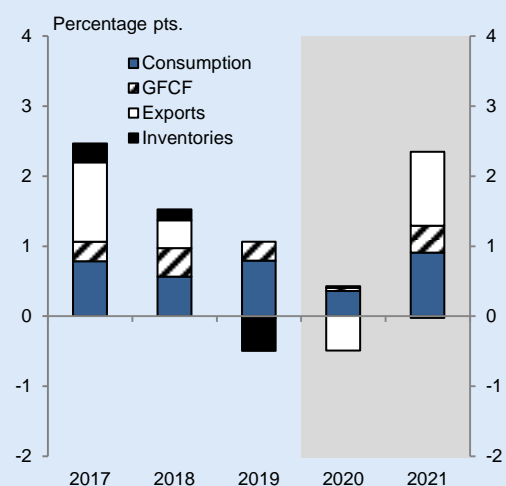
Figure 9.1:
Forecast intervals for GDP growth, 2019–2020



GDP: volumes, change over previous year. Point forecasts: orange lines. Forecast intervals grey 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 first quarter 1994–2019.

Source: Kiel Institute calculations.

Figure 9.2:
Import adjusted expenditure-side contributions to GDP growth, 2017–2021



Annual data; price-adjusted, growth contribution of each expenditure component adjusted by import content; import content is estimated based on input/output tables; see Kooths and Stolzenburg (2018).

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

10. The German economy, 2018–2021

| | 2018 | 2018 | 2019 | 2020 | 2021 |
|--|----------|--------------------------------------|----------|----------|----------|
| | Bn. Euro | Change over previous year in percent | | | |
| Use of gross domestic product, price-adjusted | | | | | |
| GDP | | 1.5 | 0.6 | -0.1 | 2.3 |
| Private consumption expenditure | | 1.3 | 1.6 | 0.4 | 2.2 |
| Public consumption expenditure | | 1.4 | 2.6 | 2.3 | 2.0 |
| Total fixed investment | | 3.5 | 2.6 | 0.9 | 3.5 |
| Machinery and equipment | | 4.4 | 0.6 | -3.6 | 5.3 |
| Construction | | 2.5 | 3.9 | 3.4 | 2.8 |
| Other equipment | | 4.3 | 2.7 | 1.9 | 2.3 |
| Changes in stocks | | 0.3 | -0.9 | 0.1 | 0.0 |
| Domestic Demand | | 2.1 | 1.0 | 1.0 | 2.4 |
| Exports | | 2.1 | 0.9 | -1.0 | 5.2 |
| Imports | | 3.6 | 1.9 | 1.2 | 5.8 |
| Net exports | | -0.4 | -0.4 | -1.0 | 0.0 |
| Use of gross domestic product at current prices | | | | | |
| GDP | 3,344.4 | 3.1 | 2.6 | 3.1 | 3.2 |
| Private consumption expenditure | 1,743.7 | 2.8 | 2.7 | 2.6 | 2.8 |
| Public consumption expenditure | 665.6 | 3.3 | 4.3 | 4.4 | 3.3 |
| Total fixed investment | 707.7 | 6.3 | 4.7 | 3.0 | 4.9 |
| Machinery and equipment | 235.3 | 4.9 | 1.0 | -0.9 | 3.2 |
| Construction | 344.3 | 7.3 | 7.9 | 5.8 | 6.3 |
| Other equipment | 128.1 | 5.9 | 3.2 | 2.3 | 3.8 |
| Changes in stocks (€ bn.) | | 21.3 | 2.1 | 0.7 | -0.5 |
| Domestic Demand | 3,138.3 | 4.1 | 2.8 | 3.1 | 3.4 |
| Exports | 1,585.8 | 3.1 | 1.4 | 2.0 | 3.4 |
| Imports | 1,379.7 | 5.5 | 1.9 | 1.8 | 3.9 |
| Net exports (€ bn.) | | 206.1 | 203.0 | 209.2 | 209.3 |
| Gross national income | 3,437.9 | 3.3 | 2.8 | 2.2 | 4.0 |
| Deflators | | | | | |
| GDP | | 1.5 | 2.2 | 2.2 | 1.6 |
| Private consumption expenditure | | 1.5 | 1.3 | 1.1 | 1.8 |
| Public consumption expenditure | | 1.8 | 2.5 | 2.3 | 1.8 |
| Investment in machinery and equipment | | 0.5 | 1.3 | 0.9 | 0.8 |
| Investment in construction | | 4.7 | 4.4 | 3.4 | 3.5 |
| Investment in other equipment | | 1.6 | 1.6 | 1.4 | 1.5 |
| Exports | | 0.9 | 0.8 | 0.6 | 1.1 |
| Imports | | 1.8 | -0.1 | -0.9 | 1.7 |
| <i>Addendum: Consumer prices</i> | | 1.7 | 1.4 | 1.3 | 2.1 |
| Income distribution | | | | | |
| Net national income (factor costs) | 2,503.1 | 3.0 | 2.3 | 1.8 | 4.1 |
| Compensation of employees | 1,771.3 | 4.5 | 4.4 | 2.7 | 3.9 |
| in percent of national income | | 70.8 | 72.2 | 72.8 | 72.7 |
| Property and entrepreneurial income | 731.8 | -0.5 | -2.6 | -0.5 | 4.7 |
| Disposable income | 1,898.5 | 3.5 | 2.9 | 2.3 | 3.4 |
| Savings rate | | 11.0 | 10.9 | 11.6 | 11.0 |
| Wages and salaries | 1,460.9 | 4.8 | 4.2 | 2.8 | 4.0 |
| Wage per hour | | 3.0 | 3.2 | 2.2 | 2.6 |
| Unit labor costs | | 2.4 | 3.4 | 2.4 | 1.2 |
| Productivity per hour | | 0.3 | 0.0 | -0.3 | 1.4 |
| Unemployment (1,000) | | 2,340.1 | 2,266.7 | 2,283.7 | 2,269.9 |
| Rate of unemployment (percent) | | 5.2 | 5.0 | 5.0 | 4.9 |
| Total employment (1,000) | | 44,853.9 | 45,251.0 | 45,437.6 | 45,722.1 |
| Public sector budget balance | | | | | |
| Public sector budget balance (€ bn.) | | 62.4 | 49.8 | 11.3 | -4.6 |
| Public sector budget balance (in percent of GDP) | | 1.9 | 1.4 | 0.3 | -0.1 |
| Public debts (in percent) | | 61.7 | 58.7 | 57.0 | 55.2 |

Change in stocks, net exports: Lundberg-component (contribution to GDP growth); employment, unemployment: as defined by the Federal Employment Agency (BA); public debts: in relation to GDP.

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

11. National accounts

Forecast period: 2020 to 2021

| | 2019 | 2020 | 2021 | 2020 | | 2021 | |
|--|------------|--------------|------------|--------------|------------|------------|------------|
| | | | | H1 | H2 | H1 | H2 |
| 1. Production | | | | | | | |
| Change over the same period of the preceding year in % | | | | | | | |
| Persons in employment | 0.9 | 0.4 | 0.6 | 0.4 | 0.4 | 0.6 | 0.6 |
| Hours worked | 0.6 | 0.2 | 0.9 | - 0.4 | 0.8 | 1.1 | 0.8 |
| Hours worked by person in employment | - 0.3 | - 0.2 | 0.3 | - 0.8 | 0.4 | 0.5 | 0.1 |
| Labor productivity ¹ | 0.0 | - 0.3 | 1.4 | - 0.3 | - 0.3 | 1.2 | 1.5 |
| Gross domestic product, price-adjusted | 0.6 | - 0.1 | 2.3 | - 0.7 | 0.5 | 2.4 | 2.3 |

2. Use of gross domestic product at current prices

a) EUR bn.

| | | | | | | | |
|-------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Consumption expenditure | 2 493.4 | 2 553.2 | 2 654.4 | 1 244.2 | 1 309.1 | 1 293.0 | 1 361.4 |
| Private households ² | 1 794.0 | 1 821.2 | 1 894.3 | 888.8 | 932.3 | 923.6 | 970.7 |
| Government | 699.4 | 732.1 | 760.2 | 355.3 | 376.8 | 369.4 | 390.7 |
| Gross fixed capital formation | 746.9 | 770.2 | 815.3 | 366.4 | 403.8 | 388.3 | 427.0 |
| Machinery and equipment | 239.8 | 233.1 | 247.2 | 109.6 | 123.5 | 116.7 | 130.5 |
| Construction | 373.3 | 398.9 | 424.6 | 190.7 | 208.2 | 203.5 | 221.1 |
| Other products | 133.7 | 138.2 | 143.5 | 66.1 | 72.1 | 68.1 | 75.4 |
| Changes in inventories ³ | - 12.2 | - 10.7 | - 12.6 | 0.4 | - 11.1 | - 0.3 | - 12.3 |
| Domestic expenditure | 3 228.1 | 3 312.7 | 3 457.2 | 1 611.0 | 1 701.8 | 1 681.0 | 1 776.1 |
| Net exports | 207.7 | 196.4 | 192.3 | 108.2 | 88.2 | 105.1 | 87.2 |
| Exports | 1 612.1 | 1 604.3 | 1 707.3 | 786.8 | 817.5 | 839.8 | 867.5 |
| Imports | 1 404.4 | 1 408.0 | 1 515.0 | 678.6 | 729.3 | 734.7 | 780.2 |
| Gross domestic product | 3 435.8 | 3 509.1 | 3 649.5 | 1 719.1 | 1 790.0 | 1 786.1 | 1 863.4 |

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

| | | | | | | | |
|---------------------------------|------------|------------|------------|------------|------------|------------|------------|
| Consumption expenditure | 3.5 | 2.4 | 4.0 | 2.5 | 2.3 | 3.9 | 4.0 |
| Private households ² | 2.9 | 1.5 | 4.0 | 1.4 | 1.6 | 3.9 | 4.1 |
| Government | 5.1 | 4.7 | 3.8 | 5.2 | 4.2 | 4.0 | 3.7 |
| Gross fixed capital formation | 5.5 | 3.1 | 5.9 | 1.9 | 4.3 | 6.0 | 5.7 |
| Machinery and equipment | 1.9 | - 2.8 | 6.1 | - 5.4 | - 0.4 | 6.5 | 5.7 |
| Construction | 8.4 | 6.9 | 6.4 | 5.7 | 7.9 | 6.7 | 6.2 |
| Other products | 4.4 | 3.4 | 3.8 | 4.4 | 2.4 | 3.0 | 4.6 |
| Domestic expenditure | 2.9 | 2.6 | 4.4 | 2.0 | 3.3 | 4.3 | 4.4 |
| Exports | 1.7 | - 0.5 | 6.4 | - 2.0 | 1.1 | 6.7 | 6.1 |
| Imports | 1.8 | 0.3 | 7.6 | - 2.3 | 2.7 | 8.3 | 7.0 |
| Gross domestic product | 2.7 | 2.1 | 4.0 | 1.8 | 2.5 | 3.9 | 4.1 |

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

a) EUR bn.

| | | | | | | | |
|---------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Consumption expenditure | 2 365.1 | 2 386.7 | 2 438.0 | 1 173.6 | 1 213.1 | 1 198.2 | 1 239.8 |
| Private households ² | 1 708.0 | 1 714.4 | 1 752.3 | 840.9 | 873.5 | 858.7 | 893.7 |
| Government | 657.1 | 672.1 | 685.5 | 332.6 | 339.5 | 339.4 | 346.1 |
| Gross fixed capital formation | 683.9 | 689.8 | 713.7 | 329.5 | 360.3 | 341.4 | 372.2 |
| Machinery and equipment | 232.9 | 224.4 | 236.3 | 105.3 | 119.1 | 111.4 | 124.8 |
| Construction | 324.4 | 335.3 | 344.7 | 161.5 | 173.8 | 166.4 | 178.2 |
| Other products | 126.5 | 129.0 | 131.9 | 61.9 | 67.0 | 62.9 | 69.0 |
| Domestic expenditure | 3 047.9 | 3 077.1 | 3 151.4 | 1 506.5 | 1 570.5 | 1 542.7 | 1 608.7 |
| Exports | 1 570.9 | 1 554.6 | 1 635.6 | 764.3 | 790.3 | 807.1 | 828.6 |
| Imports | 1 379.4 | 1 395.6 | 1 477.0 | 676.8 | 718.9 | 718.3 | 758.7 |
| Gross domestic product | 3 240.5 | 3 238.4 | 3 313.6 | 1 594.9 | 1 643.5 | 1 632.6 | 1 681.0 |

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

| | | | | | | | |
|---------------------------------|------------|--------------|------------|--------------|------------|------------|------------|
| Consumption expenditure | 1.8 | 0.9 | 2.2 | 0.9 | 0.9 | 2.1 | 2.2 |
| Private households ² | 1.6 | 0.4 | 2.2 | 0.2 | 0.5 | 2.1 | 2.3 |
| Government | 2.6 | 2.3 | 2.0 | 2.6 | 1.9 | 2.1 | 2.0 |
| Gross fixed capital formation | 2.6 | 0.9 | 3.5 | - 0.4 | 2.0 | 3.6 | 3.3 |
| Machinery and equipment | 0.6 | - 3.6 | 5.3 | - 6.5 | - 1.0 | 5.8 | 4.9 |
| Construction | 3.9 | 3.4 | 2.8 | 2.4 | 4.3 | 3.1 | 2.6 |
| Other products | 2.7 | 1.9 | 2.3 | 2.8 | 1.1 | 1.6 | 3.0 |
| Domestic expenditure | 1.0 | 1.0 | 2.4 | 0.4 | 1.5 | 2.4 | 2.4 |
| Exports | 0.9 | - 1.0 | 5.2 | - 2.6 | 0.5 | 5.6 | 4.8 |
| Imports | 1.9 | 1.2 | 5.8 | - 0.6 | 2.9 | 6.1 | 5.5 |
| Gross domestic product | 0.6 | - 0.1 | 2.3 | - 0.7 | 0.5 | 2.4 | 2.3 |

National Accounts (cont.)

Forecast period: 2020 to 2021

| | 2019 | 2020 | 2021 | 2020 | | 2021 | |
|--|------|------|------|------|----|------|----|
| | | | | H1 | H2 | H1 | H2 |

4. Deflators (2010=100)

Change on the same period of the preceding year in %

| | | | | | | | |
|----------------------------------|------------|------------|------------|------------|------------|------------|------------|
| Private consumption ² | 1.3 | 1.1 | 1.8 | 1.1 | 1.1 | 1.8 | 1.8 |
| Government consumption | 2.5 | 2.3 | 1.8 | 2.5 | 2.2 | 1.9 | 1.7 |
| Gross fixed capital formation | 2.9 | 2.2 | 2.3 | 2.3 | 2.2 | 2.3 | 2.3 |
| Machinery and equipment | 1.3 | 0.9 | 0.8 | 1.2 | 0.5 | 0.7 | 0.8 |
| Construction | 4.4 | 3.4 | 3.5 | 3.3 | 3.5 | 3.5 | 3.5 |
| Exports | 0.8 | 0.6 | 1.1 | 0.6 | 0.5 | 1.1 | 1.2 |
| Imports | - 0.1 | - 0.9 | 1.7 | - 1.7 | - 0.1 | 2.0 | 1.4 |
| Gross domestic product | 2.2 | 2.2 | 1.6 | 2.5 | 1.9 | 1.5 | 1.8 |

5. National income

a) EUR bn.

| | | | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Primary income of private households ² | 2 406.8 | 2 452.3 | 2 530.4 | 1 207.8 | 1 244.5 | 1 247.2 | 1 283.2 |
| Employers social contributions | 326.3 | 333.5 | 345.4 | 161.3 | 172.3 | 167.7 | 177.7 |
| Gross wages and salaries | 1 522.8 | 1 565.8 | 1 627.8 | 745.8 | 820.0 | 780.1 | 847.7 |
| Other primary income ⁴ | 557.7 | 553.0 | 557.2 | 300.7 | 252.2 | 299.4 | 257.8 |
| Primary income of other sectors | 491.5 | 495.3 | 536.7 | 219.6 | 275.6 | 236.3 | 300.4 |
| Net national income | 2 898.4 | 2 947.6 | 3 067.1 | 1 427.4 | 1 520.2 | 1 483.5 | 1 583.6 |
| Consumption of fixed capital | 637.0 | 665.0 | 690.3 | 330.0 | 335.1 | 342.5 | 347.8 |
| Gross national income | 3 535.4 | 3 612.6 | 3 757.4 | 1 757.4 | 1 855.2 | 1 826.0 | 1 931.4 |
| memorandum item: | | | | | | | |
| Net national income (factor costs) | 2 561.5 | 2 607.8 | 2 714.6 | 1 258.8 | 1 349.0 | 1 307.4 | 1 407.2 |
| Property and entrepreneurial income | 712.4 | 708.5 | 741.4 | 351.8 | 356.7 | 359.6 | 381.8 |
| Compensation of employees | 1 849.1 | 1 899.3 | 1 973.2 | 907.0 | 992.3 | 947.8 | 1 025.4 |

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

| | | | | | | | |
|---|------------|------------|------------|------------|------------|------------|------------|
| Primary income of private households ² | 2.9 | 1.9 | 3.2 | 1.7 | 2.1 | 3.3 | 3.1 |
| Employers social contributions | 5.1 | 2.2 | 3.6 | 2.1 | 2.4 | 4.0 | 3.1 |
| Gross wages and salaries | 4.2 | 2.8 | 4.0 | 2.6 | 3.0 | 4.6 | 3.4 |
| ... per employee | 3.0 | 2.2 | 3.1 | 1.9 | 2.4 | 3.8 | 2.5 |
| Other primary income ⁴ | - 1.7 | - 0.8 | 0.8 | - 0.8 | - 0.9 | - 0.4 | 2.2 |
| Primary income of other sectors | 0.2 | 0.8 | 8.4 | - 1.1 | 2.3 | 7.6 | 9.0 |
| Net national income | 2.4 | 1.7 | 4.1 | 1.2 | 2.2 | 3.9 | 4.2 |
| Consumption of fixed capital | 4.6 | 4.4 | 3.8 | 4.4 | 4.4 | 3.8 | 3.8 |
| Gross national income | 2.8 | 2.2 | 4.0 | 1.8 | 2.6 | 3.9 | 4.1 |
| memorandum item: | | | | | | | |
| Net national income (factor costs) | 2.3 | 1.8 | 4.1 | 1.4 | 2.2 | 3.9 | 4.3 |
| Property and entrepreneurial income | - 2.6 | - 0.6 | 4.7 | - 1.5 | 0.3 | 2.2 | 7.0 |
| Compensation of employees | 4.4 | 2.7 | 3.9 | 2.5 | 2.9 | 4.5 | 3.3 |

6. Disposable income of private households ²

a) EUR bn.

| | | | | | | | |
|--|----------------|----------------|----------------|--------------|----------------|----------------|----------------|
| Mass income | 1 492.7 | 1 543.4 | 1 610.1 | 740.4 | 803.0 | 777.2 | 832.9 |
| Net wages and salaries | 1 021.8 | 1 052.5 | 1 102.5 | 496.1 | 556.4 | 524.1 | 578.5 |
| Social benefits other than social transfers in kind | 606.1 | 630.1 | 652.0 | 313.3 | 316.8 | 324.8 | 327.2 |
| less: Levies on social benefits, taxes on consumption | 135.1 | 139.2 | 144.5 | 68.9 | 70.3 | 71.7 | 72.8 |
| Other primary income ⁴ | 557.7 | 553.0 | 557.2 | 300.7 | 252.2 | 299.4 | 257.8 |
| Other transfers received (net) ⁵ | - 97.2 | - 98.2 | - 100.7 | - 50.0 | - 48.2 | - 50.9 | - 49.8 |
| Disposable income | 1 953.3 | 1 998.2 | 2 066.6 | 991.1 | 1 007.1 | 1 025.7 | 1 041.0 |
| Change in pension entitlements | 60.4 | 61.1 | 61.9 | 29.7 | 31.4 | 30.1 | 31.8 |
| Consumption expenditure | 1 794.0 | 1 821.2 | 1 894.3 | 888.8 | 932.3 | 923.6 | 970.7 |
| Saving | 219.7 | 238.2 | 234.2 | 132.0 | 106.1 | 132.2 | 102.0 |
| Saving ratio (%) ⁶ | 10.9 | 11.6 | 11.0 | 12.9 | 10.2 | 12.5 | 9.5 |

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

| | | | | | | | |
|--|------------|------------|------------|------------|------------|------------|------------|
| Mass income | 4.6 | 3.4 | 4.3 | 3.3 | 3.5 | 5.0 | 3.7 |
| Net wages and salaries | 4.7 | 3.0 | 4.8 | 2.7 | 3.3 | 5.6 | 4.0 |
| Social benefits other than social transfers in kind | 4.6 | 4.0 | 3.5 | 4.2 | 3.8 | 3.7 | 3.3 |
| less: Levies on social benefits, taxes on consumption | 5.9 | 3.1 | 3.8 | 3.3 | 2.9 | 4.0 | 3.6 |
| Other primary income ⁴ | - 1.7 | - 0.8 | 0.8 | - 0.8 | - 0.9 | - 0.4 | 2.2 |
| Disposable income | 2.9 | 2.3 | 3.4 | 2.1 | 2.5 | 3.5 | 3.4 |
| Consumption expenditure | 2.9 | 1.5 | 4.0 | 1.4 | 1.6 | 3.9 | 4.1 |
| Saving | 2.4 | 8.4 | - 1.7 | 6.8 | 10.4 | 0.1 | - 3.8 |

National Accounts (cont.)

Forecast period: 2020 to 2021

| | 2019 | 2020 | 2021 | 2020 | | 2021 | |
|--|------|------|------|------|----|------|----|
| | | | | H1 | H2 | H1 | H2 |

7. Revenue and expenditure by general government ¹

a) EUR bn.

| | | | | | | | |
|---|----------------|----------------|----------------|--------------|---------------|--------------|---------------|
| Revenue | | | | | | | |
| Taxes | 825.8 | 839.9 | 872.0 | 421.5 | 418.4 | 438.3 | 433.8 |
| Social contributions | 597.8 | 613.5 | 638.5 | 297.1 | 316.5 | 310.8 | 327.8 |
| Property income | 21.7 | 24.4 | 20.2 | 16.3 | 8.1 | 12.4 | 7.8 |
| Other current transfers | 24.3 | 23.3 | 23.7 | 10.8 | 12.5 | 11.0 | 12.7 |
| Capital transfers | 12.2 | 12.5 | 12.8 | 5.5 | 7.0 | 5.6 | 7.2 |
| Sales | 126.6 | 131.0 | 135.5 | 61.3 | 69.7 | 63.5 | 72.1 |
| Other subsidies | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 |
| Total | 1 608.6 | 1 644.8 | 1 703.0 | 812.5 | 832.3 | 841.5 | 861.4 |
| Expenditure | | | | | | | |
| Intermediate consumption ² | 479.8 | 502.0 | 522.6 | 241.8 | 260.2 | 252.0 | 270.5 |
| Compensation of employees | 271.7 | 282.2 | 290.9 | 135.4 | 146.8 | 139.5 | 151.3 |
| Property income (interest) | 27.5 | 24.7 | 23.6 | 13.1 | 11.6 | 12.5 | 11.1 |
| Subsidies | 31.7 | 34.4 | 43.2 | 15.7 | 18.6 | 20.2 | 23.1 |
| Social benefits | 546.2 | 569.8 | 591.2 | 283.2 | 286.5 | 294.5 | 296.7 |
| Other current transfers | 78.3 | 87.9 | 93.1 | 43.6 | 44.3 | 46.1 | 46.9 |
| Capital transfers | 39.6 | 41.6 | 44.2 | 15.0 | 26.6 | 16.3 | 28.0 |
| Gross capital formation | 85.3 | 92.2 | 100.0 | 39.4 | 52.8 | 42.9 | 57.1 |
| Net acquisitions of non-produced non-financial assets | - 1.3 | - 1.3 | - 1.3 | - 0.5 | - 0.7 | - 0.5 | - 0.7 |
| Total | 1 558.8 | 1 633.5 | 1 707.5 | 786.7 | 846.8 | 823.5 | 884.0 |
| Net lending | 49.8 | 11.3 | - 4.6 | 25.8 | - 14.5 | 18.0 | - 22.6 |

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

| | | | | | | | |
|---|------------|------------|------------|------------|------------|------------|------------|
| Revenue | | | | | | | |
| Taxes | 3.1 | 1.7 | 3.8 | 1.4 | 2.0 | 4.0 | 3.7 |
| Social contributions | 4.4 | 2.6 | 4.1 | 2.5 | 2.8 | 4.6 | 3.6 |
| Property income | 2.1 | 12.5 | - 17.3 | 23.1 | - 4.2 | - 23.9 | - 4.0 |
| Other current transfers | - 2.0 | - 3.8 | 1.7 | - 3.1 | - 4.4 | 1.7 | 1.7 |
| Capital transfers | - 6.8 | 2.3 | 2.3 | 2.5 | 2.1 | 2.6 | 2.1 |
| Sales | 5.3 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| Other subsidies | - 8.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 3.6 | 2.3 | 3.5 | 2.3 | 2.3 | 3.6 | 3.5 |
| Expenditure | | | | | | | |
| Intermediate consumption ² | 5.3 | 4.6 | 4.1 | 5.3 | 4.0 | 4.2 | 4.0 |
| Compensation of employees | 4.8 | 3.9 | 3.1 | 4.1 | 3.7 | 3.1 | 3.1 |
| Property income (interest) | - 13.2 | - 10.2 | - 4.4 | - 9.6 | - 10.8 | - 4.6 | - 4.3 |
| Subsidies | 7.3 | 8.3 | 25.7 | 9.1 | 7.6 | 28.1 | 23.7 |
| Social benefits | 5.0 | 4.3 | 3.8 | 4.6 | 4.1 | 4.0 | 3.5 |
| Other current transfers | 4.5 | 12.3 | 5.8 | 12.4 | 12.3 | 5.8 | 5.8 |
| Capital transfers | - 6.3 | 5.0 | 6.4 | 12.8 | 1.0 | 8.6 | 5.2 |
| Gross capital formation | 8.8 | 8.1 | 8.5 | 4.2 | 11.2 | 9.1 | 8.1 |
| Net acquisitions of non-produced non-financial assets | - 3.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 4.6 | 4.8 | 4.5 | 5.0 | 4.6 | 4.7 | 4.4 |

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 payed 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*; Kiel Institute calculations and forecasts.