

KIEL INSTITUTE **ECONOMIC OUTLOOK**

German Economy Winter 2020

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

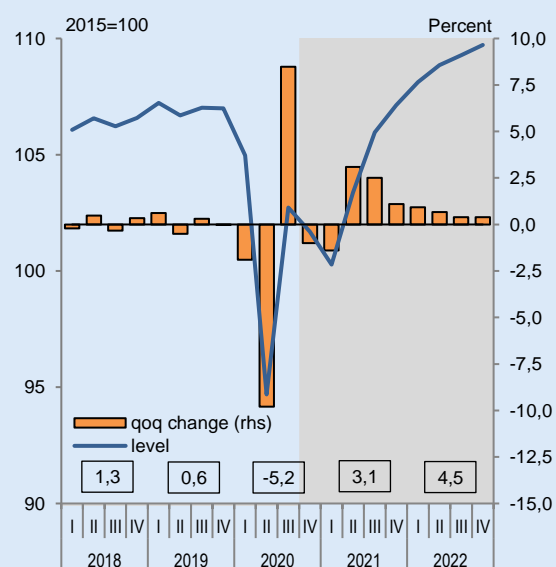
SECOND COVID WAVE INTERRUPTS RECOVERY

Martin Ademmer, Jens Boysen-Hogrefe, Salomon Fiedler, Dominik Groll, Nils Jannsen, Stefan Kooths und Saskia Meuchelböck

The recovery of the German economy is interrupted. The main reasons are the second Covid wave and the shutdown measures that have been implemented since November. Since these measures will, at least to some extent, probably remain in place for some time to come, GDP will decline in the final quarter of this year and in the first quarter of next year. However, these declines will not reach the extent seen in spring and will be much more concentrated on specific, consumption-focused industries. Several of these industries have not yet fully recovered from the slump in spring, so that less economic activity will be lost there in the winter half-year. In addition, exports are likely to remain on an upward trend in view of the relatively robust global economy. Against this backdrop industry will probably come through the winter half-year without a slump in production. All in all, we now expect a lower GDP growth rate of 3.1 percent next year compared to our autumn forecast (4.8 per cent), after a decline of 5.2 per cent in the current year. If the pandemic can be suppressed sustainably from spring onwards, a strong recovery will take place in the course of the coming year and will lead to a strong increase in GDP of 4.5 percent in 2022 (autumn forecast: 2.4 percent). The labor market will show a similar pattern as GDP so that the recovery here will take place with some delay as well. As the temporary slowdown in the winter half-year will dampen governmental revenues and the shutdown will be accompanied by further aid payments, fiscal budget will be additionally burdened. We expect fiscal budget deficits of 4.9 per cent relative to GDP for the current year and 4.1 per cent for next year. In 2022, the deficit is expected to fall to 1.8 percent.

The second Covid wave has interrupted the recovery of the German economy. In summer, the economy recovered a good part of the losses in spring. After declining by almost 12 percent in the first half of the year, GDP rose by 8.5 percent in the third quarter (Figure 1). Leading indicators pointed to a continuation - albeit somewhat slower - of the recovery. For example, retail sales rose by 2.6 percent in October and industrial production by 3.3 percent. In the course of October, however, the Corona virus once more spread rapidly in Germany. As a result, measures to contain the virus were tightened again and private precautionary measures to protect against infection are also likely to have increased. In November shutdown measures were implemented that have closed large parts of the hospitality industry and the contact-intensive entertainment sectors. For our forecast, we expect these measures to remain in place until March. For the period from mid-December onwards, the shutdown measures have been tightened again and large parts of the retail sector as well as contact-intensive

Figure 1:
Gross domestic product, 2018–2022



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

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

service industries have been closed. For our forecast, we assume that these measures will stay in place until mid-January. We still assume that all infection control measures that hinder economic activity will gradually expire in the summer half of 2021. The milder weather and increasing vaccination protection will contribute to this. Against this backdrop, we now expect GDP to decline in the winter half-year followed by a strong recovery beginning in the second quarter of next year. As a result, we reduce our forecast for GDP growth for next year by 1.7 percentage points to 3.1 percent and increase our forecast for GDP growth for 2022 by 2.4 percentage points to 4.5 percent. For this year, we expect GDP to decline by 5.2 percent.

The second Covid wave will dampen economic activity by far less than the first wave in spring.

In particular, the manufacturing industry is expected to be less affected in view of the robust global economy. Moreover, unlike in spring there are no signs of widespread disruptions in supply chains. In the service industries, the resurgence of the pandemic will have a much more differentiated impact than in spring. The largest production losses will focus on those industries that are directly affected by the new shutdown measures. This includes in particular consumer-related services, such as the hotel and restaurant industry, which in summer had already made up for about 2/3 of the slump in spring. In other directly affected industries, in which there has hardly been any recovery since spring, the impact of the new shutdown measures on GDP will be relatively small. Business-related service industries will be less affected by the resurgence of the pandemic, but the recovery is likely to be slowed down in these sectors as well. However, survey indicators available for November suggest at best a moderate decline in production. Moreover, these industries are not directly affected by the shutdown measures implemented in December and demand by customers from the manufacturing industry is expected to remain much more stable compared to spring.

The recovery of foreign trade slows temporarily. In the third quarter, goods exports already made up around two thirds of their slump seen in the first half of the year, catching up to a level around 7 percent below the one seen a year earlier. The rebound was thus stronger than we had expected in our autumn forecast as global trade and demand from export markets bounced back quickly when lockdown measures were eased around the globe. In the fourth quarter, the recovery of exports is set to lose steam as indicated by the monthly data on goods trade. Other leading indicators show a mixed picture: while orders from abroad are already above their pre-crisis level suggesting further catch-up potential, survey-based indicators most recently report a deterioration in export sentiment. Against this background, the pace of recovery is likely to remain subdued for the time being. At the same time, we do not expect that the upward trend in global manufacturing will be significantly impaired by the temporary interruption of the economic recovery in some countries, especially in Europe, due to the second wave of the pandemic (Gern et al. 2020). Next year the catch-up process should regain momentum in light of the global recovery of manufacturing and the brisk development of international trade, even though subdued global investment activity is likely to remain a burdening factor for some time to come. Overall, after a 9.8 percent slump in exports in 2020, we expect them to rise by 10.3 percent in 2021. Following this catch-up process, exports will rise again at more moderate rates, resulting in a growth rate of 6.3 percent in 2022. The recovery in imports is also being delayed. In the third quarter, goods imports increased strongly as expected, standing around 6 percent below their previous year's level. Imports of services also increased compared with the previous quarter due to the temporary easing of travel restrictions. However, they were still over 20 percent lower than a year earlier. In the final quarter, the catch-up process for imports also loses momentum. This is indicated by the monthly figures for goods trade and due to the generally slower pace of economic activity since November. However, the temporary decline in private consumption is unlikely to be fully reflected in imports, as this is to a large extent due the consumption of services being hit particularly hard by the second wave. Over the remaining forecast horizon, goods imports will recover in line with the dynamics of investment and exports. Service

imports are likely to suffer a further setback in the current quarter in view of a renewed tightening of travel restrictions. We do not expect a rebound before the spring when measures will be eased. All in all, we expect imports to decline by 8.9 percent in 2020. In 2021 and 2022, they will rise by 8.0 and 7.4 percent, respectively.

Second slump in private consumption ahead. Private consumer spending rose by 10.8 percent in the third quarter and thus had already made up for a good part of the Corona-related slump from the first half of the year. Retail sales indicate that this catch-up process continued into October. However, the second Covid wave will weigh on consumption in particular and the shutdown measures implemented in November have interrupted the recovery for the time being. However, even with the additional shutdown measures implemented in December, affecting large parts of the retail sector, the effects are likely to be smaller than in spring. This assessment is supported by high frequency indicators of pedestrian activity in German city centers and other mobility indicators as well as the consumer climate, which recently declined but still remained on a significantly higher level in November compared to spring. For our forecast, we assume that the measures introduced in November will not be eased until March, while the December measures will only stay in place until mid-January. Against this backdrop, spending on accommodation and restaurant services is likely to fall back to around the level of the first shutdown and remain there until the easing in March. This alone will depress private consumption by more than 2 percent in the fourth quarter. Spending on "leisure, entertainment and culture", "transport and communications" and "other services" will also be affected, although not to the same extent as in the spring. Some categories such as motor vehicle sales or the purchase of leisure goods will only face direct restrictions from the shutdown measures for a relatively short period of time. In other heavily affected areas, such as cultural services or package holidays, spending was still on a low level anyway, limiting the possible further damage of renewed restrictions. Overall, private consumer spending is expected to decline by 4 percent in the fourth quarter. A stronger decline is counteracted by the fact that consumption in October was probably still quite high. In addition, the increase in VAT at the turn of the year has probably led to noticeable pull-forward effects, increasing private consumption in the fourth quarter by about 1 percent. In contrast, the same effect will likely reduce consumer spending at the beginning of next year, such that private consumption is set to decline in the first quarter, too, especially if the November measures will indeed stay in place until the end of that quarter. Provided that the pandemic can be successfully contained and the measures to protect against infection are permanently eased, a strong recovery in private consumption spending will set in during the summer half-year, similar to the first shutdown. Overall, private consumption will probably decline by 6.3 percent in the current year. In the next two years it is likely to increase by 2.7 percent (2021) and 7.2 percent (2022).

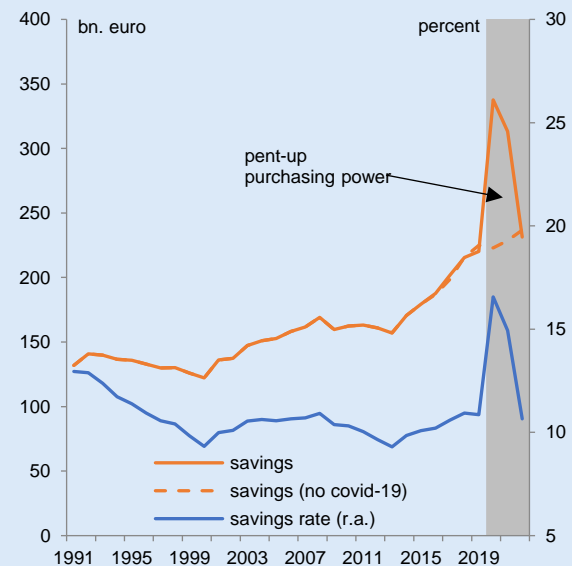
Since the beginning of the pandemic, a considerable amount of purchasing power of private households has been pent up. The strong fluctuations in private consumption over the course of the year were only to a small extent due to fluctuations in disposable income. In the second quarter, incomes fell by 1 percent, while private consumer spending plunged by more than 11 percent. This was mainly due to private and public measures to avoid infections. As a result, the savings rate jumped by more than 10 percentage points to over 20 percent in the first half of the year. Even in the third quarter, when private consumer spending recovered, the savings rate was still well above the pre-crisis level at 16.2 percent. There are hardly any reliable indicators or empirical correlations available to forecast the savings rate. For our forecast, we assume that the savings rate will quickly return to its pre-crisis level of around 11 percent in the course of the coming year, if the pandemic is sustainably suppressed, and then remain slightly below this level. This implies that the pent-up purchasing power accumulated in the meantime will only slowly flow back into private consumption. According to our forecast, the purchasing power accumulated in the current and coming year amounts to around 200 billion euros or about 10 percent of disposable income in 2019 (Figure 2). If a larger share of this sum would be spent on

consumer goods and services in the short-run, this could result in a much stronger recovery as well as in a higher inflation rate than forecasted.

Gross Fixed Capital Formation is hardly affected by the second Covid wave. With the resurgence of the Corona pandemic, business expectations have recently become gloomier again and uncertainty – for example measured by indicators of economic policy - has also increased. However, we expect the impact of the second wave to be relatively moderate compared to the first one in spring. Especially firms in industries not directly affected by the pandemic (e.g., in manufacturing) will not cut back their investments significantly again, as there is now a clear prospect that the pandemic can be pushed back sustainably in the course of the coming year. Firms in the directly affected sectors will probably still hold back on investments. However, they account for only a very small share of total investment. Overall, we expect business investment to lose some pace but not to decline in the winter half-year. Over the course of the next year the recovery in business investment will gain momentum again. Construction investment is not directly affected by the new shut-down measures and the general environment with low interest rates, high demand for residential real estate, and a large amount of pent-up purchasing power is still extremely stimulating, in particular for residential investment. Beginning in next year public investment will dampened somewhat by the worsening of public finances due to the pandemic. Overall, we expect Gross Fixed Capital Formation to increase by 4.8 percent in next year and by 3.7 percent in 2022 after a decline by 2.7 percent in this year.

Inflation currently is subdued due to the temporary VAT reduction as well as low energy prices but is likely to rise significantly in the coming year. In November the consumer price index (CPI) stood 0.3 percent below its level one year ago. One driver for this were energy prices, which were 7.7 percent lower in November than a year earlier, reflecting oil prices which also remained low compared with the previous year. Excluding the volatile energy component, the consumer price index recorded an increase of 0.7 percent. In addition, the temporary VAT cut, of which about two thirds seem to have been passed on to consumers, depressed prices. Without this factor the core rate of inflation would have been very close to two percent. At the beginning of next year, when the VAT cut is reversed, the opposite effect should set in, exerting upward pressure on prices of around 1.2 percent quarter-on-quarter. At the same time, climate policy measures are likely to lead to additional price increases at the consumer level of 0.4 percent quarter-on-quarter in total. After a moderate increase of the CPI in 2020 by 0.6 percent, we therefore expect an inflation rate of 2.6 percent in 2021. In 2022, we expect an inflation rate of 1.7 percent given the absence of special effects. One risk for the inflation outlook stems from the high additional savings that private households are building up during the pandemic. To the extent that these savings lead to an increase in consumer spending after the end of the restrictions there could be an additional surge in inflation. At the same time, the costs that businesses incur due to protection measures against the pandemic should decline over the course of the forecast period.

Figure 2:
Savings, 1991–2022



Annual data.

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

The recovery of effective earnings will be delayed. At a seasonally-adjusted 3.7 percent, actual gross wages and salaries per employee recovered much more strongly in the third quarter than the 1.8 percent we forecast in fall, after having dropped by 4.6 percent in the second quarter, which was less than initially reported by the Federal Statistical Office in August (-5.1 percent). Both the decline and the recovery in effective earnings were closely linked to the use of short-time work. During the fourth quarter, short-time work is likely to have been extended again in view of the renewed shutdown measures. In November, companies declared more short-time work for the first time since spring (almost half of the notifications came from the hospitality industry), and the share of companies with short-time work increased in the monthly economic survey by the ifo Institute. Accordingly, effective earnings will slow significantly in the current quarter. For 2020 as a whole, we expect a decrease of 0.4 percent; this would be the first decline in 50 years. Earnings are set to show signs of weakness in the first quarter of next year as well, as short-time work is likely to expand further, although we expect significantly lower short-time work figures than were recorded earlier this year. As the economic recovery resumes in spring 2021, short-time work is likely to be cut rapidly and thus effective earnings will increase dynamically. In all, we expect earnings per employee to rise by 3.6 percent in both 2021 and 2022.

Employment is not expected to start recovering until the middle of the coming year. Companies absorbed most of the production slump in spring by reducing working hours through short-time work. Nevertheless, employment fell noticeably between March and May. There has been no significant recovery since then. According to our estimate, the crisis-related loss of employment stood at 860,000 jobs in October. By far the most severely affected group is that of persons in exclusively marginal employment (“minijobs”), who are not entitled to short-time work because they are not covered by social security. The partial shutdown since November and the tightening of shutdown measures around the turn of the year are expected to lead to a renewed increase in short-time work and a decline in employment; however, the extent of this is likely to be significantly lower than in spring 2020. We therefore expect employment to decline in the final quarter of 2020 as well as the first quarter of 2021. The resumption of the economic recovery next spring will initially lead to a reduction in short-time work, resulting in increased working hours. Then, towards the end of the year, the recovery in employment is expected to gain momentum as well. As a result, the unemployment rate in 2021 will once again be higher than in the previous year, albeit only slightly (6.1 percent vs. 5.9 percent). It will then fall to 5.5 percent in 2022.

Both fiscal policy and automatic stabilizers drive the deficit in 2020. Expenditures for short-time work, health policy, and grants to businesses increased rapidly, while tax revenues plunged mainly due to the severe drop in economic activity but also because of temporary tax code changes. However, social security contributions did not decrease since the short-time work scheme includes payments from the employment agency to the other social insurance institutions. In sum, we expect a deficit of 162 bn Euros (4.9 percent relative to GDP).

Second corona wave will weigh heavily on budget in 2021 – mainly via additional grants to businesses. Since the economic upswing has been interrupted by the second corona wave and the accompanying shutdown measures, government revenues will not recover as fast as previously expected. Various government expenditures will remain elevated especially in the first quarter of the coming year. A major component are additional grants to businesses which are to accompany the additional shutdown measures. Overall, we expect that the public deficit will be about 143 bn Euros in 2021 (4.1 percent relative to GDP).

The public budget will still be in deficit in 2022. The business cycle upswing will be accompanied by increasing revenues. Expenditures for short-time work and especially for grants will drop sharply. However, several measures of the stimulus packages will lead to additional expenditures also in 2022.

Further, the upswing will be insufficient to reach the former growth path. There will continue to be a substantial deficit of 1.8 percent relative to GDP.

Table 1:
Key indicators, 2019–2022

	2019	2020	2021	2022
Gross domestic product (GDP), price-adjusted	0,6	-5,2	3,1	4,5
Gross domestic product, deflator	2,2	1,6	1,3	1,5
Consumer prices	1,4	0,5	2,6	1,7
Labor productivity (per hour worked)	-0,0	-1,2	1,3	1,8
Employment (1,000 persons)	45.269	44.815	44.690	45.327
Unemployment rate (percent)	5,0	5,9	6,1	5,5
<i>in relation to nominal GDP</i>				
Public sector net lending	1,5	-4,9	-4,1	-1,8
Gross public debt	59,5	72,6	73,2	70,2
Current account balance	7,1	7,2	8,0	7,5

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.

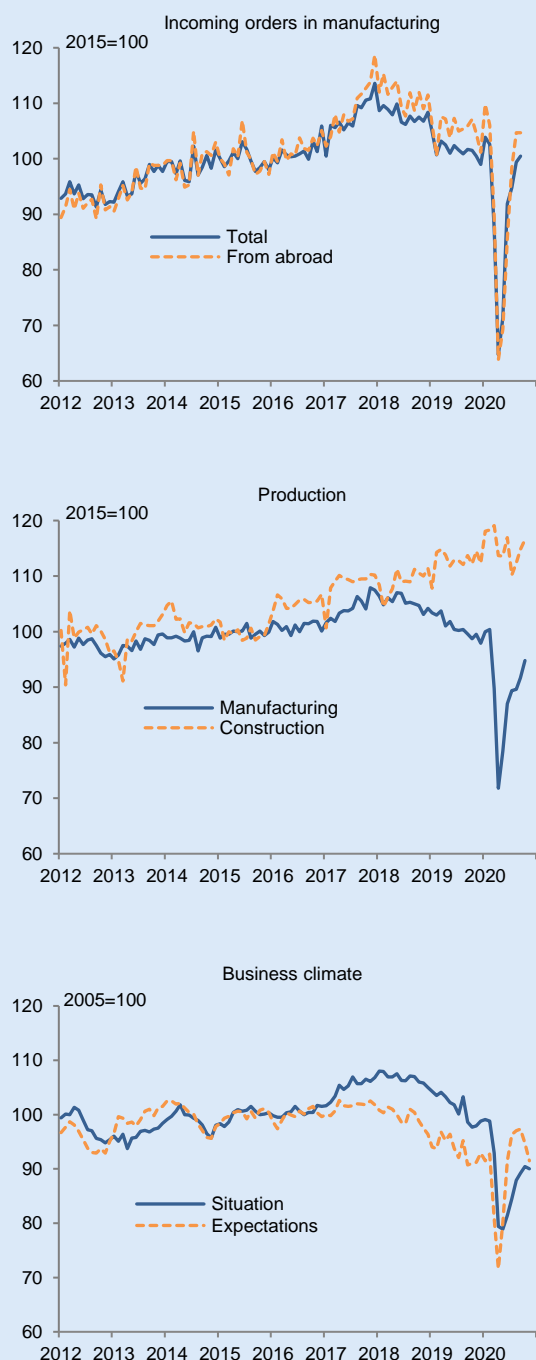
Data annex

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1. Leading indicators

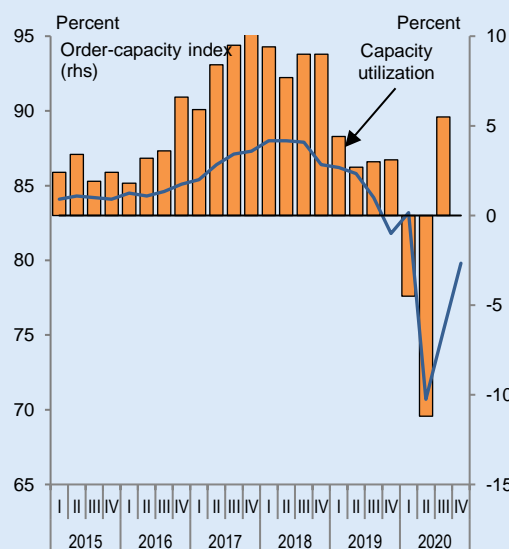
Figure 1.1:
Leading indicators, 2012–2020



Monthly data, seasonally adjusted.

Source: Deutsche Bundesbank, *Saisonbereinigte Wirtschafts-zahlen*; ifo, *Konjunkturperspektiven*; Kiel Institute calculations.

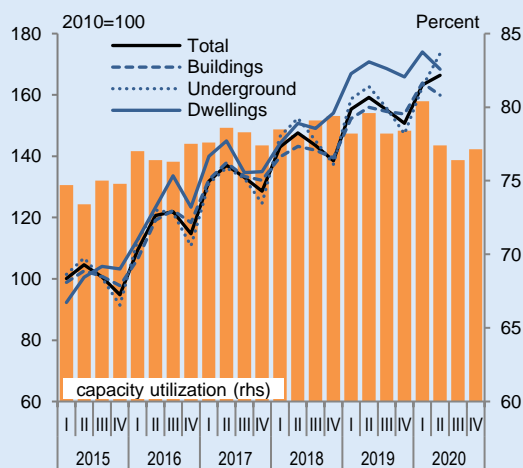
Figure 1.2:
Capacity utilization, 2015–2020



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

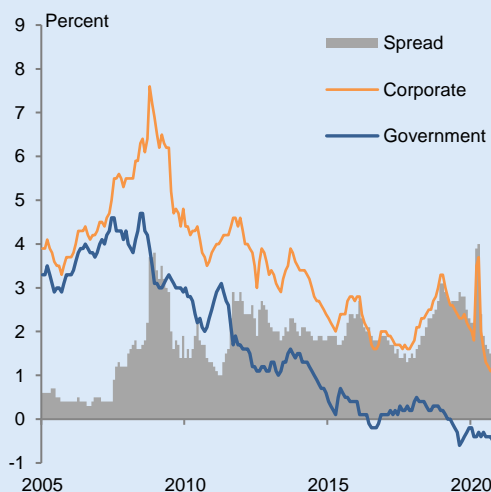


Quarterly data. Capacity utilization (deviation from normal level): seasonally adjusted; order stocks: price, seasonally and working-day adjusted.

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

2. Monetary conditions and prices

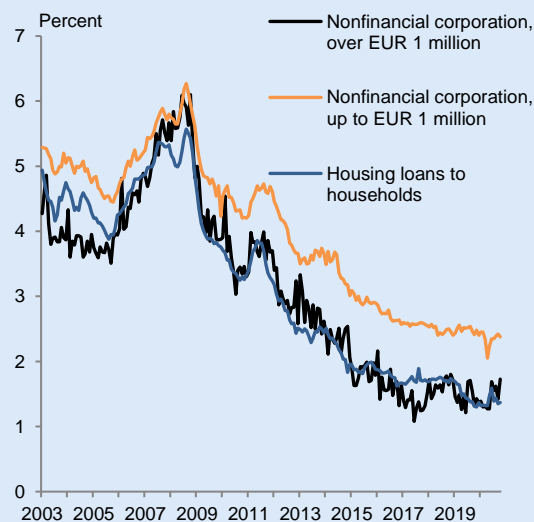
Figure 2.1:
Bond yields, 2005–2020



Monthly data, average maturities above three years.

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

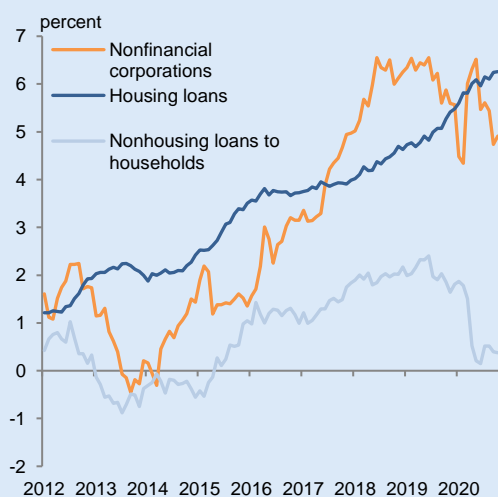
Figure 2.2:
Loan interest, 2003–2020



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

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

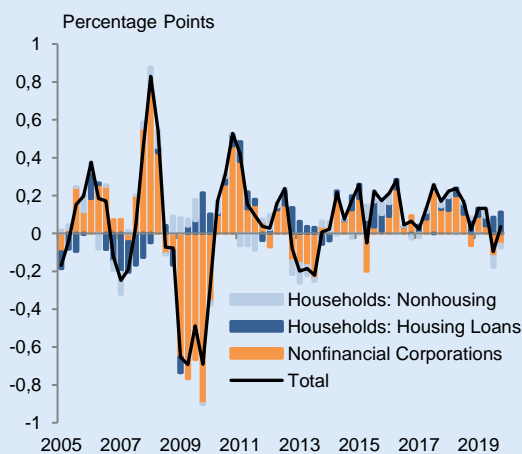
Figure 2.3:
Credit growth, 2012–2020



Change compared to one year ago; Monthly data.

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

Figure 2.4:
Credit impulse, 2005–2020

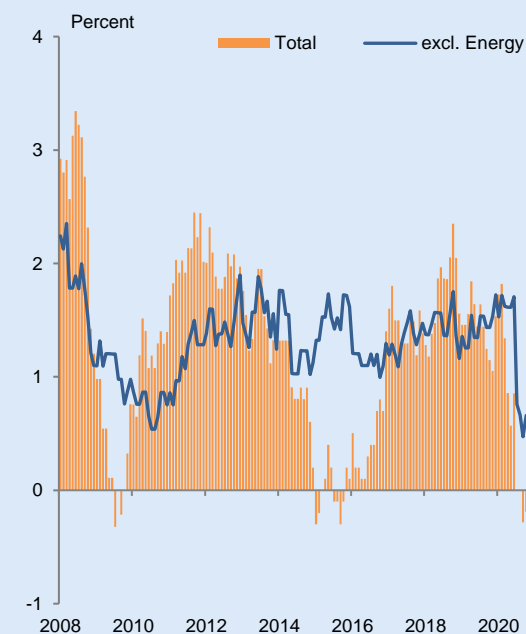


Quarterly data, most recent quarter based on first month; calculations follow Biggs et al. (2009), *Credit and economic recovery*, DNB Working Paper 218, De Nederlandsche Bank, Amsterdam.

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

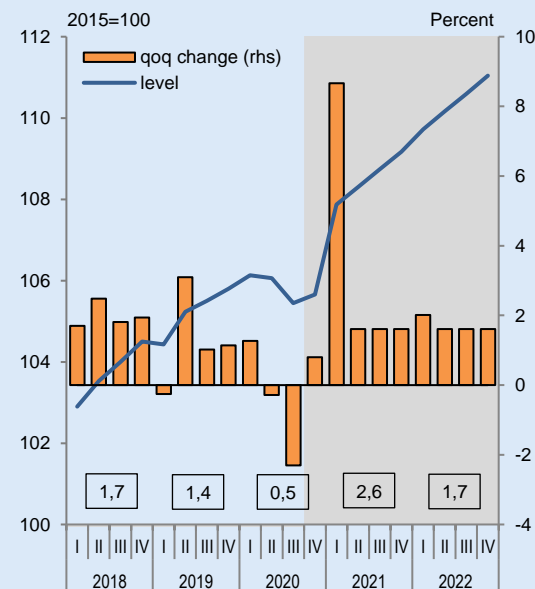
Source: Deutsche Bundesbank, *Seasonally Adjusted Business Statistics*; Kiel Institute calculations.

Figure 2.6:
Consumer prices, 2008–2020



Monthly data; year-on-year change.
Source: Deutsche Bundesbank, *Time series databases*; Kiel Institute calculations.

Figure 2.7:
Consumer price index, 2018–2022



Quarterly data: Price, seasonally and calendar adjusted, qoq change. Annual data (boxes): Price adjusted, change in percent.

Source: Federal Statistical Office, *Fachserie 17, Reihe 7*; German Federal Bank, seasonally adjusted economic data; shaded: Kiel Institute forecast.

Table 2.1:
Projections and assumptions on the international environment, 2019–2022

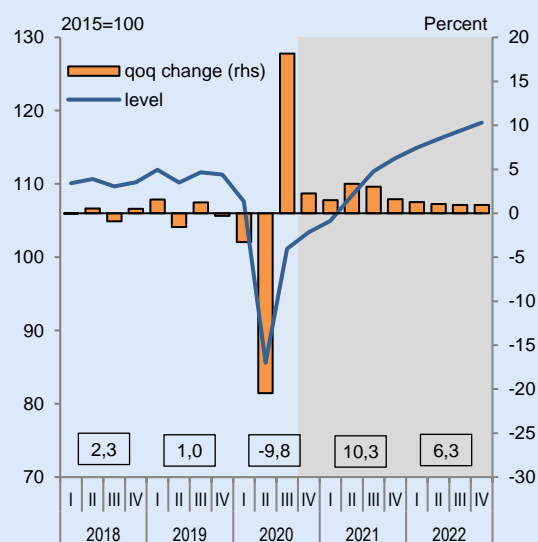
	2019				2020				2021				2022			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
ECB key interest rate	0.00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Long-term interest rate	0.10	-0.10	-0.50	-0.40	-0.40	-0.40	0.50	0.60	0.50	0.50	0.50	0.50	-0.50	-0.50	-0.40	-0.40
US-dollar/euro exchange rate	1.14	1.12	1.11	1.11	1.10	1.10	1.17	1.19	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Price competitiveness	89.7	89.7	89.5	88.9	88.9	90.4	90.9	91.2	91.7	91.8	91.7	91.6	91.5	91.4	91.4	91.3
Export markets	0.8	0.5	0.5	0.4	-2.8	-9.2	10.0	-1.4	1.3	2.2	1.5	1.0	0.8	0.6	0.6	0.6
Oil price	63.2	68.9	61.9	63.4	50.5	29.4	43.0	43.5	48.9	51.2	53.3	53.8	54.0	54.3	54.6	54.8

ECB key interest rate: main refinancing operations; long-term interest rate on 9–10 year bonds; price competitiveness: against 60 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

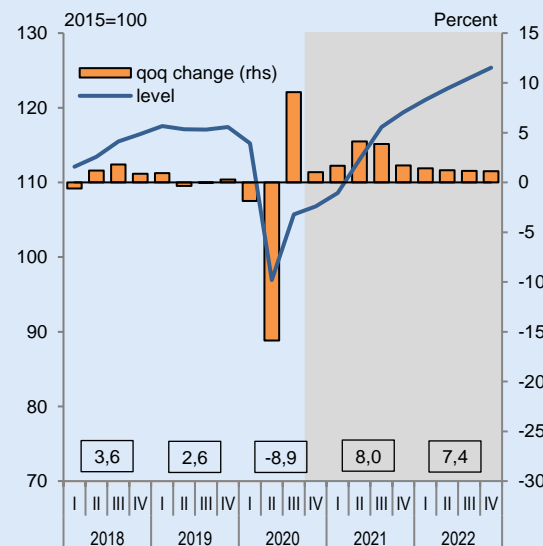
Figure 3.1:
Exports, 2018–2022



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

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

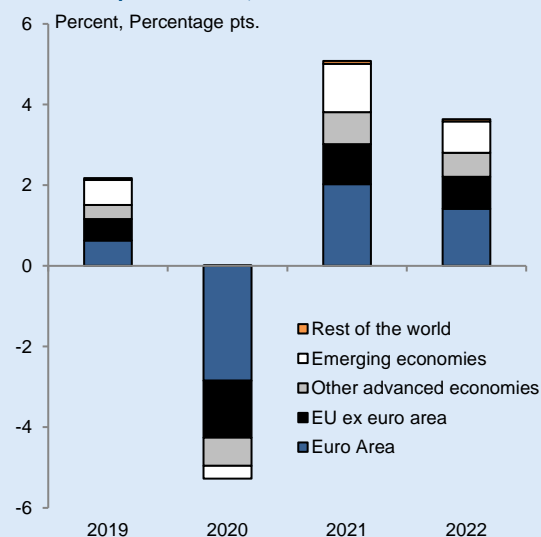
Figure 3.2:
Imports, 2018–2022



Quarterly data; price, seasonally and calendar adjusted, qoq change (rhs). Annual data: price adjusted, yoy change in percent (boxes).

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

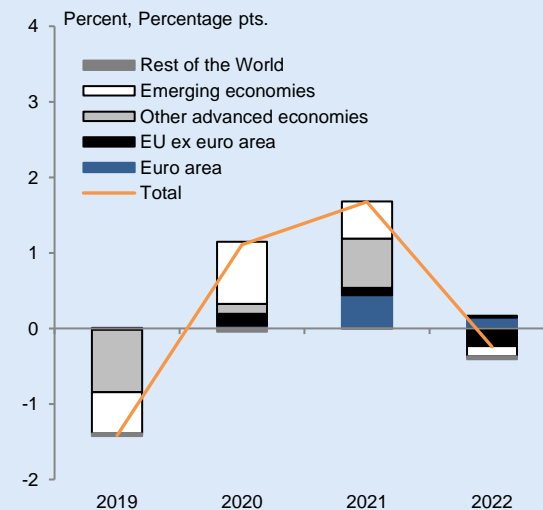
Figure 3.3:
German export markets, 2019–2022



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.

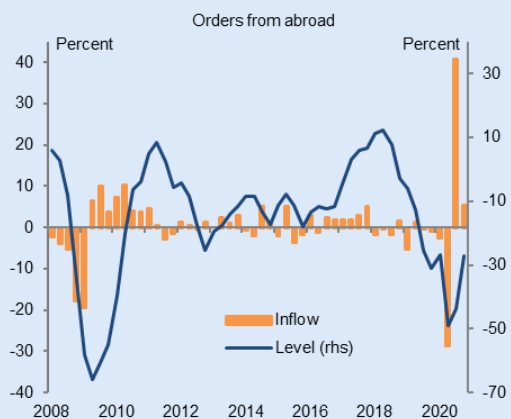
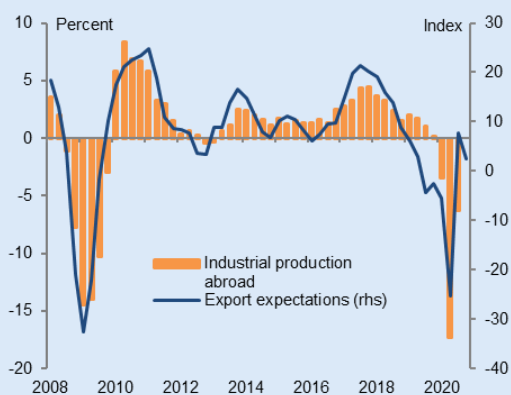
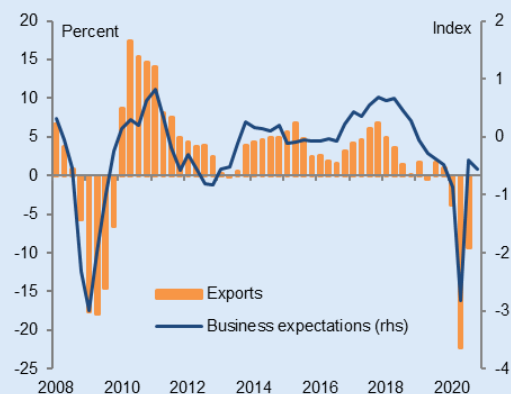
Figure 3.4:
Germany's price competitiveness, 2019–2022



Annual data; vis-à-vis 55 countries based on consumer prices; weights according to Germany's price competitiveness indicator vis-à-vis 61 trading partners based on consumer price indices from the Deutsche Bundesbank. Increase reflects worsening of price competitiveness.

Source: Bundesbank, *Monthly Report 8.2020*; national sources; Kiel Institute calculations and forecast.

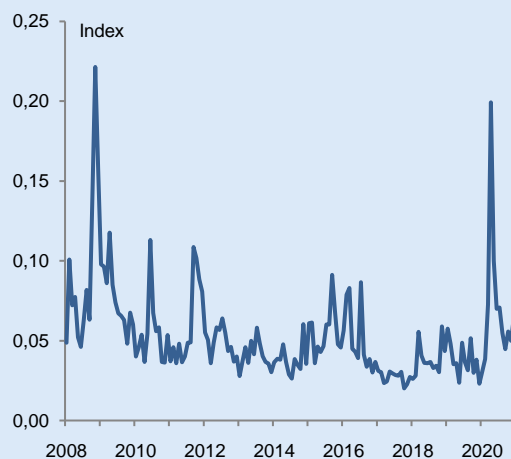
Figure 3.5:
Export indicators, 2008–2020



Quarterly data; exports, industrial production, volumes, change on previous year; order inflow: volumes, 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; Thomson Reuters Datastream; ifo, Konjunkturperspektiven; Kiel Institute calculations.

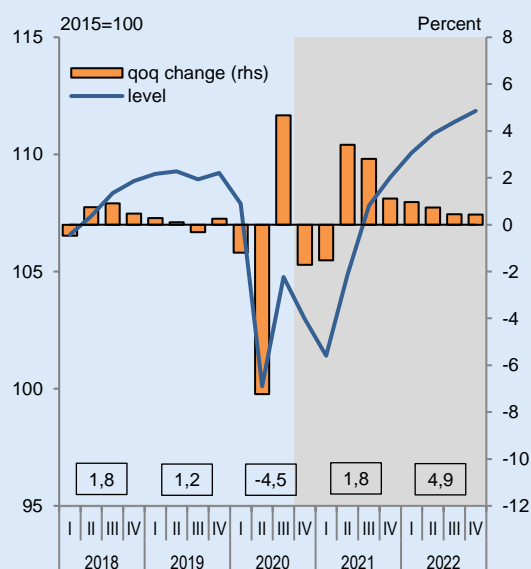
Figure 3.5:
Uncertainty in German export markets, 2008–2020



Monthly data; realized stock market volatilities based on daily stock price indices in 46 countries, weighted by shares of German exports. Last value: 11.12.2020

4. Domestic expenditure

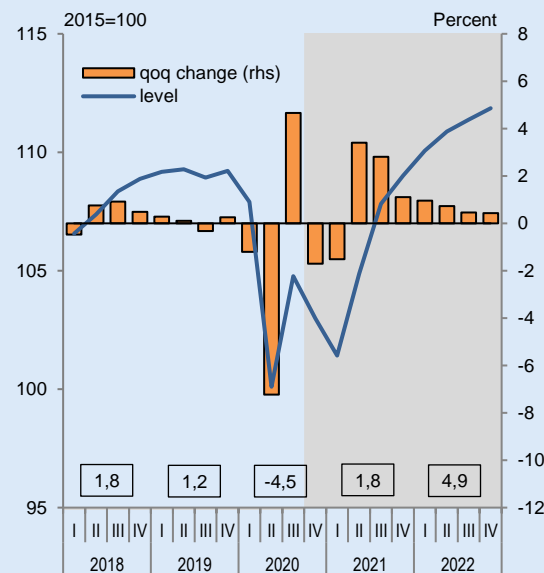
Figure 4.1:
Domestic expenditure, 2018–2022



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

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

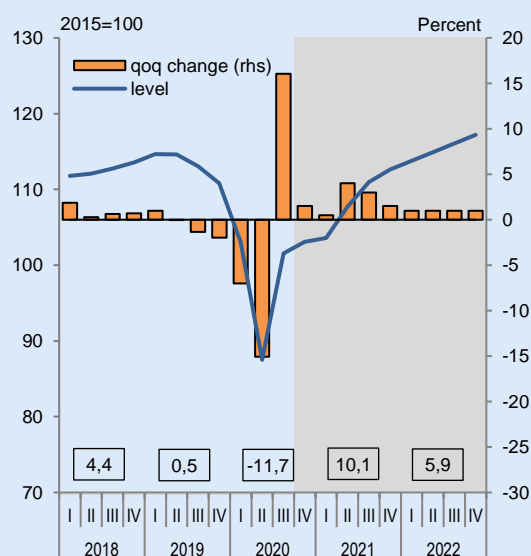
Figure 4.2:
Private consumption, 2018–2022



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

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

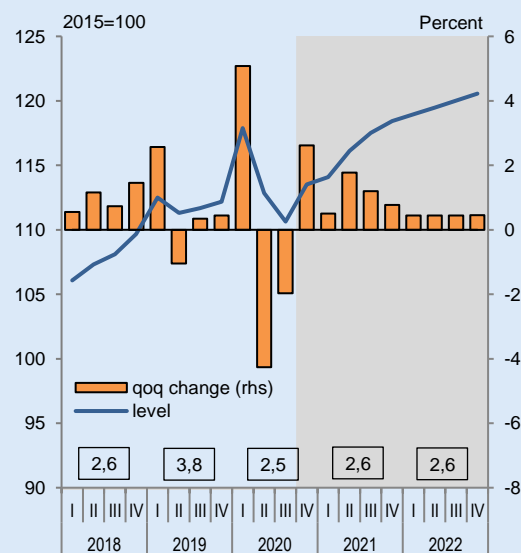
Figure 4.3:
M&E investments, 2018–2022



Quarterly data: Price, seasonally and calendar adjusted, qoq change. Annual data (boxes): Price adjusted, change in percent.

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

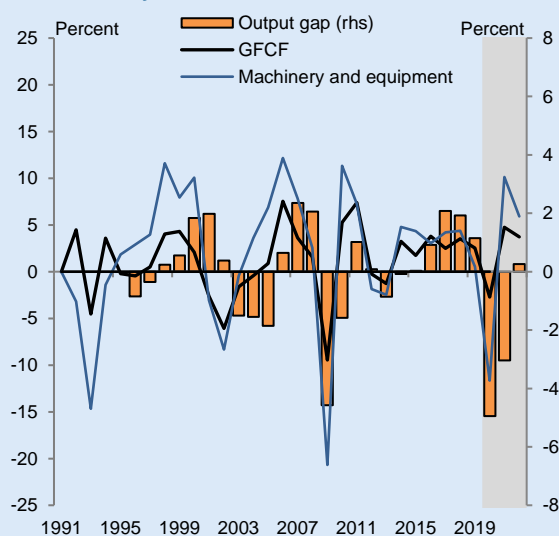
Figure 4.4:
Construction, 2018–2022



Quarterly data: Price, seasonally and calendar adjusted, qoq change. Annual data (boxes): Price adjusted, change in percent.

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

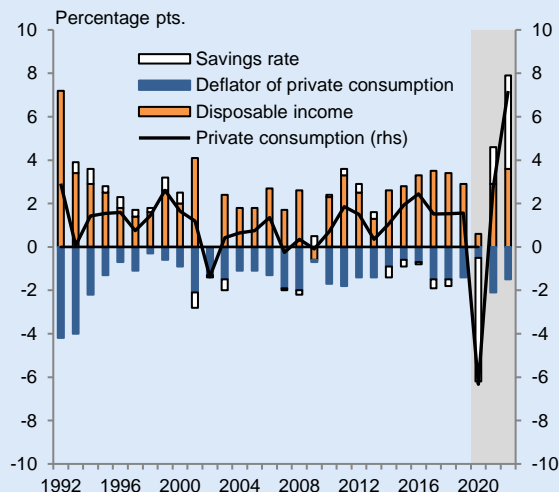
Figure 4.5:
Investment cycles, 1991–2021



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.

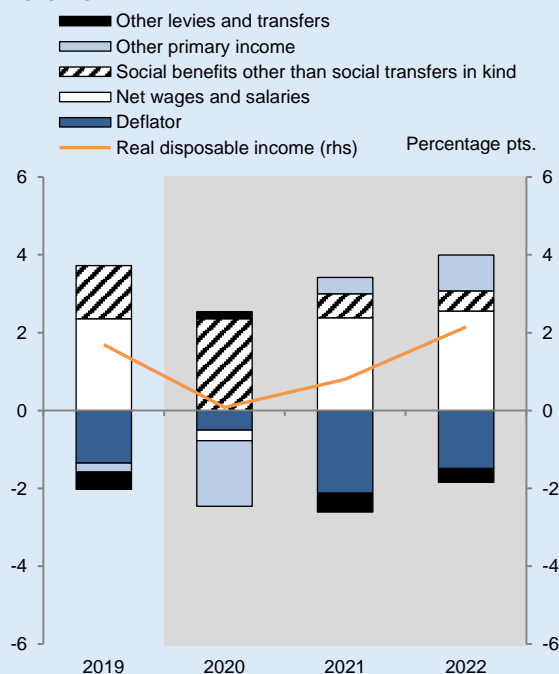
Figure 4.6:
Contributions to change in private consumption, 1992–2021



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, 2019–2022



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, 2019–2022

	2019	2020	2021	2022
Total	2.5	-2.7	4.7	3.7
Corporate investment	1.5	-6.3	6.0	4.2
Machinery and equipment	0.5	-11.7	10.1	5.9
Construction (nondwellings)	2.4	-0.2	2.0	1.7
Other	2.7	-1.2	2.3	3.3
Dwellings	4.0	3.3	3.1	3.2
Public (nondwellings)	6.0	4.4	1.6	1.5
<i>Memorandum item:</i>				
Construction	3.8	2.5	2.6	2.6

Volumes; change over previous year in percent.

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

5. Industries

Table 5.1:
Gross value added for industries, 2020–2021

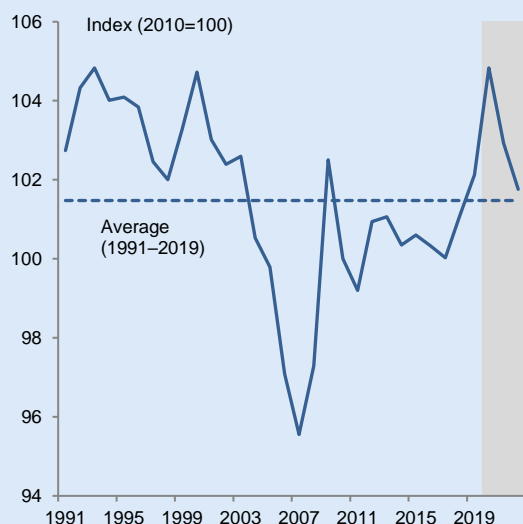
	2020			2021		
	II	III	IV	I	II	III
	<i>Seasonally and calendar adjusted, quarter-on-quarter change in percent</i>					
Gross domestic product	-9.8	8.5	-1.0	-1.4	3.1	2.5
Gross value added	-10.4	8.0	-1.0	-1.4	3.1	2.5
Industry excluding construction	-16.8	12.3	2.2	-2.0	3.5	2.5
Manufacturing	-18.3	14.0	2.7	-2.5	4.0	2.2
Construction	-3.1	-4.7	3.0	1.0	1.5	1.2
Trade, transport, accommodation, and food services	-14.2	13.8	-5.8	-3.8	8.0	6.5
Information and communication	-3.0	3.3	-0.9	-0.7	2.0	1.5
Financial and insurance services	-0.2	0.2	-0.1	-0.1	0.2	0.2
Real estate activities	-2.0	0.9	-0.5	-0.3	0.8	0.6
Business services	-12.0	6.1	-1.7	-1.3	3.0	2.8
Public services, education, health	-8.2	9.5	-1.0	-0.2	1.0	0.5
Other services	-18.1	17.8	-6.0	-2.5	5.5	4.0

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, 1991–2022



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, 2019–2022

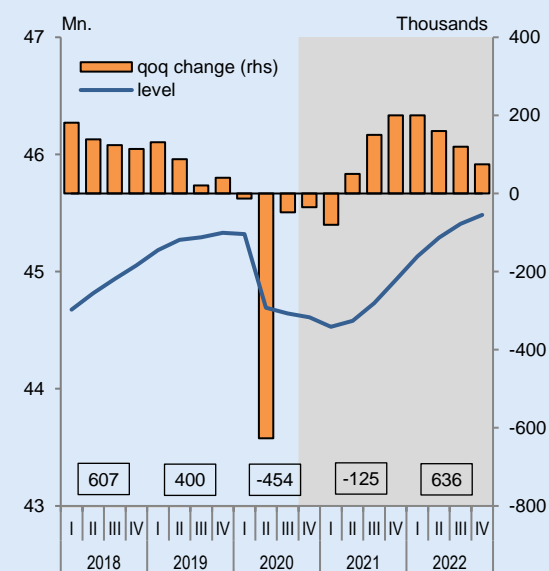
	2019	2020	2021	2022
<i>Per hour</i>				
Negotiated wages	2.9	2.1	1.8	2.3
Gross wages and salaries	3.2	2.5	0.9	2.5
Wage drift	0.3	0.4	-0.9	0.2
Compensation of employees	3.3	3.0	0.8	2.1
Labor productivity	0.0	-1.2	1.3	1.8
Unit labor costs	3.3	4.3	-0.6	0.3
Unit labor costs (real)	1.1	2.6	-1.8	-1.1
<i>Per capita</i>				
Negotiated wages	2.9	2.1	1.8	2.3
Gross wages and salaries	2.9	-0.4	3.6	3.6
Wage drift	0.0	-2.5	1.8	1.3
Compensation of employees	3.0	0.2	3.2	3.3
Labor productivity	-0.3	-4.3	3.4	3.1
Unit labor costs	3.4	4.7	-0.2	0.2
Unit labor costs (real)	1.1	3.1	-1.4	-1.2

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

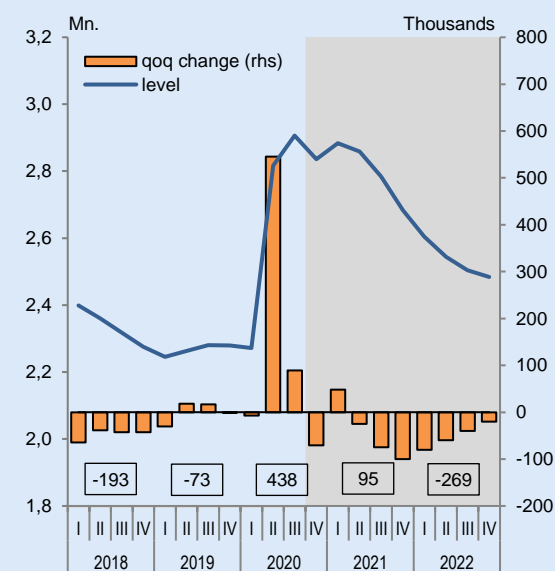
Figure 7.1:
Employment, 2018–2022



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

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

Figure 7.2:
Unemployment, 2018–2022



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, 2018–2022 (1,000 persons)

	2018	2019	2020	2021	2022
Hours worked (domestic concept, million hours)	62,229	62,596	60,069	61,137	62,785
Persons in employment (domestic concept)	44,868	45,269	44,815	44,690	45,327
Self-employed	4,224	4,152	4,000	3,849	3,872
Employees (domestic concept)	40,645	41,117	40,815	40,841	41,454
Employees subject to social security contributions	32,992	33,537	33,545	33,640	34,191
Minijobs	4,668	4,575	4,279	4,219	4,280
Net commuting	141	146	97	96	145
Persons in employment (national concept)	44,727	45,123	44,718	44,594	45,181
Employees (national concept)	40,503	40,971	40,718	40,745	41,309
Unemployed persons (registered)	2,340	2,267	2,705	2,800	2,531
Unemployment rate (registered; percent)	5.2	5.0	5.9	6.1	5.5
Unemployment rate (ILO; percent)	3.2	3.0	4.1	4.6	3.9

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

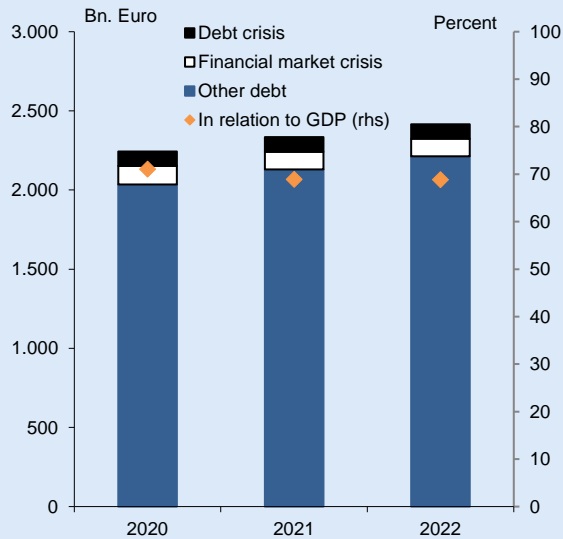
Table 8.1:
Revenues and expenditures of the general government, 2018–2022 (€ bn)

	2018	2019	2020	2021	2022
Revenues	1,553.8	1,610.6	1,552.8	1,635.3	1,713.8
➤ <i>relative to GDP</i>	46.3	46.7	46.7	46.7	46.5
Taxes	801.2	827.1	763.6	817.6	861.5
➤ <i>relative to GDP</i>	23.9	24.0	23.0	23.3	23.4
Social contributions	572.6	597.5	607.3	626.9	655.8
➤ <i>relative to GDP</i>	17.1	17.3	18.3	17.9	17.8
Other revenues	180.1	186.0	181.9	190.7	196.5
➤ <i>relative to GDP</i>	5.4	5.4	5.5	5.4	5.3
Expenditures	1,492.2	1,558.1	1,714.4	1,778.1	1,779.1
➤ <i>relative to GDP</i>	44.5	45.2	51.6	50.7	48.2
Compensation of employees	259.6	271.5	284.1	290.0	295.7
Intermediate consumption	173.4	181.9	204.7	197.3	200.8
Social transfers in kind	285.7	300.4	309.0	331.3	339.7
Gross capital formation	78.7	86.2	92.3	94.8	99.2
Capital transfers	31.1	27.5	23.4	20.7	18.7
Social benefits	520.3	545.4	591.8	603.5	613.7
Subsidies	29.5	30.8	77.0	96.0	57.6
Other current transfers	70.8	74.2	83.3	92.1	94.8
Other capital transfers and investment grants	44.1	41.0	49.6	53.1	59.8
Other expenditures	-1.3	-1.2	-1.2	-1.2	-1.2
Net lending/net borrowing	61.6	52.5	-161.5	-142.7	-65.4
➤ <i>relative to GDP</i>	1.8	1.5	-4.9	-4.1	-1.8
Revenues of central, state, and local governments	1,011.4	1,044.5	987.5	1,050.5	1,101.0
Net of transfers from social security funds	1,010.3	1,043.4	986.3	1,049.3	1,099.9
Transfers from social security funds	1.1	1.1	1.1	1.2	1.2
Expenditures of central, state, and local governments	965.8	1,000.7	1,118.5	1,165.4	1,150.5
Net of transfers to social security funds	847.5	878.0	975.6	1,017.9	1,009.7
Transfers to social security funds	118.3	122.7	142.9	147.4	140.8
Net lending/net borrowing central, state, and local government	45.6	43.8	-131.0	-114.9	-49.5
Revenues of social security funds	661.9	690.0	719.0	742.2	763.5
Net of transfers from central, state, and local governments	543.6	567.2	576.0	594.8	622.7
Expenditures of social security funds	645.9	681.3	749.5	770.1	779.4
Net of transfers to central, state, and local governments	644.7	680.2	748.3	768.9	778.3
Net lending/net borrowing social security funds	16.0	8.7	-30.5	-27.9	-15.9

Sums may deviate due to rounding.

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

Figure 8.1:
Government gross debt, 2020–2022

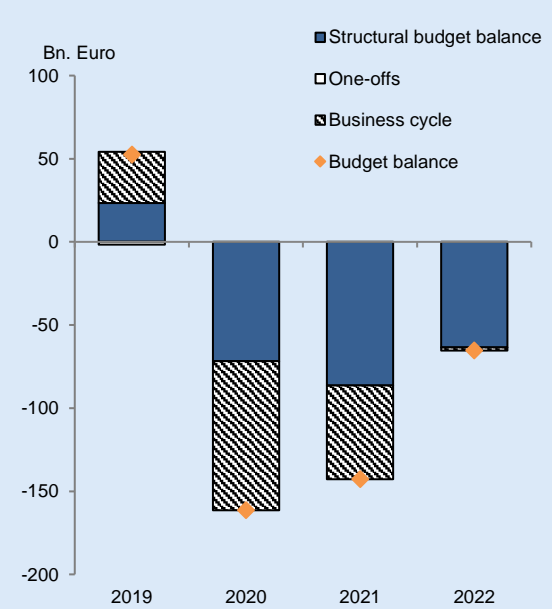


Debt crisis: Liabilities due to first Greece adjustment programme, deposits at the ESM, guarantees for EFSF credits.

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, 2019–2022



Source: Europäische Kommission, AMECO; Kiel Institute calculations and forecast.

9. GDP and its components

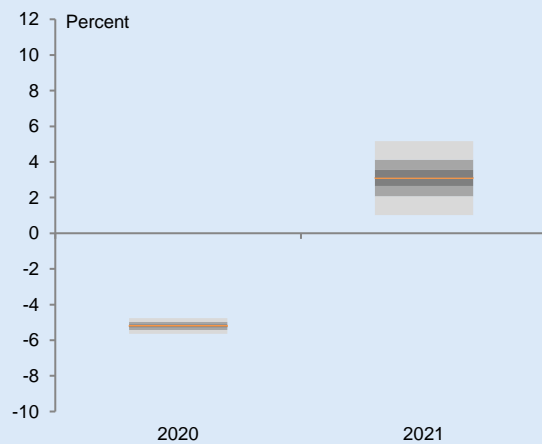
Table 9.1:
Quarterly data, 2020–2022

	2020				2021				2022			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	-1.9	-9.8	8.5	-1.0	-1.4	3.1	2.5	1.1	0.9	0.7	0.4	0.4
Private consumption	-2.3	-11.1	10.8	-4.0	-3.0	5.5	4.5	1.5	1.2	1.0	0.6	0.6
Government consumption	0.8	2.2	0.8	0.6	0.1	-0.4	-0.4	0.4	0.4	0.0	-0.1	-0.1
Machinery and equipment	-7.0	-15.1	16.0	1.5	0.5	4.0	3.0	1.5	1.0	1.0	1.0	1.0
Constructions	5.1	-4.3	-2.0	2.6	0.5	1.8	1.2	0.8	0.4	0.4	0.4	0.4
Other investment	-4.1	0.6	1.9	0.2	0.3	0.5	0.5	0.5	1.0	1.0	1.0	1.0
Change in inventories	0.0	-0.1	-2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic expenditure	-1.2	-7.2	4.7	-1.7	-1.5	3.4	2.8	1.1	1.0	0.7	0.5	0.4
Exports	-3.3	-20.5	18.1	2.2	1.5	3.3	3.0	1.6	1.3	1.0	1.0	1.0
Imports	-1.9	-15.9	9.1	1.0	1.7	4.1	3.8	1.7	1.4	1.2	1.2	1.1
Net exports	-0.8	-2.9	3.9	0.6	0.0	-0.1	-0.1	0.1	0.0	0.0	0.0	0.0
Employment (domestic)	45,319	44,692	44,644	44,609	44,529	44,579	44,729	44,929	45,129	45,289	45,409	45,484
Unemployment (registered)	2,272	2,817	2,906	2,836	2,884	2,859	2,784	2,684	2,604	2,544	2,504	2,484

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.

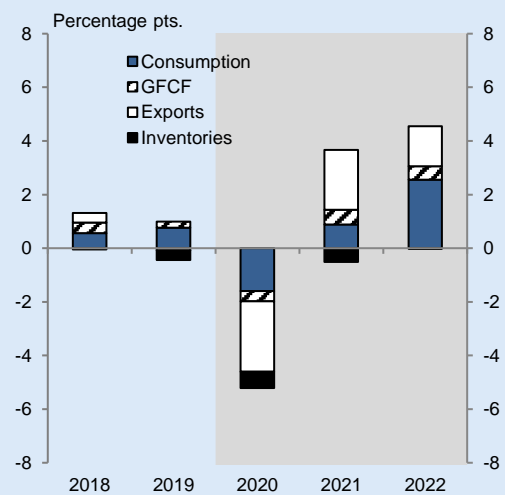
Figure 9.1:
Forecast intervals for GDP growth, 2020–2021



GDP: volumes, change over previous year. Point forecasts: orange lines. Forecast intervals gray shaded areas with confidence levels of 33, 66, and 95 percent. Confidence levels calculated based on historical forecast errors of the Kiel Institute in the fourth quarter 1994–2019.

Source: Kiel Institute calculations.

Figure 9.2:
Import adjusted expenditure-side contributions to GDP growth, 2018–2022



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, 2019–2022

	2019	2019	2020	2021	2022
	€ bn	Change over previous year in percent			
GDP (constant prices)		0.6	-5.2	3.1	4.5
Private consumption expenditure		1.6	-6.3	2.7	7.2
Public consumption expenditure		2.7	4.1	1.2	0.4
Total fixed investment		2.5	-2.7	4.7	3.7
Machinery and equipment		0.5	-11.7	10.1	5.9
Construction		3.8	2.5	2.6	2.6
Other equipment		2.7	-1.2	2.3	3.3
Changes in stocks		-0.7	-1.2	-1.0	0.0
Domestic Demand		1.2	-4.5	1.8	4.9
Exports		1.0	-9.8	10.3	6.3
Imports		2.6	-8.9	8.0	7.4
Net exports		-0.6	-0.9	1.5	-0.1
GDP (current prices)	3,449.1	2.8	-3.7	4.4	6.1
Private consumption expenditure	1,806.9	2.9	-5.9	4.9	8.8
Public consumption expenditure	704.5	5.1	6.5	2.3	2.0
Total fixed investment	748.0	5.5	-1.2	6.8	5.8
Machinery and equipment	240.1	1.9	-10.5	10.8	6.6
Construction	373.7	8.4	4.3	5.6	5.6
Other equipment	134.2	4.2	0.2	3.7	4.8
Changes in stocks (€ bn)		-10.3	-63.6	-98.7	-101.9
Domestic Demand	3,249.1	3.1	-3.8	3.7	6.6
Exports	1,617.4	1.7	-10.2	10.9	7.4
Imports	1,417.4	2.4	-11.3	10.1	8.8
Net exports (€ bn)		199.9	193.8	226.1	222.3
Gross national income	3,542.8	2.8	-3.7	4.4	6.0
Deflator of GDP		2.2	1.6	1.3	1.5
Private consumption expenditure		1.4	0.5	2.1	1.5
Public consumption expenditure		2.3	2.3	1.1	1.6
Investment in machinery and equipment		1.4	1.3	0.6	0.7
Investment in construction		4.4	1.8	2.9	2.9
Investment in other equipment		1.4	1.4	1.3	1.5
Exports		0.8	-0.5	0.6	1.0
Imports		-0.1	-2.6	1.9	1.3
<i>Addendum: Consumer prices</i>		1.4	0.5	2.6	1.7
Income distribution					
National income	2,564.1	2.2	-3.0	4.2	5.2
Employment income	1,845.9	4.2	-0.5	3.3	4.8
in percent of national income		72.0	73.8	73.2	72.9
Entrepreneurial and property income	718.2	-2.7	-9.3	6.7	6.3
Disposable income of private households	1,969.8	3.0	0.6	2.9	3.6
Savings rate		10.9	16.6	14.9	10.6
Wages and salaries	1,521.6	4.1	-1.1	3.7	5.1
Wage per hour		3.2	2.5	0.9	2.5
Unit labor costs		3.3	4.3	-0.6	0.3
Productivity per hour		0.0	-1.2	1.3	1.8
Unemployment (1,000)		2,266.7	2,705.1	2,800.1	2,531.4
Rate of unemployment (percent)		5.0	5.9	6.1	5.5
Total employment (1,000)		45,268.5	44,814.8	44,690.3	45,326.5
Public sector budget balance (€ bn)		52.5	-161.5	-142.7	-65.4
Public sector budget balance (in percent of GDP)		1.5	-4.9	-4.1	-1.8
Public debts (in percent)		59.5	72.6	73.2	70.2

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

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

11. National accounts

National Accounts

Forecast period: 2020 to 2021

	2020	2021	2022	2020		2021	
				H1	H2	H1	H2

1. Production

Change over the same period of the preceding year in %

Persons in employment	- 1.0	- 0.3	1.4	- 0.5	- 1.5	- 1.0	0.5
Hours worked	- 4.0	1.8	2.7	- 5.1	- 3.2	1.1	2.7
Hours worked by person in employment	- 3.1	2.1	1.3	- 4.7	- 1.7	2.1	2.3
Labor productivity ¹	- 1.2	1.3	1.8	- 0.8	- 0.8	0.3	1.5
Gross domestic product, price-adjusted	- 5.2	3.1	4.5	- 6.5	- 4.0	2.0	4.3

2. Use of gross domestic product at current prices

a) EUR bn.

Consumption expenditure	2 451.6	2 551.6	2 723.7	1 197.1	1 254.5	1 214.9	1 336.8
Private households ²	1 701.1	1 783.9	1 940.5	833.0	868.1	839.5	944.4
Government	750.5	767.8	783.2	364.1	386.4	375.4	392.4
Gross fixed capital formation	739.1	789.2	834.7	354.6	384.5	373.1	416.1
Machinery and equipment	214.9	238.2	254.0	98.0	117.0	110.0	128.2
Construction	389.8	411.7	434.6	193.0	196.7	196.7	214.9
Other products	134.4	139.3	146.0	63.6	70.8	66.4	73.0
Changes in inventories ³	- 63.6	- 98.7	- 101.9	- 14.7	- 48.9	- 44.7	- 54.0
Domestic expenditure	3 127.1	3 242.1	3 456.5	1 536.9	1 590.1	1 543.3	1 698.8
Net exports	193.8	226.1	222.3	83.7	110.1	122.9	103.2
Exports	1 451.7	1 610.7	1 729.2	703.3	748.5	777.8	832.8
Imports	1 257.9	1 384.5	1 506.9	619.6	638.3	654.9	729.7
Gross domestic product	3 320.9	3 468.3	3 678.8	1 620.6	1 700.3	1 666.3	1 802.0

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

Consumption expenditure	- 2.4	4.1	6.7	- 2.3	- 2.5	1.5	6.6
Private households ²	- 5.9	4.9	8.8	- 5.8	- 5.9	0.8	8.8
Government	6.5	2.3	2.0	6.9	6.1	3.1	1.5
Gross fixed capital formation	- 1.2	6.8	5.8	- 1.6	- 0.8	5.2	8.2
Machinery and equipment	- 10.5	10.8	6.6	- 15.5	- 5.9	12.3	9.6
Construction	4.3	5.6	5.6	6.7	2.1	1.9	9.2
Other products	0.2	3.7	4.8	0.2	0.2	4.4	3.1
Domestic expenditure	- 3.8	3.7	6.6	- 3.3	- 4.2	0.4	6.8
Exports	- 10.2	10.9	7.4	- 12.7	- 7.8	10.6	11.3
Imports	- 11.3	10.1	8.8	- 11.7	- 10.8	5.7	14.3
Gross domestic product	- 3.7	4.4	6.1	- 4.3	- 3.2	2.8	6.0

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

a) EUR bn.

Consumption expenditure	2 293.2	2 344.2	2 464.8	1 120.5	1 172.8	1 126.1	1 218.1
Private households ²	1 610.2	1 653.5	1 772.3	784.9	825.3	781.9	871.5
Government	681.9	689.9	692.6	335.0	346.9	343.3	346.6
Gross fixed capital formation	665.6	697.2	723.2	318.7	346.9	330.5	366.7
Machinery and equipment	206.0	226.8	240.3	94.0	112.0	104.6	122.2
Construction	332.7	341.4	350.2	163.8	168.8	163.9	177.5
Other products	124.7	127.7	131.9	59.3	65.4	61.0	66.6
Domestic expenditure	2 910.8	2 962.2	3 107.6	1 434.2	1 476.5	1 420.9	1 541.3
Exports	1 419.2	1 565.5	1 663.5	686.2	733.0	758.7	806.9
Imports	1 268.0	1 369.2	1 470.7	623.6	644.4	651.4	717.8
Gross domestic product	3 063.8	3 160.3	3 303.5	1 498.2	1 565.6	1 528.1	1 632.2

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

Consumption expenditure	- 3.4	2.2	5.1	- 4.1	- 2.7	0.5	3.9
Private households ²	- 6.3	2.7	7.2	- 7.2	- 5.5	- 0.4	5.6
Government	4.1	1.2	0.4	3.8	4.4	2.5	- 0.1
Gross fixed capital formation	- 2.7	4.7	3.7	- 3.8	- 1.7	3.7	5.7
Machinery and equipment	- 11.7	10.1	5.9	- 16.7	- 7.0	11.3	9.1
Construction	2.5	2.6	2.6	3.6	1.5	0.0	5.1
Other products	- 1.2	2.3	3.3	- 1.2	- 1.2	2.9	1.8
Domestic expenditure	- 4.5	1.8	4.9	- 4.6	- 4.5	- 0.9	4.4
Exports	- 9.8	10.3	6.3	- 12.7	- 6.9	10.6	10.1
Imports	- 8.9	8.0	7.4	- 9.3	- 8.5	4.5	11.4
Gross domestic product	- 5.2	3.1	4.5	- 6.5	- 4.0	2.0	4.3

National Accounts (cont.)

Forecast period: 2020 to 2021

	2020	2021	2022	2020		2021	
				H1	H2	H1	H2
4. Deflators (2010=100)							
Change on the same period of the preceding year in %							
Private consumption ²	0.5	2.1	1.5	1.5	-0.4	1.2	3.0
Government consumption	2.3	1.1	1.6	3.0	1.7	0.6	1.6
Gross fixed capital formation	1.6	1.9	2.0	2.2	0.9	1.5	2.4
Machinery and equipment	1.3	0.6	0.7	1.4	1.2	0.9	0.4
Construction	1.8	2.9	2.9	3.0	0.6	1.9	3.9
Exports	-0.5	0.6	1.0	0.0	-0.9	0.0	1.1
Imports	-2.6	1.9	1.3	-2.6	-2.5	1.2	2.6
Gross domestic product	1.6	1.3	1.5	2.4	0.8	0.8	1.7

5. National income

a) EUR bn.

Primary income of private households ²	2 382.0	2 451.0	2 561.6	1 185.6	1 196.3	1 200.6	1 250.5
Employers social contributions	332.0	337.2	348.8	161.2	170.8	163.9	173.2
Gross wages and salaries	1 504.7	1 560.4	1 640.7	721.1	783.5	737.7	822.7
Other primary income ⁴	545.2	553.4	572.2	303.3	242.0	298.9	254.5
Primary income of other sectors	375.6	430.0	510.4	151.0	224.6	166.6	263.4
Net national income	2 752.8	2 881.0	3 072.0	1 331.8	1 421.0	1 367.2	1 513.9
Consumption of fixed capital	659.7	681.5	705.4	329.1	330.6	339.4	342.1
Gross national income	3 412.5	3 562.5	3 777.4	1 660.9	1 751.5	1 706.5	1 856.0
memorandum item:							
Net national income (factor costs)	2 488.0	2 592.3	2 727.6	1 196.5	1 291.5	1 240.9	1 351.4
Property and entrepreneurial income	651.3	694.7	738.2	314.2	337.1	339.2	355.5
Compensation of employees	1 836.7	1 897.6	1 989.4	882.4	954.4	901.6	996.0

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

Primary income of private households ²	-1.7	2.9	4.5	-1.1	-2.4	1.3	4.5
Employers social contributions	2.4	1.5	3.4	2.6	2.2	1.7	1.4
Gross wages and salaries	-1.1	3.7	5.1	-0.8	-1.4	2.3	5.0
... per employee	-0.4	3.6	3.6	-0.6	-0.2	3.0	4.2
Other primary income ⁴	-5.7	1.5	3.4	-3.6	-8.3	-1.4	5.2
Primary income of other sectors	-21.5	14.5	18.7	-29.3	-15.2	10.3	17.3
Net national income	-5.2	4.7	6.6	-5.7	-4.7	2.7	6.5
Consumption of fixed capital	3.1	3.3	3.5	3.6	2.6	3.1	3.5
Gross national income	-3.7	4.4	6.0	-4.0	-3.4	2.7	6.0
memorandum item:							
Net national income (factor costs)	-3.0	4.2	5.2	-3.8	-2.2	3.7	4.6
Property and entrepreneurial income	-9.3	6.7	6.3	-12.5	-6.1	8.0	5.4
Compensation of employees	-0.5	3.3	4.8	-0.2	-0.8	2.2	4.4

6. Disposable income of private households ²

a) EUR bn.

Mass income	1 526.7	1 580.8	1 639.6	732.6	794.1	759.6	821.2
Net wages and salaries	1 014.9	1 062.2	1 114.3	480.6	534.2	498.1	564.1
Social benefits other than social transfers in kind	652.7	665.0	675.5	320.9	331.9	334.0	331.0
less: Levies on social benefits, taxes on consumption	140.9	146.4	150.2	69.0	72.0	72.5	73.9
Other primary income ⁴	545.2	553.4	572.2	303.3	242.0	298.9	254.5
Other transfers received (net) ⁵	-90.7	-94.8	-98.3	-45.7	-44.9	-47.1	-47.7
Disposable income	1 981.3	2 039.4	2 113.5	990.1	991.2	1 011.4	1 028.0
Change in pension entitlements	57.4	57.6	58.2	27.9	29.5	28.0	29.6
Consumption expenditure	1 701.1	1 783.9	1 940.5	833.0	868.1	839.5	944.4
Saving	337.6	313.2	231.2	185.0	152.6	199.9	113.3
Saving ratio (%) ⁶	16.6	14.9	10.6	18.2	14.9	19.2	10.7

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

Mass income	2.4	3.5	3.7	2.2	2.6	3.7	3.4
Net wages and salaries	-0.5	4.7	4.9	-0.4	-0.6	3.6	5.6
Social benefits other than social transfers in kind	7.7	1.9	1.6	6.6	8.7	4.1	-0.3
less: Levies on social benefits, taxes on consumption	4.1	3.9	2.6	3.2	4.9	5.1	2.7
Other primary income ⁴	-5.7	1.5	3.4	-3.6	-8.3	-1.4	5.2
Disposable income	0.6	2.9	3.6	1.0	0.2	2.2	3.7
Consumption expenditure	-5.9	4.9	8.8	-5.8	-5.9	0.8	8.8
Saving	53.3	-7.2	-26.2	49.2	58.5	8.1	-25.8

National Accounts (cont.)

Forecast period: 2020 to 2021

	2020	2021	2022	2020		2021	
				H1	H2	H1	H2
7. Revenue and expenditure by general government ⁷							
a) EUR bn.							
Revenue							
Taxes	763.6	817.6	861.5	386.6	377.0	401.0	416.7
Social contributions	607.3	626.9	655.8	295.2	312.2	304.0	322.9
Property income	19.8	18.2	17.8	12.0	7.8	10.6	7.6
Other current transfers	23.9	27.1	28.6	11.2	12.6	12.9	14.3
Capital transfers	15.1	15.6	15.9	7.0	8.1	7.3	8.3
Sales	123.0	129.6	134.0	58.0	65.0	61.0	68.5
Other subsidies	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Total	1 552.8	1 635.3	1 713.8	770.0	782.8	796.9	838.4
Expenditure							
Intermediate consumption ⁸	513.7	528.9	540.9	247.7	266.0	256.7	272.2
Compensation of employees	284.1	290.0	295.7	136.3	147.8	140.3	149.7
Property income (interest)	23.4	20.7	18.7	11.8	11.7	10.4	10.3
Subsidies	77.0	96.0	57.6	38.9	38.1	60.3	35.7
Social benefits	591.8	603.5	613.7	290.6	301.2	303.4	300.1
Other current transfers	83.3	92.1	94.8	40.2	43.1	44.8	47.3
Capital transfers	49.6	53.1	59.8	18.1	31.5	21.7	31.5
Gross capital formation	92.3	94.8	99.2	40.8	51.5	40.6	54.2
Net acquisitions of non-produced non-financial assets	- 1.2	- 1.2	- 1.2	- 0.5	- 0.7	- 0.5	- 0.7
Total	1 714.1	1 778.1	1 779.1	823.9	890.1	877.7	900.3
Net lending	- 161.2	- 142.7	- 65.4	- 53.9	- 107.3	- 80.8	- 61.9

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

Revenue							
Taxes	- 7.7	7.1	5.4	- 7.1	- 8.3	3.7	10.5
Social contributions	1.6	3.2	4.6	1.8	1.5	3.0	3.4
Property income	- 9.8	- 7.9	- 2.5	- 9.1	- 10.7	- 11.2	- 3.0
Other current transfers	- 5.2	13.8	5.5	- 1.0	- 8.7	14.5	13.1
Capital transfers	9.4	3.8	1.9	15.9	4.4	4.3	3.3
Sales	- 1.5	5.3	3.4	- 1.1	- 1.8	5.2	5.4
Other subsidies	- 11.0	0.0	0.0	- 7.9	- 12.8	0.0	0.0
Total	- 3.6	5.3	4.8	- 3.2	- 4.0	3.5	7.1
Expenditure							
Intermediate consumption ⁸	6.4	3.0	2.3	7.2	5.7	3.6	2.4
Compensation of employees	4.6	2.1	2.0	4.5	4.7	3.0	1.3
Property income (interest)	- 14.7	- 11.8	- 9.5	- 17.9	- 11.3	- 11.9	- 11.7
Subsidies	150.0	24.7	- 40.1	170.7	131.9	54.9	- 6.3
Social benefits	8.5	2.0	1.7	7.3	9.7	4.4	- 0.4
Other current transfers	12.3	10.6	3.0	9.7	14.9	11.3	9.9
Capital transfers	20.9	7.2	12.6	29.3	16.5	19.7	0.0
Gross capital formation	7.1	2.7	4.6	8.3	6.2	- 0.4	5.1
Net acquisitions of non-produced non-financial assets	- 0.7	0.0	0.0	- 9.7	7.0	0.0	0.0
Total	10.0	3.7	0.1	10.1	10.0	6.5	1.1

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*; Kiel Institute calculations and forecasts.

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