

KIEL INSTITUTE **ECONOMIC OUTLOOK**

German Economy Summer 2022

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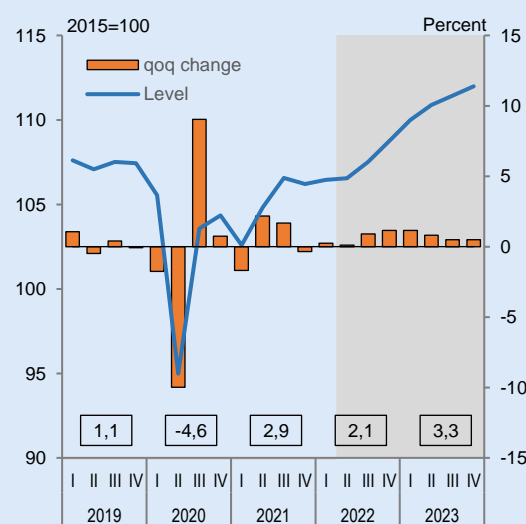
SLOWLY PROGRESSING RECOVERY

Jens Boysen-Hogrefe, Dominik Groll, Nils Jannsen, Stefan Kooths, Saskia Meuchelböck und Nils Sonnenberg

The German economy navigates troubled waters. The catch-up process in the contact-intensive service industries is continuing at a fast pace and companies in the manufacturing sector are sitting on well-filled order books. However, high inflation is reducing the purchasing power of disposable incomes and thus dampening the recovery in consumption. In addition, supply bottlenecks have recently worsened again due to the war in Ukraine. As a result, the recovery will regain strength only in the second half of the year, when prices will no longer rise as rapidly and supply bottlenecks will begin to ease. Overall, we expect GDP to increase by 2.1 percent this year, as in our spring forecast. In 2023, GDP will grow by 3.3 percent (spring forecast: 3.5 percent). At 7.4 percent, inflation in the current year will be higher than ever before in reunified Germany. Next year, inflation will probably remain high with 4.2 percent. The recovery in employment continues. Effective earnings will rise strongly, also because labor shortages have reached an all-time high. In the current year, however, the increase of about 5 percent will lag behind the rate of inflation. Public budget deficits will decline as revenues increase strongly and pandemic-related expenditures are reduced. In 2023, public debt in relation to GDP is expected to be slightly above 60 percent.

GDP probably increases in the summer half-year despite strong headwinds. However, the pace of expansion will be much slower than we had expected in our spring forecast (Ademmer et al. 2022). Contrary to expectations, the service industries particularly affected by the pandemic have already started to recover in the first quarter, so the catch-up potential for the summer months is lower. Moreover, consumer prices have risen more strongly than forecast in spring, so the dynamics in the consumer-related service industries will probably be lower in view of the reduced real disposable income. The leading indicators point to a weak development in the second quarter. The business climate has fallen significantly and retail sales and industrial production in April were noticeably below the level of the first quarter. According to some established forecasting models (Hauber 2018), GDP could decline in the second quarter. Overall, however, we expect a slight increase in GDP in the second quarter (Figure 1). This is supported by the fact that the deterioration in the business climate is mainly due to the expectations component and that companies have assessed their current business situation more favorably up to May than in the first quarter. In addition, there are signs of a very strong recovery in the contact-intensive service sectors, which were particularly hard hit by the pandemic and are difficult to depict in macroeconomic forecast models. In the second half of the year, GDP is likely to increase at a faster pace. The prerequisite for this is that the supply bottlenecks gradually ease and that the good order situation of companies will lead to rising production. We also assume that the recovery in the consumer-related service sectors will continue despite high inflation.

Figure 1:
Gross domestic product



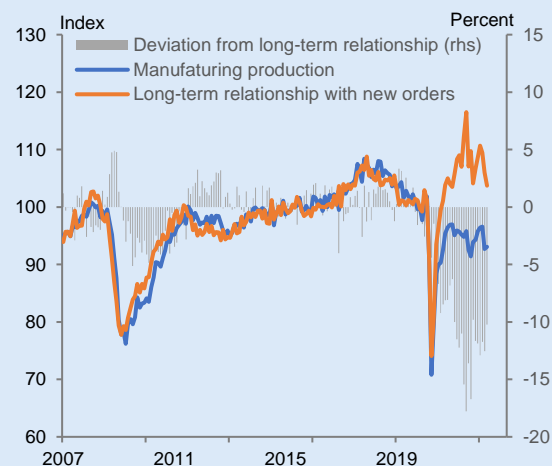
Quarterly data: Volumes, seasonally and calendar adjusted.
Annual data (boxes): Volumes, change in percent.

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

As supply bottlenecks ease, manufacturing production is ramping up rapidly.

The level of production in the manufacturing sector continues to be determined by supply bottlenecks. In April—despite the recent sharp decline in new orders—industrial production was about 10 percent below the level that could have been expected given the good order situation (Figure 2).¹ Additionally, due to the supply bottlenecks, order backlogs amounting to more than 15 percent of a year's production have piled up in the meantime. After a recovery in industrial production towards the end of last year, there was another setback recently, as supply bottlenecks worsened again due to the war in Ukraine. In the second quarter, production is likely to remain at about the level recorded in April, so that gross value added in the manufacturing sector in the second quarter will decline by about 2 percent compared to the first quarter. Given the long delivery times, the full impact of the lack of intermediate inputs due to production disruptions in China will probably not be felt until May and June. However, there are already signs of a noticeable recovery in the automotive industry, which was cut back significantly in March due to a lack of supplies from Ukraine. Provided that there will be no new burdens, the supply bottlenecks will gradually ease from the middle of the year and production will be ramped up to the limits of capacity in view of the good order situation. The high order backlog would also cushion further short-term declines in incoming orders—for example, due to war-related uncertainty or long delivery times. Maximum production capacities are currently likely to be at about the same level as in 2018, the last time the manufacturing industry produced at almost full capacity. Against this backdrop, we expect gross value added in manufacturing to increase by 0.4 percent in the current year and by 9 percent in 2023.

Figure 2:
Actual manufacturing output and long-term relationship with new orders



Monthly data, seasonally adjusted. Long-term relationship with new orders: Expected level of production given the level of new orders based on an estimated cointegration relationship from 1991 to 2019.

Sources: Deutsche Bundesbank, Kiel Institute calculations.

German foreign trade continues to be hampered by supply bottlenecks for the time being. In the first quarter, exports declined amid Russia's invasion of Ukraine. Exports to Russia, which accounted for 2 percent of total goods exports before the war, fell by around 60 percent in March compared with the previous month. In addition, shortages of inputs from Russia and Ukraine weighed on exports, in particular in the automotive sector. In the second quarter, exports have probably increased again. Price-adjusted goods exports rose in April, and export expectations improved somewhat after plummeting in March. At the same time, the bottlenecks hampering production are unlikely to have eased amid the lockdown in parts of China. The ongoing recovery of services exports, on the other hand, is likely to have provided support. Going forward, the export business will benefit from its high order backlog as soon as the supply bottlenecks ease, even though the global economic environment has deteriorated (Gern et al. 2022). All in all, we expect exports to increase by 3.4 percent this year, followed by 6.5 percent in 2023. Imports are temporarily showing little momentum. In the first quarter, their recovery slowed down. While imports of goods declined, strong imports of services prevented a decline in imports overall. In the second quarter, imports are set to increase moderately. The price-adjusted data on special trade in April indicate a weak development of goods imports, while the recovery in services imports has likely continued. In the second half of the year, imports will rise more dynamically as domestic demand for capital goods picks up and the normalization of service imports continues. Overall, imports are expected to rise by 6.6 percent in 2022 and 5.6 percent in 2023. The war in Ukraine is exacerbating the upward pressure on prices in foreign trade, and the sharply deteriorating terms of trade will hardly

¹ See Beckmann and Jannsen (2021) as well as Beckmann et al. (2021).

recover over the forecast period. We expect a deterioration of 3.9 percent this year, followed by an improvement of 0.3 percent in 2023.

The loss of purchasing power dampens the recovery of private consumption. The recovery in private consumption following the most recent pandemic wave is more muted than in previous pandemic waves. The main factor is high inflation, which significantly reduces the purchasing power of disposable incomes. Overall, we now expect a much slower recovery than in our spring forecast. First, a moderate recovery already began in the first quarter—in spring we expected a further pandemic-related setback—and in addition the decline in the fourth quarter is now reported by the Federal Statistical Office to be smaller than three months ago, so that the catch-up potential is lower. Secondly, the price increases seem to have a stronger impact in the second quarter than in the first quarter; in the spring we had assumed that they would already have a noticeable dampening effect in the first quarter. Third, real disposable income is lower than we expected in our spring forecast because consumer prices have risen more strongly. In the second quarter, consumer spending has probably stagnated. Leading indicators, such as mobility data or online bookings at restaurants, suggest that the recovery in the contact-intensive service sectors continued at a much faster pace in the second quarter. However, consumer climate of private households is at record-low levels and the setback in retail sales in April in particular suggests a weak development. In part, the high energy price increases of the previous months may have a strong negative impact here, especially since retail sales had developed robustly during the pandemic and no pandemic-related recovery is pending here. However, they may also partly reflect the brisk recovery in the hospitality sector, as food sales have fallen particularly sharply. Looking further ahead, private consumption expenditure is expected to gain momentum as the recovery from the pandemic continues. The recovery in private consumption is partly fed by the extra-savings accumulated during the pandemic amounting to about 200 billion euro or about 10 percent of annual disposable income. As in our spring forecast, we assume that private households will spend about 20 percent of these extra-savings for consumption in 2023. Consequently, the savings rate in 2023 will be significantly below its pre-crisis level at 9 percent.

Business investment will expand strongly despite increased uncertainty. The investment environment has deteriorated recently as uncertainty about sales prospects has increased due to the war in Ukraine and high inflation. As a result, domestic orders for capital goods have declined recently. For the second quarter, leading indicators, such as domestic sales and the production of capital goods in the manufacturing industry, point to a significant decline in equipment investment. The main factor is likely to be the recent increase in supply bottlenecks, which is dampening industrial production. As soon as the supply bottlenecks gradually ease—we expect them to ease in the middle of the year—investment in machinery and equipment is likely to expand at a rapid pace. This is supported by the fact that, despite the recent declines, new orders are still at about their pre-crisis level, while investment in machinery and equipment is still well below pre-crisis levels. Moreover, since the beginning of the pandemic, the domestic order book for capital goods has increased by about 40 percent. In the medium term, moreover, the pandemic is unlikely to have dampened growth prospects (Ademmer et al. 2021: Box 1), so the need for investment from this side will hardly diminish. The high energy prices and the measures to decarbonize production are also likely to increase the need for investment in many companies. Against this backdrop, we expect investment in machinery and equipment to increase by around 2 percent in the current year and by more than 13 percent in 2023. Investment in machinery and equipment will also be boosted by the significantly higher defense spending of the government, which is expected to contribute about 4 percentage points to the growth rate in 2023.

Construction investment continues to trend upwards. The conditions for construction investments have deteriorated recently. Construction continues to be noticeably hampered by material bottlenecks, and material costs have risen sharply as a result. In addition, mortgage interest rates have risen. Leading indicators point to a noticeable decline in construction investment in the second quarter. Material shortages and the suspension of construction projects due to the sharp rise in building costs are likely to contribute to this decline. As soon as material shortages ease, construction investments are likely to

increase significantly. The order situation is still good and building permits have recently increased significantly. Overall, construction demand is likely to remain high in the medium term. Since construction activity in recent years has been limited primarily by production capacities of companies, lower demand—in view of worsening financing conditions or higher construction costs—would initially be felt primarily in prices and less in the volume of construction. Overall, we therefore expect construction investment to expand at a similar pace as—on average—in the past years. The deflator of construction investment is likely to rise more strongly this year than ever before in reunified Germany by about 12 percent. For 2023, we expect an increase of 4.7 percent.

The high price pressure continues. Price pressures have been broad-based for some time (Boysen-Hogrefe et al. 2022: box 2). It now goes well beyond the rise in the price of energy and food as the core rate has continued to rise. The high price increases at the producer price level since the middle of last year are only gradually being passed on to consumers and thus will continue to keep upward pressure on prices in the coming months (Boysen-Hogrefe 2022). Additionally, the war in Ukraine has further exacerbated the already existing supply bottlenecks. The resulting supply constraints are being met by strong demand from households. Excess savings of around 200 billion euros have accumulated as a result of the government's income stabilization measures and the restricted consumption possibilities during the pandemic. These are now increasing consumers' willingness to pay and dampen the negative effect of high inflation on consumption.

Current inflation rates are at historically high levels. In May, the inflation rate reached 7.9 percent, a near-record level since the data were recorded. Rates above 7 percent, as seen since March, are above those seen during the reunification boom and at levels seen during the oil crises in 1973/74 and 1981. The core rate (excluding energy) was 4.5 percent in May, up from 4.3 and 3.6 percent in April and March, respectively. Prices for energy also continued to rise significantly. In May, they rose 38.3 percent from a year earlier. The contributions of energy components to consumer prices are currently very high. In May, fuels and heating oil alone pushed up the inflation rate by 1.4 and 0.9 percentage points, respectively. The increase in the price of electricity and gas contributed a further 0.6 and 1 percentage points. The contribution of the energy component to the inflation rate was 3.7 percentage points in April and increased to 4 percentage points in May. A contribution of this magnitude is also expected for June. Easing of the price pressure in the energy components would first occur for fuels and heating oil if, in line with our assumption, crude oil prices fall slightly from the third quarter 2022 onwards. In contrast for electricity and gas, a gradual pass-through process has just begun and it is expected to last for a while due to the longer-term contracts at the consumer level. However, in the next months some policy changes are likely to have a dampening effect on inflation. For example, the abolition of the renewable energy levy, the introduction of the 9€-ticket for public transport and the cut of the energy tax on fuels. All in all, inflation is likely to remain at a very high level for some time in light of the inflationary environment. In 2022, consumer price inflation is expected to be very high at around 7.4 percent (Table 1). In 2023, when supply bottlenecks ease gradually and crude oil prices cease to exert any further upward pressure on the inflation rate, inflation is likely to fall to 4.2 percent.

Table 1:
Key indicators

	2020	2021	2022	2023
Gross domestic product (GDP), price-adjusted	-4.6	2.9	2.1	3.3
Gross domestic product, deflator	1.6	3.0	4.9	3.9
Consumer prices	0.5	3.1	7.4	4.2
Labor productivity (per hour worked)	0.4	1.1	-0.3	1.6
Employment (1000 persons)	44,898	44,918	45,606	45,916
Unemployment rate (percent)	5.9	5.7	5.1	5.1
<i>in relation to nominal GDP</i>				
Public sector net lending	-4.3	-3.7	-1.4	-0.9
Gross public debt	69.1	69.3	65.6	61.5
Current account balance	7.1	7.4	4.2	4.8

GDP, consumer prices, labor productivity: percentage change on previous year; unemployment rate: as defined by the Federal Employment Agency.

Source: Federal Statistical Office, *Fachserie 18, Series 1.2*; Federal Employment Agency, *Monthly Bulletin*; Federal Employment Agency, *Employment Statistics*; shaded: Kiel Institute forecast.

Wages and salaries will rise at the fastest rate in 30 years, but will lag behind consumer price inflation. Collective wage agreements for 2022 are largely fixed. In view of the agreements reached, collectively agreed earnings are expected to increase by 2.8 percent this year. This is significantly higher than last year's 1.6 percent increase, which was low due to the crisis, but much lower than the increase in consumer prices. For the upcoming negotiations, we are assuming increases of between 4 and 5 percent. However, in a number of sectors, collective wages for the coming year have already been agreed in full or in large part. Due to these contracts extending well into the year and based on the assumed wage increases for new agreements, collectively agreed earnings for 2023 are set to rise by 3.8 percent; this would be the highest rise since 1995. Effective earnings (gross wages and salaries per employee) will rise noticeably faster than collectively agreed earnings. While in this year this is mainly due to the much lower amount of short-time work compared to last year, the high upward pressure on prices will play an increasingly important role as time goes on. In addition, labor shortages have reached an all-time high; almost 40 percent of companies complain that labor shortages limit production. Furthermore, the statutory minimum wage will be lifted by more than 20 percent this year. In the current year, the effect of the minimum wage increase on the rise in earnings per employee is 0.2 percentage points according to our forecast, and 0.6 percentage points in the coming year. All in all, effective earnings per employee are expected to rise strongly by 4.8 percent (2022) and 5.0 percent (2023).

The recovery of employment from the pandemic continues regardless of the war in Ukraine. The war in Ukraine has so far left hardly any traces on the German labor market. Short-time work fell between January and March – after a slight increase around the turn of the year – and the ifo estimate based on company surveys points to a continued reduction in April and May. The number of people in employment continued to recover unabatedly through April, exceeding the pre-crisis level from the beginning of 2020 for the first time. Unemployment continued to fall through May and was also back at pre-crisis levels. Leading indicators are currently at high levels, pointing to robust employment growth in the second and third quarter. Thereafter, the pace is likely to slow down. The recovery of employment from the pandemic will be well advanced by then. In addition, the statutory minimum wage will be increased substantially to 12 euros per hour on October 1, 2022. Given the high degree of intervention, we expect employment losses to gradually materialize and thus dampen employment growth. Finally, labor supply will probably reach its peak due to aging next year. The impact of the refugee migration from Ukraine on employment in Germany is likely to be felt only gradually. The impact on unemployment, however, will probably become apparent much sooner; the number of unemployed people with Ukrainian citizenship has already jumped in May. We forecast the unemployment rate to be at 5.1 percent both this and next year, down from 5.7 percent in 2021.

Despite the war in Ukraine the fiscal deficit decreases substantially. The moderation of the pandemic reduces payments for company grants as well as for vaccinations and tests and substantially relieves the budget. In contrast, several measures are taken to counteract the pressures of high energy prices for several groups of private households. Further, we expect additional expenditures for hosting refugees from the Ukraine. However, expenditures will increase at a much slower pace than revenues in 2021. Especially, tax revenues do surprisingly well. Overall, we expect the budget deficit to drop to 1.4 percent relative to GDP. In 2023, the public budget balance will further improve. While we expect the federal government to raise expenditures for subsidies and especially investments that are particularly driven by additional defense spending, the economic upswing will support revenues and thereby the budget balance. Overall, the fiscal deficit of the general government will decline to 0.9 percent relative to GDP.

Data annex

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1. Leading indicators

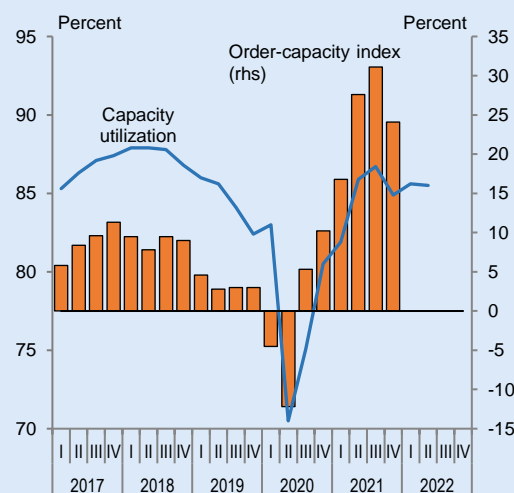
Figure 1.1:
Leading indicators,



Monthly data, seasonally adjusted.

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

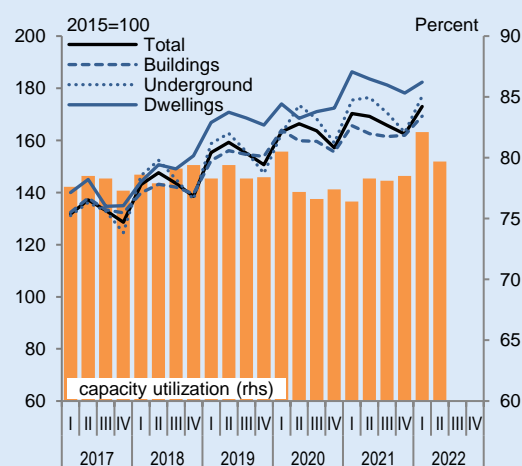
Figure 1.2:
Capacity utilization



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

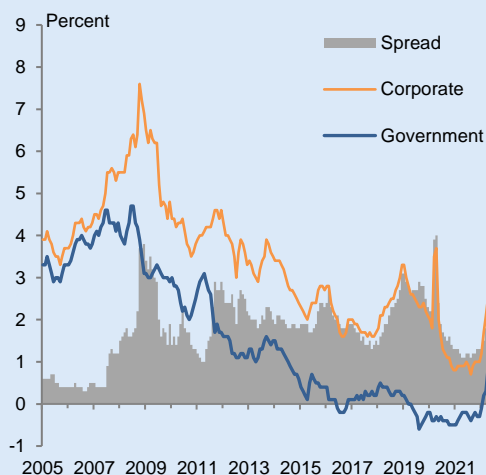


Quarterly data. Capacity utilization (deviation from normal level): seasonally adjusted; order stocks: price, seasonally and working-day adjusted.

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

2. Monetary conditions and prices

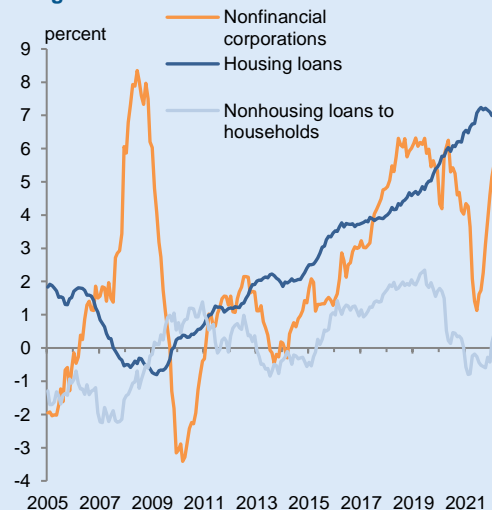
Figure 2.1:
Bond yields



Monthly data, average maturities above three years.

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

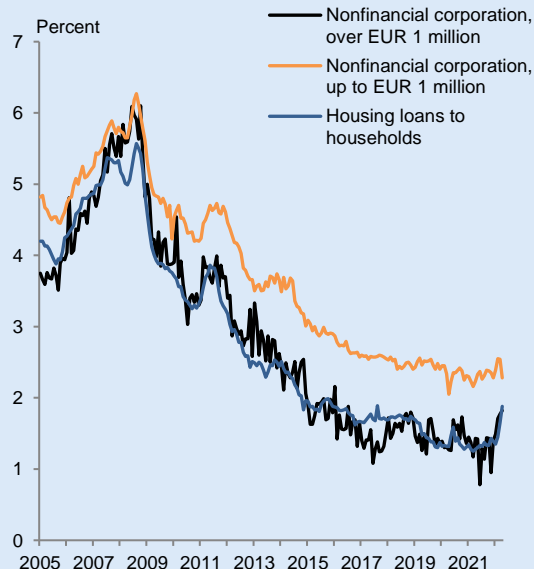
Figure 2.3:
Credit growth



Change compared to one year ago; Monthly data.

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

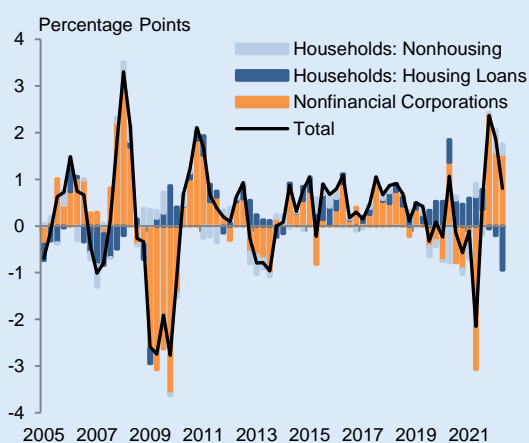
Figure 2.2:
Loan interest



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

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

Figure 2.4:
Credit impulse

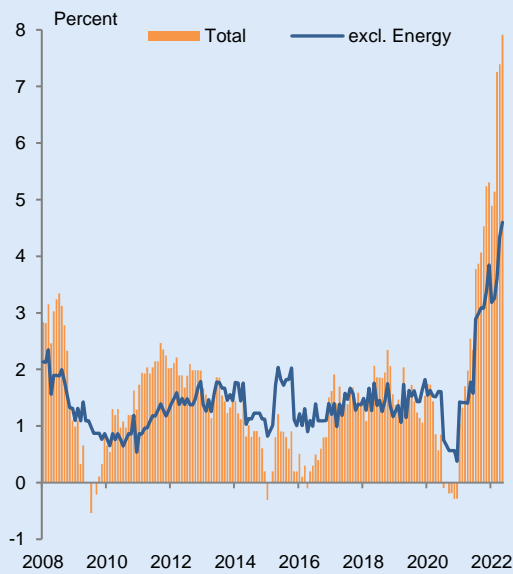


Quarterly data, most recent quarter based on first month; calculations follow Biggs et al. (2009), *Credit and economic recovery*, DNB Working Paper 218, De Nederlandsche Bank, Amsterdam.

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

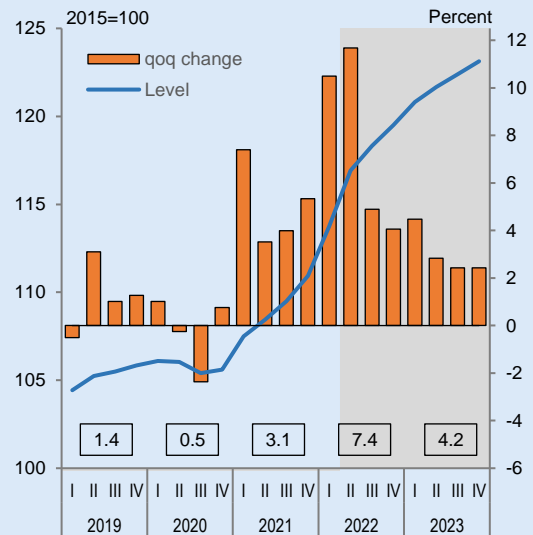
Source: Deutsche Bundesbank, *Seasonally Adjusted Business Statistics*; Kiel Institute calculations.

Figure 2.5:
Consumer prices



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

Figure 2.6:
Consumer price index



Quarterly data: seasonally adjusted; qoq change: annualized.
Annual data (boxes): Volumes, change in percent.

Source: Federal Statistical Office, *Fachserie 17, Series 7*; shaded: Kiel Institute forecast.

Table 2.1:
Projections and assumptions on the international environment

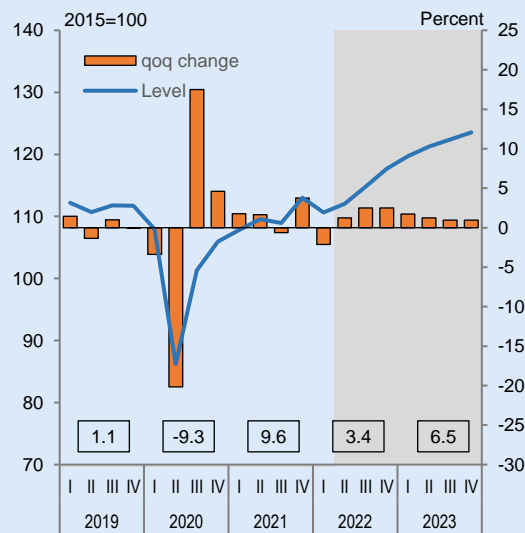
	2019				2020				2021				2022			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
ECB key interest rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	1.25	1.75	2.25	2.50	2.50
Long-term interest rate	-0.44	-0.47	-0.52	-0.61	-0.46	-0.28	-0.45	-0.30	0.10	1.01	1.50	1.75	2.30	2.45	2.65	2.65
US-dollar/euro exchange rate	1.10	1.10	1.17	1.19	1.20	1.21	1.18	1.14	1.12	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Price competitiveness	88.9	90.5	91.0	90.9	91.6	91.7	91.1	89.9	89.8	89.4	89.4	89.3	89.1	88.9	88.7	88.6
Export markets	-2.9	-8.8	10.0	0.6	0.5	2.0	1.7	1.1	0.8	0.2	0.6	0.7	0.7	0.7	0.7	0.6
Oil price	51.2	33.4	43.4	45.3	61.0	69.0	73.2	79.8	96.6	112.1	115.0	112.0	108.0	104.0	101.0	98.0

ECB key interest rate: main refinancing operations; long-term interest rate on 9–10 year bonds; price competitiveness: against 60 trading partners, based on consumer price inflation; 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

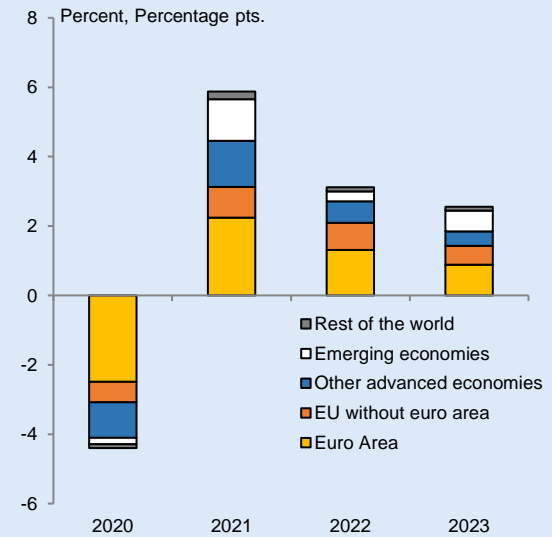
Figure 3.1:
Exports



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

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

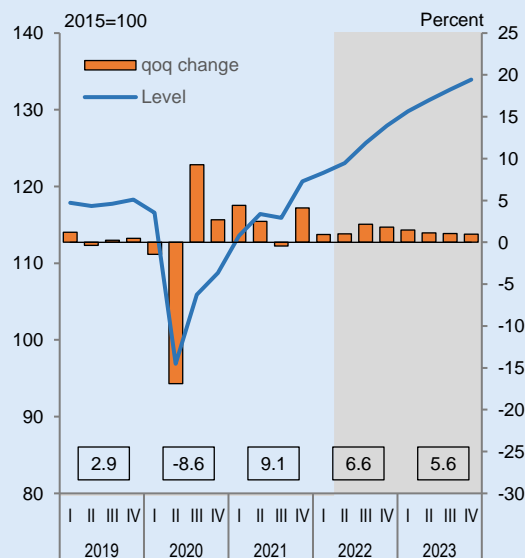
Figure 3.3:
German export markets



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.

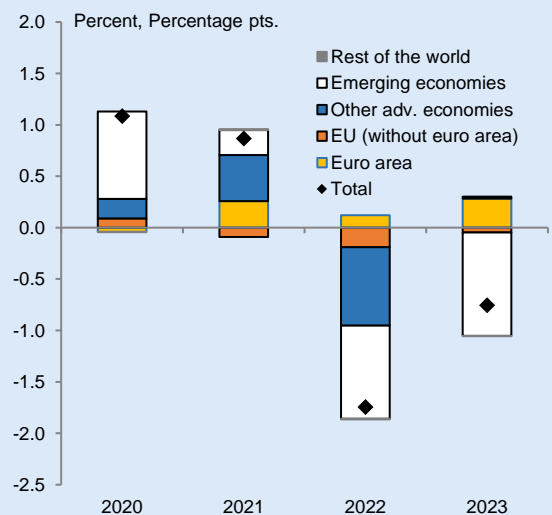
Figure 3.2:
Imports



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

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

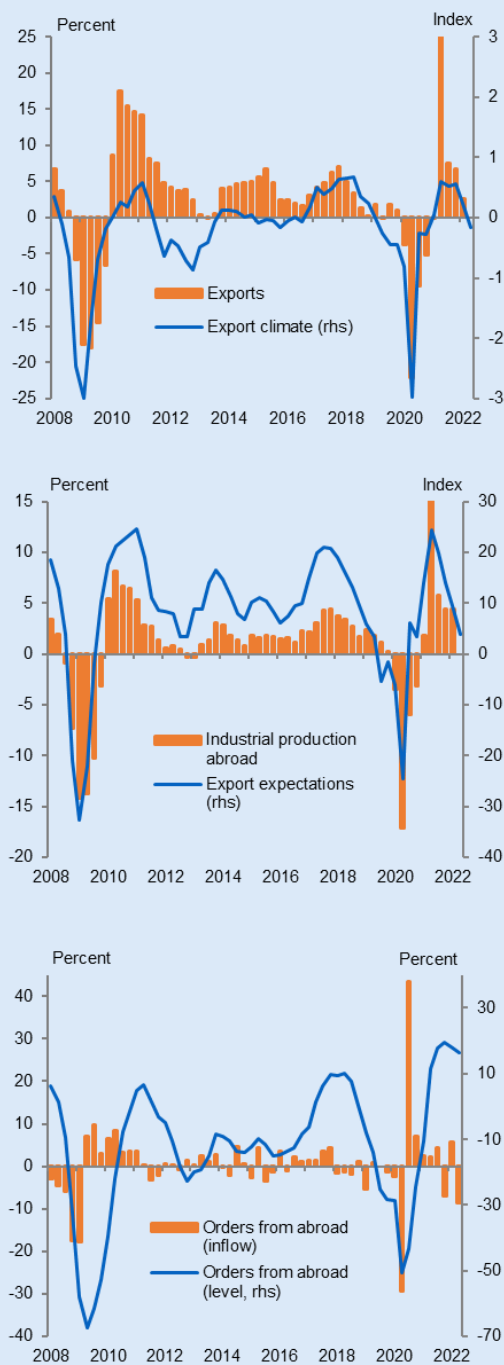
Figure 3.4:
Germany's price competitiveness



Annual data; vis-à-vis 55 countries based on consumer prices and exchange rates; 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.

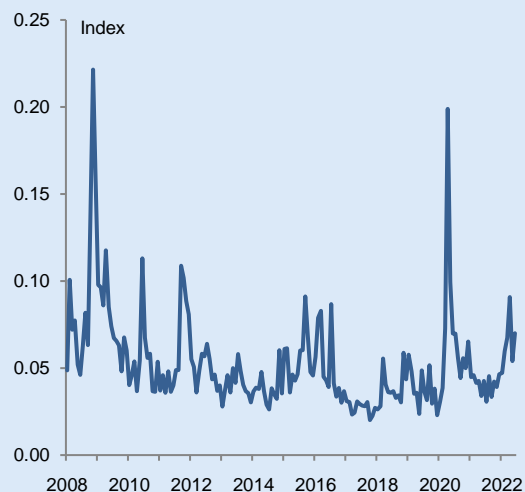
Figure 3.5:
Export indicators



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 3.6:
Uncertainty in German export markets

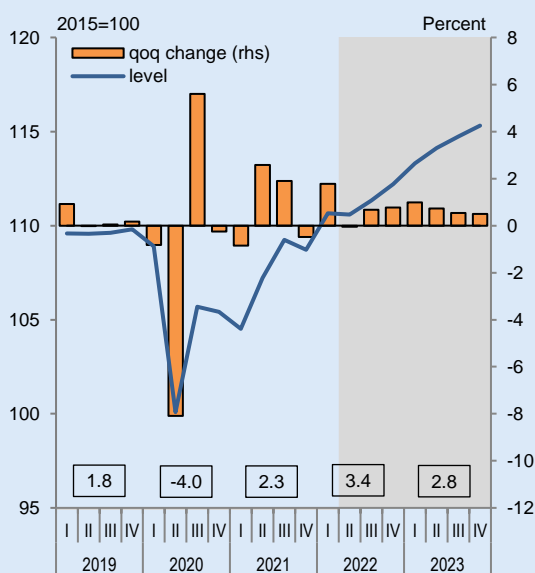


Monthly data; realized stock market volatilities based on daily stock price indices in 46 countries, weighted by shares of German exports. Last value: 10.06.2022.

Source: National sources; Kiel Institute calculations.

4. Domestic expenditure

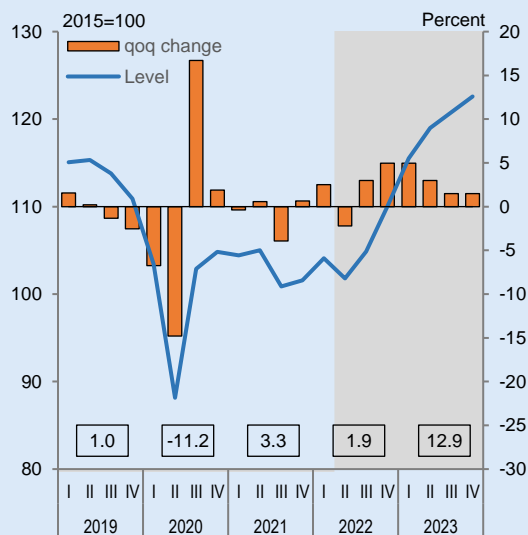
Figure 4.1:
Domestic expenditure



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.

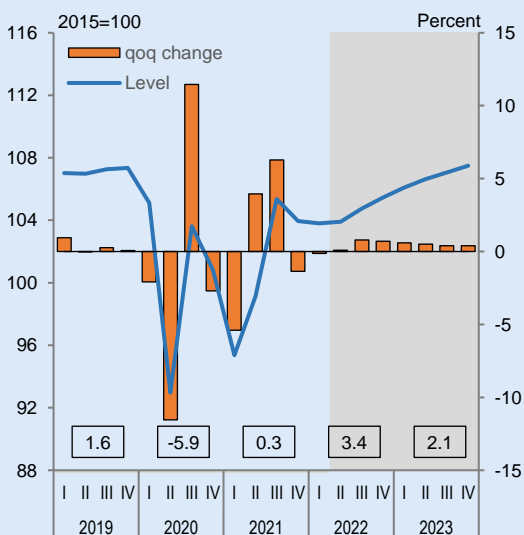
Figure 4.3:
M&E investments



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

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

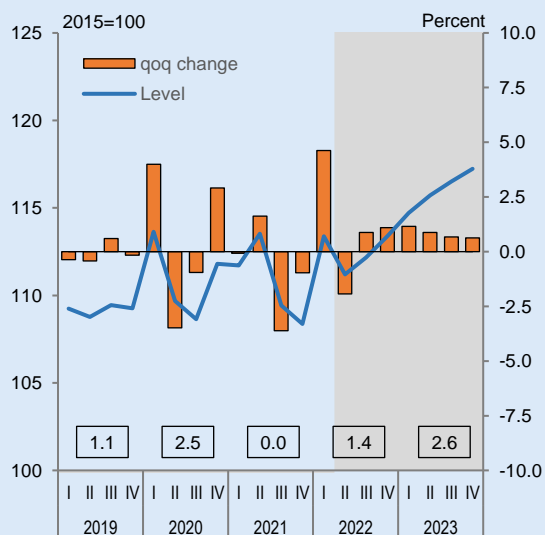
Figure 4.2:
Private consumption



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

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

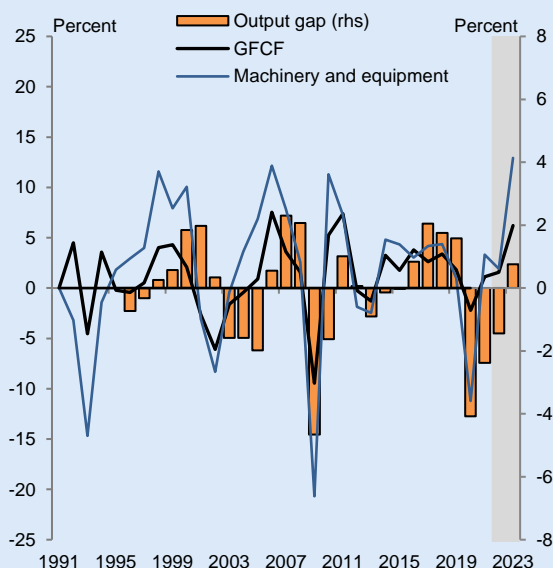
Figure 4.4:
Construction



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

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

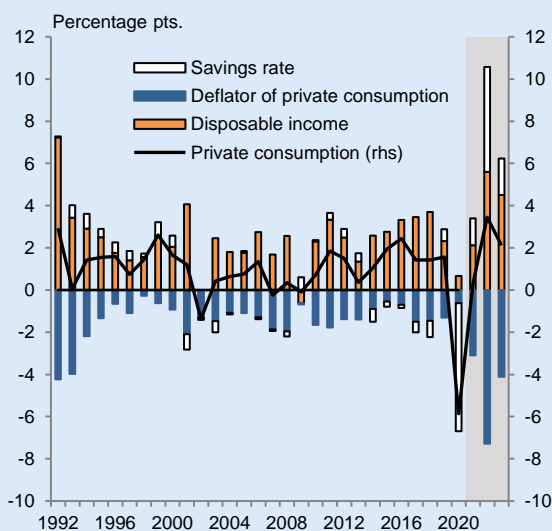
Figure 4.5:
Investment cycles



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.

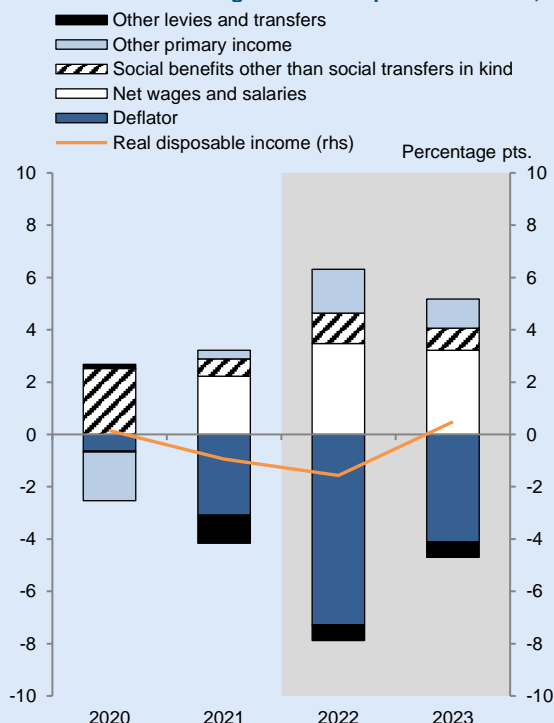
Figure 4.6:
Contributions to change in private consumption



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,



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, 2017–2020

	2020	2021	2022	2023
Total	-2.2	1.1	1.6	6.2
Corporate investment	-5.5	1.8	0.9	8.7
Machinery and equipment	-11.2	3.3	1.9	12.9
Construction (non-dwellings)	-0.7	-0.1	-1.9	2.8
Other	1.0	0.7	1.6	6.5
Dwellings	3.4	0.7	2.2	2.7
Public (non-dwellings)	4.9	-3.0	4.2	1.4
<i>Memorandum item:</i>				
Construction	2.5	0.0	1.4	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

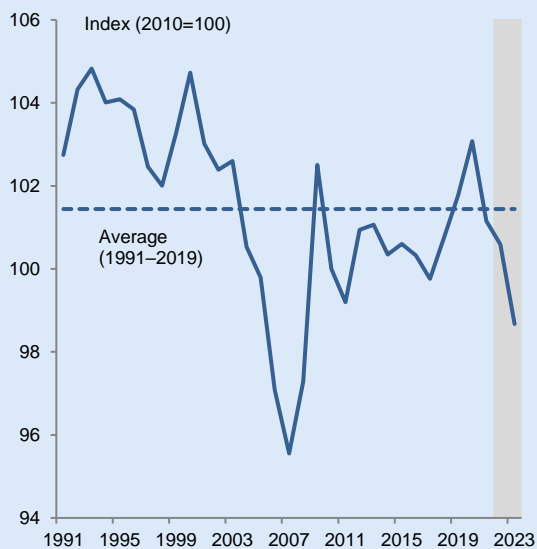
	2021				2022				2023			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Seasonally and calendar-adjusted, q-o-q change in percent											
Gross domestic product	-1.7	2.2	1.7	-0.3	0.2	0.1	0.9	1.1	1.1	0.8	0.5	0.5
Gross value added	-0.9	1.6	2.3	-1.3	0.7	0.1	0.9	1.1	1.1	0.8	0.5	0.5
Industry excl. construction	-0.8	-0.8	-1.1	1.1	-0.4	-1.3	2.3	3.1	3.1	2.0	0.7	0.7
Manufacturing	-0.5	-1.1	-1.2	1.1	-0.1	-2.0	2.5	3.5	3.5	2.2	0.8	0.8
Energy, Water etc.	-2.7	1.1	-0.7	1.4	-1.6	4.0	1.0	0.5	0.5	0.3	0.2	0.2
Construction	-4.8	2.1	-3.0	-2.1	4.5	-2.0	0.5	0.5	0.5	0.5	0.5	0.5
Trade, transport, accomodation, food services	-2.4	2.1	6.0	-0.8	0.9	2.0	2.5	0.8	0.5	0.4	0.3	0.3
Information and communication	-0.3	0.4	1.2	1.7	0.5	0.5	1.5	1.5	1.0	1.0	1.0	1.0
Financial and insurance services	-1.1	1.2	1.5	-1.0	1.8	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Real estate activities	0.3	-0.3	1.1	-0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Business services	-0.2	4.2	3.7	-0.8	0.2	0.2	0.8	0.6	0.6	0.6	0.6	0.6
Public services, education, health	-0.4	4.4	3.1	-4.2	1.1	2.0	-0.5	0.0	0.4	0.4	0.4	0.4
Other services	2.8	0.1	13.8	-10.4	6.2	2.5	1.5	0.5	0.3	0.3	0.3	0.3

Quarterly data, volumes.

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

6. Wages

Figure 6.1:
Real unit labor costs



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

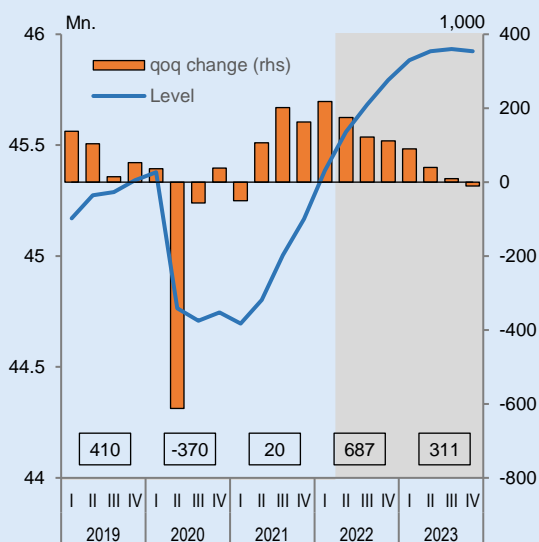
	2020	2021	2022	2023
<i>Per hour</i>				
Negotiated wages	2.0	1.6	2.8	3.8
Gross wages and salaries	3.4	1.8	4.0	4.2
Wage drift	1.4	0.3	1.1	0.4
Compensation of employees	4.0	1.8	3.5	4.0
Labor productivity	0.4	1.1	-0.3	1.6
Unit labor costs	3.4	0.9	3.7	2.3
Unit labor costs (real)	1.8	-2.1	-1.1	-1.5
<i>Per capita</i>				
Negotiated wages	2.1	1.6	2.8	3.8
Gross wages and salaries	-0.1	3.6	4.8	5.0
Wage drift	-2.2	2.0	2.0	1.1
Compensation of employees	0.4	3.4	4.4	4.8
Labor productivity	-3.8	2.8	0.5	2.6
Unit labor costs	4.3	0.6	3.8	2.1
Unit labor costs (real)	2.7	-2.4	-1.0	-1.7

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

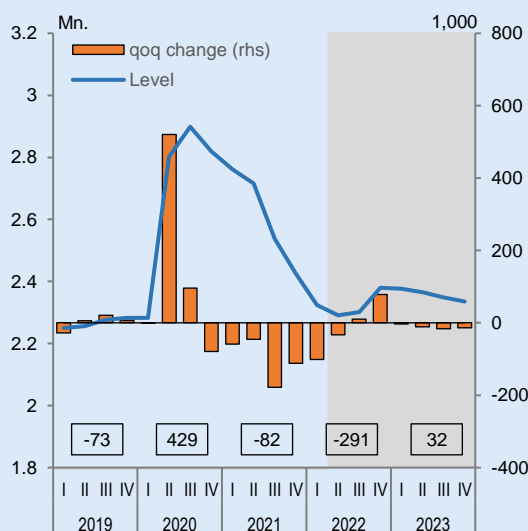
Figure 7.1:
Employment



Quarterly data: seasonally adjusted.
Annual data (boxes): yoy change in 1,000.

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

Figure 7.2:
Unemployment



Quarterly data: seasonally adjusted.
Annual data (boxes): yoy change in 1,000.

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

Table 7.1:
Employment 2019–2023 (1,000 persons)

	2019	2020	2021	2022	2023
Hours worked (domestic concept, mn. hours)	62,539	59,454	60,490	61,905	62,938
Persons in employment (domestic concept)	45,268	44,898	44,918	45,606	45,916
Self-employed	4,151	4,038	3,929	3,938	3,972
Employees (domestic concept)	41,117	40,860	40,989	41,668	41,945
Employees subject to social security contributions	33,537	33,577	33,922	34,508	34,778
Minijobs	4,575	4,273	4,100	4,170	4,177
Net commuting	143	95	117	137	146
Persons in employment (national concept)	45,126	44,803	44,801	45,468	45,771
Employees (national concept)	40,974	40,765	40,873	41,531	41,799
Unemployed persons (registered)	2,267	2,695	2,613	2,322	2,354
Unemployment rate (registered; percent)	5.0	5.9	5.7	5.1	5.1
Unemployment rate (ILO; percent)	3.0	3.6	3.3	2.7	2.6

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 Institut forecast.

8. Public finances

Table 8.1

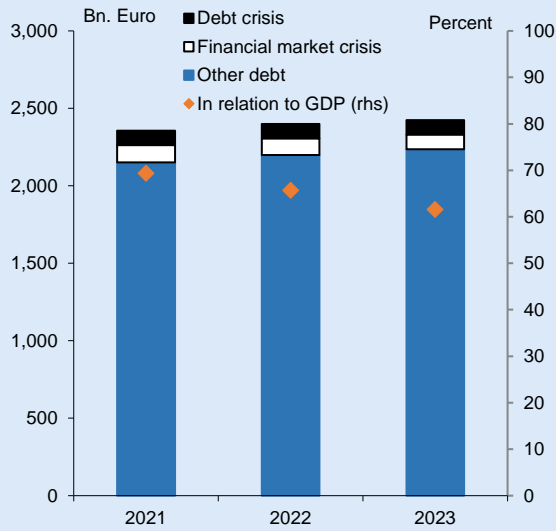
Revenues and expenditures of the general government (bn. Euro)

	2019	2020	2021	2022	2023
Revenues	1,613.8	1,566.9	1,711.1	1,804.5	1,901.0
→relative to GDP	46.5	46.5	47.9	47.2	46.4
Taxes	827.4	773.4	878.4	933.1	984.1
→relative to GDP	23.8	23.0	24.6	24.4	24.0
Social contributions	598.2	607.9	633.3	667.7	705.7
→relative to GDP	17.2	18.1	17.7	17.5	17.2
Other revenues	188.2	185.5	199.4	203.7	211.3
→relative to GDP	5.4	5.5	5.6	5.3	5.2
Expenditures	1,562.7	1,712.1	1,841.9	1,858.6	1,937.6
→relative to GDP	45.0	50.8	51.6	48.6	47.3
Compensation of employees	272.7	284.1	294.0	303.4	312.9
Intermediate consumption	184.2	209.8	229.9	240.9	243.1
Social transfers in kind	299.9	310.1	329.0	343.7	361.9
Gross capital formation	83.7	90.9	92.1	102.8	121.6
Capital transfers	27.3	21.0	21.8	22.7	22.3
Social benefits	546.6	595.1	607.2	630.2	647.7
Subsidies	30.9	71.3	109.8	56.3	53.1
Other current transfers	74.7	82.5	90.2	92.1	96.8
Other capital transfers and investment grants	43.5	48.0	68.6	67.4	79.0
Other expenditures	-1.3	-1.2	-1.2	-1.3	-1.3
Net lending/ net borrowing	51.1	-145.2	-130.8	-54.1	-36.6
→relative to GDP	1.5	-4.3	-3.7	-1.4	-0.9
Revenues of central, state, and local governments	1,047.0	1,001.9	1,116.3	1,175.3	1,230.8
Net of transfers from social security funds	1,045.9	1,000.7	1,115.1	1,174.1	1,229.6
Transfers from social security funds	1.1	1.1	1.2	1.2	1.2
Expenditures of central, state, and local governments	1,005.0	1,112.1	1,251.4	1,237.1	1,272.2
Net of transfers to social security funds	882.3	970.7	1,093.6	1,078.7	1,125.1
Transfers to social security funds	122.8	141.4	157.8	158.4	147.1
Net lending/ net borrowing central, state, and local governments	42.0	-110.2	-135.2	-61.8	-41.4
Revenues of social security funds	690.7	717.8	783.1	792.9	818.5
Net of transfers from central, state, and local governments	568.0	576.3	625.4	634.5	671.4
Expenditures of social security funds	681.6	752.8	778.8	785.2	813.7
Net of transfers to central, state, and local governments	680.5	751.6	777.6	784.0	812.6
Net lending/ net borrowing social security funds	9.1	-35.0	4.3	7.7	4.8

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

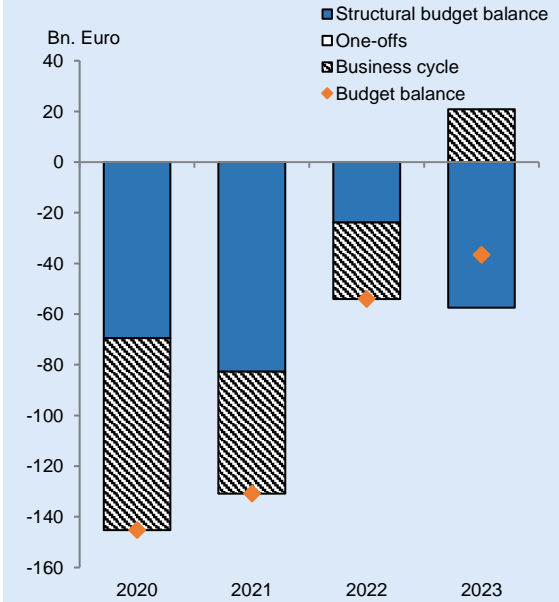


Debt crisis: Liabilities due to first Greece adjustment programme, deposits at the ESM, guarantees for EFSF credits.

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



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

9. GDP and its components

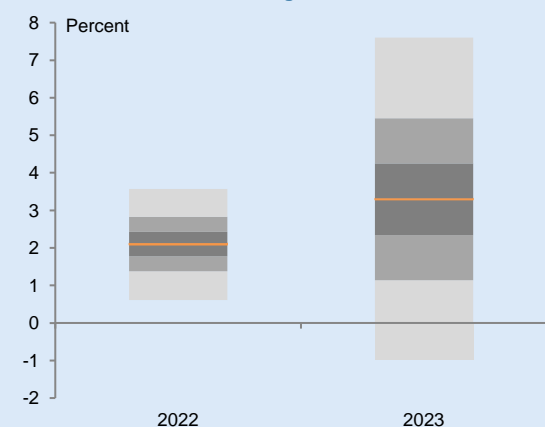
Table 9.1:
Quarterly data

	2021				2022				2023			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	-1.7	2.2	1.7	-0.3	0.2	0.1	0.9	1.1	1.1	0.8	0.5	0.5
Private consumption	-5.4	3.9	6.3	-1.3	-0.1	0.1	0.8	0.7	0.6	0.5	0.4	0.4
Government consumption	-0.7	4.9	-3.1	0.2	0.1	1.1	-0.3	-0.4	0.5	0.4	0.4	0.5
Machinery and equipment	-0.4	0.6	-3.9	0.7	2.5	-2.2	3.0	5.0	5.0	3.0	1.5	1.5
Constructions	-0.1	1.6	-3.6	-1.0	4.6	-1.9	0.9	1.1	1.2	0.9	0.7	0.6
Other investment	-2.6	1.1	0.9	1.3	-2.1	1.0	1.5	2.0	2.0	1.5	1.0	1.0
Change in inventories	2.2	-0.9	0.1	0.2	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic expenditure	-0.8	2.6	1.9	-0.5	1.8	-0.1	0.7	0.8	1.0	0.7	0.5	0.5
Exports	1.8	1.7	-0.6	3.8	-2.1	1.3	2.5	2.5	1.7	1.3	0.9	0.9
Imports	4.4	2.5	-0.4	4.1	0.9	1.0	2.1	1.8	1.5	1.1	1.0	1.0
Net exports	-0.9	-0.2	-0.1	0.1	-1.4	0.1	0.3	0.4	0.2	0.1	0.0	0.0
Employment (domestic)	44,696	44,802	45,004	45,167	45,385	45,560	45,682	45,794	45,884	45,924	45,933	45,923
Unemployment (registered)	2,761	2,716	2,537	2,425	2,324	2,291	2,302	2,380	2,376	2,365	2,349	2,335

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.

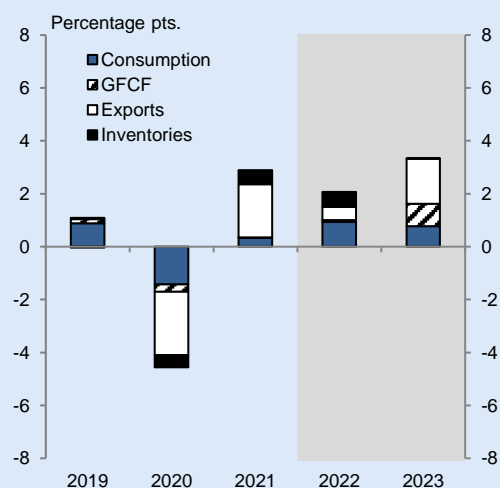
Figure 9.1:
Forecast intervals for GDP growth



GDP: volumes, change over previous year. Point forecasts: orange lines. Forecast intervals gray shaded areas with confidence levels of 33, 66, and 95 percent. Confidence levels calculated based on historical forecast errors of the Kiel Institute in the second quarter 1994–2021.

Source: Own calculations.

Figure 9.2:
Import-adjusted expenditure-side contributions to GDP growth



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

Table 9:
The german economy 2020-2023

	2020	2020	2021	2022	2023
	Bn. Euro	Change over previous year in percent			
Use of gross domestic product, price-adjusted					
GDP		-4.6	2.9	2.1	3.3
Private consumption expenditure		-5.9	0.3	3.4	2.1
Public consumption expenditure		3.5	2.9	0.3	0.9
Total fixed investment		-2.2	1.1	1.6	6.2
Machinery and equipment		-11.2	3.3	1.9	12.9
Construction		2.5	0.0	1.4	2.6
Other equipment		1.0	0.7	1.6	6.5
Changes in stocks		-0.9	1.1	1.1	0.0
Domestic Demand		-4.0	2.3	3.4	2.8
Exports		-9.3	9.6	3.4	6.5
Imports		-8.6	9.1	6.6	5.6
Net exports		-0.8	0.8	-1.2	0.6
Use of gross domestic product at current prices					
GDP	3,367.6	-3.0	6.0	7.0	7.4
Private consumption expenditure	1,708.0	-5.3	3.4	11.0	6.3
Public consumption expenditure	754.6	7.0	6.1	4.8	3.7
Total fixed investment	735.9	-0.9	6.2	9.7	10.2
Machinery and equipment	216.9	-10.0	5.3	7.2	16.5
Construction	380.1	4.4	8.3	13.2	7.4
Other equipment	138.9	1.4	1.9	3.9	8.5
Changes in stocks (€ bn.)		-23.7	29.9	68.6	71.8
Domestic Demand	3,174.8	-3.1	6.4	10.3	6.6
Exports	1,462.1	-9.7	15.6	16.6	11.1
Imports	1,269.3	-10.8	18.0	25.1	9.7
Net exports (€ bn.)		192.8	192.4	97.1	133.5
Gross national income	3,461.3	-3.5	6.3	7.1	7.2
Deflators					
GDP		1.6	3.0	4.9	3.9
Private consumption expenditure		0.6	3.1	7.3	4.1
Public consumption expenditure		3.3	3.0	4.4	2.7
Investment in machinery and equipment		1.3	1.9	5.1	3.1
Investment in construction		1.9	8.2	11.7	4.7
Investment in other equipment		0.3	1.2	2.3	1.9
Exports		-0.4	5.5	12.8	4.3
Imports		-2.4	8.2	17.4	3.9
<i>Addendum: Consumer prices</i>		0.5	3.1	7.4	4.2
Income distribution					
Net national income (factor costs)	2,528.2	-3.1	6.8	4.5	8.0
Compensation of employees	1,852.1	-0.2	3.7	6.1	5.5
in percent of national income		73.3	71.2	72.2	70.5
Property and entrepreneurial income	676.1	-10.2	15.1	0.7	14.7
Disposable income	1,975.2	0.8	2.1	5.7	4.6
Savings rate		16.1	15.0	10.7	9.1
Wages and salaries	1,514.1	-0.7	3.8	6.5	5.7
Wage per hour		3.4	1.8	4.0	4.2
Unit labor costs		3.4	0.9	3.7	2.3
Productivity per hour		0.4	1.1	-0.3	1.6
Unemployment (1,000)	2,695.4	2,613.5	2,322.0	2,354.3	
Rate of unemployment (percent)	5.9	5.7	5.1	5.1	
Total employment (1,000)	44,898.1	44,918.2	45,605.6	45,916.3	
Public sector budget balance					
Public sector budget balance (€ bn.)		-145.2	-130.8	-54.1	-36.6
Public sector budget balance (in percent of GDP)		-4.3	-3.7	-1.4	-0.9
Public debts (in percent)		69.1	69.3	65.6	61.5

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

National Accounts

Forecast period: 2022 to 2023

	2021	2022	2023	2022		2023	
				H1	H2	H1	H2
1. Production							
Change over the same period of the preceding year in %							
Persons in employment	0.0	1.5	0.7	1.6	1.4	1.0	0.4
Hours worked	1.7	2.3	1.7	3.2	1.6	3.3	0.1
Hours worked by person in employment	1.7	0.8	1.0	1.5	0.1	2.4	-0.3
Labor productivity ¹	1.1	-0.3	1.6	-0.3	-0.3	0.4	2.8
Gross domestic product, price-adjusted	2.9	2.1	3.3	2.9	1.3	3.7	3.0

2. Use of gross domestic product at current prices

a) EUR bn.

Consumption expenditure	2 566.9	2 799.0	2 953.9	1 353.0	1 446.0	1 438.4	1 515.4
Private households ²	1 766.6	1 960.6	2 084.6	943.9	1 016.7	1 017.7	1 066.9
Government	800.3	838.4	869.3	409.1	429.3	420.8	448.6
Gross fixed capital formation	781.5	857.5	944.9	406.2	451.3	453.0	491.9
Machinery and equipment	228.4	244.7	285.0	113.1	131.7	134.1	150.9
Construction	411.6	465.8	500.4	224.0	241.8	243.6	256.8
Other products	141.5	147.0	159.4	69.2	77.8	75.2	84.2
Changes in inventories ¹	29.9	68.6	71.8	33.4	35.2	36.5	35.3
Domestic expenditure	3 378.3	3 725.2	3 970.6	1 792.7	1 932.5	1 927.9	2 042.7
Net exports	192.4	97.1	133.5	59.3	37.7	80.5	53.1
Exports	1 690.6	1 971.9	2 190.8	940.7	1 031.2	1 086.7	1 104.2
Imports	1 498.2	1 874.8	2 057.3	881.3	993.5	1 006.2	1 051.1
Gross domestic product	3 570.6	3 822.3	4 104.1	1 852.0	1 970.3	2 008.3	2 095.7

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

Consumption expenditure	4.2	9.0	5.5	11.2	7.1	6.3	4.8
Private households ²	3.4	11.0	6.3	13.8	8.5	7.8	4.9
Government	6.1	4.8	3.7	5.6	4.0	2.9	4.5
Gross fixed capital formation	6.2	9.7	10.2	8.9	10.5	11.5	9.0
Machinery and equipment	5.3	7.2	16.5	2.9	11.1	18.6	14.6
Construction	8.3	13.2	7.4	14.1	12.3	8.8	6.2
Other products	1.9	3.9	8.5	3.3	4.4	8.8	8.2
Domestic expenditure	6.4	10.3	6.6	12.0	8.7	7.5	5.7
Exports	15.6	16.6	11.1	15.8	17.4	15.5	7.1
Imports	18.0	25.1	9.7	26.1	24.3	14.2	5.8
Gross domestic product	6.0	7.0	7.4	8.0	6.2	8.4	6.4

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

a) EUR bn.

Consumption expenditure	2 320.7	2 378.3	2 420.4	1 168.8	1 209.4	1 190.5	1 229.9
Private households ²	1 620.5	1 676.4	1 712.0	821.7	854.6	842.0	870.0
Government	698.4	700.8	707.5	346.5	354.4	348.0	359.4
Gross fixed capital formation	671.9	682.4	724.7	327.3	355.1	348.7	376.0
Machinery and equipment	214.8	218.9	247.2	102.3	116.6	116.6	130.7
Construction	324.7	329.1	337.6	160.9	168.2	165.0	172.6
Other products	131.2	133.3	141.9	63.1	70.2	67.4	74.5
Domestic expenditure	3 008.4	3 111.4	3 197.6	1 524.9	1 586.4	1 568.2	1 629.4
Exports	1 569.2	1 622.1	1 728.1	794.3	827.7	860.2	868.0
Imports	1 394.5	1 486.6	1 569.6	718.9	767.6	769.0	800.6
Gross domestic product	3 186.4	3 252.2	3 360.6	1 602.6	1 649.6	1 662.0	1 698.5

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

Consumption expenditure	1.1	2.5	1.8	4.7	0.4	1.9	1.7
Private households ²	0.3	3.4	2.1	7.0	0.3	2.5	1.8
Government	2.9	0.3	0.9	-0.1	0.8	0.5	1.4
Gross fixed capital formation	1.1	1.6	6.2	-0.2	3.3	6.5	5.9
Machinery and equipment	3.3	1.9	12.9	-1.6	5.2	14.0	12.0
Construction	0.0	1.4	2.6	-0.1	2.8	2.6	2.6
Other products	0.7	1.6	6.5	1.1	2.0	6.9	6.1
Domestic expenditure	2.3	3.4	2.8	4.6	2.3	2.8	2.7
Exports	9.6	3.4	6.5	2.5	4.2	8.3	4.9
Imports	9.1	6.6	5.6	6.4	6.8	7.0	4.3
Gross domestic product	2.9	2.1	3.3	2.9	1.3	3.7	3.0

National Accounts (cont.)

Forecast period: 2022 to 2023

	2021	2022	2023	2022		2023	
				H1	H2	H1	H2

4. Deflators (2010=100)

Change on the same period of the preceding year in %

Private consumption ²	3.1	7.3	4.1	6.4	8.2	5.2	3.1
Government consumption	3.0	4.4	2.7	5.7	3.1	2.4	3.0
Gross fixed capital formation	5.0	8.1	3.7	9.1	7.0	4.7	2.9
Machinery and equipment	1.9	5.1	3.1	4.6	5.6	4.1	2.3
Construction	8.2	11.7	4.7	14.2	9.3	6.0	3.5
Exports	5.5	12.8	4.3	13.0	12.7	6.7	2.1
Imports	8.2	17.4	3.9	18.6	16.3	6.7	1.4
Gross domestic product	3.0	4.9	3.9	5.0	4.8	4.6	3.3

5. National income

a) EUR bn.

Primary income of private households ²	2 455.2	2 605.1	2 740.5	1 273.3	1 331.8	1 347.5	1 393.0
Employers social contributions	349.4	363.5	380.6	175.5	187.9	184.4	196.2
Gross wages and salaries	1 572.0	1 674.2	1 768.9	794.0	880.2	842.5	926.3
Other primary income ⁴	533.8	567.4	591.1	303.7	263.7	320.6	270.5
Primary income of other sectors	528.4	587.7	705.1	259.1	328.6	324.5	380.6
Net national income	2 983.6	3 192.8	3 445.6	1 532.4	1 660.5	1 672.0	1 773.6
Consumption of fixed capital	694.2	745.3	775.1	369.6	375.7	385.9	389.2
Gross national income	3 677.8	3 938.1	4 220.7	1 902.0	2 036.1	2 057.9	2 162.8
memorandum item:							
Net national income (factor costs)	2 699.9	2 821.8	3 048.7	1 350.8	1 471.0	1 476.8	1 571.9
Property and entrepreneurial income	778.5	784.1	899.2	381.2	402.9	449.9	449.4
Compensation of employees	1 921.4	2 037.7	2 149.4	969.5	1 068.1	1 026.9	1 122.5

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

Primary income of private households ²	3.2	6.1	5.2	7.3	5.0	5.8	4.6
Employers social contributions	3.3	4.0	4.7	3.8	4.3	5.0	4.4
Gross wages and salaries	3.8	6.5	5.7	7.4	5.7	6.1	5.2
... per employee	3.6	4.8	5.0	5.5	4.1	5.2	4.8
Other primary income ⁴	1.3	6.3	4.2	9.2	3.2	5.6	2.6
Primary income of other sectors	24.7	11.2	20.0	12.5	10.2	25.3	15.8
Net national income	6.4	7.0	7.9	8.2	6.0	9.1	6.8
Consumption of fixed capital	5.4	7.4	4.0	8.8	6.0	4.4	3.6
Gross national income	6.3	7.1	7.2	8.3	6.0	8.2	6.2
memorandum item:							
Net national income (factor costs)	6.8	4.5	8.0	5.2	3.9	9.3	6.9
Property and entrepreneurial income	15.1	0.7	14.7	1.3	0.2	18.0	11.5
Compensation of employees	3.7	6.1	5.5	6.7	5.4	5.9	5.1

6. Disposable income of private households ²

a) EUR bn.

Mass income	1 594.5	1 683.5	1 765.2	798.1	885.4	847.2	918.0
Net wages and salaries	1 065.3	1 135.3	1 203.9	533.4	601.9	569.0	635.0
Social benefits other than social transfers in kind	672.1	695.8	713.9	336.7	359.1	351.9	362.1
less: Levies on social benefits, taxes on consumption	143.0	147.6	152.7	72.0	75.6	73.6	79.1
Other primary income ⁴	533.8	567.4	591.1	303.7	263.7	320.6	270.5
Other transfers received (net) ⁵	- 110.6	- 118.0	- 125.4	- 54.6	- 63.4	- 61.8	- 63.6
Disposable income	2 017.7	2 132.9	2 230.9	1 047.2	1 085.7	1 106.0	1 124.9
Change in pension entitlements	60.8	61.6	62.5	29.9	31.7	30.3	32.2
Consumption expenditure	1 766.6	1 960.6	2 084.6	943.9	1 016.7	1 017.7	1 066.9
Saving	311.8	233.9	208.9	133.2	100.7	118.7	90.2
Saving ratio (%) ⁶	15.0	10.7	9.1	12.4	9.0	10.4	7.8

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

Mass income	3.5	5.6	4.9	4.1	6.9	6.2	3.7
Net wages and salaries	4.3	6.6	6.0	7.5	5.8	6.7	5.5
Social benefits other than social transfers in kind	2.0	3.5	2.6	- 1.5	8.7	4.5	0.8
less: Levies on social benefits, taxes on consumption	1.9	3.3	3.4	0.7	5.8	2.3	4.5
Other primary income ⁴	1.3	6.3	4.2	9.2	3.2	5.6	2.6
Disposable income	2.1	5.7	4.6	5.1	6.3	5.6	3.6
Change in pension entitlements							
Consumption expenditure	3.4	11.0	6.3	13.8	8.5	7.8	4.9
Saving	- 4.7	- 25.0	- 10.7	- 32.3	- 12.5	- 10.9	- 10.5

National Accounts (cont.)

Forecast period: 2022 to 2023

	2021	2022	2023	2022		2023	
				H1	H2	H1	H2
7. Revenue and expenditure by general government ¹							
a) EUR bn.							
Revenue							
Taxes	878.4	933.1	984.1	450.9	482.2	479.6	504.5
Social contributions	633.3	667.7	705.7	322.2	345.5	342.0	363.7
Property income	15.4	14.9	14.3	7.9	6.9	7.6	6.7
Other current transfers	30.0	28.0	29.4	12.0	15.9	12.7	16.7
Capital transfers	20.3	22.2	23.4	9.7	12.5	10.3	13.1
Sales	133.5	138.5	144.0	63.8	74.8	66.1	77.9
Other subsidies	0.1	0.2	0.2	0.1	0.1	0.1	0.1
Total	1 711.1	1 804.5	1 901.0	866.6	937.9	918.3	982.7
Expenditure							
Intermediate consumption ²	559.4	585.1	605.4	281.7	303.4	290.2	315.3
Compensation of employees	294.0	303.4	312.9	147.5	155.9	149.7	163.2
Property income (interest)	21.8	22.7	22.3	11.7	11.0	11.5	10.8
Subsidies	109.8	56.3	53.1	26.5	29.8	24.3	28.9
Social benefits	607.2	630.2	647.7	304.0	326.2	318.9	328.9
Other current transfers	90.2	92.1	96.8	43.4	48.8	45.6	51.2
Capital transfers	68.6	67.4	79.0	27.1	40.3	32.5	46.4
Gross capital formation	92.1	102.8	121.6	42.1	60.7	50.9	70.7
Net acquisitions of non-produced non-financial assets	- 1.2	- 1.3	- 1.3	- 0.7	- 0.6	- 0.7	- 0.6
Total	1 841.9	1 858.6	1 937.6	883.2	975.4	922.8	1 014.8
Net lending	- 130.8	- 54.1	- 36.6	- 16.6	- 37.5	- 4.5	- 32.1

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

Revenue							
Taxes	13.6	6.2	5.5	8.5	4.2	6.4	4.6
Social contributions	4.2	5.4	5.7	5.4	5.5	6.1	5.3
Property income	- 22.0	- 3.6	- 3.7	- 4.2	- 2.8	- 3.9	- 3.5
Other current transfers	23.8	- 6.8	5.1	- 19.1	5.2	5.6	4.7
Capital transfers	30.9	9.0	5.7	14.3	5.2	6.4	5.1
Sales	6.1	3.8	3.9	4.5	3.2	3.6	4.2
Other subsidies	13.1	5.4	0.0	13.3	0.0	0.0	0.0
Total	9.2	5.5	5.3	6.4	4.6	6.0	4.8
Expenditure							
Intermediate consumption ²	7.5	4.6	3.5	5.2	4.1	3.0	3.9
Compensation of employees	3.5	3.2	3.1	4.4	2.1	1.5	4.7
Property income (interest)	4.0	4.1	- 1.8	4.4	3.8	- 1.7	- 1.8
Subsidies	54.2	- 48.8	- 5.5	- 52.7	- 44.7	- 8.4	- 3.0
Social benefits	2.0	3.8	2.8	- 1.7	9.5	4.9	0.8
Other current transfers	9.3	2.1	5.1	0.6	3.5	5.1	5.0
Capital transfers	43.1	- 1.8	17.2	30.6	- 15.9	20.0	15.4
Gross capital formation	1.3	11.6	18.3	6.5	15.4	21.0	16.4
Net acquisitions of non-produced non-financial assets	2.9	6.5	0.0	12.7	0.0	0.0	0.0
Total	7.6	0.9	4.3	- 0.6	2.3	4.5	4.0

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.

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