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**Article**

## German Economy Autumn 2022 - Protracted catching-up process

Kiel Institute Economic Outlook, No. 95

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# KIEL INSTITUTE **ECONOMIC OUTLOOK**

## **German Economy** Autumn 2022

Finalized September 18, 2022



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**No. 95 (2022 | Q3)**

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

## PROTRACTED CATCHING-UP PROCESS

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

The German economy is in a downward spiral. The recent price jumps for electricity and gas will reduce the purchasing power of private households and lead to a decline in consumer spending. In addition, the slowing world economy will dampen not only exports but also investment activity. As a result, the German economy will slide into recession once again, at a time when it was just recovering from the pandemic-related crisis. In our summer forecast, we assumed that the recovery would prevail despite the burdens of the war in Ukraine and that GDP would rise strongly. Now we expect GDP to increase by only 1.4 percent in the current year (summer forecast: 2.1 per cent). In 2023, it is expected to decline by 0.7 percent (summer forecast: +3.3 percent). In 2024, when the impact of the negative factors fade out, GDP will increase by 1.7 percent. Provided that prices for electricity and gas remain high for a longer period of time - as markets currently expect - inflation is likely to rise from its record-level of 8 percent in the current year to 8.7 percent in 2023, as market prices for electricity and gas reach consumer prices with some delay. In 2024, when energy prices moderate somewhat, inflation is likely to settle down significantly. The recession will also leave its mark on the labor market. However, due to the shortage of skilled workers, the impact is likely to be relatively moderate. The unemployment rate will rise from 5.3 percent this year to 5.6 percent in 2023. Despite considerable additional expenditures to cushion the high energy prices, the government's fiscal balance will probably barely deteriorate, as the high upward pressure on prices leads to additional revenues. The ratio of gross debt to nominal GDP is even expected to decline from 68.7 percent in 2021 to 64.6 per cent in 2024, as nominal GDP will rise strongly due to the high price increases.

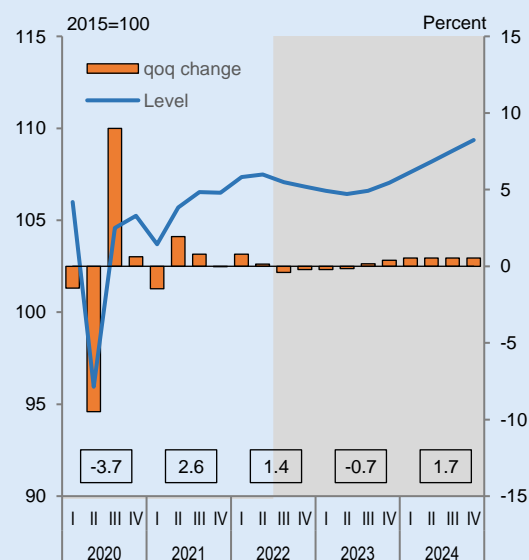
### GDP will decline in the second half of the year.

Business expectations have deteriorated significantly with concerns about energy bottlenecks and the price jumps for electricity and gas increasing - after they had already become significantly more pessimistic with the start of the war in Ukraine - and point to a recession. Although companies continue to rate their business situation as relatively good, the most recent assessment of the situation is below the level of the second quarter indicating a decline in GDP. Other leading indicators, such as truck tolls and consumer confidence, also point to a decline in economic performance. Finally, there are signs of an end to the pandemic-related recovery in the contact-intensive service industries, which had contributed significantly to the increase in GDP in the first half of the year. Overall, forecasting models (e.g. [Hauber 2018](#)) point to a decline in GDP in the second half of the year (Figure 1).

### Inflation continues to rise on the back of soaring gas and electricity prices.

Spot prices for gas and electricity have risen sharply in recent months, doubling between June and August alone. Future markets indicate that prices will fall again but will remain at a significantly higher level than observed before

**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.

the crisis. The energy price jumps will reach consumer prices with a delay, as many consumers have longer-term contracts with their energy suppliers. These suppliers have already secured significantly lower prices on the futures markets so that their procurement costs will only rise gradually. As a result, energy prices will continue to rise at an accelerated pace from their already high levels well into the coming year. Core inflation is also likely to remain high for the time being. This is supported by the continuing high price pressures in earlier production stages, which is reflected in the strong increases in producer prices. In addition, there will be indirect effects from rising electricity and gas prices. The fact that supply bottlenecks are expected to ease gradually will counteract stronger price increases. In addition, high inflation is likely to severely dampen consumer demand and reduce households' willingness to pay. In 2022, consumer prices are expected to rise by around 8 percent, the highest rate since the start of data collection in 1948 (Table 1). In 2023, inflation is likely to rise to 8.7 percent due to the strong impact of gas and electricity prices. The recently announced "electricity price cap" is likely to have a dampening effect on prices. For our forecast, we assumed that the electricity price cap will reduce inflation by around 1 percentage point. Our forecast does not include effects of a gas price cap. It is not until 2024 that inflation calms down noticeably, but consumer price growth is still likely to be well above the long-term average at 3.1 percent.

**The loss of purchasing power is causing significant declines in private consumption.** Real disposable incomes are falling more sharply than ever before in reunified Germany. The main reason is the large increase in prices and its impact on private consumer spending. The increase in nominal disposable income will not keep pace with high inflation rates, in particular in the next year. As a result, real disposable income will decline by 4.1 percent in 2023 - the largest decline since 2002 with -1.3 percent - after having already fallen in 2021 and 2022. The savings rate will decrease significantly and stabilize private consumption as private households will reduce their savings in order to maintain at least part of their usual consumption. In this regard, they can fall back on additional savings of about 200 billion euros (or about 10 percent of annual nominal disposable income) that they have accumulated due to the restricted consumption possibilities during the pandemic. Overall, private consumption will probably fall by 2.1 percent in 2023, after an increase of about 4 percent in the current year. In 2024, private consumption is likely to increase again.

**Business investment remains quite robust despite the economic slowdown.** The conditions for investment have deteriorated considerably in recent months. Global sales and earnings prospects have worsened and uncertainty has increased. Usually investment in machinery and equipment declines markedly in such phases. This suggests a significant decline in investment in the next year, when overall economic capacity utilization is likely to fall. Unlike in normal economic cycles, however, the slowdown is hitting the German economy while it is still recovering from the pandemic. Moreover, the recovery in investment in machinery and equipment has been delayed due to supply bottlenecks. As a result, investment is still well below pre-crisis levels, while new domestic orders for capital goods are above their pre-crisis level since the beginning of last year. Against this background, we expect equipment investment to rise slightly in the next year despite the recession. The high stock of domestic orders for capital goods that have not yet been processed will have a stabilizing effect. In addition, public investment in equipment will pick up noticeably and could contribute about 3 percentage points to the growth rate of investment in equipment in each of the next two years due to additional military spending. However, investment in machinery and equipment will develop much weaker than we expected in our summer forecast - at that time we expected an increase by more than 10 percent in 2023. The recovery will probably pick up speed again during the course of the coming year.

**The general conditions for construction investment have turned.** After the overall economic conditions had been very stimulating for the construction industry for a long time, numerous factors are now weighing on activity. Financing costs, for example, have become noticeably more expensive. At the same time, the real disposable income of private households is declining and the uncertainty about future energy prices and the economic outlook is weighing on demand. In addition, construction costs have risen massively. In the second quarter, the deflator of construction investments increased by more

than 7 percent compared to the first quarter; compared to the previous year, it increased by almost 20 percent. Against this backdrop, new orders have recently declined significantly and business climate in the construction industry has deteriorated noticeably. Leading indicators point to a decline in construction investment in the third quarter. After that, however, investment will gradually recover. This forecast is supported by the fact that a quite high order backlog has been accumulated during previous quarters. Moreover, despite the significantly gloomier business environment, relatively few companies complained about a lack of demand until recently - on the contrary, many more companies see the shortage of skilled workers as a problem that limits production. Finally, public investment is likely to expand quite strongly, mainly due to the still relatively good financial situation of the municipalities. Overall, after a decline of 1.8 percent in the current year, construction investment is likely to fall slightly in 2023 and pick up again in 2024.

**Wages and salaries are rising at the fastest rate in 30 years, but will lag behind consumer price increases.** Collective bargaining agreements for 2022 are largely fixed. The upcoming negotiations in the important metal and electrical industry will have little impact on the annual figure, as they do not begin until fall. Negotiated wages and salaries are expected to increase by 3.0 percent this year. Although this is significantly higher than last year's 1.6 percent increase, it is much lower than the increase in consumer prices. For the upcoming negotiations in the forecast period, we are assuming agreements of between 4 and 5 percent. However, in a number of industries, collective wages have already been agreed in full or in large parts for the coming year. Given that these agreements are extending well into the next year and on the basis of the assumed rates for new agreements, there will be an increase of negotiated wages of 4.0 percent in 2023; this would be the highest increase since 1995. For 2024, we expect a further acceleration to 4.5 percent, as more and more collective agreements with comparatively low growth rates expire over time and are replaced by agreements with higher rates. In addition to the surge in inflation, the record-high labor shortage will contribute to higher wage rises. Effective earnings (gross wages and salaries per employee) will rise noticeably faster than negotiated earnings. While in the current year the significantly lower extent of short-time work compared with the previous year is the main factor (contribution of 1.6 percentage points), as time goes on, higher domestic price inflation will play an increasingly important role. However, the part of inflation attributable to more expensive imports from abroad (in particular energy imports) does not increase the scope for wage rises, which is why wage increases are likely to lag behind consumer-price inflation. The prevailing labor shortages, which have once again reached a new all-time high, are causing strong wage increases as well. Up to 50 percent of companies currently complain that labor shortages are a limit to production or business activities. Moreover, the increase in the statutory minimum wage to 12 euros gross per hour on October 1, 2022 will raise effective hourly earnings additionally. Short-time work is expected to have a slightly dampening effect on earnings in the coming year and an increasing effect in 2024. All in all, gross wages and salaries per employee are expected to grow strongly over the forecast period, at rates of 4.6 percent (2022), 4.7 percent (2023) and 5.2 percent (2024).

**Employment is expected to decline.** The number of short-time workers declined to around 260,000 at last count in June. The number of notifications of short-time work received by the end of August was down and at a low level, so short-time work is likely to have decreased further by August. A number of special rules that made it more attractive to claim short-time allowances ended at the end of June. The number of people in employment continued to rise to a seasonally adjusted 45.6 million in July. While the increase in employment between March 2021 and March 2022 averaged just under 60,000 persons per month, the increase between April and July 2022 was only half as high. In August, a seasonally adjusted 2.5 million people were registered as unemployed (rate: 5.5 percent). This means that the number of unemployed has jumped by around 200,000 persons since May. The sharp rise is not due to economic factors, but due to the registration of Ukrainian refugees, who became eligible to receive benefits under the basic income support for jobseekers on June 1. Employment growth is likely to lose further momentum in the coming months, not least because the recovery process from the pandemic is well advanced. Employment is then expected to fall from next year on. First, the statutory minimum wage will be raised to 12 euros per hour on October 1, 2022. Given the high intensity of the intervention,



we expect employment losses to materialize gradually. In addition, the recession will noticeably dampen companies' demand for labor. However, the labor shortage, which had already been worsening for years, is likely to have led to a situation in which the workforce in companies is currently lower than planned, so that the impact of reduced labor demand on employment is likely to be less severe. Finally, as time goes on, the aging of the population will become visible more and more in the labor force. Taken by itself, this implies a decline in employment toward the end of the forecast period and in the medium term, irrespective of the recession. To a certain extent, this is counteracted by the integration of Ukrainian refugees into the German labor market. According to our assumptions, this in itself will increase the number of people in employment by around 200,000 persons by the end of 2024.

**The fiscal deficit decreases substantially in 2022, but increases in the following year slightly due to the recession and mildly expansionary policy.** The moderation of the pandemic reduces payments for company grants as well as for vaccinations and tests. This 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, there are additional expenditures for hosting refugees from the Ukraine. However, expenditures will increase at a much slower pace than revenues in 2022. Especially, value added tax revenues do well mainly due to the decrease of the savings rate. Overall, we expect the budget deficit to drop to 1.7 percent relative to GDP. In 2023, the public budget deficit will increase again to 2.2 percent relative to GDP. We expect the federal government to raise expenditures for subsidies and especially investments that are driven by additional defense spending. Furthermore, revenues will expand at a slower pace due to the recession in the winter half and income tax cuts. In 2024, the deficit will not change much. We expect further tax cuts and still some additional expenditures to counteract some of the consequences of the energy crisis. However, the beginning upswing stabilizes also the budget balance to some degree.

**Table 1:**

**Key indicators 2021–2024**

	2021	2022	2023	2024
Gross domestic product (GDP), price-adjusted	2.6	1.4	-0.7	1.7
Gross domestic product, deflator	3.1	5.3	5.2	2.9
Consumer prices	3.1	8.0	8.7	3.1
Labor productivity (per hour worked)	0.9	-0.6	0.1	1.5
Employment (1000 persons)	44,980	45,556	45,601	45,428
Unemployment rate (percent)	5.7	5.3	5.6	5.5
<i>in relation to nominal GDP</i>				
Public sector net lending	-3.7	-1.7	-2.2	-2.1
Gross public debt	68.7	66.9	65.9	64.6
Current account balance	7.4	3.8	3.5	4.0
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.

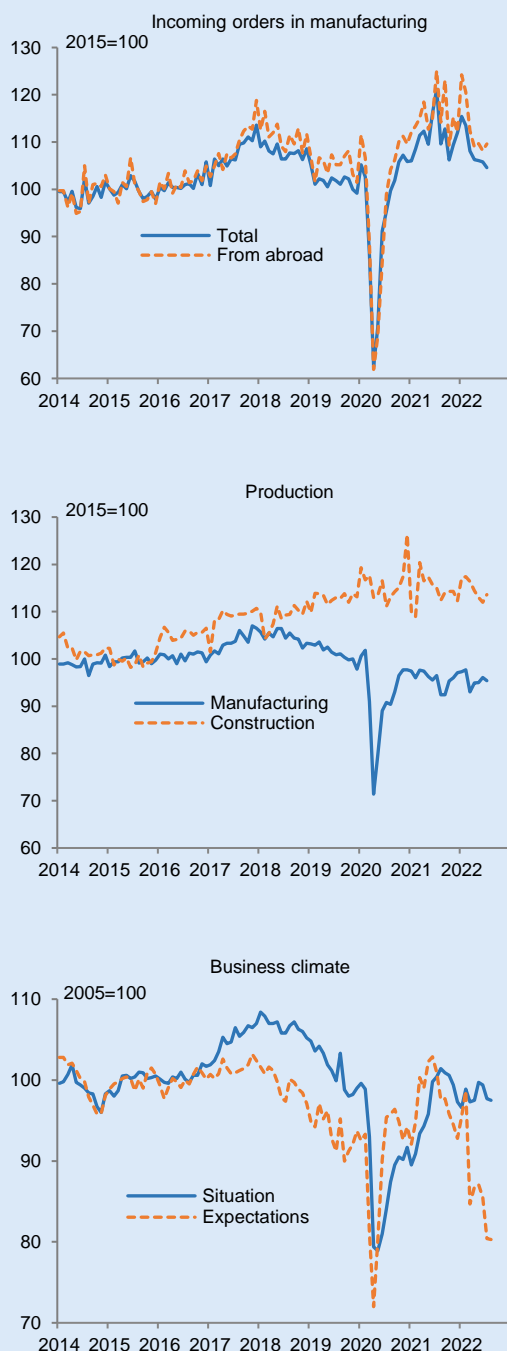
## Data annex

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## 1. Leading indicators

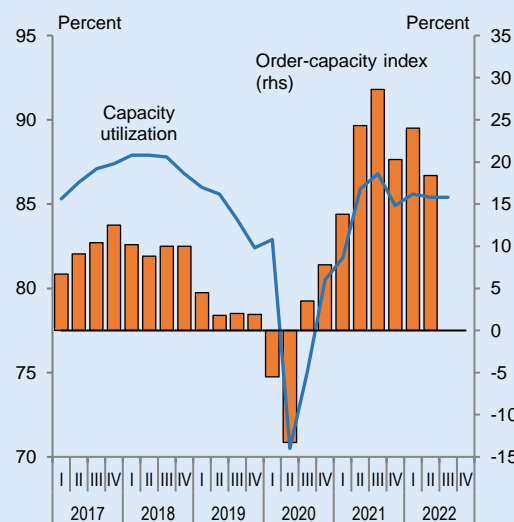
**Figure 1.1:**  
Leading indicators



Monthly data, seasonally adjusted.

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

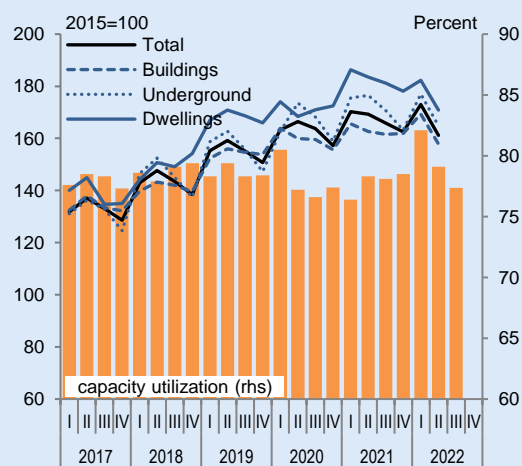
**Figure 1.2:**  
Capacity utilization



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



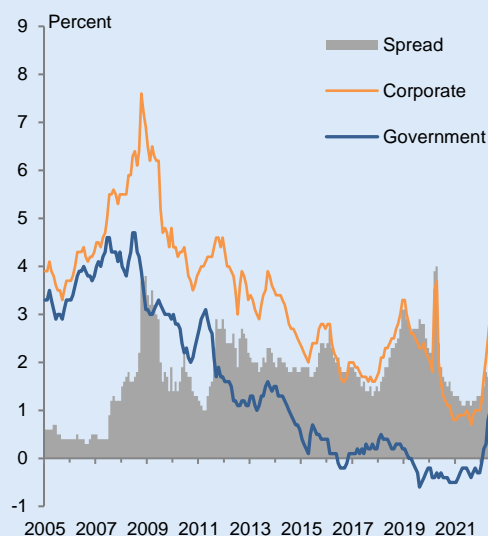
Quarterly data. Capacity utilization (deviation from normal level): seasonally adjusted; order stocks: price, seasonally and working-day adjusted.

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



## 2. Monetary conditions and prices

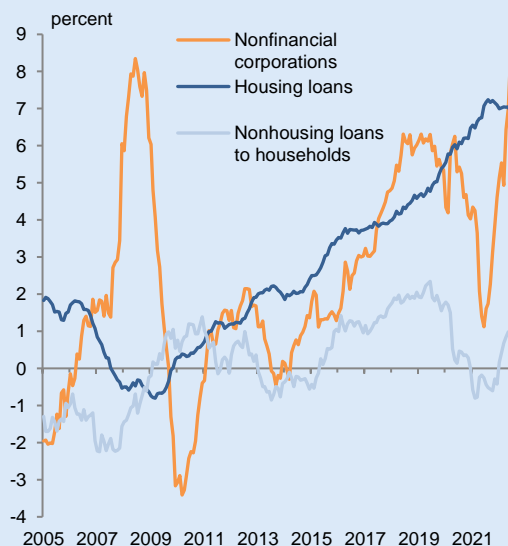
**Figure 2.1:**  
Bond yields



Monthly data, average maturities above three years.

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

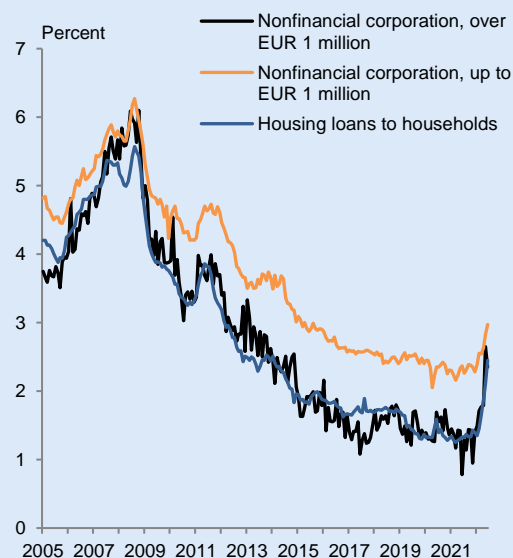
**Figure 2.3:**  
Credit growth



Change compared to one year ago; Monthly data.

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

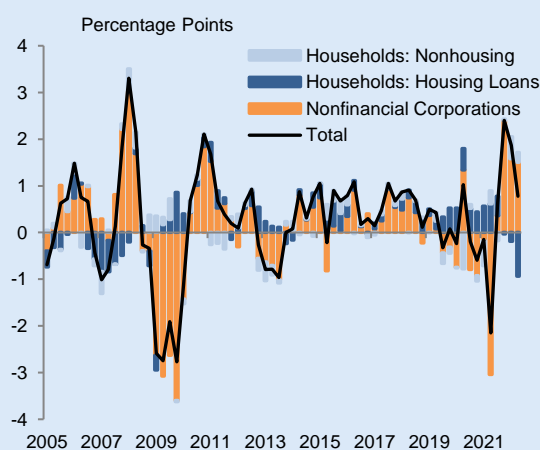
**Figure 2.2:**  
Loan interest



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

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

**Figure 2.4:**  
Credit impulse

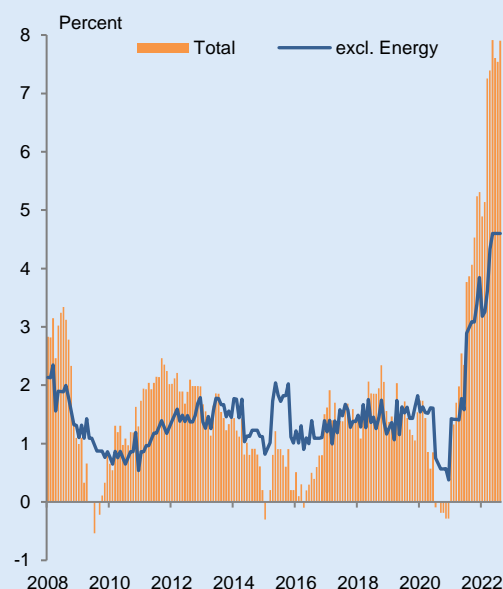


Quarterly data, most recent quarter based on first month; calculations follow Biggs et al. (2009), *Credit and economic recovery*, DNB Working Paper 218, De Nederlandsche Bank, Amsterdam.

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

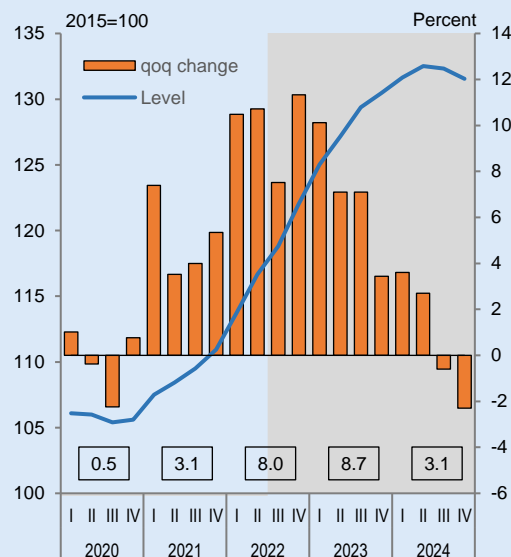
Source: Deutsche Bundesbank, *Seasonally Adjusted Business Statistics*; Kiel Institute calculations.

**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

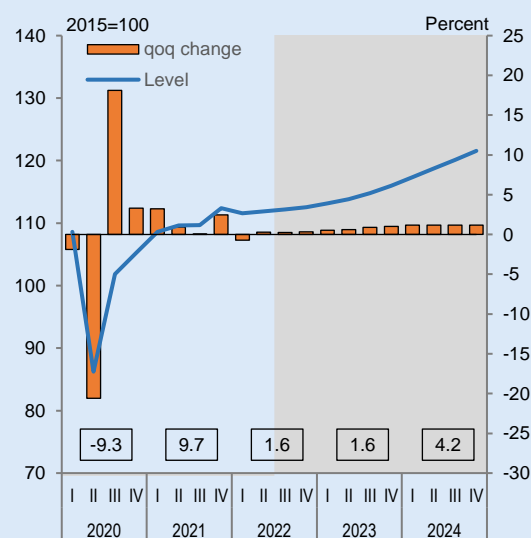
	2020				2021				2022				2023			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
ECB key interest rate	0.00	0.00	0.00	0.00	0.00	0.00	1.25	2.25	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75
Long-term interest rate	-0.46	-0.28	-0.45	-0.30	0.10	1.05	1.22	1.50	1.50	1.70	1.90	2.10	2.30	2.50	2.50	2.50
US-dollar/euro exchange rate	1.21	1.21	1.18	1.14	1.12	1.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Price competitiveness	91.5	91.6	91.0	89.8	89.70	88.90	88.0	88.6	89.1	89.3	89.5	89.5	89.2	88.7	88.3	87.8
Export markets	0.6	2.1	1.6	1.1	0.74	0.29	0.1	0.2	0.1	0.2	0.3	0.6	0.7	0.7	0.7	0.7
Oil price	61.0	46.7	70.2	79.7	97.9	112.0	101.0	97.0	95.0	93.0	91.0	89.0	87.0	86.0	85.0	84.0

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

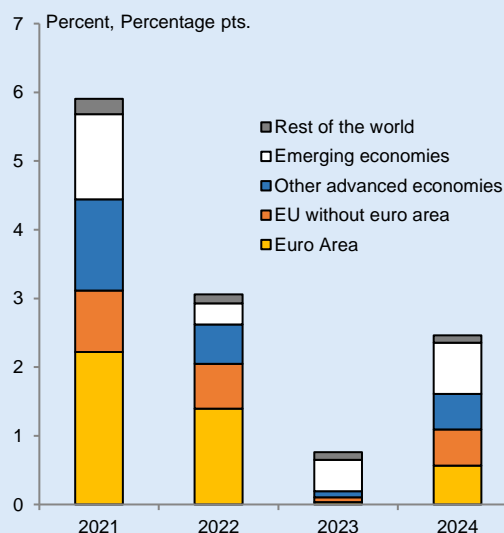
**Figure 3.1:**  
Exports



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.

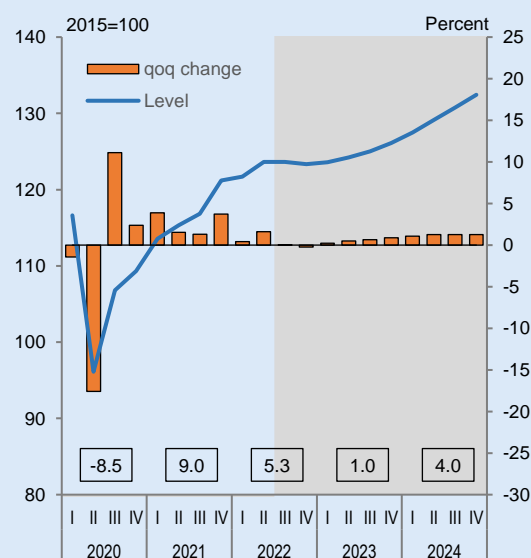
**Figure 3.3:**  
German export markets



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.

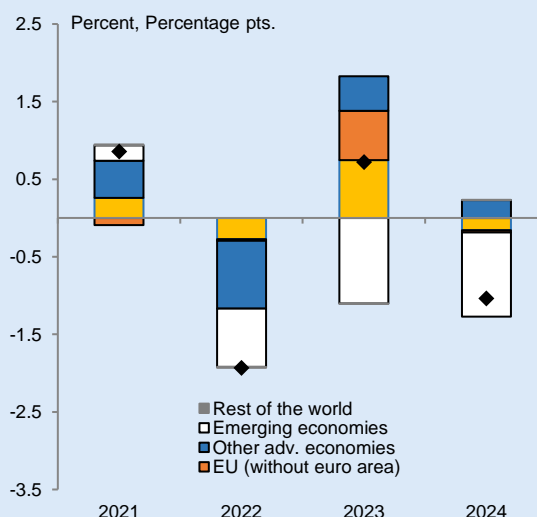
**Figure 3.2:**  
Imports



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.

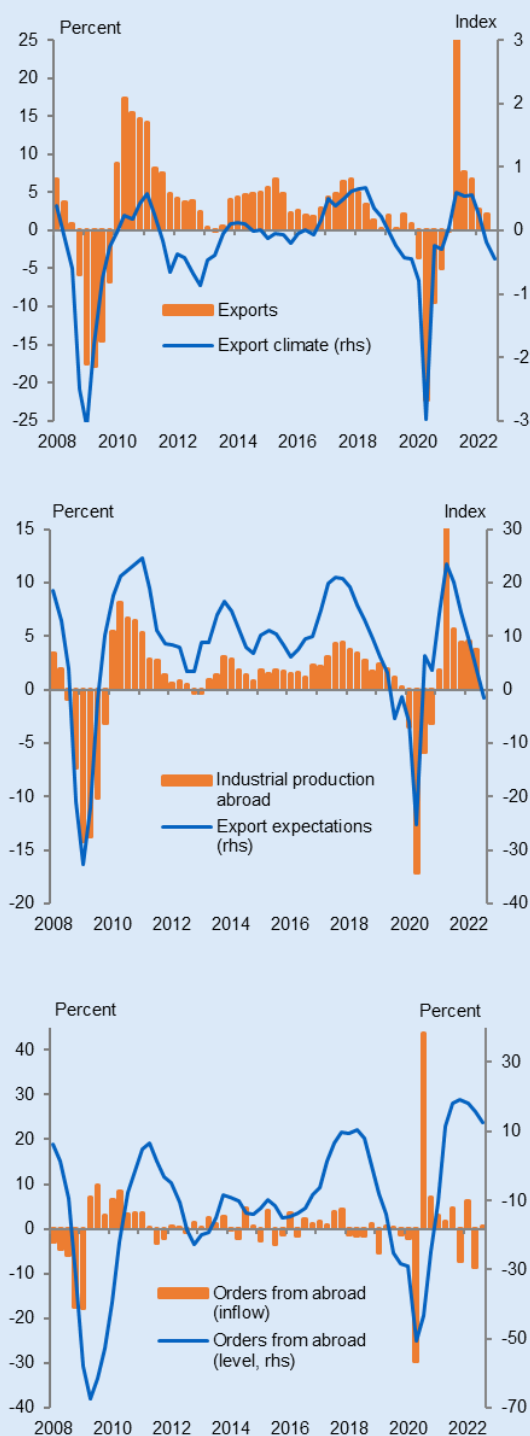
**Figure 3.4:**  
Germany's price competitiveness



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**

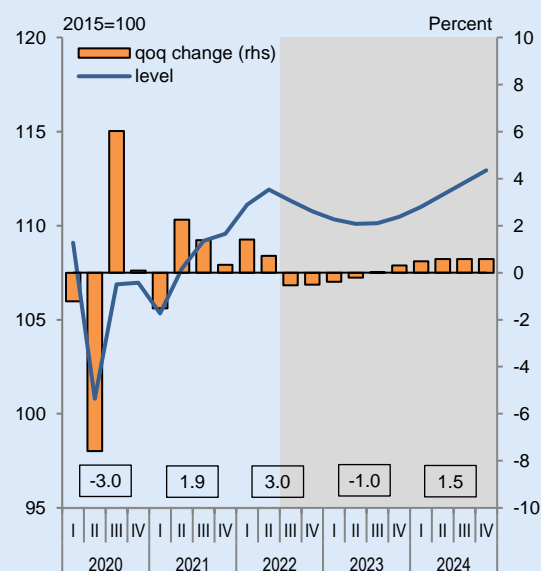


Quarterly data; exports, industrial production, volumes, change on previous year; order inflow: volumes, change on previous quarter; export expectations, foreign orders on hand: volumes; business expectations, industrial production: based on 42 countries weighted by shares of German exports.

Source: Deutsche Bundesbank; Thomson Reuters Datastream; ifo, Konjunkturperspektiven; Kiel Institute calculations.

## 4. Domestic expenditure

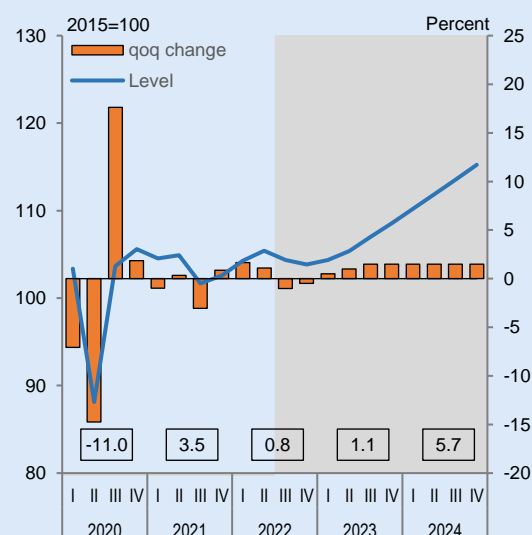
**Figure 4.1:**  
Final domestic expenditure



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

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

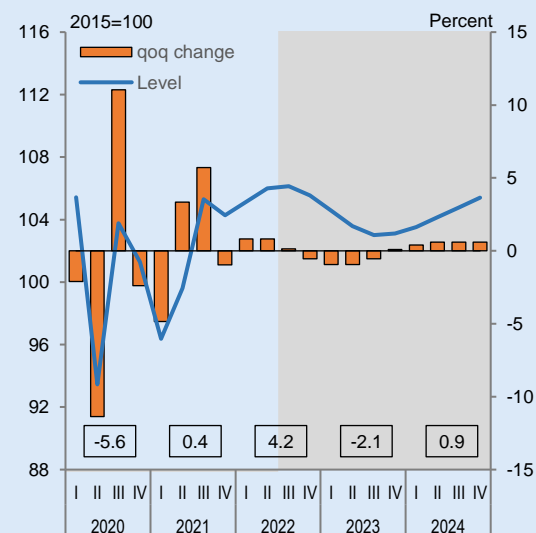
**Figure 4.3:**  
M&E investments



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.

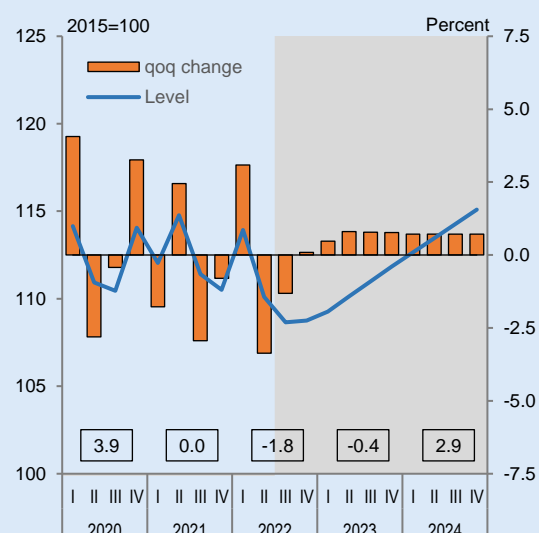
**Figure 4.2:**  
Private consumption



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.

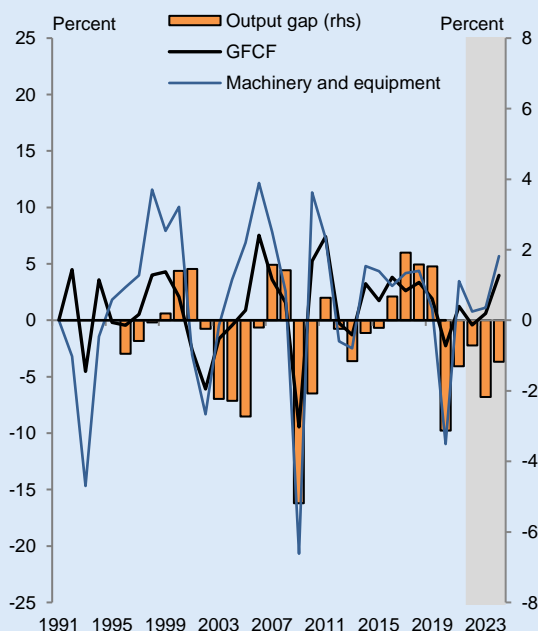
**Figure 4.4:**  
Construction



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.

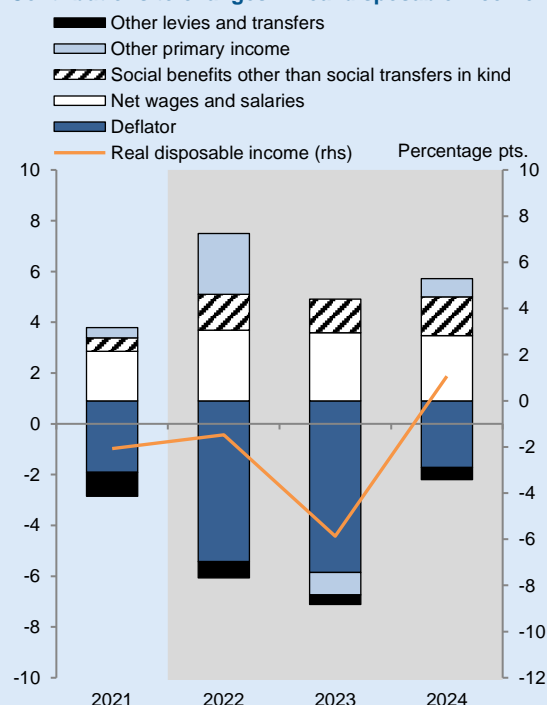
**Figure 4.5:**  
Investment cycles



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.

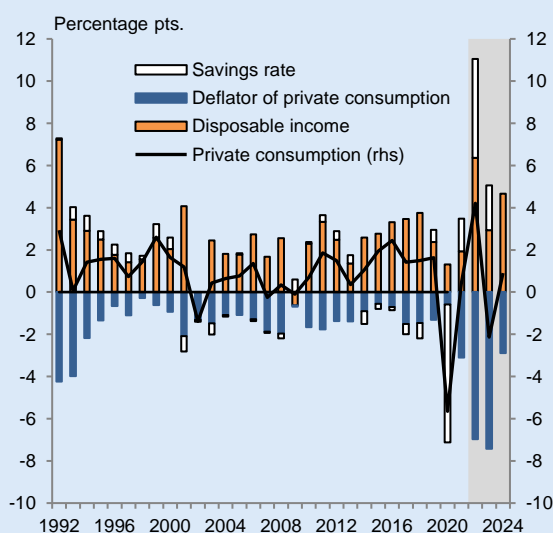
**Figure 4.7:**  
Contributions to changes in real disposable income



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.

**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.

**Table 4.1:**  
Gross fixed capital formation

	2021	2022	2023	2024
Total	1.2	-0.4	0.6	4.0
Corporate investment	2.0	0.0	1.1	4.5
Machinery and equipment	3.5	0.8	1.1	5.7
Construction (non-dwellings)	0.1	-3.7	-1.3	1.9
Other	1.1	1.6	3.0	4.7
Dwellings	0.6	-1.7	-0.5	2.9
Public (non-dwellings)	-2.9	2.1	2.1	4.8
Memorandum item:				
Construction	0.0	-1.8	-0.4	2.9

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**

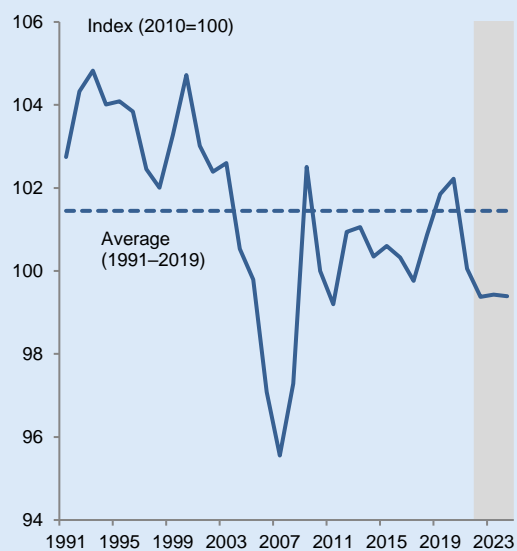
	2022				2023				2024			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Seasonally and calendar-adjusted, q-o-q change in percent											
Gross domestic product	0.8	0.1	-0.4	-0.2	-0.2	-0.1	0.2	0.4	0.5	0.5	0.5	0.5
Gross value added	1.6	-0.3	-0.4	-0.2	-0.2	-0.1	0.2	0.4	0.5	0.5	0.5	0.5
Industry excl. construction	-0.2	-0.4	-1.5	0.6	1.1	1.1	1.3	0.9	0.5	0.5	0.5	0.5
Manufacturing	-0.1	-0.5	-1.5	1.0	1.5	1.5	1.5	1.0	0.5	0.5	0.5	0.5
Energy, Water etc.	-0.8	-0.1	-1.0	-2.0	-2.0	-1.5	0.0	0.5	0.5	0.5	0.5	0.5
Construction	3.2	-2.4	-2.5	-0.5	0.0	0.3	0.5	0.5	0.5	0.5	0.5	0.5
Trade, transport, accomodation, food services	2.1	-1.5	-0.4	-1.7	-2.2	-2.2	-1.3	0.1	0.3	0.5	0.7	0.7
Information and communication	1.4	1.5	0.5	0.3	0.3	0.3	0.3	0.5	1.0	1.0	1.0	1.0
Financial and insurance services	4.3	0.4	0.0	-1.0	-1.0	-0.5	-0.3	0.0	0.3	0.3	0.5	0.5
Real estate activities	0.9	0.0	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	0.2	0.2	0.2	0.2
Business services	1.2	2.0	0.5	0.3	0.3	0.3	0.5	0.5	0.8	0.8	0.8	0.8
Public services, education, health	2.9	-0.8	0.5	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5
Other services	5.3	1.0	-0.5	-1.5	-3.0	-3.0	-1.5	0.0	0.5	0.5	0.5	0.5

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 6.2:**  
Wages and productivity

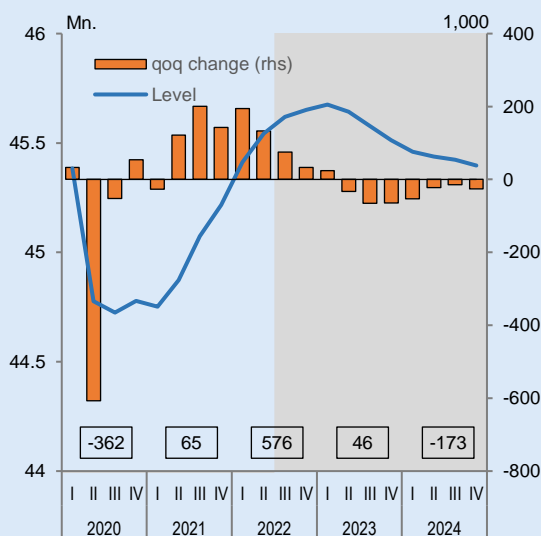
	2020	2021	2022	2023
<i>Per hour</i>				
Negotiated wages	1.6	3.0	4.0	4.5
Gross wages and salaries	1.6	4.0	5.7	4.3
Wage drift	0.0	1.0	1.8	-0.1
Compensation of employees	1.3	3.5	5.7	4.5
Labor productivity	0.9	-0.6	0.1	1.5
Unit labor costs	0.7	4.1	5.6	2.9
Unit labor costs (real)	-2.3	-1.1	0.4	0.0
<i>Per capita</i>				
Negotiated wages	1.6	3.0	4.0	4.5
Gross wages and salaries	3.3	4.6	4.7	5.2
Wage drift	1.7	1.6	0.7	0.8
Compensation of employees	3.1	4.3	4.6	5.3
Labor productivity	2.5	0.1	-0.8	2.1
Unit labor costs	0.6	4.1	5.5	3.2
Unit labor costs (real)	-2.4	-1.1	0.3	0.2

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

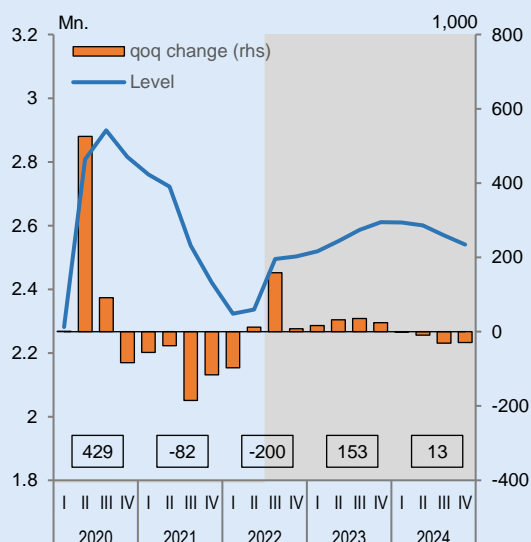
**Figure 7.1:**  
Employment



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, 2018–2022



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 2020–2024 (1,000 persons)

	2020	2021	2022	2023	2024
Hours worked (domestic concept, mn. hours)	59,249	60,281	61,507	61,017	61,125
Persons in employment (domestic concept)	44,914	44,980	45,556	45,601	45,428
Self-employed	4,055	3,958	3,897	3,838	3,778
Employees (domestic concept)	40,859	41,022	41,658	41,764	41,651
Employees subject to social security contributions	33,577	33,922	34,536	34,750	34,813
Minijobs	4,273	4,100	4,097	3,980	3,803
Net commuting	94	114	137	145	145
Persons in employment (national concept)	44,821	44,866	45,419	45,456	45,283
Employees (national concept)	40,766	40,908	41,521	41,618	41,505
Unemployed persons (registered)	2,695	2,613	2,414	2,566	2,579
Unemployment rate (registered; percent)	5.9	5.7	5.3	5.6	5.5
Unemployment rate (ILO; percent)	3.4	3.3	2.7	3.0	3.1

Self-employed: including family workers; unemployed persons (registered): definition of the Federal Employment Agency (BA).

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

## 8. Public finances

Table 8.1

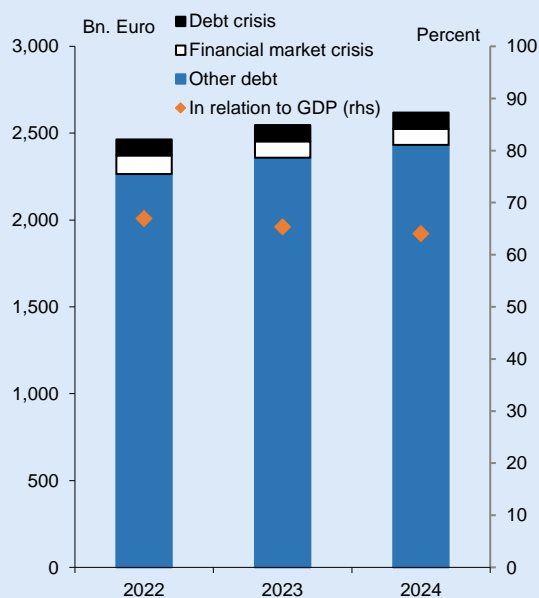
Revenues and expenditures of the general government (bn. Euro)

	2020	2021	2022	2023	2024
<b>Revenues</b>	<b>1,569.1</b>	<b>1,711.7</b>	<b>1,826.4</b>	<b>1,885.9</b>	<b>1,978.0</b>
→relative to GDP	46.1	47.5	47.5	46.8	46.8
Taxes	774.5	877.8	953.1	963.4	1,004.2
→relative to GDP	22.7	24.4	24.8	23.9	23.7
Social contributions	608.1	633.7	667.8	706.8	748.8
→relative to GDP	17.9	17.6	17.4	17.5	17.7
Other revenues	186.5	200.3	205.5	215.8	225.0
→relative to GDP	5.5	5.6	5.3	5.4	5.3
<b>Expenditures</b>	<b>1,716.6</b>	<b>1,846.0</b>	<b>1,890.9</b>	<b>1,974.7</b>	<b>2,067.0</b>
→relative to GDP	50.4	51.3	49.2	49.0	48.9
Compensation of employees	284.3	294.4	306.4	316.5	328.5
Intermediate consumption	209.4	227.2	242.0	248.4	257.3
Social transfers in kind	304.9	330.0	359.0	372.8	384.8
Gross capital formation	93.2	93.4	109.0	113.6	131.8
Capital transfers	21.5	20.8	24.2	26.5	28.9
Social benefits	600.0	610.9	641.4	672.4	709.3
Subsidies	73.4	111.6	53.7	52.6	50.2
Other current transfers	82.6	90.4	93.2	98.0	99.9
Other capital transfers and invest- ment grants	48.1	68.1	62.7	74.7	77.0
Other expenditures	-1.2	-1.2	-1.1	-1.1	-1.1
<b>Net lending/ net borrowing</b>	<b>-147.6</b>	<b>-134.3</b>	<b>-64.5</b>	<b>-88.8</b>	<b>-89.0</b>
→relative to GDP	-4.3	-3.7	-1.7	-2.2	-2.1
<b>Revenues of central, state, and local governments</b>	<b>1003.8</b>	<b>1116.4</b>	<b>1200.6</b>	<b>1214.4</b>	<b>1265.6</b>
Net of transfers from social security funds	993.2	1,109.8	1,191.5	1,213.2	1,264.4
Transfers from social security funds	10.6	6.6	9.1	1.2	1.2
<b>Expenditures of central, state, and local governments</b>	<b>1,116.5</b>	<b>1,255.0</b>	<b>1,264.5</b>	<b>1,292.3</b>	<b>1,341.5</b>
Net of transfers to social security funds	975.2	1,097.3	1,097.4	1,145.8	1,202.6
Transfers to social security funds	141.4	157.7	167.2	146.5	138.9
<b>Net lending/ net borrowing cen- tral, state, and local govern- ments</b>	<b>-112.7</b>	<b>-138.5</b>	<b>-63.9</b>	<b>-77.9</b>	<b>-75.9</b>
<b>Revenues of social security funds</b>	<b>717.9</b>	<b>783.5</b>	<b>802.8</b>	<b>823.9</b>	<b>854.0</b>
Net of transfers from central, state, and local governments	576.6	625.8	635.7	677.5	715.1
<b>Expenditures of social security funds</b>	<b>752.7</b>	<b>779.2</b>	<b>802.4</b>	<b>827.6</b>	<b>864.5</b>
Net of transfers to central, state, and local governments	742.1	772.6	793.3	826.4	863.3
<b>Net lending/ net borrowing so- cial security funds</b>	<b>-34.8</b>	<b>4.3</b>	<b>0.4</b>	<b>-3.6</b>	<b>-10.6</b>

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

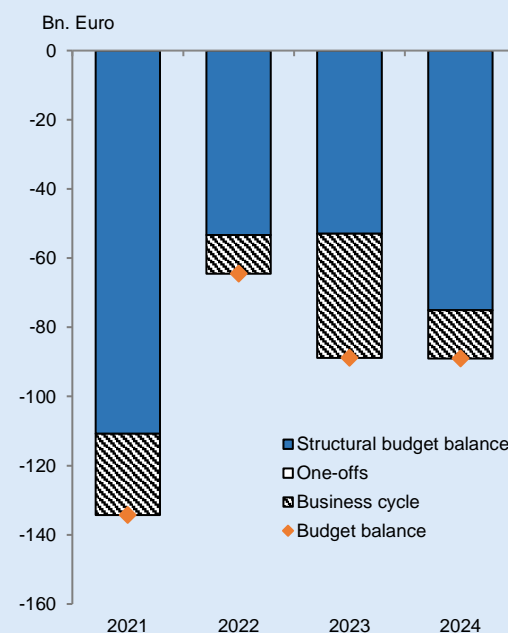


Debt crisis: Liabilities due to first Greece adjustment programme, deposits at the ESM, guarantees for EFSF credits.

Financial market crisis: Liabilities due to bank rescue packages.

Source: Deutsche Bundesbank, *Monatsbericht*; BMF, *Monats-*

**Figure 8.2:**  
Structural budget balance



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

## 9. GDP and its components

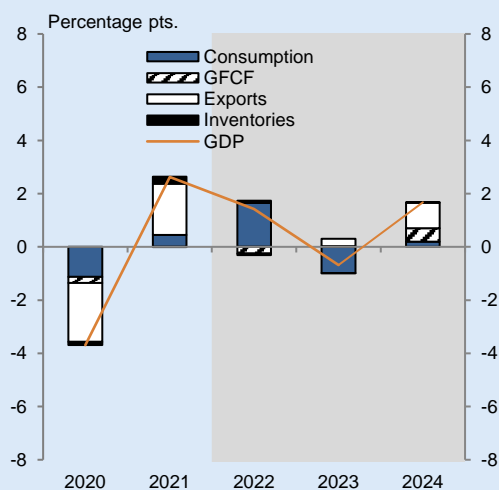
**Table 9.1:**  
Quarterly data

	2022				2023				2024			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	0.8	0.1	-0.4	-0.2	-0.2	-0.1	0.2	0.4	0.5	0.5	0.5	0.5
Private consumption	0.8	0.8	0.1	-0.5	-0.9	-0.9	-0.5	0.1	0.4	0.6	0.6	0.6
Government consumption	1.8	2.3	-1.5	-0.7	0.0	0.4	0.3	0.2	0.0	0.0	0.2	0.2
Machinery and equipment	1.7	1.1	-1.0	-0.5	0.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5
Constructions	3.1	-3.4	-1.3	0.1	0.5	0.8	0.8	0.8	0.7	0.7	0.7	0.7
Other investment	-0.1	0.8	0.3	0.5	0.8	1.0	1.0	1.0	1.2	1.3	1.2	1.2
Change in inventories	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic expenditure	1.4	0.7	-0.5	-0.5	-0.4	-0.2	0.0	0.3	0.5	0.6	0.6	0.6
Exports	-0.7	0.3	0.2	0.3	0.5	0.6	0.9	1.0	1.2	1.2	1.2	1.2
Imports	0.4	1.6	0.0	-0.2	0.2	0.5	0.6	0.9	1.1	1.3	1.3	1.3
Net exports	-0.6	-0.6	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Employment (domestic)	45,411	45,544	45,619	45,652	45,676	45,643	45,577	45,513	45,460	45,438	45,423	45,397
Unemployment (registered)	2,324	2,336	2,495	2,503	2,520	2,552	2,587	2,611	2,610	2,601	2,570	2,541

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:**  
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

		2021	2022	2023	2024
	Bn. Euro	Change over previous year in percent			
Use of gross domestic product, price-adjusted					
GDP		2.6	1.4	-0.7	1.7
Private consumption expenditure		0.4	4.2	-2.1	0.9
Public consumption expenditure		3.8	3.1	-0.2	0.5
Total fixed investment		1.2	-0.4	0.6	4.0
Machinery and equipment		3.5	0.8	1.1	5.7
Construction		0.0	-1.8	-0.4	2.9
Other equipment		1.1	1.6	3.0	4.7
Changes in stocks		0.5	0.2	0.0	0.0
Domestic Demand		1.9	3.0	-1.0	1.5
Exports		9.7	1.6	1.6	4.2
Imports		9.0	5.3	1.0	4.0
Net exports		0.8	-1.4	0.3	0.2
Use of gross domestic product at current prices					
GDP	3,601.8	5.8	6.8	4.4	4.7
Private consumption expenditure	1,773.8	3.5	11.5	5.1	3.8
Public consumption expenditure	797.5	6.6	7.4	3.4	3.3
Total fixed investment	783.8	6.5	10.3	4.8	5.7
Machinery and equipment	229.4	5.5	7.3	4.2	7.4
Construction	416.7	8.3	13.7	5.0	4.5
Other equipment	137.7	2.9	4.9	4.9	6.8
Changes in stocks (€ bn.)		55.1	72.0	76.0	80.1
Domestic Demand	3,410.2	6.1	10.6	4.7	4.2
Exports	1,693.9	15.6	14.2	9.1	6.6
Imports	1,502.4	18.0	23.6	9.7	5.8
Net exports (€ bn.)		191.6	77.0	71.5	94.2
Gross national income	3,729.5	6.4	6.6	4.3	4.6
Deflators					
GDP		3.1	5.3	5.2	2.9
Private consumption expenditure		3.1	7.0	7.4	2.9
Public consumption expenditure		2.7	4.2	3.7	2.8
Investment in machinery and equipment		1.9	6.5	3.1	1.6
Investment in construction		8.3	15.8	5.4	1.5
Investment in other equipment		1.8	3.2	1.8	2.0
Exports		5.4	12.4	7.3	2.4
Imports		8.3	17.5	8.6	1.7
Addendum: Consumer prices		3.1	8.0	8.7	3.1
Income distribution					
Net national income (factor costs)	2,743.4	6.7	2.8	4.2	4.8
Compensation of employees	1,918.0	3.5	5.8	4.9	5.0
in percent of national income		69.9	72.0	72.4	72.6
Property and entrepreneurial income	825.4	15.0	-4.3	2.6	4.3
Disposable income	2,031.2	2.1	6.5	3.0	4.8
Savings rate		15.1	11.0	9.1	9.9
Wages and salaries	1,570.6	3.7	6.2	4.9	4.9
Wage per hour		1.6	4.0	5.7	4.3
Unit labor costs		0.7	4.1	5.6	2.9
Productivity per hour		0.9	-0.6	0.1	1.5
Unemployment (1,000)		2,613.5	2,413.6	2,566.3	2,579.3
Rate of unemployment (percent)		5.7	5.3	5.6	5.5
Total employment (1,000)		44,979.8	45,555.5	45,601.5	45,428.5
Public sector budget balance					
Public sector budget balance (€ bn.)		-134.3	-64.5	-88.8	-89.0
Public sector budget balance (in percent of GDP)		-3.7	-1.7	-2.2	-2.1
Public debts (in percent)		68.7	66.9	65.9	64.6
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 2024

Forecast period: 2022 to 2024									
	2022	2023	2024	2022		2023		2024	
				H1	H2	H1	H2	H1	H2
<b>1. Production</b>									
Change over the same period of the preceding year in %									
Persons in employment	1.3	0.1	- 0.4	1.5	1.1	0.4	- 0.2	- 0.5	- 0.3
Hours worked	2.0	- 0.8	0.2	2.1	2.0	0.1	- 1.6	- 0.3	0.6
Hours worked by person in employment	0.8	- 0.9	0.6	0.6	0.9	- 0.3	- 1.4	0.2	0.9
Labor productivity <sup>1</sup>	- 0.6	0.1	1.5	0.7	- 1.9	- 1.0	1.2	1.4	1.6
<b>Gross domestic product, price-adjusted</b>	<b>1.4</b>	<b>- 0.7</b>	<b>1.7</b>	<b>2.8</b>	<b>0.1</b>	<b>- 0.9</b>	<b>- 0.5</b>	<b>1.1</b>	<b>2.2</b>

### 2. Use of gross domestic product at current prices

a) EUR bn.

Consumption expenditure	2 833.8	2 964.8	3 073.4	1 372.1	1 461.7	1 444.9	1 520.0	1 502.7	1 570.7
Private households <sup>2</sup>	1 977.3	2 079.1	2 158.4	955.5	1 021.8	1 017.8	1 061.3	1 059.5	1 098.9
Government	856.5	885.7	915.1	416.5	439.9	427.1	458.6	443.2	471.9
Gross fixed capital formation	864.6	905.9	957.6	416.9	447.7	437.3	468.6	460.9	496.7
Machinery and equipment	246.2	256.7	275.7	117.7	128.5	122.0	134.7	130.5	145.2
Construction	474.0	497.7	520.1	230.6	243.4	244.0	253.8	254.4	265.7
Other products	144.4	151.5	161.8	68.6	75.8	71.3	80.1	76.0	85.8
Changes in inventories <sup>3</sup>	72.0	76.0	80.1	46.9	25.1	45.4	30.7	48.3	31.8
Domestic expenditure	3 770.4	3 946.7	4 111.1	1 835.8	1 934.6	1 927.5	2 019.2	2 011.9	2 099.2
Net exports	77.0	71.5	94.2	46.6	30.3	41.6	29.9	46.3	47.9
Exports	1 934.5	2 109.7	2 249.8	937.9	996.6	1 034.4	1 075.3	1 108.5	1 141.3
Imports	1 857.6	2 038.2	2 155.6	891.3	966.3	992.8	1 045.4	1 062.2	1 093.4
<b>Gross domestic product</b>	<b>3 847.3</b>	<b>4 018.3</b>	<b>4 205.3</b>	<b>1 882.4</b>	<b>1 964.9</b>	<b>1 969.1</b>	<b>2 049.1</b>	<b>2 058.2</b>	<b>2 147.1</b>

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

Consumption expenditure	10.2	4.6	3.7	12.3	8.3	5.3	4.0	4.0	3.3
Private households <sup>2</sup>	11.5	5.1	3.8	14.2	9.0	6.5	3.9	4.1	3.5
Government	7.4	3.4	3.3	8.2	6.7	2.5	4.3	3.8	2.9
Gross fixed capital formation	10.3	4.8	5.7	11.4	9.3	4.9	4.7	5.4	6.0
Machinery and equipment	7.3	4.2	7.4	6.6	8.0	3.6	4.8	7.0	7.8
Construction	13.7	5.0	4.5	16.0	11.6	5.8	4.3	4.3	4.7
Other products	4.9	4.9	6.8	5.3	4.6	4.0	5.7	6.5	7.1
Domestic expenditure	10.6	4.7	4.2	12.9	8.5	5.0	4.4	4.4	4.0
Exports	14.2	9.1	6.6	15.4	13.1	10.3	7.9	7.2	6.1
Imports	23.6	9.7	5.8	27.5	20.3	11.4	8.2	7.0	4.6
<b>Gross domestic product</b>	<b>6.8</b>	<b>4.4</b>	<b>4.7</b>	<b>8.2</b>	<b>5.5</b>	<b>4.6</b>	<b>4.3</b>	<b>4.5</b>	<b>4.8</b>

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

a) EUR bn.

Consumption expenditure	2 423.0	2 385.3	2 404.0	1 197.3	1 225.7	1 182.7	1 202.6	1 182.8	1 221.3
Private households <sup>2</sup>	1 695.9	1 659.9	1 674.7	836.6	859.3	825.4	834.5	823.2	851.5
Government	725.3	723.6	727.4	359.7	365.6	356.4	367.2	358.6	368.8
Gross fixed capital formation	669.8	673.9	700.8	329.0	340.7	326.2	347.7	338.4	362.4
Machinery and equipment	217.5	220.0	232.5	105.1	112.5	104.8	115.2	110.3	122.2
Construction	323.0	321.7	331.0	161.7	161.2	158.0	163.7	162.4	168.6
Other products	128.6	132.5	138.7	61.4	67.2	62.8	69.7	65.6	73.1
Domestic expenditure	3 114.7	3 082.4	3 129.8	1 544.2	1 570.5	1 527.3	1 555.1	1 541.4	1 588.4
Exports	1 598.3	1 624.5	1 692.3	795.9	802.5	807.1	817.4	836.2	856.2
Imports	1 469.2	1 484.1	1 543.6	725.1	744.1	734.0	750.2	758.3	785.3
<b>Gross domestic product</b>	<b>3 249.3</b>	<b>3 227.1</b>	<b>3 281.1</b>	<b>1 617.3</b>	<b>1 632.0</b>	<b>1 602.7</b>	<b>1 624.4</b>	<b>1 620.9</b>	<b>1 660.2</b>

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

Consumption expenditure	3.9	-1.6	0.8	6.4	1.5	-1.2	-1.9	0.0	1.6
Private households <sup>2</sup>	4.2	-2.1	0.9	8.0	0.8	-1.3	-2.9	-0.3	2.0
Government	3.1	-0.2	0.5	3.2	3.0	-0.9	0.4	0.6	0.4
Gross fixed capital formation	-0.4	0.6	4.0	0.1	-0.9	-0.9	2.0	3.7	4.2
Machinery and equipment	0.8	1.1	5.7	0.6	1.0	-0.2	2.4	5.2	6.1
Construction	-1.8	-0.4	2.9	-0.7	-2.8	-2.3	1.5	2.8	3.0
Other products	1.6	3.0	4.7	1.7	1.5	2.3	3.6	4.4	5.0
Domestic expenditure	3.0	-1.0	1.5	4.9	1.2	-1.1	-1.0	0.9	2.1
Exports	1.6	1.6	4.2	2.6	0.7	1.4	1.9	3.6	4.7
Imports	5.3	1.0	4.0	7.4	3.3	1.2	0.8	3.3	4.7
<b>Gross domestic product</b>	<b>1.4</b>	<b>-0.7</b>	<b>1.7</b>	<b>2.8</b>	<b>0.1</b>	<b>-0.9</b>	<b>-0.5</b>	<b>1.1</b>	<b>2.2</b>

**National Accounts (cont.)**

Forecast period: 2022 to 2024

Forecast period: 2022 to 2024				2022		2023		2024	
	2022	2023	2024	H1	H2	H1	H2	H1	H2
4. Deflators (2010=100)									
Change on the same period of the preceding year in %									
Private consumption <sup>2</sup>	7.0	7.4	2.9	5.8	8.1	8.0	7.0	4.4	1.5
Government consumption	4.2	3.7	2.8	4.9	3.5	3.5	3.8	3.1	2.4
Gross fixed capital formation	10.8	4.1	1.6	11.3	10.4	5.8	2.6	1.6	1.7
Machinery and equipment	6.5	3.1	1.6	6.0	6.9	3.9	2.4	1.7	1.6
Construction	15.8	5.4	1.5	16.9	14.8	8.3	2.7	1.5	1.6
Exports	12.4	7.3	2.4	12.5	12.3	8.8	5.9	3.4	1.3
Imports	17.5	8.6	1.7	18.8	16.4	10.0	7.3	3.6	-0.1
Gross domestic product	5.3	5.2	2.9	5.2	5.5	5.6	4.8	3.4	2.5

**5. National income**

a) EUR bn.

Primary income of private households <sup>2</sup>	2 630.3	2 708.7	2 832.4	1 291.2	1 339.1	1 332.6	1 376.1	1 391.1	1 441.3
Employers social contributions	361.6	379.2	399.0	174.0	187.6	182.8	196.4	192.1	206.9
Gross wages and salaries	1 668.1	1 750.1	1 836.5	788.9	879.2	833.0	917.1	872.7	963.8
Other primary income <sup>4</sup>	600.5	579.5	596.9	328.3	272.2	316.8	262.7	326.3	270.6
Primary income of other sectors	560.8	610.7	649.9	256.4	304.4	274.9	335.8	292.6	357.3
<b>Net national income</b>	<b>3 191.1</b>	<b>3 319.4</b>	<b>3 482.3</b>	<b>1 547.6</b>	<b>1 643.5</b>	<b>1 607.5</b>	<b>1 712.0</b>	<b>1 683.7</b>	<b>1 798.6</b>
Consumption of fixed capital	785.2	827.5	856.9	386.6	398.6	413.5	414.1	427.9	429.0
<b>Gross national income</b>	<b>3 976.3</b>	<b>4 147.0</b>	<b>4 339.2</b>	<b>1 934.2</b>	<b>2 042.1</b>	<b>2 020.9</b>	<b>2 126.0</b>	<b>2 111.6</b>	<b>2 227.6</b>
memorandum item:									
Net national income (factor costs)	2 820.2	2 939.1	3 080.0	1 371.1	1 449.1	1 421.2	1 517.9	1 487.0	1 593.0
Property and entrepreneurial income	790.5	809.9	844.5	408.2	382.3	405.4	404.5	422.2	422.3
Compensation of employees	2 029.7	2 129.2	2 235.5	962.9	1 066.9	1 015.8	1 113.4	1 064.8	1 170.7

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

Primary income of private households <sup>2</sup>	6.7	3.0	4.6	7.9	5.6	3.2	2.8	4.4	4.7
Employers social contributions	4.1	4.9	5.2	3.4	4.7	5.1	4.7	5.1	5.4
Gross wages and salaries	6.2	4.9	4.9	6.7	5.7	5.6	4.3	4.8	5.1
... per employee	4.6	4.7	5.2	4.9	4.4	5.0	4.4	5.2	5.3
Other primary income <sup>4</sup>	9.8	-3.5	3.0	13.5	5.6	-3.5	-3.5	3.0	3.0
Primary income of other sectors	0.2	8.9	6.4	2.7	-1.7	7.2	10.3	6.5	6.4
<b>Net national income</b>	<b>5.5</b>	<b>4.0</b>	<b>4.9</b>	<b>7.0</b>	<b>4.1</b>	<b>3.9</b>	<b>4.2</b>	<b>4.7</b>	<b>5.1</b>
Consumption of fixed capital	11.4	5.4	3.6	12.3	10.5	7.0	3.9	3.5	3.6
<b>Gross national income</b>	<b>6.6</b>	<b>4.3</b>	<b>4.6</b>	<b>8.0</b>	<b>5.3</b>	<b>4.5</b>	<b>4.1</b>	<b>4.5</b>	<b>4.8</b>
memorandum item:									
Net national income (factor costs)	2.8	4.2	4.8	4.2	1.5	3.7	4.7	4.6	4.9
Property and entrepreneurial income	-4.2	2.5	4.3	-0.1	-8.3	-0.7	5.8	4.2	4.4
Compensation of employees	5.8	4.9	5.0	6.1	5.6	5.5	4.4	4.8	5.1

**6. Disposable income of private households <sup>2</sup>**

a) EUR bn.

Mass income	1 686.6	1 774.5	1 868.2	790.8	895.7	850.3	924.3	894.7	973.5
Net wages and salaries	1 124.8	1 188.5	1 251.5	526.9	598.0	561.7	626.7	590.6	660.9
Social benefits other than social transfers in kind	707.9	739.5	776.9	335.9	372.1	364.1	375.4	383.1	393.9
less: Levies on social benefits, taxes on consumption	146.2	153.4	160.2	71.9	74.3	75.6	77.9	79.0	81.2
Other primary income <sup>4</sup>	600.5	579.5	596.9	328.3	272.2	316.8	262.7	326.3	270.6
Other transfers received (net) <sup>5</sup>	-123.2	-125.0	-129.9	-59.7	-63.5	-60.2	-64.8	-62.5	-67.4
<b>Disposable income</b>	<b>2 163.9</b>	<b>2 229.0</b>	<b>2 335.3</b>	<b>1 059.5</b>	<b>1 104.4</b>	<b>1 106.9</b>	<b>1 122.1</b>	<b>1 158.5</b>	<b>1 176.7</b>
Change in pension entitlements	59.0	59.3	59.6	28.6	30.3	28.8	30.5	28.9	30.6
Consumption expenditure	1 977.3	2 079.1	2 158.4	955.5	1 021.8	1 017.8	1 061.3	1 059.5	1 098.9
Saving	245.6	209.2	236.4	132.6	113.0	117.9	91.3	128.0	108.5
<b>Saving ratio (%) <sup>6</sup></b>	<b>11.0</b>	<b>9.1</b>	<b>9.9</b>	<b>12.2</b>	<b>10.0</b>	<b>10.4</b>	<b>7.9</b>	<b>10.8</b>	<b>9.0</b>

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

Mass income	5.7	5.2	5.3	3.0	8.2	7.5	3.2	5.2	5.3
Net wages and salaries	5.9	5.7	5.3	6.4	5.4	6.6	4.8	5.1	5.4
Social benefits other than social transfers in kind	4.6	4.5	5.1	-2.5	12.1	8.4	0.9	5.2	4.9
less: Levies on social benefits, taxes on consumption	1.8	4.9	4.4	0.1	3.4	5.1	4.8	4.5	4.3
Other primary income <sup>4</sup>	9.8	-3.5	3.0	13.5	5.6	-3.5	-3.5	3.0	3.0
<b>Disposable income</b>	<b>6.5</b>	<b>3.0</b>	<b>4.8</b>	<b>5.1</b>	<b>8.0</b>	<b>4.5</b>	<b>1.6</b>	<b>4.7</b>	<b>4.9</b>
Consumption expenditure	11.5	5.1	3.8	14.2	9.0	6.5	3.9	4.1	3.5
Saving	-22.3	-14.8	13.0	-33.8	-2.3	-11.1	-19.2	8.6	18.8

**National Accounts (cont.)**

Forecast period: 2022 to 2024

	2022	2023	2024	2022		2023		2024	
				H1	H2	H1	H2	H1	H2
7. Revenue and expenditure by general government <sup>7</sup>									
a) EUR bn.									
Revenue									
Taxes	953.1	963.4	1 004.2	464.4	488.7	469.5	493.8	488.5	515.8
Social contributions	667.8	706.8	748.8	321.4	346.4	341.5	365.3	361.4	387.4
Property income	14.1	13.6	13.1	7.2	6.9	6.9	6.6	6.7	6.4
Other current transfers	27.1	28.6	30.0	11.2	16.0	11.9	16.7	12.5	17.4
Capital transfers	21.8	23.0	24.3	8.9	12.9	9.5	13.5	10.1	14.2
Sales	142.3	150.4	157.4	66.2	76.1	70.0	80.4	73.0	84.4
Other subsidies	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
<b>Total</b>	<b>1 826.4</b>	<b>1 885.9</b>	<b>1 978.0</b>	<b>879.4</b>	<b>947.0</b>	<b>909.4</b>	<b>976.5</b>	<b>952.3</b>	<b>1 025.7</b>
Expenditure									
Intermediate consumption <sup>8</sup>	601.3	621.7	642.5	290.0	311.3	297.2	324.5	308.5	334.0
Compensation of employees	306.4	316.5	328.5	148.2	158.2	151.5	165.0	157.5	171.0
Property income (interest)	24.2	26.5	28.9	12.7	11.5	13.8	12.7	15.0	13.9
Subsidies	53.7	52.6	50.2	28.6	25.1	25.6	26.9	24.4	25.7
Social benefits	641.4	672.4	709.3	302.6	338.8	330.5	341.9	349.2	360.1
Other current transfers	93.2	98.0	99.9	44.1	49.1	46.4	51.6	47.3	52.7
Capital transfers	62.7	74.7	77.0	22.8	39.9	28.3	46.4	28.9	48.0
Gross capital formation	109.0	113.6	131.8	43.9	65.1	44.0	69.6	56.0	75.8
Net acquisitions of non-produced non-financial assets	- 1.1	- 1.1	- 1.1	- 0.5	- 0.6	- 0.5	- 0.6	- 0.5	- 0.6
<b>Total</b>	<b>1 890.9</b>	<b>1 974.7</b>	<b>2 067.0</b>	<b>892.4</b>	<b>998.5</b>	<b>936.7</b>	<b>1 038.0</b>	<b>986.2</b>	<b>1 080.7</b>
<b>Net lending</b>	<b>- 64.5</b>	<b>- 88.8</b>	<b>- 89.0</b>	<b>- 13.0</b>	<b>- 51.5</b>	<b>- 27.3</b>	<b>- 61.5</b>	<b>- 33.9</b>	<b>- 55.1</b>

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

Revenue									
Taxes	8.6	1.1	4.2	11.6	5.8	1.1	1.0	4.0	4.4
Social contributions	5.4	5.8	5.9	5.0	5.7	6.3	5.5	5.8	6.0
Property income	- 7.1	- 3.7	- 3.5	- 11.0	- 2.6	- 4.1	- 3.4	- 3.8	- 3.1
Other current transfers	- 9.7	5.2	5.0	- 24.9	5.2	6.0	4.7	5.7	4.5
Capital transfers	7.3	5.7	5.6	5.4	8.7	6.8	5.0	6.6	4.9
Sales	5.7	5.7	4.7	7.3	4.3	5.7	5.7	4.4	4.9
Other subsidies	25.5	0.0	0.0	65.5	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>6.7</b>	<b>3.3</b>	<b>4.9</b>	<b>7.9</b>	<b>5.6</b>	<b>3.4</b>	<b>3.1</b>	<b>4.7</b>	<b>5.0</b>
Expenditure									
Intermediate consumption <sup>8</sup>	7.8	3.4	3.3	9.0	6.8	2.5	4.2	3.8	2.9
Compensation of employees	4.1	3.3	3.8	4.7	3.5	2.2	4.3	3.9	3.6
Property income (interest)	16.4	9.5	9.1	14.5	18.5	8.7	10.4	8.7	9.4
Subsidies	- 51.8	- 2.2	- 4.6	- 50.1	- 53.7	- 10.5	7.2	- 4.7	- 4.5
Social benefits	5.0	4.8	5.5	- 3.0	13.3	9.2	0.9	5.6	5.3
Other current transfers	3.1	5.1	2.0	1.7	4.4	5.1	5.1	1.9	2.1
Capital transfers	- 7.9	19.1	3.1	11.6	- 16.2	24.2	16.2	2.3	3.6
Gross capital formation	16.7	4.2	16.1	10.2	21.6	0.2	6.9	27.4	9.0
Net acquisitions of non-produced non-financial assets	- 6.4	0.0	0.0	- 12.6	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>2.4</b>	<b>4.4</b>	<b>4.7</b>	<b>0.2</b>	<b>4.5</b>	<b>5.0</b>	<b>4.0</b>	<b>5.3</b>	<b>4.1</b>

<sup>1</sup> Price-adjusted gross domestic product per hour worked.

<sup>2</sup> Incl. nonprofit institutions serving households.

<sup>3</sup> Incl. acquisitions less disposals of valuables.

<sup>4</sup> Operating surplus/mixed income, net property income

<sup>5</sup> Received less payed other current transfers.

<sup>6</sup> Savings in percent of disposable income (incl. change in pension entitlements).

<sup>7</sup> Central, regional, local and social security funds.

<sup>8</sup> Incl. social transfers in kind and other production taxes.

Source: Federal Statistical Office, *Fachserie 18: National Accounts*; Kiel Institute calculations and forecasts.