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Article

German Economy Summer 2023: Crawling out of the crisis

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KIEL INSTITUTE **ECONOMIC OUTLOOK**

German Economy Summer 2023

Finalized June 15, 2023



No. 104 (2023|Q2)

*Jens Boysen-Hogrefe, Dominik Groll, Timo Hoffmann, Nils Jannsen,
Stefan Kooths, Nils Sonnenberg and Vincent Stamer*

CRAWLING OUT OF THE CRISIS

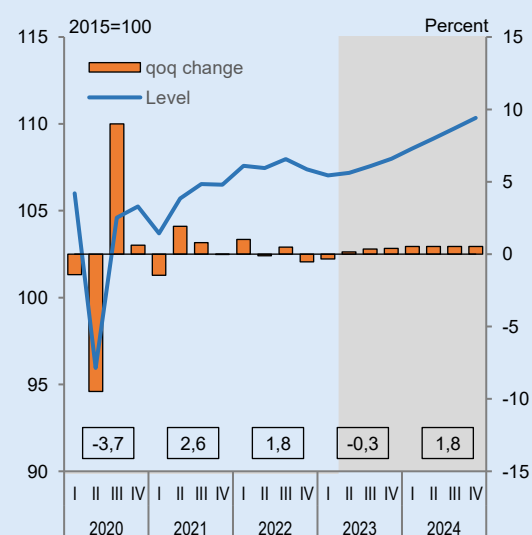
Jens Boysen-Hogrefe, Dominik Groll, Timo Hoffmann, Nils Jannsen, Stefan Kooths, Nils Sonnenberg and Vincent Stamer

The renewed decline in GDP in the first quarter and the recent deterioration in leading indicators have increased concerns that the aftermath of the energy crisis and the tightening of monetary policy may weigh more heavily on the economy than expected. However, all in all, it is more likely that the German economy will return to a moderate expansionary path in the course of the year, despite the headwinds. The decline in GDP in the first quarter was mainly due to a one-time slump in public consumption, rather than reflecting a broad-based economic slowdown. The manufacturing industry can rely on its still high order backlogs. Consumer-related service industries will benefit from strong wage increases. Altogether, GDP is likely to decline by 0.3 percent this year due to the weak economic activity in the winter half-year (spring forecast: +0.5 percent). For 2024, we expect an increase of 1.8 percent (spring forecast: 1.4 percent). Inflation will decrease significantly in the course of the year. On average, however, consumer prices will still rise strongly by 5.8 percent this year. In the next year, inflation will be significantly lower at about 2 percent. The labor market will be less affected by the current phase of economic weakness than by the demographically induced decline in labor supply, which is likely to lead to a decline in the number of people employed in 2024. The public budget deficit is expected to fall from 2.7 percent relative to GDP in 2022 to 0.9 percent in 2024, despite the weak economic momentum.

GDP will slightly increase in the second quarter. In the winter half-year GDP declined by 0.5 percent (fourth quarter) and 0.3 percent (first quarter). Many of the monthly leading indicators have been very volatile recently. Until the middle of the fourth and the first quarter, the indicators were still pointing to an increase in GDP, before they fell sharply or even collapsed in December and March. It is striking that, according to business surveys, neither the business situation nor business expectations deteriorated in December and March, but even increased significantly. Temporary effects are also indicated by the fact that sick leave jumped in December and March and then fell sharply in the following months. Such large increases in sick leave can have a massive impact on economic output, even if the effects are difficult to quantify (Groll 2023). Of course, the declines in March in some indicators, such as industrial production or price-adjusted exports of goods, may have been partly a countermovement to the strong increase in February. In contrast to December, real turnover in the service industries rose in March. According to business surveys, the business situation in service industries improved further in April and May, pointing to a significant increase in activity in the second quarter. On the other hand, the rather low level of industrial production in April compared with the first quarter points to only a moderate increase in GDP in the second quarter. All in all, we expect GDP to rise by 0.1 percent in the second quarter (Figure 1).

Services have supported exports recently. In contrast, exports of goods fell slightly in the first quarter of 2023. In addition to the EU trade, which remains particularly important for German exports, nominal goods exports to the United States and China also declined. Compared with the previous quarter, exports of services increased by 3.7

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.

percent. Goods exports fell 0.4 percent. Imports fell slightly by -0.9 percent in the first quarter. Only service imports were clearly positive in the first quarter, rising by 5 percent. Special trade imports in April point to another slight decline in goods imports in the second quarter. The Kiel Trade Indicator also points to a sideways movement in goods imports. Overall, we expect imports of goods to fall by 0.2 percent in the second quarter and imports of services by 2.0 percent. The terms of trade recovery stalled in the first quarter. After the rapid drop in import prices in the final quarter of 2022 and the associated improvement in the terms of trade, the further recovery slowed noticeably in the first quarter of 2023. Goods prices in April point to moderate price decreases in the second quarter, which are likely to be somewhat more pronounced for imports. Overall, we expect the terms of trade to improve by 1.6 percentage points in the current quarter. The terms of trade will therefore approach the long-term average since 2000 this year, after they were significantly below this level in 2022.

Private consumption is overcoming its weakness thanks to large increases in disposable income. The sharp decline in private consumption in the winter half-year was caused by a decline in real disposable income of private households as a result of high inflation. Mass income, especially net wages, and salaries of private households and social benefits, will increase at a much faster pace over the forecast period than in 2022. This year, real disposable income is expected to decline by 1.2 percent, as corporate and property income of private households is dampened by the weak economic environment. However, mass income, which tends to be spent on consumption to a much larger share than corporate and property income, is expected to rise noticeably in real terms already this year. Next year, when inflation will be much lower, real disposable income is expected to grow by 2.7 percent. Against this backdrop, private consumption will begin to expand again in the second quarter and gain momentum in the following quarters. All in all, private consumption will decline by 1.1 percent in this year and rise by 2.7 percent in 2024.

Investment in machinery and equipment continues to grow robustly in the forecast period. After declining in the final quarter of last year, investment increased by 3.2 percent in the first quarter. Private investment in machinery and equipment rose by 5 percent, while the government investment in machinery and equipment, which is very volatile, declined by 18.1 percent. The increase in the first quarter can be seen as a reaction to a decline in private investment in the fourth quarter. The projected catch-up in private investment in the forecast period is in view of the generally weak economic environment, weak business expectations, and tight financing conditions unusual compared to historical patterns. However, private investment will be stimulated by the large backlog of orders and easing supply bottlenecks. For the second quarter, leading indicators, such as production or domestic turnover of capital goods, point to a slight decline. In the forecast period, public investment in military equipment is expected to increase significantly. Overall, we project equipment investments to increase by 3% in 2023 and 5.6% in 2024.

The slump in construction investment continues over the forecast period. Investment in construction increased by 3.9 percent in the first quarter. This increase, however, reflects mainly catch-up effects from last year's slump of construction in December, which was due to high levels of sick leave and poor weather conditions. Rising material costs and high demand in construction, which was met by the high capacity utilization of construction companies, were reflected in strong price increases last year. This upward trend in prices continued up to the first quarter. However, the general conditions for construction investment remain poor. The rapid increase in mortgages has led to a collapse in new housing loans. At the same time, construction costs remain high. The low volume in transactions of existing properties as well as ongoing price corrections also indicate an ongoing wait-and-see attitude of investors. As a result, new orders for building construction at the beginning of the year were down by around a third compared with their peak in December 2021. Building permits also continue to follow a negative trend. While surveys show that one in four construction companies complains about a lack of demand, it is every third company in residential construction. The still high order backlog, which built up during the Corona pandemic and is still around 65 percent above its long-term average (2000-2015), will stabilize construction investment to some extent. However, order backlogs will decline rapidly against the backdrop of falling new orders and a high cancellation rate according to surveys. Leading indicators point to

a decline in construction investment in the second quarter. Construction output in April was slightly higher than in the first quarter. However, capacity utilization in the construction industry has fallen significantly and surveys point to a decline in production, as well. Behind this backdrop, we expect construction investment to decline by 1.9 percent in the second quarter. Residential construction is particularly affected. Overall, construction investments will decrease by 2.7 percent in the current year and by 1.4 percent in 2024. A sustained recovery in investment will require stronger price corrections, which are likely to materialize only gradually. The upward trend in construction prices is likely to halt in the forecast period. Material prices have fallen recently or reached a plateau. Moreover, an increasing number of companies report falling construction prices. Margins of construction companies, which have risen strongly for years, also provide room for price reductions. Overall, we expect price pressure to ease significantly.

Inflation has slowed considerably recently. At the beginning of the year inflation remained high with 8.2 percent in the first quarter. However, monthly data show that price increases on a month-to-month basis have almost come to a standstill since March. This is reflected in successively lower year-on-year inflation rates, which fell to 6.1 percent in May. With the outbreak of the war in Ukraine, energy prices spiked in March 2022. Throughout 2022, they rose by around 30 percent. Since March 2023, energy prices are compared with the high prices of the previous year, the annual rate of the energy prices has fallen abruptly and was only 2.6 percent in May. The pace of price increases for non-energy goods and services has also slowed recently. However, as prices for non-energy goods and services have not risen quite as much as the overall CPI over the past year, dampening base effects on the core rate are weaker. Thus, the core rate was still 6.5 percent. In the forecast, consumer prices will settle at a higher level. Owing to higher than expected prices for non-energy goods and services in the first quarter of 2023 and in April and May, we revise our forecast for annual inflation in 2023 from 5.4 to 5.8 percent (Table 1). However, the factors putting downward pressure on inflation are still in place. In 2024, we expect a core rate of 2.9 percent, which is high by historical standards (long-term average: 1.4 percent). Energy prices will still rise by 4.5 percent this year but will fall by 6.3 percent next year. Overall, inflation will still be 2.1 percent in 2024, despite the negative contribution of energy prices.

Wages and salaries are rising at the fastest pace in 30 years driven by high inflation and labor shortages. The collective bargaining agreements reached since last autumn provides for – in historical terms – extraordinarily high wage growth in the current and next year. For example, employers' associations and trade unions in the metal and electrical industry, in the public sector of the federal and local governments (here only after mediation), and at Deutsche Post have agreed on both high one-off payments (in the form of inflation compensation premium free of taxes and social security contributions) and high permanent increases in monthly wages, which together correspond to wage increases of between 7 and 8 percent for the calendar year 2023 and around 4 percent for 2024. For the current negotiations in the retail sector and the wholesale and foreign trade sector, as well as for the upcoming negotiations in the public sector of the German states in autumn, we expect similarly high agreements and a similar composition in terms of one-off payments and permanent rise in salaries. Against this backdrop, we expect negotiated wages and salaries to rise by 5.6 percent in the current year and 5.1 percent in the next year, compared with 2.6 percent last year. These would be the highest rates since 1993. Effective earnings (gross wages and salaries per employee) will also increase strongly over the forecast period. However, the changeover from the former Quarterly Earnings Survey to the newly designed Earnings Survey as a principle data source for the System of National Accounts has resulted in a statistical break in the time series in 2022, so that the growth rates currently reported in the national accounts should be interpreted with caution. All in all, however, the finding that real unit labor costs – i.e., the ratio between labor costs on the one hand and domestic prices and labor productivity on the other hand – have fallen to exceptionally low levels in the past two years is likely to remain valid, which in itself supports companies' demand for labor.

Due to the aging of the population, employment will exceed its peak over the forecast horizon. Employment growth has recently slowed somewhat, and the number of registered unemployed has

even increased slightly since February. In contrast to the sharp rise in unemployment in the summer of last year, the most recent rise was not due to the (registration of) Ukrainian refugees. The ifo Employment Barometer deteriorated markedly in May, although the informative value of this leading indicator is currently diminished by its noticeably higher volatility since the outbreak of the pandemic. We expect employment to pass its peak in the forecast period. While the impact of the energy crisis on the labor market remains subdued – supported by the high labor shortage and the (still) favorable ratio of labor costs to prices and labor productivity –, the potential labor force is likely to start shrinking in the not-too-distant future due to population aging. One indication of this is provided by the employment of persons with German citizenship, which accounts for 85 percent of total employment subject to social security contributions. Here, employment growth has slowed rapidly over the past year, and since January of this year, the year-on-year change has turned negative. In March (most recent figure), the number of employees with German citizenship was 60,000 lower than in March 2022, while total employment was still 320,000 higher. This also implies that employment growth is now being driven entirely (and more) by persons with foreign citizenship; this figure stood at 60 percent a year ago, and at 20 percent in 2011. Although the number of employees on sick leave remained exceptionally high in the first quarter of this year, it is likely to have fallen slightly on a seasonally adjusted basis compared with the previous quarter, in line with the seasonally and calendar adjusted increase in working time per employee over the same period. We continue to assume that sickness absence will normalize over the forecast period. The resulting recovery in working hours will counteract the age-related decline in employment so that the overall number of hours worked is likely to increase further over the forecast period.

The pandemic and the energy crisis are becoming less of a burden for the public budget. The end of the pandemic has significantly reduced public consumption. In contrast, payments to users of natural gas and electricity and transfers to companies, heavily affected by the energy crisis, lead to extra expenditures in the current year. However, given the decrease in energy prices, these payments are likely to be much lower than previously expected. In sum, public expenditures increase at a much slower pace than in the previous year. Revenues also will increase at a slower pace in 2023. Tax revenues are dampened by the economic slowdown and tax cuts in the income tax, as well as in the value-added tax on natural gas. In contrast, social security contributions will benefit from robust wage growth and rising rates. Overall, the budget deficit will decrease despite record-high subsidies on products. In 2024, the end of energy-related payments in April will provide further relief to the public budget. However, the deficit will remain high compared to the pre-pandemic era due to higher spending on investment and interest payments.

Table 1:
Key indicators

	2021	2022	2023	2024
Gross domestic product (GDP), price-adjusted	2,6	1,8	-0,3	1,8
Gross domestic product, deflator	3,1	5,5	6,4	1,9
Consumer prices	3,1	6,9	5,8	2,1
Labor productivity (per hour worked)	0,9	0,5	-0,9	0,8
Employment (1000 persons)	44.980	45.572	45.929	45.872
Unemployment rate (percent)	5,7	5,3	5,6	5,3
<i>in relation to nominal GDP</i>				
Public sector net lending	-3,7	-2,7	-1,7	-0,9
Gross public debt	68,6	66,4	64,3	63,0
Current account balance	7,5	3,9	5,7	5,5

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

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

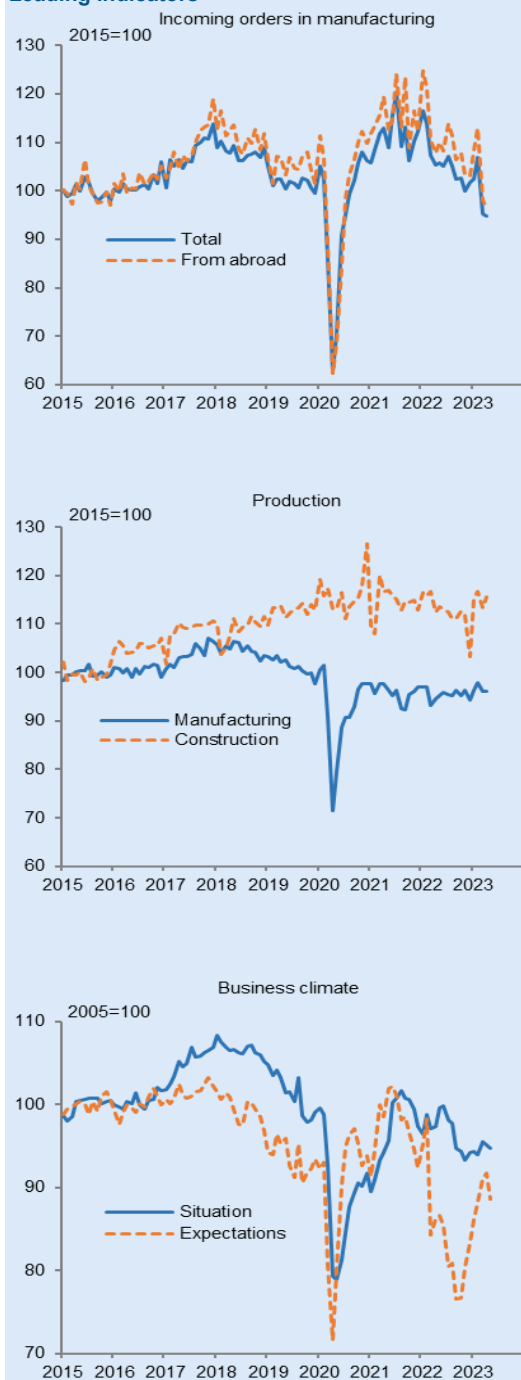
Data annex

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1. Leading indicators

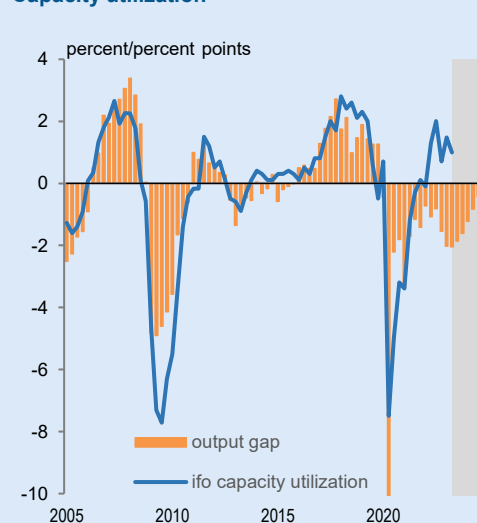
Figure 1.1:
Leading indicators



Monthly data, seasonally adjusted.

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

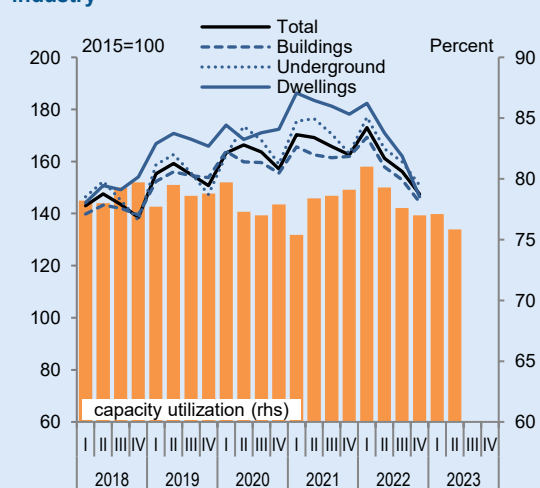
Figure 1.2:
Capacity utilization



Quarterly data: change in percent, GDP deviation from potential output, estimation of potential output from the medium-term projection spring 2023 (Boysen-Hogrefe et al. 2023), deviation of ifo capacity utilization indicator from the mean (2005 bis 2019).

Source: Federal Statistical Office, ifo institute - Leibniz Institute for Economic Research, Kiel Institute forecast.

Figure 1.3:
Order stocks and capacity utilization in construction industry

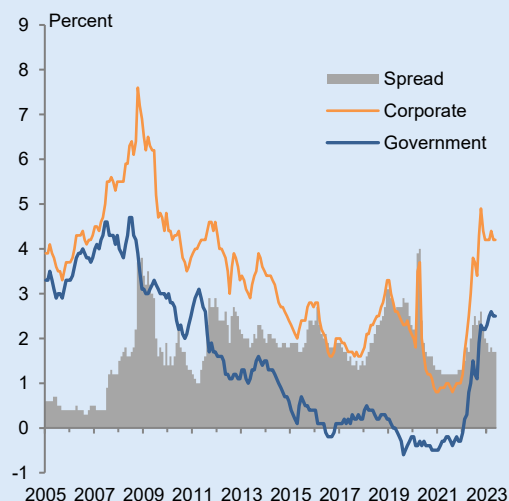


Quarterly data. Capacity utilization (deviation from normal level): seasonally adjusted; order stocks: price, seasonally and working-day adjusted.

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

2. Monetary conditions and prices

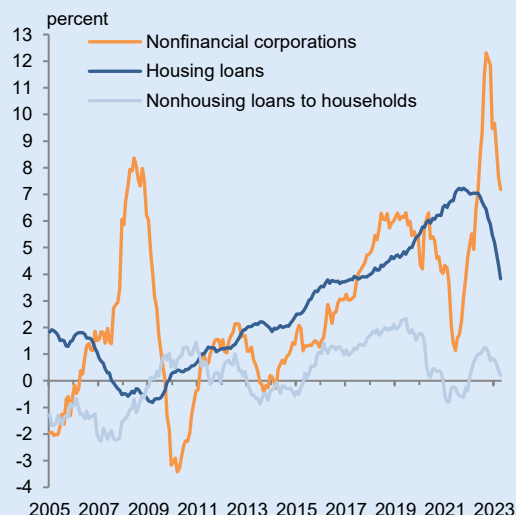
Figure 2.1:
Bond yields



Monthly data, average maturities above three years.

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

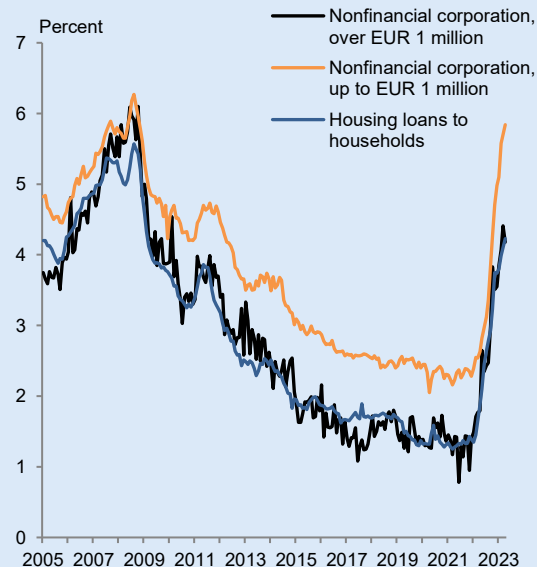
Figure 2.3:
Credit growth



Change compared to one year ago; Monthly data.

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

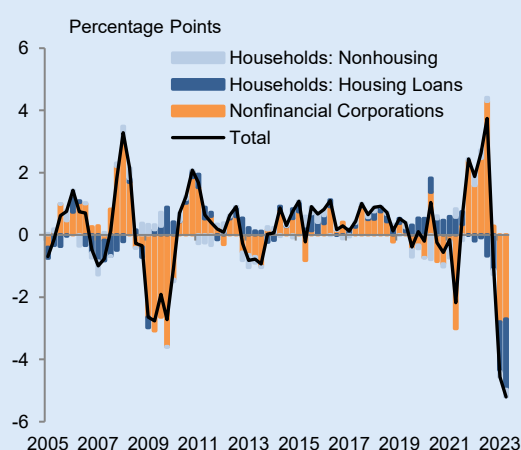
Figure 2.2:
Loan interest rates



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

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

Figure 2.4:
Credit impulse

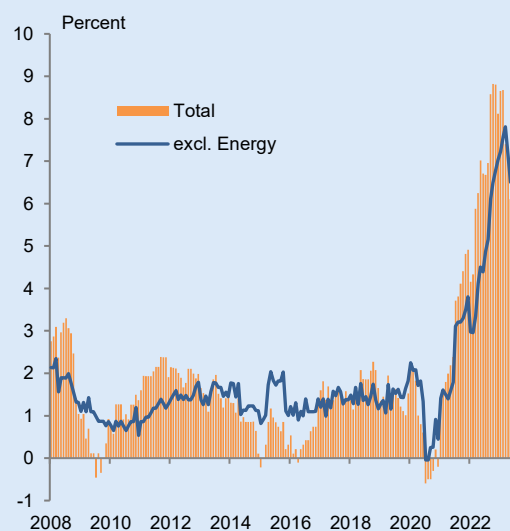


Quarterly data, most recent quarter based on first month; calculations follow Biggs et al. (2009), *Credit and economic recovery*, DNB Working Paper 218, De Nederlandsche Bank, Amsterdam.

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

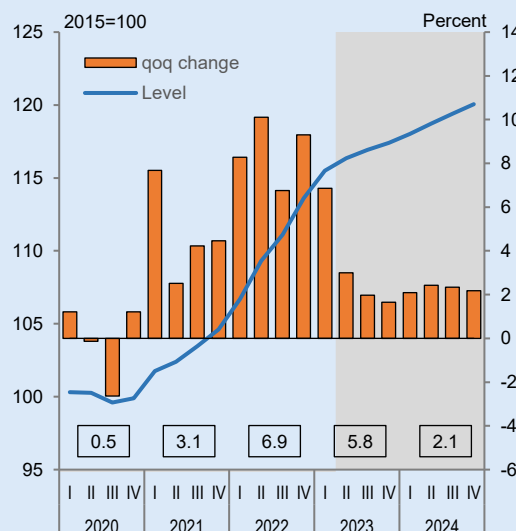
Source: Deutsche Bundesbank, *Seasonally Adjusted Business Statistics*; Kiel Institute calculations.

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.

Tabelle 2.1:
Projections and assumptions on the international environment 2021–2024

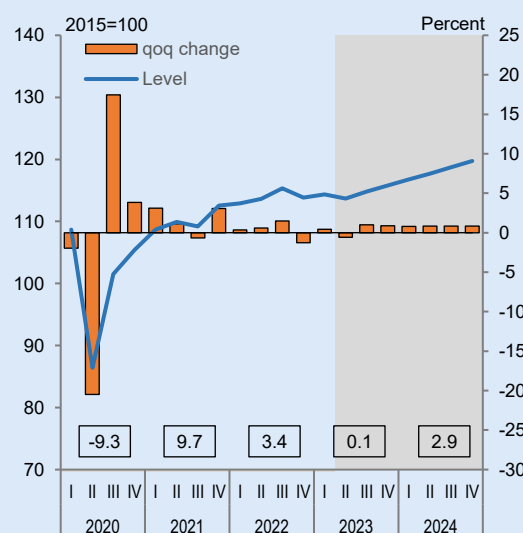
	2021				2022				2023				2024			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
ECB key interest rate	0.00	0.00	0.00	0.00	0.00	0.00	1.25	2.50	3.50	4.00	4.00	4.00	4.00	4.00	3.75	3.50
Long-term interest rate	-0.46	-0.28	-0.45	-0.30	0.10	1.05	1.30	2.12	2.31	2.35	2.40	2.50	2.50	2.50	2.50	2.50
US-dollar/euro exchange rate	1.20	1.21	1.18	1.14	1.12	1.06	1.01	1.02	1.07	1.09	1.08	1.08	1.08	1.08	1.08	1.08
Price competitiveness	91.5	91.6	91.0	89.8	89.7	88.9	87.9	89.8	89.9	89.8	89.7	89.2	88.9	88.4	87.9	87.5
Export markets	0.6	2.1	1.6	1.1	0.7	0.4	0.3	0.0	0.3	0.2	0.5	0.7	0.5	0.5	0.5	0.5
Oil price	61	69	73	79	101	114	101	89	81	79	75	74	73	73	72	71
Gas price	18	25	49	97	101	101	205	124	53	34	31	42	48	45	46	49
Electricity price	53	66	104	193	202	203	410	205	123	93	96	123	142	114	119	147

ECB key interest rate: main refinancing operations (end of quarter); 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. Gas price: Euro per MWh (TTF). Electricity price (Phelix, Baseload).

Source: ECB, *Monthly Bulletin*; Deutsche Bundesbank, *Monthly Bulletin*; IMF, *International Financial Statistics*, *Refinitiv*, *EEX*, *ENDEX*; Kiel Institute calculations; shaded: Kiel Institute forecast or assumption.

3. External trade

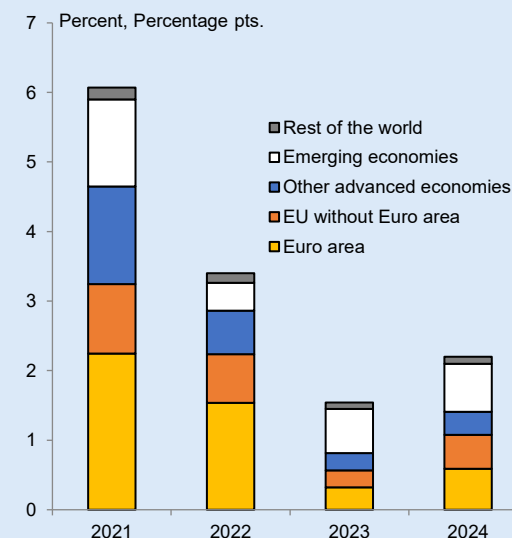
Figure 3.1:
Exports



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.

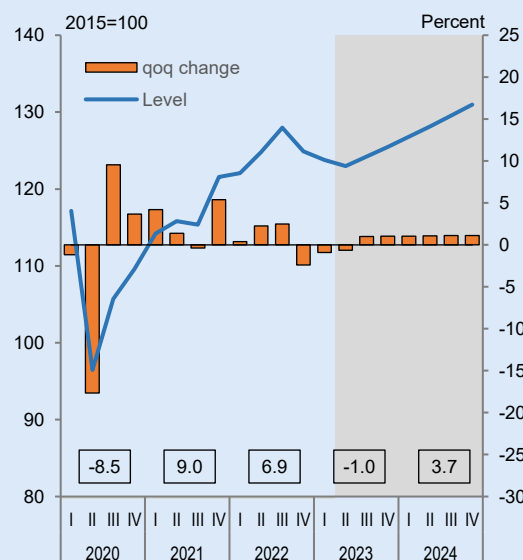
Figure 3.3:
German export markets



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.

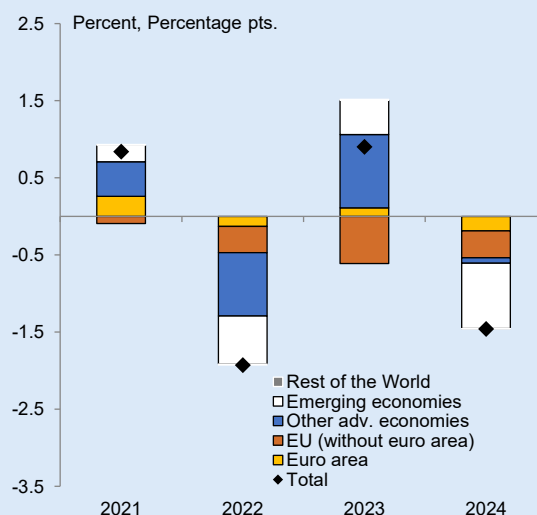
Figure 3.2:
Imports



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.

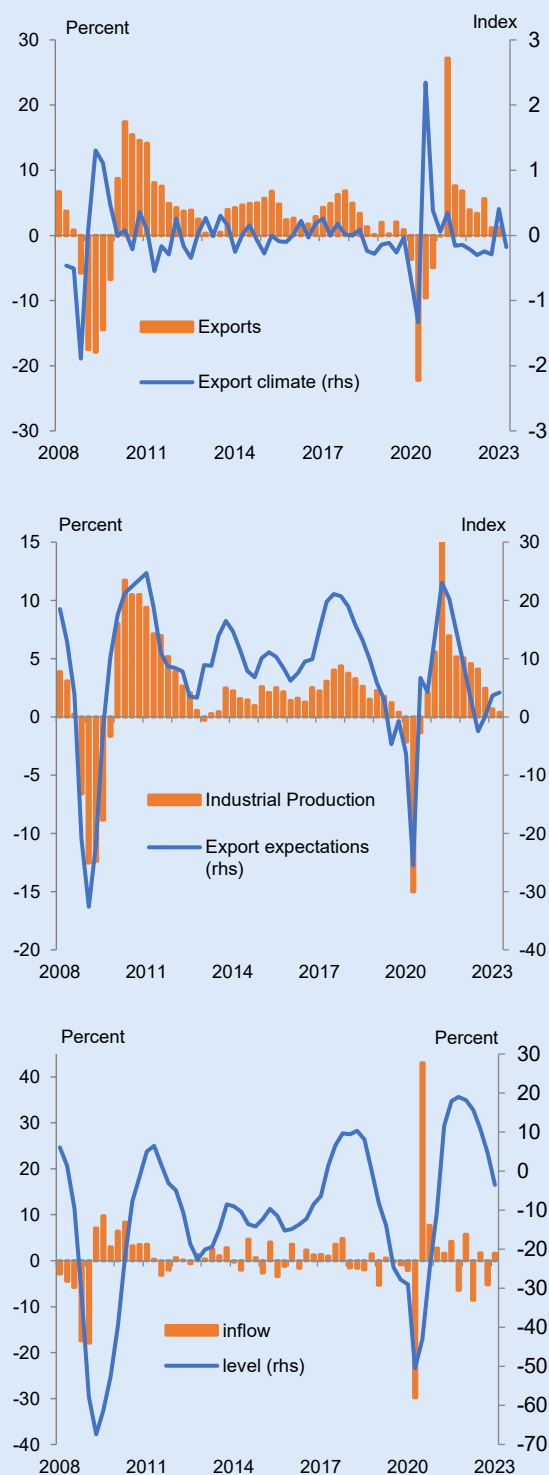
Figure 3.4:
Price competitiveness



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

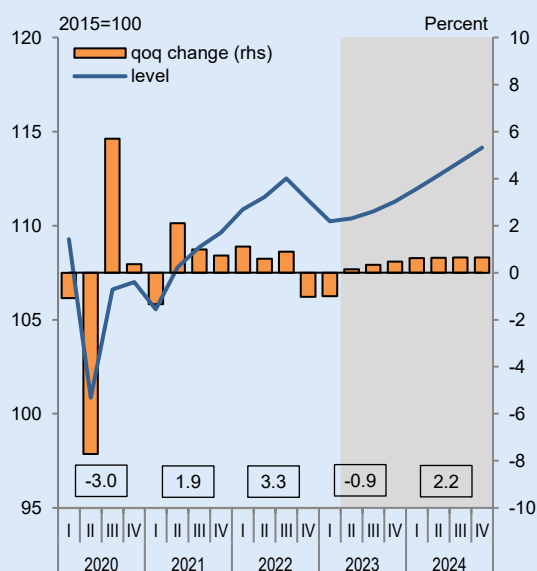


Quarterly data; exports, industrial production, volumes, change on previous year; order inflow: volumes, change on previous quarter; export expectations, foreign orders on hand: volumes; business expectations, industrial production: based on 42 countries weighted by shares of German exports.

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

4. Domestic expenditure

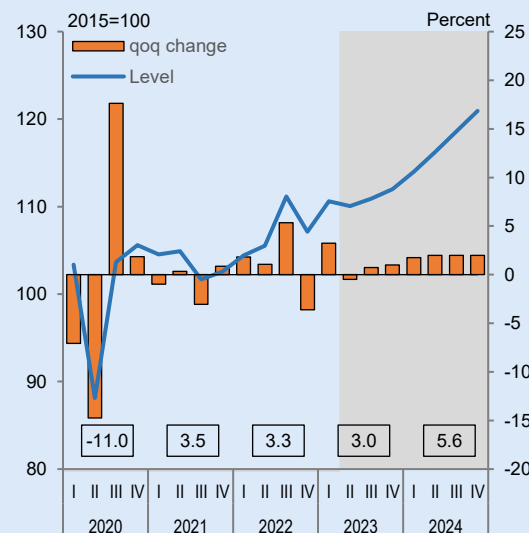
Figure 4.1:
Domestic expenditure



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.

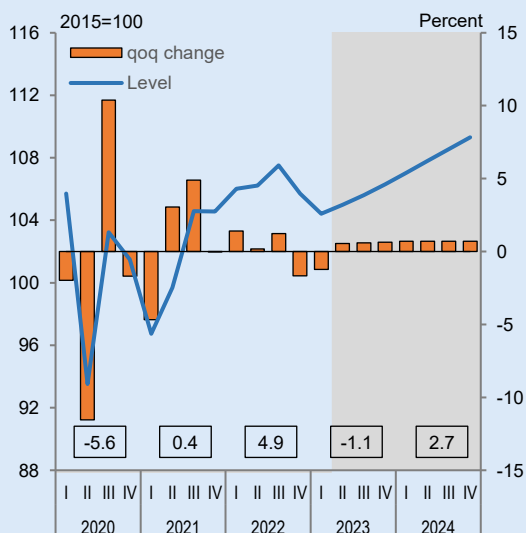
Figure 4.3:
M&E investments



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.

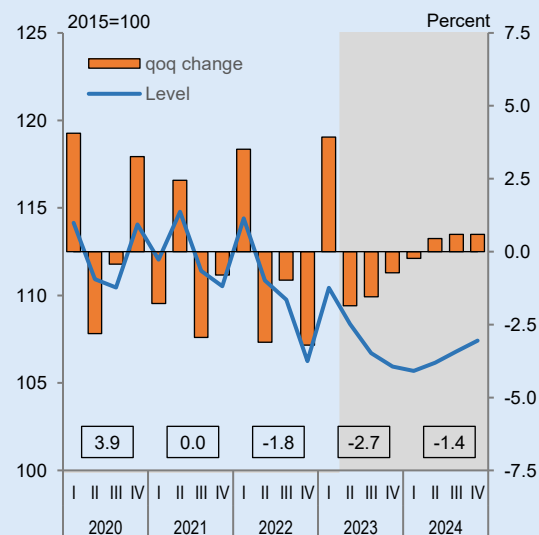
Figure 4.2:
Private consumption



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.

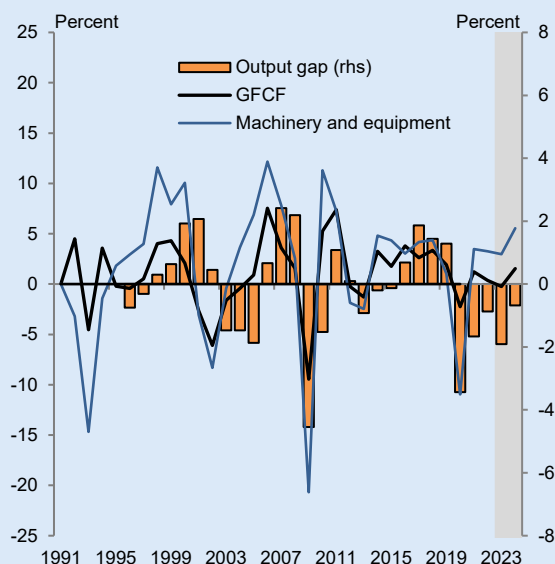
Figure 4.4:
Construction



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.

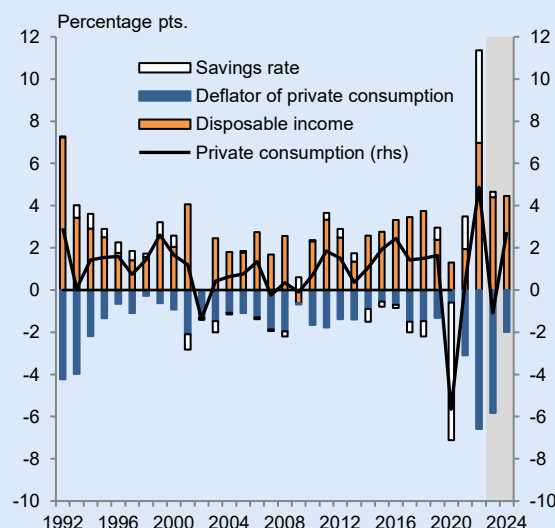
Figure 4.5:
Investment cycles



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

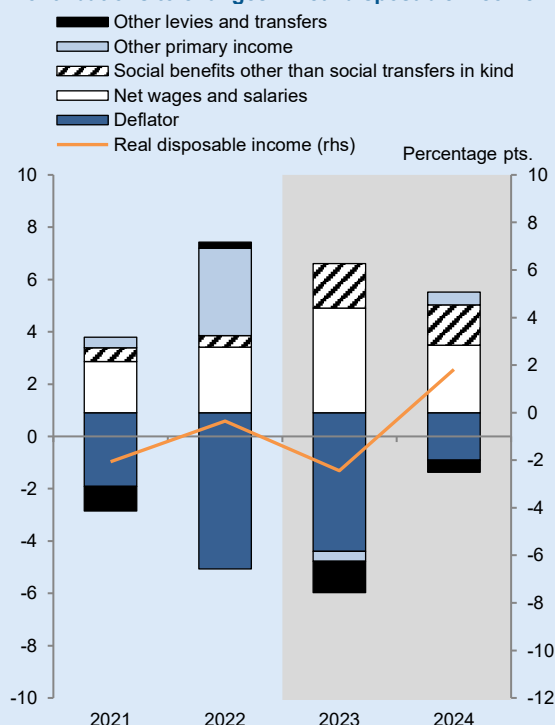
Figure 4.6:
Decomposition of growth in private consumption



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

	2021	2022	2023	2024
Total	1.2	0.4	-0.2	1.5
Corporate investment	2.0	1.7	1.5	3.7
Machinery and equipment	3.5	3.3	3.0	5.6
Construction (non-dwellings)	0.1	-1.9	-2.5	-0.4
Other	1.1	2.1	2.3	3.6
Dwellings	0.6	-2.1	-4.2	-3.0
Public (non-dwellings)	-2.9	0.2	4.3	4.1
Memorandum item:				
Construction	0.0	-1.8	-2.7	-1.4

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

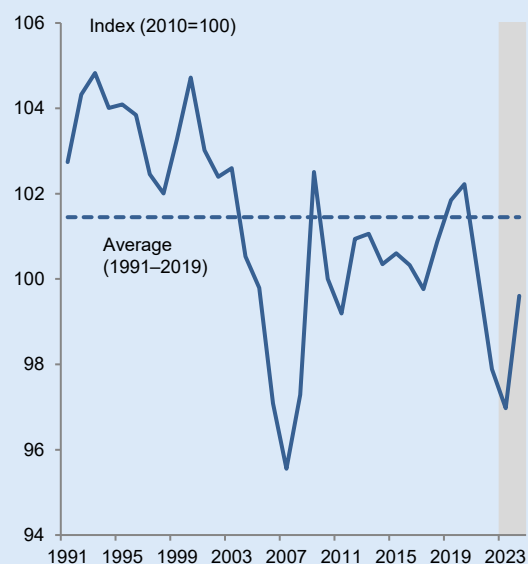
	2022				2023				2024			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Seasonally and calendar-adjusted, q-o-q change in percent											
Gross domestic product	1.0	-0.1	0.5	-0.5	-0.3	0.1	0.3	0.4	0.5	0.5	0.5	0.5
Gross value added	1.3	-0.6	1.4	-1.1	0.9	0.1	0.3	0.4	0.5	0.5	0.5	0.5
Industry excl. construction	-0.4	0.0	0.4	-0.9	1.7	-0.2	0.2	0.5	0.5	0.5	0.5	0.5
Manufacturing	-0.3	-0.1	0.8	-0.3	2.0	-0.2	0.3	0.5	0.5	0.5	0.5	0.5
Energy, Water etc.	-0.6	0.3	-2.5	-4.7	0.3	-0.5	0.1	0.2	0.3	0.3	0.3	0.3
Construction	1.3	-2.6	-1.8	-2.8	6.1	-3.0	-2.5	-1.0	-0.3	0.5	0.5	0.5
Trade, transport, accomodation, food services	2.0	-1.7	2.9	-2.6	0.1	0.3	0.9	0.9	0.8	0.8	0.8	0.8
Information and communication	1.5	0.2	1.3	0.6	0.6	1.0	0.5	0.8	1.0	1.0	1.0	1.0
Financial and insurance services	1.5	0.3	1.2	-0.3	-1.7	0.5	0.0	0.0	0.3	0.3	0.3	0.3
Real estate activities	0.9	0.1	-0.3	0.0	1.2	0.5	0.1	0.1	0.1	0.1	0.1	0.1
Business services	1.7	0.5	-0.1	0.0	-0.4	1.0	0.3	0.4	0.5	0.5	0.5	0.5
Public services, education, health	2.4	-1.4	3.1	-0.3	0.3	-0.3	0.4	0.4	0.5	0.5	0.5	0.5
Other services	6.4	0.3	7.0	-6.6	1.2	1.0	1.0	0.8	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 6.1:
Wages and productivity

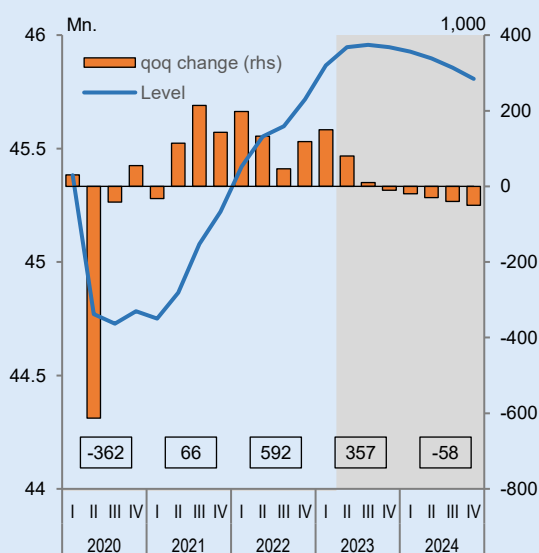
	2021	2022	2023	2024
<i>Per hour</i>				
Negotiated wages	1.5	2.7	5.6	5.1
Gross wages and salaries	1.6	4.3	6.5	4.3
Wage drift	0.1	1.6	0.8	-0.9
Compensation of employees	1.3	3.9	6.0	4.2
Labor productivity	0.9	0.5	-0.9	0.8
Unit labor costs	0.7	3.3	7.1	3.4
Unit labor costs (real)	-2.3	-2.1	0.6	1.4
<i>Per capita</i>				
Negotiated wages	1.5	2.6	5.6	5.1
Gross wages and salaries	3.3	4.1	6.3	5.7
Wage drift	1.8	1.5	0.7	0.6
Compensation of employees	3.1	3.7	6.0	5.6
Labor productivity	2.5	0.5	-1.1	2.0
Unit labor costs	0.6	3.2	7.2	3.6
Unit labor costs (real)	-2.4	-2.2	0.7	1.6

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

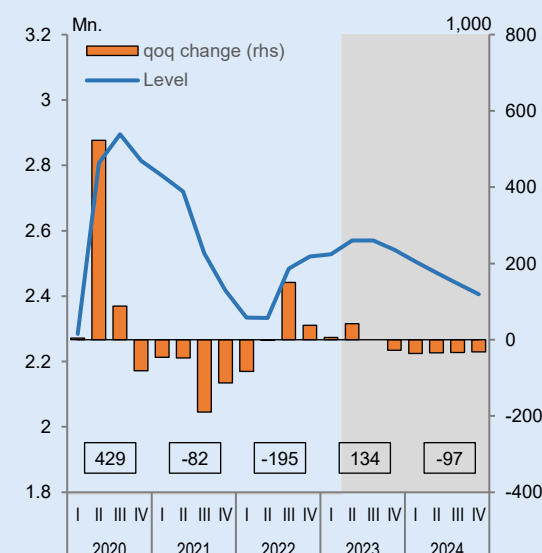
Figure 7.1:
Employment



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 (1,000 persons)

	2020	2021	2022	2023	2024
Hours worked (domestic concept, mn. hours)	59,249	60,281	61,078	61,418	62,055
Persons in employment (domestic concept)	44,915	44,980	45,572	45,929	45,872
Self-employed	4,055	3,958	3,908	3,875	3,835
Employees (domestic concept)	40,859	41,022	41,665	42,055	42,037
Employees subject to social security contributions	33,579	33,897	34,508	34,830	34,878
Minijobs	4,290	4,101	4,125	4,182	4,111
Net commuting	94	114	139	140	141
Persons in employment (national concept)	44,821	44,866	45,433	45,789	45,731
Employees (national concept)	40,766	40,908	41,526	41,915	41,897
Unemployed persons (registered)	2,695	2,613	2,418	2,552	2,455
Unemployment rate (registered; percent)	5.9	5.7	5.3	5.6	5.3
Unemployment rate (ILO; percent)	3.4	3.3	2.9	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 Institute forecast.

8. Public finances

Table 8.1

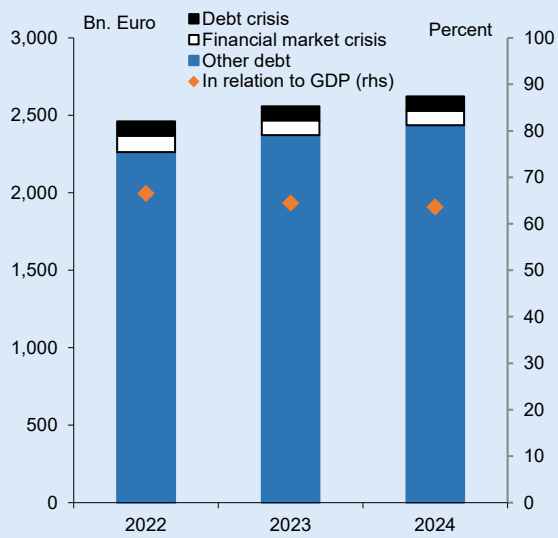
Revenues and expenditures of the general government (bn. Euro)

	2020	2021	2022	2023	2024
Revenues	1,569.1	1,711.7	1,820.1	1,889.6	1,989.5
→relative to GDP	46.1	47.5	47.0	46.1	46.7
Taxes	774.5	877.8	947.3	959.2	1,003.9
→relative to GDP	22.7	24.4	24.5	23.4	23.6
Social contributions	608.1	633.7	666.3	712.5	756.8
→relative to GDP	17.9	17.6	17.2	17.4	17.8
Other revenues	186.5	200.3	206.5	217.9	228.8
→relative to GDP	5.5	5.6	5.3	5.3	5.4
Expenditures	1,716.6	1,846.0	1,926.2	1,959.7	2,026.7
→relative to GDP	50.4	51.3	49.8	47.8	47.6
Compensation of employees	284.3	294.4	307.6	318.0	334.4
Intermediate consumption	209.4	227.2	238.5	230.7	241.0
Social transfers in kind	304.9	330.0	354.0	353.8	369.1
Gross capital formation	93.2	93.4	103.1	113.2	127.0
Capital transfers	21.5	20.8	26.2	32.0	36.3
Social benefits	600.0	610.9	619.3	659.4	697.6
Subsidies	73.4	111.6	70.8	74.1	39.1
Other current transfers	82.6	90.4	114.5	100.7	101.1
Other capital transfers and investment grants	48.1	68.1	92.9	78.5	81.9
Other expenditures	-1.2	-1.2	-1.0	-1.0	-1.0
Net lending/ net borrowing	-147.6	-134.3	-106.0	-70.1	-37.2
→relative to GDP	-4.3	-3.7	-2.7	-1.7	-0.9
Revenues of central, state, and local governments	1,003.8	1,116.4	1,197.6	1,211.9	1,268.6
Net of transfers from social security funds	993.2	1,109.8	1,186.8	1,210.6	1,267.4
Transfers from social security funds	10.6	6.6	10.8	1.3	1.2
Expenditures of central, state, and local governments	1,116.5	1,255.0	1,312.0	1,307.2	1,327.3
Net of transfers to social security funds	975.2	1,097.3	1,133.7	1,151.0	1,177.0
Transfers to social security funds	141.4	157.7	178.3	156.2	150.3
Net lending/ net borrowing central, state, and local governments	-112.7	-138.5	-114.4	-95.3	-58.7
Revenues of social security funds	717.9	783.5	811.6	837.7	883.0
Net of transfers from central, state, and local governments	576.6	625.8	633.3	681.5	732.8
Expenditures of social security funds	752.7	779.2	803.2	811.7	853.3
Net of transfers to central, state, and local governments	742.1	772.6	792.5	810.4	852.1
Net lending/ net borrowing social security funds	-34.8	4.3	8.4	26.0	29.7

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

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

Figure 8.1:
Government gross debt

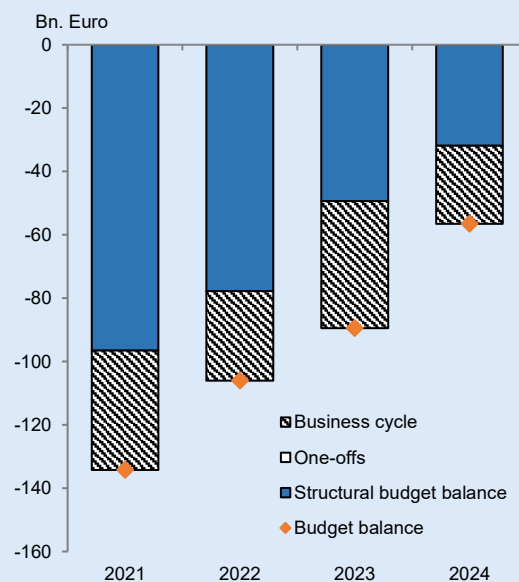


Debt crisis: Liabilities due to first Greece adjustment programme, deposits at the ESM, guarantees for EFSF credits.

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

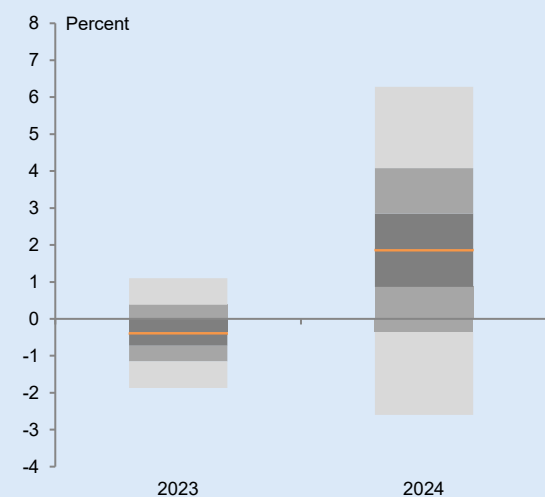
Table 9.1:
Quarterly data

	2022				2023				2024			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	1.0	-0.1	0.5	-0.5	-0.3	0.1	0.3	0.4	0.5	0.5	0.5	0.5
Private consumption	1.4	0.2	1.2	-1.7	-1.2	0.5	0.6	0.6	0.7	0.7	0.7	0.7
Government consumption	0.8	0.4	-1.1	0.2	-4.9	1.8	0.7	0.5	0.4	0.2	0.3	0.2
Machinery and equipment	1.8	1.1	5.4	-3.6	3.2	-0.5	0.7	1.0	1.8	2.0	2.0	2.0
Constructions	3.5	-3.1	-1.0	-3.2	3.9	-1.9	-1.5	-0.7	-0.2	0.4	0.6	0.6
Other investment	-0.1	0.8	1.0	0.7	0.1	0.5	0.7	0.7	1.0	1.0	1.0	1.0
Change in inventories	-0.4	0.7	0.2	0.4	0.0	-0.3	0.0	0.0	0.0	0.0	0.0	0.0
Domestic expenditure	1.1	0.6	0.9	-1.0	-1.0	0.1	0.3	0.5	0.6	0.6	0.6	0.6
Exports	0.3	0.6	1.5	-1.3	0.4	-0.6	1.0	0.9	0.8	0.8	0.9	0.9
Imports	0.4	2.3	2.5	-2.4	-0.9	-0.6	1.0	1.0	1.0	1.1	1.1	1.1
Net exports	0.0	-0.7	-0.4	0.5	0.7	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1
Employment (domestic)	45,420	45,553	45,599	45,717	45,867	45,947	45,957	45,947	45,927	45,897	45,857	45,807
Unemployment (registered)	2,335	2,333	2,484	2,522	2,528	2,570	2,570	2,542	2,506	2,471	2,438	2,406

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.

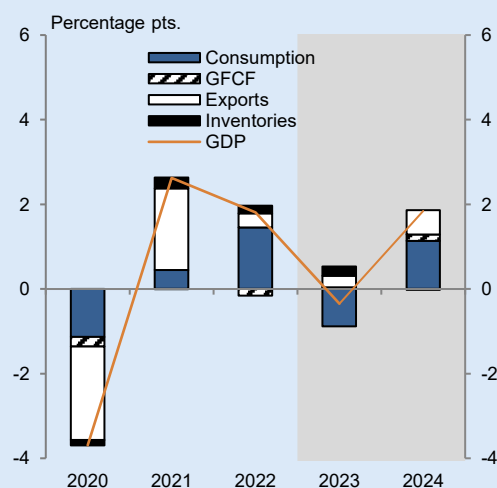
Figure 9.1:
Forecast intervals for GDP growth



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 1994–2022.

Source: Kiel Institute 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 10:
The German economy

	2021	2021	2022	2023	2024
	Bn. Euro	Change over previous year in percent			
Use of gross domestic product, price-adjusted					
GDP		2.6	1.8	-0.3	1.8
Private consumption expenditure		0.4	4.9	-1.1	2.7
Public consumption expenditure		3.8	1.2	-3.5	1.9
Total fixed investment		1.2	0.4	-0.2	1.5
Machinery and equipment		3.5	3.3	3.0	5.6
Construction		0.0	-1.8	-2.7	-1.4
Other equipment		1.1	2.1	2.3	3.6
Changes in stocks		0.5	0.4	0.5	0.0
Domestic Demand		1.9	3.3	-0.9	2.2
Exports		9.7	3.4	0.1	2.9
Imports		9.0	6.9	-1.0	3.7
Net exports		0.8	-1.3	0.6	-0.2
Use of gross domestic product at current prices					
GDP	3,601.8	5.8	7.4	6.1	3.8
Private consumption expenditure	1,773.8	3.5	11.8	4.7	4.8
Public consumption expenditure	797.5	6.6	6.5	0.5	4.5
Total fixed investment	783.8	6.5	11.3	5.6	2.6
Machinery and equipment	229.4	5.5	10.6	8.9	7.4
Construction	416.7	8.3	13.9	4.2	-1.0
Other equipment	137.7	2.9	4.6	4.5	5.7
Changes in stocks (€ bn.)		55.1	89.5	102.3	103.1
Domestic Demand	3,410.2	6.1	11.3	4.2	4.1
Exports	1,693.9	15.6	15.4	0.5	4.0
Imports	1,502.4	18.0	25.0	-3.5	4.6
Net exports (€ bn.)		191.6	75.9	152.4	147.0
Gross national income	3,729.5	6.4	7.3	6.1	3.8
Deflators					
GDP		3.1	5.5	6.4	1.9
Private consumption expenditure		3.1	6.6	5.8	2.0
Public consumption expenditure		2.7	5.2	4.1	2.6
Investment in machinery and equipment		1.9	7.1	5.8	1.7
Investment in construction		8.3	16.0	7.1	0.3
Investment in other equipment		1.8	2.4	2.1	2.0
Exports		5.4	11.6	0.4	1.0
Imports		8.3	17.0	-2.5	0.9
Addendum: Consumer prices		3.1	6.9	5.8	2.1
Income distribution					
Net national income (factor costs)	2,743.4	6.7	4.3	6.5	2.9
Compensation of employees	1,918.0	3.5	5.3	6.9	5.5
in percent of national income		69.9	70.6	70.9	72.8
Property and entrepreneurial income	825.4	15.0	1.8	5.4	-3.6
Disposable income	2,031.2	2.1	7.2	4.5	4.6
Saving rate		15.1	11.3	11.1	10.8
Wages and salaries	1,570.6	3.7	5.7	7.3	5.6
Wage per hour		1.6	4.3	6.5	4.3
Unit labor costs		0.7	3.3	7.1	3.4
Productivity per hour		0.9	0.5	-0.9	0.8
Unemployment (1,000)		2,613.5	2,418.1	2,552.0	2,454.7
Rate of unemployment (percent)		5.7	5.3	5.6	5.3
Total employment (1,000)		44,980.0	45,572.3	45,929.3	45,871.8
Public sector budget balance					
Public sector budget balance (€ bn.)		-134.3	-106.0	-70.1	-37.2
Public sector budget balance (in percent of GDP)		-3.7	-2.7	-1.7	-0.9
Public debts (in percent)		68.6	66.4	64.3	63.0
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
1. Production									
Change over the same period of the preceding year in %									
Persons in employment	1.3	0.8	- 0.1	1.5	1.1	0.9	0.6	0.0	- 0.3
Hours worked	1.3	0.6	1.0	1.9	0.7	0.5	0.6	0.9	1.2
Hours worked by person in employment	0.0	- 0.2	1.2	0.4	- 0.4	- 0.5	0.0	0.9	1.4
Labor productivity ¹	0.5	- 0.9	0.8	1.0	0.0	- 0.9	- 0.9	0.6	1.0
Gross domestic product, price-adjusted	1.8	- 0.3	1.8	2.9	0.8	- 0.5	- 0.2	1.5	2.2
2. Use of gross domestic product at current prices									
a) EUR bn.									
Consumption expenditure	2 832.0	2 928.9	3 066.7	1 370.1	1 461.9	1 424.3	1 504.6	1 493.9	1 572.9
Private households ²	1 982.7	2 075.3	2 174.6	955.6	1 027.0	1 012.0	1 063.3	1 058.5	1 116.1
Government	849.3	853.7	892.1	414.5	434.9	412.3	441.4	435.4	456.8
Gross fixed capital formation	872.4	921.4	945.2	418.3	454.2	453.3	468.1	453.2	492.0
Machinery and equipment	253.7	276.3	296.7	118.0	135.7	132.6	143.7	139.9	156.8
Construction	474.7	494.6	489.4	231.7	243.1	249.6	245.0	238.5	251.0
Other products	144.0	150.5	159.1	68.6	75.4	71.1	79.4	74.9	84.2
Changes in inventories ³	89.5	102.3	103.1	47.3	42.2	51.0	51.2	56.8	46.3
Domestic expenditure	3 794.0	3 952.6	4 115.0	1 835.7	1 958.3	1 928.7	2 023.9	2 003.9	2 111.1
Net exports	75.9	152.4	147.0	55.2	20.7	86.0	66.4	86.8	60.2
Exports	1 954.6	1 965.2	2 042.9	949.3	1 005.3	975.6	989.6	1 007.1	1 035.7
Imports	1 878.7	1 812.7	1 895.9	894.1	984.6	889.6	923.2	920.3	975.5
Gross domestic product	3 869.9	4 105.0	4 262.0	1 890.9	1 979.0	2 014.7	2 090.4	2 090.7	2 171.3
b) Change over the same period of the preceding year in %									
Consumption expenditure	10.1	3.4	4.7	12.2	8.3	4.0	2.9	4.9	4.5
Private households ²	11.8	4.7	4.8	14.2	9.6	5.9	3.5	4.6	5.0
Government	6.5	0.5	4.5	7.7	5.4	- 0.5	1.5	5.6	3.5
Gross fixed capital formation	11.3	5.6	2.6	11.8	10.9	8.4	3.1	0.0	5.1
Machinery and equipment	10.6	8.9	7.4	6.9	14.0	12.4	5.9	5.5	9.1
Construction	13.9	4.2	- 1.0	16.6	11.5	7.7	0.8	- 4.5	2.5
Other products	4.6	4.5	5.7	5.3	4.0	3.7	5.3	5.3	6.1
Domestic expenditure	11.3	4.2	4.1	12.9	9.8	5.1	3.4	3.9	4.3
Exports	15.4	0.5	4.0	16.8	14.1	2.8	- 1.6	3.2	4.7
Imports	25.0	- 3.5	4.6	27.9	22.6	- 0.5	- 6.2	3.5	5.7
Gross domestic product	7.4	6.1	3.8	8.7	6.3	6.5	5.6	3.8	3.9
3. Use of gross domestic product, price-adjusted (chain-linked, 2010=100)									
a) EUR bn.									
Consumption expenditure	2 420.1	2 376.4	2 435.5	1 196.1	1 223.9	1 167.7	1 208.7	1 197.6	1 237.9
Private households ²	1 706.8	1 688.0	1 734.2	839.0	867.7	827.8	860.3	848.8	885.5
Government	712.0	687.4	700.3	356.2	355.7	339.4	347.9	348.3	351.9
Gross fixed capital formation	675.0	673.3	683.7	330.1	345.0	330.8	342.5	329.6	354.0
Machinery and equipment	222.9	229.5	242.2	105.1	117.7	110.3	119.1	114.3	127.9
Construction	322.8	313.9	309.7	162.6	160.2	157.6	156.3	152.0	157.6
Other products	129.2	132.2	137.0	61.4	67.9	62.9	69.3	64.9	72.1
Domestic expenditure	3 123.2	3 093.6	3 160.3	1 537.1	1 586.0	1 524.4	1 569.3	1 551.1	1 609.3
Exports	1 625.5	1 627.7	1 675.2	805.9	819.6	809.6	818.1	829.1	846.2
Imports	1 492.0	1 476.4	1 530.9	726.1	765.9	725.4	751.1	747.1	783.7
Gross domestic product	3 261.8	3 250.5	3 310.4	1 618.9	1 643.0	1 611.6	1 638.9	1 635.4	1 675.0
b) Change over the same period of the preceding year in %									
Consumption expenditure	3.7	- 1.8	2.5	6.3	1.3	- 2.4	- 1.2	2.6	2.4
Private households ²	4.9	- 1.1	2.7	8.3	1.8	- 1.3	- 0.9	2.5	2.9
Government	1.2	- 3.5	1.9	2.2	0.2	- 4.7	- 2.2	2.6	1.1
Gross fixed capital formation	0.4	- 0.3	1.5	0.4	0.3	0.2	- 0.7	- 0.4	3.3
Machinery and equipment	3.3	3.0	5.6	0.7	5.7	5.0	1.2	3.6	7.4
Construction	- 1.8	- 2.7	- 1.4	- 0.2	- 3.4	- 3.1	- 2.4	- 3.6	0.9
Other products	2.1	2.3	3.6	1.7	2.5	2.5	2.2	3.3	4.0
Domestic expenditure	3.3	- 0.9	2.2	4.4	2.2	- 0.8	- 1.1	1.8	2.5
Exports	3.4	0.1	2.9	3.9	2.8	0.5	- 0.2	2.4	3.4
Imports	6.9	- 1.0	3.7	7.5	6.3	- 0.1	- 1.9	3.0	4.4
Gross domestic product	1.8	- 0.3	1.8	2.9	0.8	- 0.5	- 0.2	1.5	2.2

National Accounts (cont.) 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 ²	6.6	5.8	2.0	5.5	7.7	7.3	4.4	2.0	2.0
Government consumption	5.2	4.1	2.6	5.4	5.2	4.4	3.8	2.9	2.3
Gross fixed capital formation	10.9	5.9	1.0	11.3	10.6	8.1	3.8	0.3	1.7
Machinery and equipment	7.1	5.8	1.7	6.2	7.8	7.1	4.7	1.8	1.6
Construction	16.0	7.1	0.3	16.8	15.4	11.1	3.3	-0.9	1.6
Exports	11.6	0.4	1.0	12.4	10.9	2.3	-1.4	0.8	1.2
Imports	17.0	-2.5	0.9	19.0	15.3	-0.4	-4.4	0.4	1.3
Gross domestic product	5.5	6.4	1.9	5.6	5.5	7.0	5.9	2.3	1.6
5. National income a) EUR bn.									
Primary income of private households ²	2 642.3	2 773.4	2 905.5	1 292.8	1 349.5	1 360.7	1 412.7	1 422.0	1 483.5
Employers social contributions	360.1	379.4	399.1	174.3	185.8	182.4	197.0	191.8	207.3
Gross wages and salaries	1 660.4	1 781.4	1 881.6	788.0	872.4	846.5	934.9	891.8	989.8
Other primary income ⁴	621.9	612.6	624.9	330.6	291.3	331.8	280.8	338.5	286.4
Primary income of other sectors	565.9	621.6	635.3	263.1	302.8	286.2	335.4	297.2	338.1
Net national income	3 208.2	3 395.0	3 540.8	1 556.0	1 652.3	1 646.9	1 748.2	1 719.2	1 821.6
Consumption of fixed capital	792.6	848.7	865.6	387.6	405.0	424.5	424.2	430.8	434.8
Gross national income	4 000.8	4 243.7	4 406.4	1 943.6	2 057.3	2 071.4	2 172.3	2 150.0	2 256.4
memorandum item:									
Net national income (factor costs)	2 860.5	3 046.1	3 134.2	1 377.2	1 483.4	1 484.3	1 561.8	1 519.3	1 614.9
Property and entrepreneurial income	840.1	885.3	853.5	414.9	425.2	455.4	429.9	435.8	417.8
Compensation of employees	2 020.5	2 160.8	2 280.7	962.3	1 058.2	1 028.9	1 131.9	1 083.6	1 197.1
b) Change over the same period of the preceding year in %									
Primary income of private households ²	7.2	5.0	4.8	8.0	6.4	5.2	4.7	4.5	5.0
Employers social contributions	3.6	5.4	5.2	3.6	3.7	4.7	6.0	5.1	5.2
Gross wages and salaries	5.7	7.3	5.6	6.6	4.9	7.4	7.2	5.4	5.9
... per employee	4.1	6.3	5.7	4.7	3.6	6.3	6.3	5.3	6.1
Other primary income ⁴	13.7	-1.5	2.0	14.3	13.0	0.4	-3.6	2.0	2.0
Primary income of other sectors	1.1	9.8	2.2	5.3	-2.2	8.8	10.8	3.8	0.8
Net national income	6.1	5.8	4.3	7.6	4.7	5.8	5.8	4.4	4.2
Consumption of fixed capital	12.4	7.1	2.0	12.6	12.3	9.5	4.7	1.5	2.5
Gross national income	7.3	6.1	3.8	8.5	6.1	6.6	5.6	3.8	3.9
memorandum item:									
Net national income (factor costs)	4.3	6.5	2.9	4.7	3.9	7.8	5.3	2.4	3.4
Property and entrepreneurial income	1.8	5.4	-3.6	1.6	2.0	9.8	1.1	-4.3	-2.8
Compensation of employees	5.3	6.9	5.5	6.0	4.7	6.9	7.0	5.3	5.8
6. Disposable income of private households ² a) EUR bn.									
Mass income	1 657.5	1 784.9	1 879.7	789.6	867.9	855.2	929.6	897.2	982.5
Net wages and salaries	1 118.7	1 214.4	1 278.8	523.8	594.9	572.1	642.3	600.2	678.6
Social benefits other than social transfers in kind	686.1	726.7	765.4	338.0	348.1	360.1	366.6	377.7	387.7
less: Levies on social benefits, taxes on consumption	147.3	156.3	164.5	72.2	75.1	77.0	79.3	80.6	83.9
Other primary income ⁴	621.9	612.6	624.9	330.6	291.3	331.8	280.8	338.5	286.4
Other transfers received (net) ⁵	-102.7	-122.4	-125.9	-58.0	-44.6	-58.0	-64.3	-61.2	-64.7
Disposable income	2 176.8	2 275.1	2 378.7	1 062.1	1 114.6	1 129.0	1 146.1	1 174.5	1 204.3
Change in pension entitlements	59.0	59.0	59.6	28.6	30.4	28.5	30.5	28.9	30.6
Consumption expenditure	1 982.7	2 075.3	2 174.6	955.6	1 027.0	1 012.0	1 063.3	1 058.5	1 116.1
Saving	253.1	258.9	263.7	135.1	117.9	145.5	113.3	144.9	118.8
Saving ratio (%) ⁶	11.3	11.1	10.8	12.4	10.3	12.6	9.6	12.0	9.6
b) Change over the same period of the preceding year in %									
Mass income	3.9	7.7	5.3	2.8	4.9	8.3	7.1	4.9	5.7
Net wages and salaries	5.3	8.6	5.3	5.8	4.8	9.2	8.0	4.9	5.7
Social benefits other than social transfers in kind	1.4	5.9	5.3	-1.9	4.9	6.5	5.3	4.9	5.8
less: Levies on social benefits, taxes on consumption	2.5	6.1	5.3	0.5	4.5	6.6	5.6	4.8	5.8
Other primary income ⁴	13.7	-1.5	2.0	14.3	13.0	0.4	-3.6	2.0	2.0
Disposable income	7.2	4.5	4.6	5.3	9.0	6.3	2.8	4.0	5.1
Consumption expenditure	11.8	4.7	4.8	14.2	9.6	5.9	3.5	4.6	5.0
Saving	-19.9	2.3	1.9	-32.6	2.0	7.7	-3.9	-0.4	4.8

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 ⁷									
a) EUR bn.									
Revenue									
Taxes	947.3	959.2	1 003.9	468.1	479.2	469.4	489.7	493.6	510.3
Social contributions	666.3	712.5	756.8	321.9	344.4	343.0	369.5	364.1	392.7
Property income	16.4	17.9	18.6	8.9	7.5	10.0	7.9	10.4	8.3
Other current transfers	28.2	29.4	30.8	12.1	16.1	12.6	16.8	13.2	17.6
Capital transfers	18.9	19.2	20.4	9.0	9.9	8.8	10.5	9.3	11.0
Sales	142.8	151.2	158.8	66.6	76.2	70.3	80.9	73.7	85.1
Other subsidies	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Total	1 820.1	1 889.6	1 989.5	886.6	933.5	914.2	975.4	964.4	1 025.1
Expenditure									
Intermediate consumption ⁸	592.8	584.9	610.4	287.3	305.6	278.5	306.4	295.1	315.3
Compensation of employees	307.6	318.0	334.4	149.1	158.4	153.4	164.6	160.7	173.6
Property income (interest)	26.2	32.0	36.3	12.7	13.5	14.3	17.7	16.4	19.8
Subsidies	70.8	74.1	39.1	29.0	41.8	45.3	28.8	20.3	18.8
Social benefits	619.3	659.4	697.6	304.7	314.6	326.6	332.9	343.9	353.7
Other current transfers	114.5	100.7	101.1	44.3	70.2	47.0	53.7	46.8	54.4
Capital transfers	92.9	78.5	81.9	22.8	70.1	28.9	49.7	30.1	51.8
Gross capital formation	103.1	113.2	127.0	43.8	59.3	47.9	65.3	53.5	73.5
Net acquisitions of non-produced non-financial assets	- 1.0	- 1.0	- 1.0	- 0.6	- 0.4	- 0.6	- 0.4	- 0.6	- 0.4
Total	1 926.2	1 959.7	2 026.7	893.1	1 033.1	941.1	1 018.6	966.2	1 060.5
Net lending	- 106.0	- 70.1	- 37.2	- 6.5	- 99.6	- 27.0	- 43.2	- 1.8	- 35.4
b) Change over the same period of the preceding year in %									
Revenue									
Taxes	7.9	1.3	4.7	12.5	3.8	0.3	2.2	5.1	4.2
Social contributions	5.1	6.9	6.2	5.2	5.1	6.6	7.3	6.1	6.3
Property income	8.3	8.8	4.2	9.5	6.9	12.5	4.5	3.7	4.8
Other current transfers	- 6.2	4.1	4.9	- 18.7	6.1	3.6	4.6	5.5	4.4
Capital transfers	- 6.9	1.7	6.0	6.4	- 16.4	- 2.5	5.5	6.7	5.4
Sales	6.1	5.9	5.0	8.0	4.5	5.5	6.2	4.8	5.2
Other subsidies	34.8	- 2.6	0.0	49.1	25.6	- 6.1	0.0	0.0	0.0
Total	6.3	3.8	5.3	8.8	4.1	3.1	4.5	5.5	5.1
Expenditure									
Intermediate consumption ⁸	6.3	- 1.3	4.4	8.0	4.8	- 3.1	0.3	6.0	2.9
Compensation of employees	4.5	3.4	5.2	5.4	3.6	2.8	3.9	4.8	5.5
Property income (interest)	26.0	22.2	13.3	14.5	39.1	12.7	31.0	15.2	11.8
Subsidies	- 36.6	4.6	- 47.2	- 49.4	- 23.0	56.0	- 31.1	- 55.1	- 34.7
Social benefits	1.4	6.5	5.8	- 2.3	5.2	7.2	5.8	5.3	6.3
Other current transfers	26.6	- 12.1	0.5	2.1	49.3	6.0	- 23.5	- 0.5	1.3
Capital transfers	36.4	- 15.5	4.2	11.4	47.2	26.9	- 29.2	4.2	4.3
Gross capital formation	10.4	9.8	12.2	10.0	10.8	9.4	10.1	11.6	12.7
Net acquisitions of non-produced non-financial assets	- 17.7	- 1.2	0.0	- 6.1	- 29.4	- 2.1	0.0	0.0	0.0
Total	4.3	1.7	3.4	0.2	8.2	5.4	- 1.4	2.7	4.1
¹ Price-adjusted gross domestic product per hour worked. ² Incl. nonprofit institutions serving households. ³ Incl. acquisitions less disposals of valuables. ⁴ Operating surplus/mixed income, net property income ⁵ Received less paid other current transfers. ⁶ Savings in percent of disposable income (incl. change in pension entitlements). ⁷ Central, regional, local and social security funds. ⁸ Incl. social transfers in kind and other production taxes.									
Source: Federal Statistical Office, <i>Fachserie 18: National Accounts</i> ; Kiel Institute calculations and forecasts.									