


# KIEL INSTITUTE **ECONOMIC OUTLOOK**

## **German Economy** Autumn 2023

Finalized September 11, 2023



© Daniel Wolcke / ifw Kiel

**No. 107 (2023 | Q3)**

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

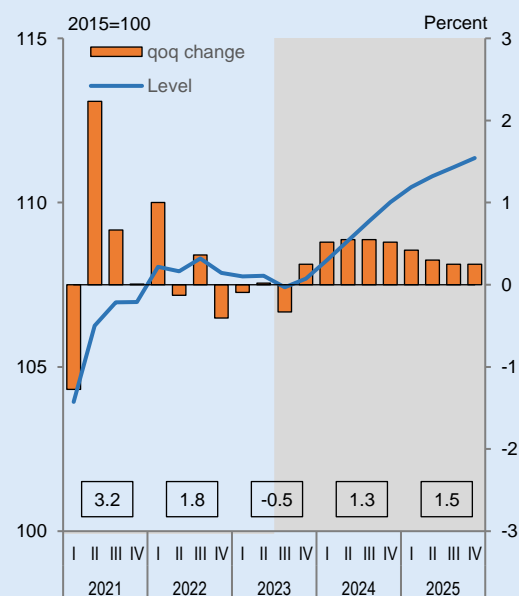
# GERMAN ECONOMY GRADUALLY OVERCOMES STAGNATION

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

The outlook for the German economy has deteriorated over the last months. Although the high level of sick leave and supply bottlenecks have noticeably eased, GDP has not yet returned to an expansionary course. Business surveys indicate that economic momentum will remain weak in the second half of this year. GDP is expected to decline by 0.5 percent in the current year (summer forecast: -0.3 percent). In 2024, economic activity is expected to pick up again. Strong real wage increases will stimulate activity in the consumer-related industries. Given the high order backlogs, the manufacturing industry will also be able to ramp up its production somewhat, even if no major impulses are expected from the global economy for the time being. In contrast, the slump in the construction industry will have a negative impact. Overall, we expect GDP to increase by 1.3 percent (summer forecast: 1.8 percent). For 2025, we expect a growth rate of 1.5 percent. Towards the end of the forecast period, however, economic growth will approach the low rates that the German economy is likely to face in the medium term. Inflation will fall significantly because the general upward trend in prices will weaken and energy prices will fall at least to some extent. After 6 percent this year, inflation will probably be around 2 percent in the next two years. The current phase of economic weakness will have only a small effect on the labor market, as the shortage of skilled workers remains high. Due to demographic change, employment is expected to stagnate over the next two years. Despite the economic recovery, the government's budget deficit is likely to decline only slightly - from 2.6 percent relative to GDP in the current year to 1.9 percent in 2025. The debt level will be around 64 percent in the forecast period.

**GDP will decline in the third quarter.** According to the ifo Business Survey, the business situation has deteriorated five months in a row. The values available up to August suggest that it will decline as strongly in the third quarter as it has in a single quarter since 2005 only during the Global Financial Crisis and the Pandemic. Of course, the gloomier business situation might not only point to falling production, but could also be due to less scope for price increases with costs continuing to rise in view of the low economic momentum and fading pandemic-related catch-up effects. Other leading indicators, such as industrial production in conjunction with the timelier available truck toll mileage index, point to a smaller decline in GDP than the business surveys. All in all, we expect GDP to decline by 0.3 percent in the third quarter (Figure 1). The gloomy business expectations of firms indicate that economic activity will not pick up quickly. In the fourth quarter, however, stabilizing factors such as increasing value added in the consumer-related service sectors in the wake of rising real incomes of private households will probably become stronger. In addition, the level of orders in the manufacturing sector remains high. Against this backdrop, GDP is likely to rise somewhat in the fourth quarter.

**Figure 1:**  
Gross domestic product



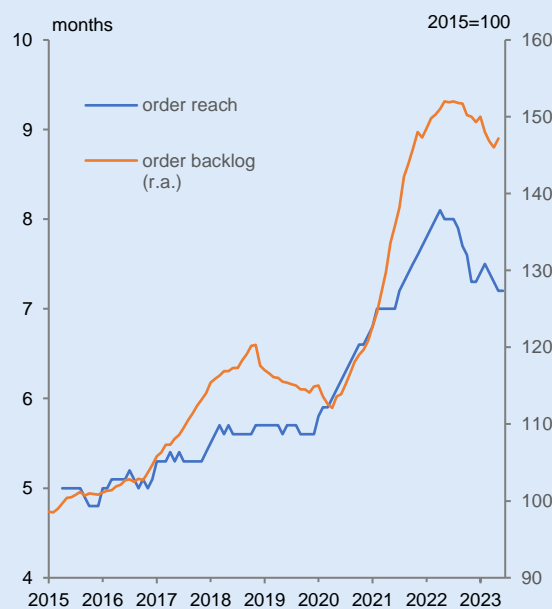
Quarterly data: Volumes, seasonally and calendar adjusted.  
Annual data (boxes): Volumes, change in percent.

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

**The high order backlog stabilizes production in the manufacturing industry.**

New orders in the manufacturing industry have already been on a clear downward trend since the beginning of 2021. The strong increase in June was exclusively due to large orders. Beyond that, new orders remained at a low level in June, around 15 percent lower than in January 2021. In the meantime, gross value added in the manufacturing sector remained more or less unchanged, partly because extensive order backlogs had built up due to supply bottlenecks. Increasing evidence suggests that industrial production capacities have not increased or have even declined in recent years. For example, capacities in the automotive industry have likely decreased, not least due to switching production to electric cars. In addition, the production losses in energy-intensive industries since the beginning of the war in Ukraine are probably to a large extent permanent. In June, production was more than 15 percent lower than at the beginning of 2021. This corresponds to more than 2.5 percent of total industrial production. Lower production capacities are also indicated by the fact that companies have not been able to noticeably expand their production despite the significant easing of temporary headwinds, such as supply bottlenecks and high levels of sick leave, while order backlogs remained high. Against this background, we assume that production in the manufacturing sector - also due to a lack of skilled workers - does not have much room to expand. In the forecast period, gross value added in the manufacturing industry is likely to pick up somewhat despite the slack in orders, as firms will be able to work off their high order backlogs, especially since new orders are likely to have bottomed out soon in view of the comparatively stable global economy (Figure 2). For the third quarter, indicators such as industrial production, truck toll mileage and business surveys suggest that gross value added in the manufacturing sector will decline once more.

**Figure 2:**  
Order reach and order backlog



Monthly data Order backlog: price and seasonal adjusted.  
Source: Federal Statistical Office.

**Exports declined across the board in the second quarter.** Consumer goods and energy-intensive goods experienced an exceptionally pronounced drop. Trade developed weakly regardless of the destination country as nominal exports fell to the European Union, the United States and Asian countries excluding China. All in all, German exports dropped by 1.1 percent. In the following quarters, German exports face several headwinds: Price competitiveness deteriorated and, after a brief respite, leading indicators such as the ifo export expectations and future production expectations in partner countries have clouded yet again. Similarly, the capacity utilization in partner countries has declined, which may imply a lower need for investments globally and, hence, lower demand for capital goods made in Germany. Lastly, in the rest of the euro area, GDP is expected to approximately stagnate in the third quarter and to increase only gradually afterwards. For the current quarter, we anticipate a decrease in merchandise exports by 0.9 percent. Service exports could see a slight increase this quarter. Overall, German exports are expected to decline by more than 1 percent for the entire year 2023, increase by 0.5 percent in the coming year and expand by 3.6 percent in 2025.

**In the second quarter, imports stabilized across all product categories and service sectors following a weak winter half-year.** Consumer goods imports, which had declined by 11.5 percent in the first quarter, only decreased by 1.5 percent in spring. As investments are likely to decline, a decrease in imports is anticipated. The Kiel Trade Indicator, which analyses movements of container ships, suggests a stagnation in merchandise imports. For total imports, we expect a decrease of 0.5 percent in

the third quarter. For the entire year 2023, we anticipate a decline of 1.9 percent followed by increases of 0.9 percent (2024) and 4.3 percent (2025). The terms of trade continue to improve for now. In line with recent monthly data, we expect import prices to fall by 1.8 percent this quarter, export prices to decrease only slightly by 0.2 percent and the terms of trade to improve by 1.6 percent as a result. We do not anticipate significant fluctuations in the terms of trade for the remainder of the forecast period.

**Private consumption picks up.** In the second quarter, private consumption stagnated after falling in the two previous quarters. The main reason for the decline was the massive price increases and the associated real income losses, which had considerably dampened the recovery from the pandemic-related slump. In view of the now rising real wages, private consumption is likely to recover. Gross wages and salaries in the second quarter were 7.6 percent higher than in the previous year, net wages and salaries rose by 9.6 percent – both exceeded the inflation rate of 6.5 percent. For next year, we expect real disposable income to grow by 2.7 percent, mainly due to the surge in gross wages and salaries by nearly 7 percent. Social benefits are expected to increase by more than 6 percent. The increase in other primary income (operating surplus/mixed income, net property income) will be more muted due to the relatively weak economic activity. In 2025, real disposable income will increase slower by 0.8 percent, because the growth in gross wages and salaries will slow down somewhat. We assume that the savings rate will settle around the pre-pandemic level of about 11 percent. This implies that the additional savings accumulated by private households during the pandemic, amounting to about 200 billion euros or 10 percent of annual consumer spending, will not be used for consumption. While in the United States private households have already spent their additional savings on consumer goods to a large extent, in many other countries including Germany such a development has not yet been observed. Against this backdrop, we expect private consumption to increase by 2.1 percent in 2024 and by 1.4 percent in 2025, after a decline of 0.6 percent in the current year.

**Investment in machinery and equipment is growing robustly despite the weak economy.** Investments in machinery and equipment rose by 0.6 percent in the second quarter. While economic indicators have suggested a decline since the beginning of the war in Ukraine, the order backlogs built up in the wake of supply bottlenecks during the pandemic seem to have counteracted the usual investment cycle. The order backlog of domestic capital goods manufacturers remains about one-third above its long-term average. However, leading indicators mostly point to a negative development in the third quarter. The production of capital goods and manufacturers' sales have declined recently. Companies assessment of the situation based on surveys is on a downward trend. Overall, we expect investment in machinery and equipment to decline by 1 percent in the third quarter. In the further forecast period, investments in machinery and equipment are likely to increase again. Domestic orders increased by 3.6 percent. The high order backlog is likely to have a supportive effect. Public investment should pick up noticeably after a period of weakness. Overall, we expect investment in machinery and equipment to grow by 2.9 percent in 2023, 4.6 percent in 2024 and 4.3 percent in 2025.

**The downward trend in construction activity is likely to continue into the coming year.** Despite poor general conditions, construction investments – which had been declining for two years – increased in the first half of this year. Overall, however, the general conditions remain poor. The rapid increase in financing costs at the beginning of the year caused the volume of new construction loans to collapse by half. The transaction volume in the second quarter was 40 percent lower compared to its peak last year. The upward pressure on construction prices eased noticeably in the second quarter. While rising material costs, high demand and highly utilized capacities led to high price pressure in 2022, falling material prices and lower demand are now likely to have an decreasing impact. Leading indicators point to declining construction investment in the third quarter. In surveys conducted in August, companies assessed the development of construction output poorer than at any time in the last ten years. Capacity utilization in construction fell sharply. All in all, we expect a decline in construction investment of around 2 percent in the third quarter. We expect further declines in construction investments in the further course of the year. New orders in the main construction sector as well as building permits have declined. The continuing high order backlog in construction should have a supporting effect. However, the order

backlog is tending to decline - due to falling incoming orders and high cancellations. The slump in residential construction dominates the picture in construction investments due to particularly strong reaction to the increased interest rate level in terms of incoming orders and building permits. Economic indicators suggest a more stable development in commercial construction. In 2023 as a whole, construction investments are expected to decline by 2 percent. For 2024, we expect a decline of 2.4 percent. In the course of the coming year, construction investments should gradually increase again, as stimulating factors, such as the rather high demand for housing, will then probably have a stronger impact. In 2025, construction investments are expected to increase by 2 percent.

**The upward surge in prices is easing, but core inflation will remain high over the forecast horizon.** Consumer prices rose by 6.9 percent last year. In the fourth quarter of 2022, the inflation rate reached 8.6 percent and only slightly weakened to 8.2 percent in the first quarter of 2023. Since the second quarter, however, there have been signs of a turnaround, with inflation falling to 6.5 percent. Compared to the previous quarter, consumer prices rose by only 3.3 percent annualized in the second quarter. In the third quarter the increase will be a bit more than 2.6 percent annualized. Energy prices were the largest contributor to overall inflation last year. This year we expect them to still rise by 6 percent. While the government limited the increase in utility bills for electricity and gas, prices are still higher than last year. In 2024 and 2025 energy prices are expected to decline by 6 and 4 percent respectively. The price declines at the upstream production stages indicate declining upward price pressures also outside of energy goods. Import prices have already been falling for a year. In July they were 13.2 percent lower than a year earlier. Producer prices show a similar trend, declining since October 2022. In July, they were 6 percent below the previous year's level. We continue to expect that the unwinding of supply bottlenecks will be reflected in further declining prices for intermediate goods. This in isolation should lead to less price pressure at the consumer price level. Monthly seasonally adjusted data for consumer prices show that food price increases have recently declined markedly. Accordingly, the year-on-year rates have declined from 15 percent in May to 10 percent in August. Goods prices (excluding energy and food) show a different pattern. In August, the year-on-year rate of 5.9 percent was only slightly below the May figure of 6.6 percent. While the monthly values fluctuate widely, a smoothed trend (3-month moving average) continues to show a monthly annualized rate of 6 percent for August, July and June. Services do not show a declining year-on-year rate compared to food and goods (excluding energy and food). In August, the year-on-year rate was 5.1 percent, up from 4.5 percent in May. Since the beginning of the year, service prices excluding rents are rising with monthly rates annualized at over 5 percent. In line with now strongly increasing real income for private households we expect the upward pressure on prices for services and goods to last for some time. In our forecast we consequently expect lower inflation overall. In the current year we expect core prices to increase by 6 percent. In 2024, the core rate is expected to be 3 percent, weakening to 2.6 percent in 2025. Overall inflation is lower due to the negative contribution of energy prices. In 2024 and 2025, it is expected to be 2.1 percent, down from 6 per cent in the current year (Table 1).

**Wages and salaries respond to the sharp rise in prices.** Negotiated wages and salaries are accelerating significantly. The collective bargaining agreements reached since the fall of last year provide for extraordinarily high earnings growth for the current and coming year by historical standards. For example, employers' associations and trade unions in the metal and electrical industry, in the public sector at federal and local government level, at Deutsche Post and at Deutsche Bahn agreed to both high one-off payments (in the form of the inflation compensation premium free of taxes and social security contributions) and high permanent increases in monthly earnings. 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 fall, we expect similarly high agreements and a similar composition in terms of one-off payments and permanent increases in salaries. Against this backdrop, we expect negotiated wages and salaries to increase by 5.4 percent in the current year and 5.1 percent in the coming year, compared with 2.6 percent last year. These would be the highest growth rates since 1993. In 2025, wage growth is projected to be lower. Due to the slowdown in inflation over the forecast period, pay increases are likely to fall and, once the tax exemption of the inflation compensation premium has

expired at the end of 2024, potential one-off payments are likely to be noticeably smaller again. Effective earnings will also rise strongly over the forecast period. In the past three quarters, gross wages and salaries per employee have increased substantially more than collectively agreed earnings (year-on-year). One reason is the sharp increase in the statutory minimum wage to 12 euros per hour in October last year. Accordingly, between January and June of the current year, the increases in gross monthly earnings for marginally employed persons and for employees in the bottom fifth of the wage distribution were significantly higher than for other employees. However, earnings in the higher earnings quintiles also increased more strongly than negotiated earnings, which is an indication that salary increases and inflation compensation premiums were implemented earlier in sectors without collective bargaining agreements. For the current and coming year, we expect effective earnings growth of 6.1 percent and 5.6 percent, respectively. The rate is expected to be lower in 2025, given the slowdown in inflation. However, the intensifying labor scarcity in the wake of population aging is likely to keep wage increases above average by historical standards. Due to the delayed reaction of wages to inflation, the ratio between labor costs on the one hand and prices and labor productivity on the other hand has fallen to an extraordinarily low level in the past two years, and a further decline in the current year is likely. This strongly supports labor demand of firms and is probably an important reason why employment has been comparatively robust despite the difficult macroeconomic environment.

**Employment is likely to peak in the forecast period due to population aging.** Employment growth has slowed since the beginning of this year. On the one hand, this is due to the economic slowdown. According to business surveys, the willingness to hire has fallen, and registered unemployment has risen in the same period (the Ukrainian refugees had no influence on this). On the other hand, the potential labor force is likely approaching its peak due to aging. An indication of this is provided by the employment of persons with German citizenship subject to social insurance contributions, which currently accounts for 85 percent of total employment. Here, employment growth has already slowed rapidly over the course of the past year, and since the beginning of this year, year-on-year changes have turned negative. In May (the most recent figure), the number of employees with German citizenship was 90,000 lower than in May 2022, while total employment was still 250,000 higher. We expect employment to pass its peak during the forecast period. While the impact of the energy crisis on the labor market remains manageable – supported by high labor shortages and the low ratio of labor costs to prices and labor productivity – the potential labor force will begin to decline in the not too distant future as a result of population aging, despite relatively high immigration numbers. By contrast, the overall volume of hours worked in the economy is expected to increase further for the time being due to the normalization of the sickness rate, which jumped to an exceptionally high level last year. The resulting recovery in working time per employed person will counteract the decline in employment. Unemployment is likely to increase somewhat in the coming months due to the economic downturn. With economic activity picking up in the coming year and in view of the continuing high labor shortages, unemployment is then set to decline again. The gradual integration of Ukrainian refugees into the labor market will contribute to this. All in all, we expect an unemployment rate of 5.6 percent this and next year and 5.3 percent in 2025.

**Public deficits continue to be elevated.** The end of the pandemic has notably reduced public consumption. Conversely, payments to users of natural gas and electricity, as well as transfers to businesses heavily impacted by the energy crisis, have resulted in additional expenditures in the current year. Furthermore, several cuts in income tax and value-added tax have led to reductions in revenue. However, social contributions have accelerated benefiting from rising wages. In summary, public expenditures and revenues are increasing at a similar pace, and the public deficit relative to GDP remains nearly constant. In 2024, the conclusion of energy-related payments in April will offer some relief to the public budget, and the ongoing wage growth will lead to a robust increase in public revenues. The deficit will decrease, but remain significantly higher than the levels observed before the COVID-19 crisis. Notably, projects financed by special funds contribute to substantial expenditures. This also holds for 2025, when the public deficit will only see a modest reduction.

*Table 1:*

**Key indicators 2022–2025**

	2022	2023	2024	2025
Gross domestic product (GDP), price-adjusted	1.8	-0.5	1.3	1.5
Gross domestic product, deflator	5.3	7.9	2.0	1.4
Consumer prices	6.9	6.0	2.1	2.1
Labor productivity (per hour worked)	0.5	-1.4	0.7	1.5
Employment (1000 persons)	45,596	45,912	45,914	45,852
Unemployment rate (percent)	5.3	5.6	5.6	5.3
<i>in relation to nominal GDP</i>				
Public sector net lending	-2.5	-2.6	-2.2	-1.9
Gross public debt	66.1	64.2	64.2	64.5
Current account balance	4.4	6.9	7.2	7.1

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

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

**Data annex**

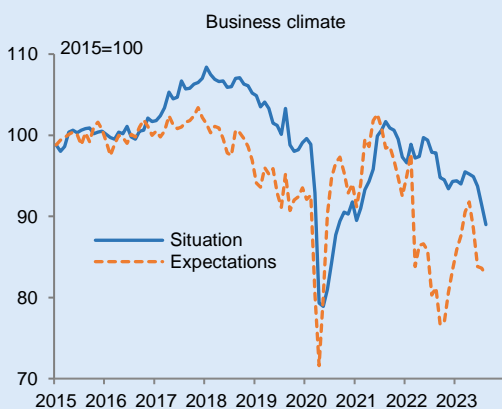
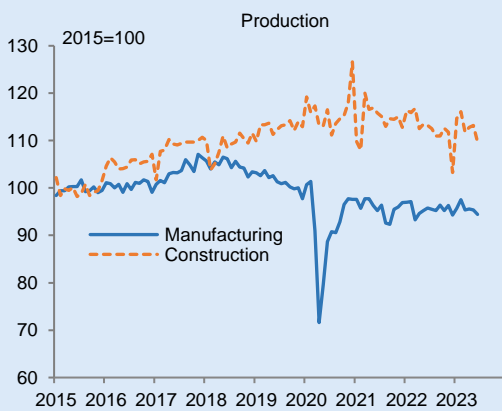
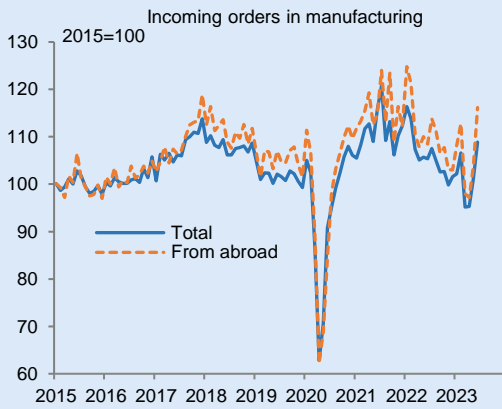
# Contents

1. Leading indicators .....	9
2. Monetary conditions and prices .....	10
3. External trade.....	12
4. Domestic expenditure.....	14
5. Industries.....	16
6. Wages.....	17
7. Employment.....	18
8. Public finances.....	19
9. GDP and its components.....	21
10. The German economy.....	22
11. National accounts.....	23



## 1. Leading indicators

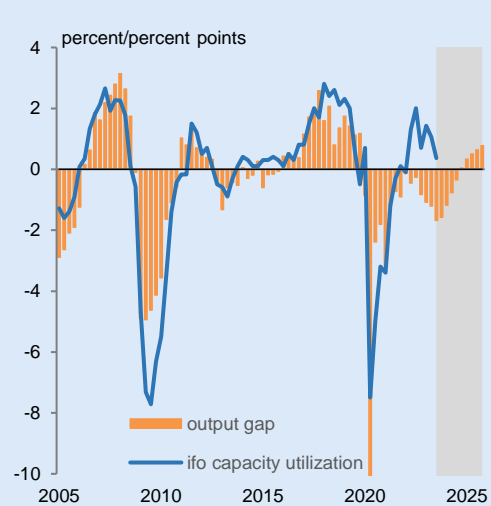
**Figure 1.1:**  
Leading indicators



Monthly data, seasonally adjusted.

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

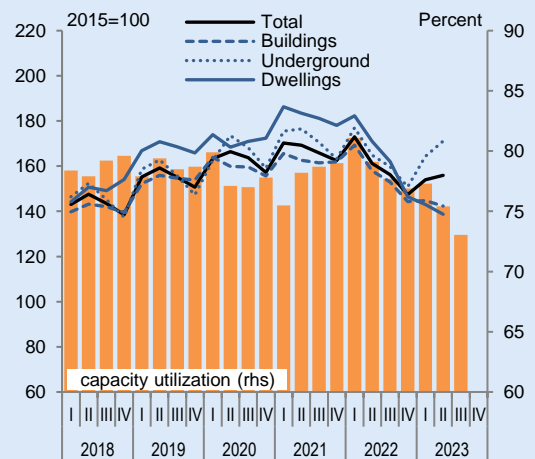
**Figure 1.2:**  
Capacity utilization



Quarterly data: change in percent, GDP deviation from potential output, estimation of potential output from the medium-term projection autumn 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

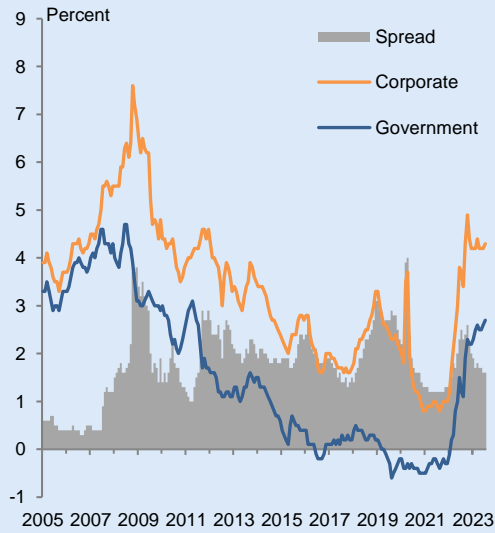


Quarterly data. Capacity utilization (deviation from normal level) seasonally adjusted; order stocks: price, seasonally and working day adjusted.

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

## 2. Monetary conditions and prices

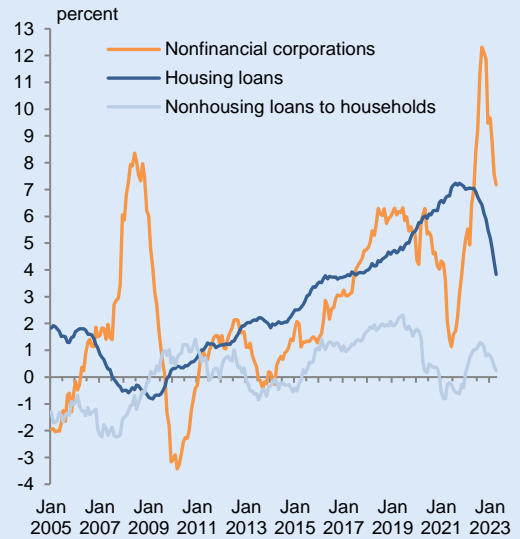
**Figure 2.1:**  
Bond yields



Monthly data, average maturities above three years.

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

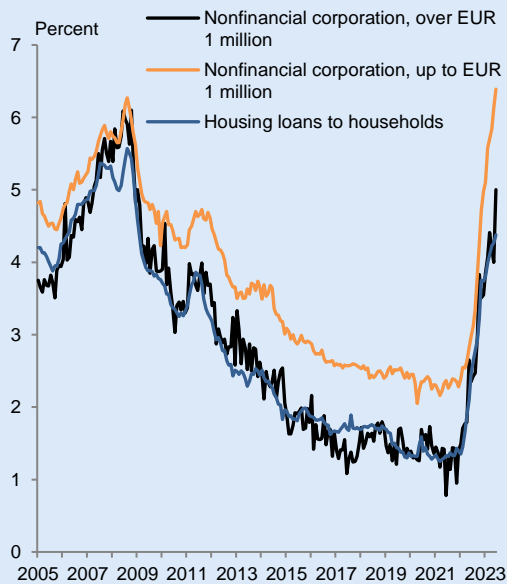
**Figure 2.3:**  
Credit growth



Change compared to one year ago; Monthly data.

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

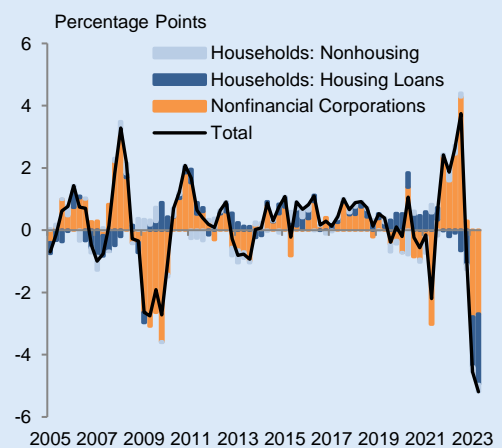
**Figure 2.2:**  
Loan interest



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

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

**Figure 2.4:**  
Credit impulse

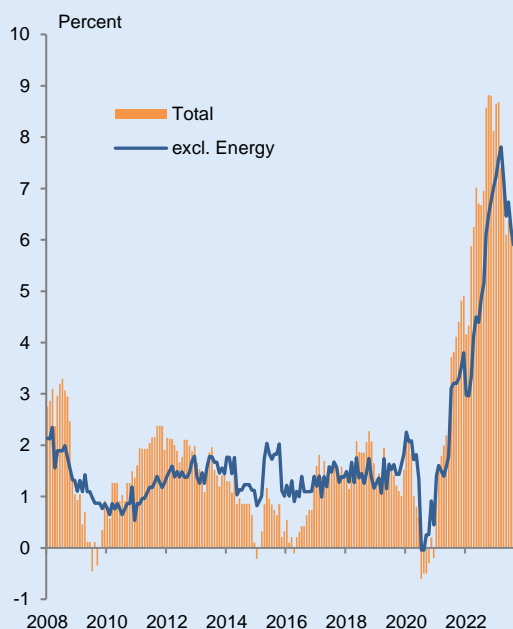


Quarterly data, most recent quarter based on first month; calculations follow Biggs et al. (2009), *Credit and economic recovery*, DNB Working Paper 218, De Nederlandsche Bank, Amsterdam.

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

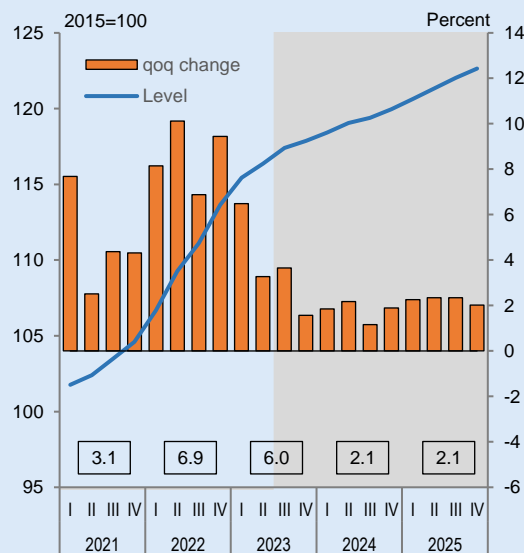
Source: Deutsche Bundesbank, *Seasonally Adjusted Business Statistics*; Kiel Institute calculations.

**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 2023–2025

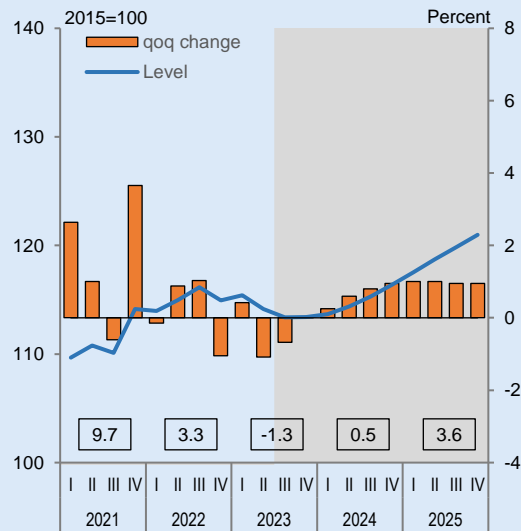
	2023				2024				2025			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
ECB key interest rate	3.00	3.75	4.50	4.50	4.50	4.50	4.50	4.25	3.75	3.50	3.50	3.00
Long-term interest rate	2.31	2.36	2.52	2.55	2.55	2.55	2.55	2.55	2.50	2.50	2.50	2.50
US-dollar/euro exchange rate	1.07	1.09	1.09	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
Price competitiveness	90.5	91.3	91.6	91.9	91.5	91.1	89.7	89.4	89.4	89.5	89.6	89.7
Export markets	0.3	0.4	0.4	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7
Oil price	81.1	78.2	84.1	84.0	82.8	81.7	80.6	79.5	78.5	77.6	76.7	75.9
Gas price	53.4	35.2	33.7	46.1	52.6	50.6	50.8	53.9	47.3	47.3	47.3	47.3
Electricity price	122.9	99.5	100.3	119.4	139.1	122.0	132.6	152.1	125.1	125.1	125.1	125.1

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

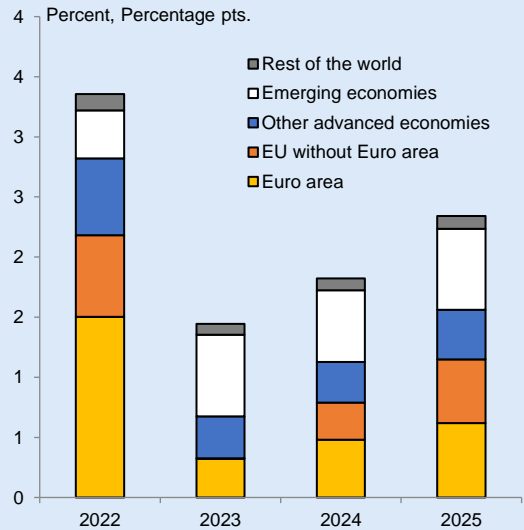
**Figure 3.1:**  
Exports



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.

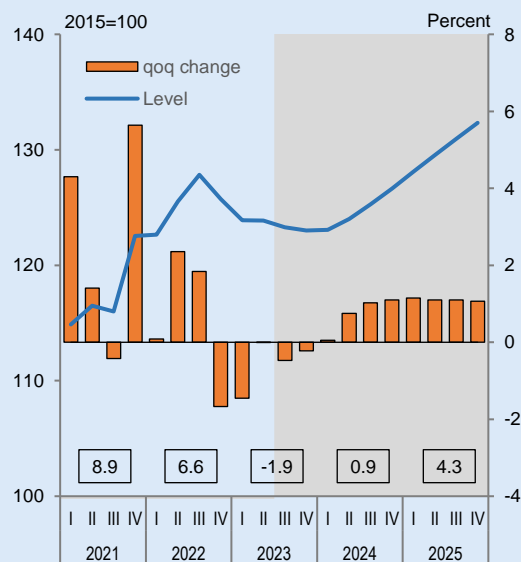
**Figure 3.3:**  
German export markets



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.

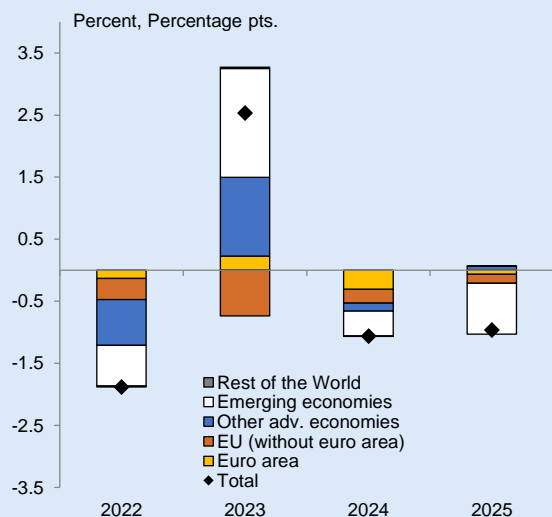
**Figure 3.2:**  
Imports



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.

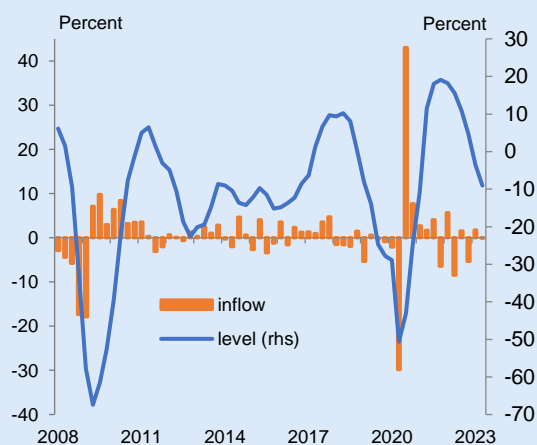
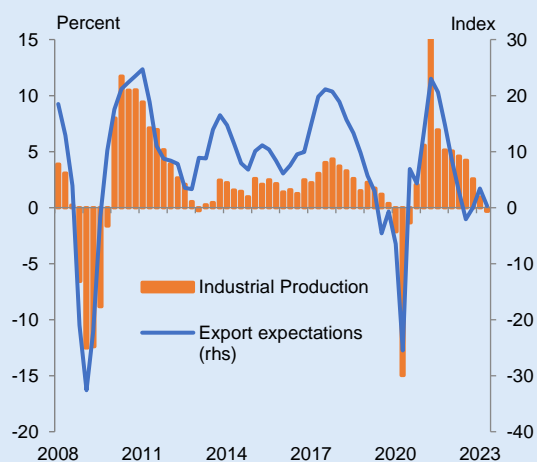
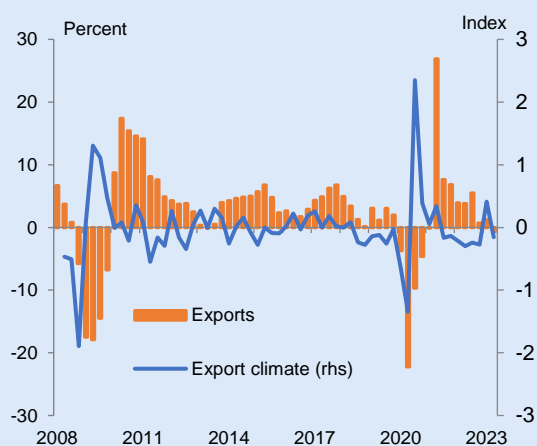
**Figure 3.4:**  
Germany's price competitiveness



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**

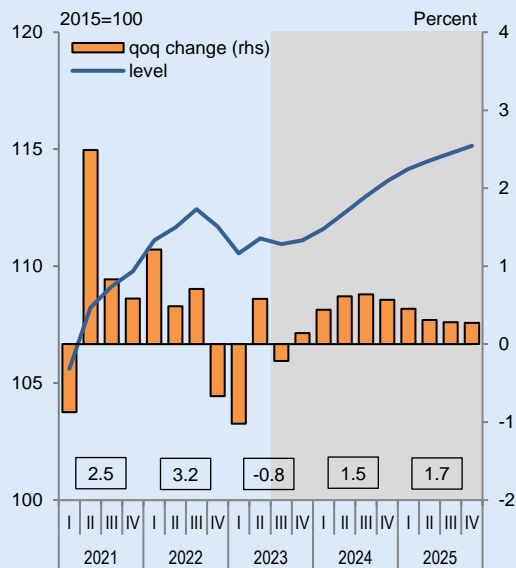


Quarterly data; exports, industrial production, volumes, change on previous year; order inflow: volumes, change on previous quarter; export expectations, foreign orders on hand: volumes; business expectations, industrial production: based on 42 countries weighted by shares of German exports.

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

## 4. Domestic expenditure

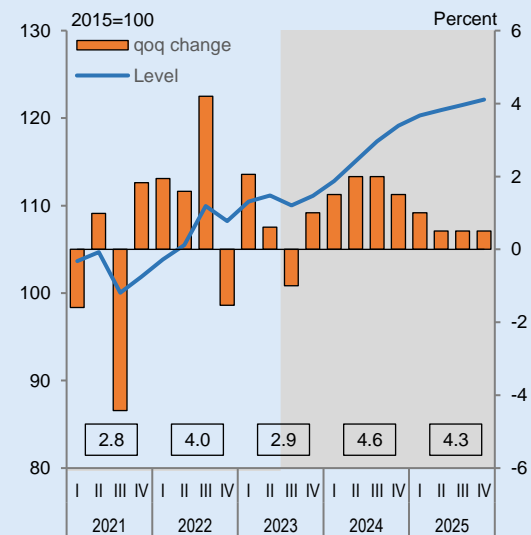
**Figure 4.1:**  
Final domestic expenditure



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

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

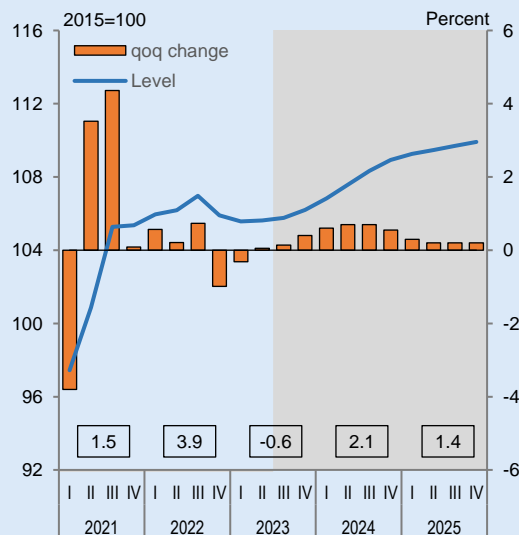
**Figure 4.3:**  
M&E investments



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.

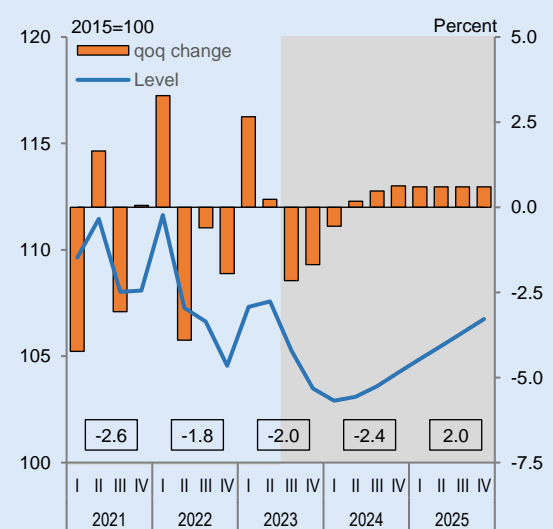
**Figure 4.2:**  
Private consumption



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.

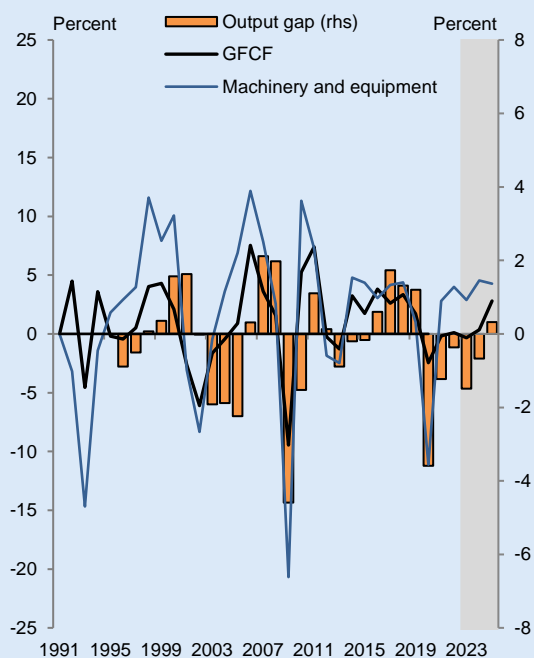
**Figure 4.4:**  
Construction



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.

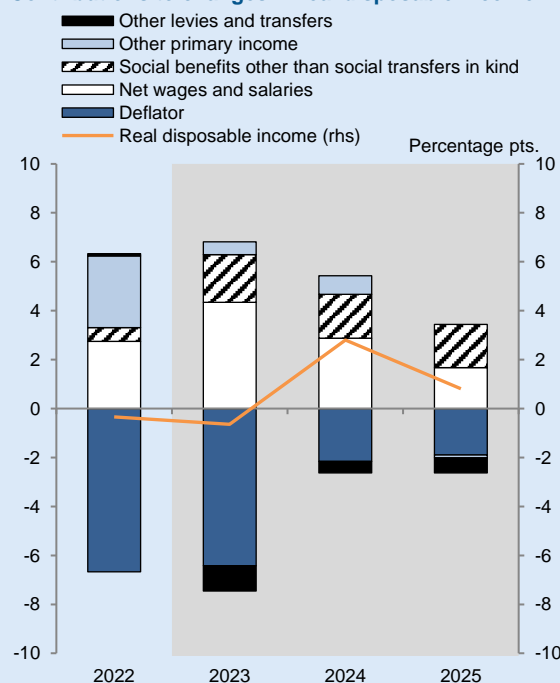
**Figure 4.5:**  
Investment cycles



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.

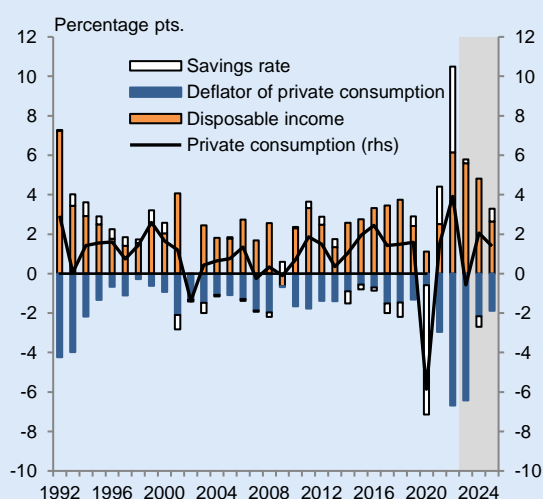
**Figure 4.7:**  
Contributions to changes in real disposable income



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

	2022	2023	2024	2025
Total	0.1	-0.3	0.3	2.8
Corporate investment	1.3	0.8	2.3	3.0
Machinery and equipment	4.0	2.9	4.6	4.3
Construction (non-dwellings)	-1.6	-2.0	-2.0	0.7
Other	-0.7	-0.6	1.6	2.3
Dwellings	-2.2	-2.7	-3.8	2.5
Public (non-dwellings)	-0.1	1.5	3.2	2.7
<i>Memorandum item:</i>				
Construction	-1.8	-2.0	-2.4	2.0

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**

	2023				2024				2025			
	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	-0.1	0.0	-0.3	0.2	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.2
Gross value added	0.2	-0.5	-0.3	0.2	0.5	0.6	0.6	0.5	0.4	0.3	0.2	0.2
Industry excl. construction	-0.3	-0.6	0.1	0.2	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.2
Manufacturing	-0.1	0.1	-0.5	0.3	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.2
Energy, Water etc.	-1.6	-5.2	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Construction	5.3	0.2	-2.5	-1.5	-0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.5
Trade, transport, accomodation, food services	-0.5	-1.4	-0.1	0.5	0.9	1.1	1.1	0.8	0.6	0.4	0.2	0.2
Information and communication	0.4	1.1	0.2	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Financial and insurance services	-2.0	-2.1	-1.0	-0.5	0.3	0.4	0.4	0.4	0.4	0.3	0.1	0.1
Real estate activities	1.1	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Business services	0.2	0.0	-0.5	0.3	0.5	0.5	0.5	0.4	0.3	0.3	0.2	0.2
Public services, education, health	-0.3	-0.8	0.0	0.3	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.3
Other services	2.5	0.0	0.0	0.8	0.8	1.0	1.0	0.8	0.5	0.3	0.2	0.2

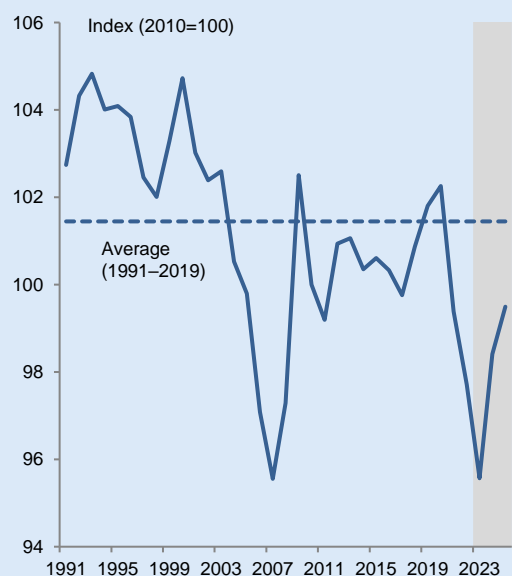
Quarterly data, volumes.

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

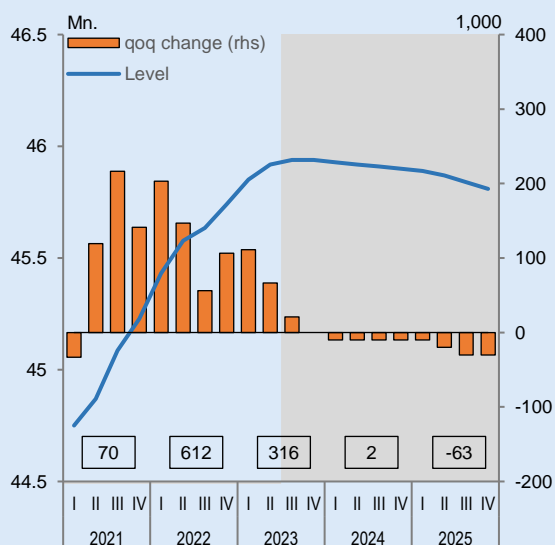
	2022	2023	2024	2025
<i>Per hour</i>				
Negotiated wages	1.5	2.7	5.4	5.1
Gross wages and salaries	0.6	4.4	5.6	4.8
Wage drift	-0.9	1.7	0.3	-0.3
Compensation of employees	0.4	4.1	5.2	4.8
Labor productivity	0.6	0.5	-1.4	0.7
Unit labor costs	-0.2	3.6	6.7	4.1
Unit labor costs (real)	-3.1	-1.6	-1.1	2.1
<i>Per capita</i>				
Negotiated wages	1.5	2.6	5.4	5.1
Gross wages and salaries	3.3	4.1	6.1	5.6
Wage drift	1.8	1.5	0.7	0.5
Compensation of employees	3.1	3.9	5.7	5.5
Labor productivity	3.0	0.4	-1.2	1.3
Unit labor costs	0.1	3.4	7.0	4.1
Unit labor costs (real)	-2.9	-1.7	-0.8	2.1

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

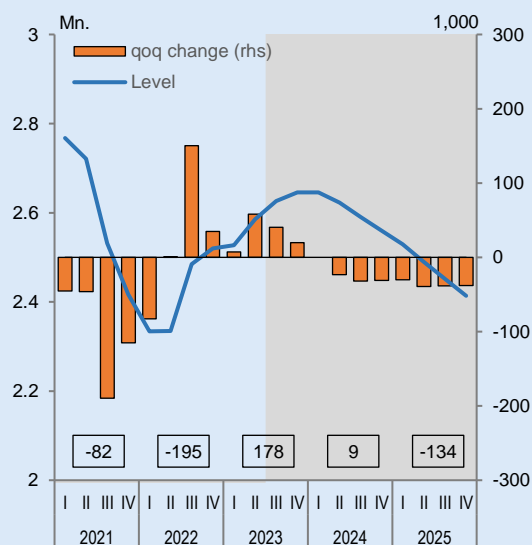
**Figure 7.1:**  
Employment



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 2020–2024 (1,000 persons)**

	2021	2022	2023	2024	2025
Hours worked (domestic concept, mn. hours)	60,623	61,410	61,978	62,393	62,393
Persons in employment (domestic concept)	44,984	45,596	45,912	45,914	45,852
Self-employed	3,958	3,910	3,900	3,899	3,894
Employees (domestic concept)	41,027	41,687	42,012	42,015	41,958
Employees subject to social security contributions	33,922	34,525	34,774	34,847	34,910
Minijobs	4,100	4,127	4,185	4,109	3,989
Net commuting	116	140	143	141	141
Persons in employment (national concept)	44,869	45,457	45,769	45,773	45,711
Employees (national concept)	40,911	41,547	41,869	41,874	41,816
Unemployed persons (registered)	2,613	2,418	2,596	2,604	2,471
Unemployment rate (registered; percent)	5.7	5.3	5.6	5.6	5.3
Unemployment rate (ILO; percent)	3.3	2.9	2.8	2.8	2.8

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)

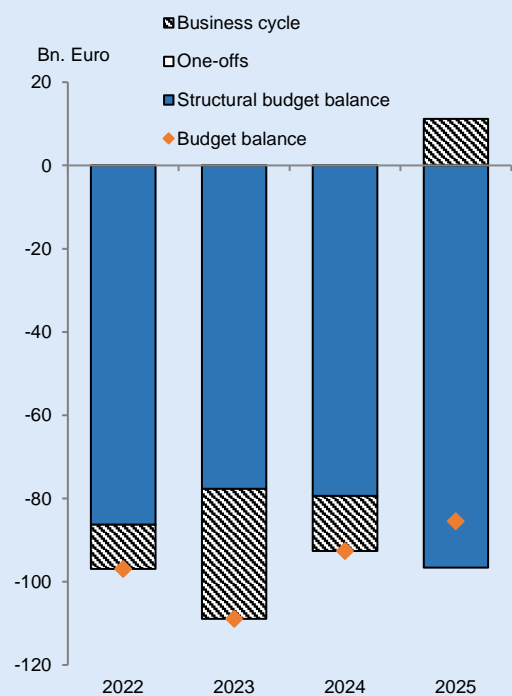
	2021	2022	2023	2024	2025
<b>Revenues</b>	<b>1,712.9</b>	<b>1,821.2</b>	<b>1,888.7</b>	<b>1,992.6</b>	<b>2,086.8</b>
→relative to GDP	47.3	47.0	45.4	46.3	47.2
Taxes	879.2	946.6	955.1	998.1	1,044.7
→relative to GDP	24.3	24.4	23.0	23.2	23.6
Social contributions	632.1	666.8	706.4	749.9	786.7
→relative to GDP	17.5	17.2	17.0	17.4	17.8
Other revenues	201.6	207.8	227.2	244.6	255.4
→relative to GDP	5.6	5.4	5.5	5.7	5.8
<b>Expenditures</b>	<b>1,842.6</b>	<b>1,918.1</b>	<b>1,997.7</b>	<b>2,085.2</b>	<b>2,172.3</b>
→relative to GDP	50.9	49.5	48.0	48.5	49.1
Compensation of employees	295.4	307.9	331.3	345.6	355.9
Intermediate consumption	226.6	238.4	250.4	267.5	275.0
Social transfers in kind	331.3	354.9	362.4	378.9	394.8
Gross capital formation	92.5	100.9	107.6	120.4	127.8
Capital transfers	21.1	26.5	35.3	42.1	48.1
Social benefits	609.8	619.1	659.2	697.8	734.3
Subsidies	109.2	70.0	73.7	46.4	44.7
Other current transfers	91.9	111.4	96.1	96.4	97.3
Other capital transfers and investment grants	65.7	89.7	82.3	90.9	95.3
Other expenditures	-1.3	-1.0	-1.0	-1.1	-1.1
<b>Net lending/ net borrowing</b>	<b>-129.7</b>	<b>-96.9</b>	<b>-108.9</b>	<b>-92.6</b>	<b>-85.5</b>
→relative to GDP	-3.6	-2.5	-2.6	-2.2	-1.9
<b>Revenues of central, state, and local governments</b>	<b>1119.3</b>	<b>1198.3</b>	<b>1220.5</b>	<b>1279.0</b>	<b>1337.5</b>
Net of transfers from social security funds	1,112.6	1,187.5	1,216.2	1,277.8	1,336.3
Transfers from social security funds	6.6	10.8	4.3	1.2	1.2
<b>Expenditures of central, state, and local governments</b>	<b>1,251.6</b>	<b>1,303.5</b>	<b>1,335.9</b>	<b>1,372.2</b>	<b>1,420.7</b>
Net of transfers to social security funds	1,093.9	1,125.2	1,183.1	1,229.3	1,275.0
Transfers to social security funds	157.7	178.3	152.8	142.9	145.7
<b>Net lending/ net borrowing central, state, and local governments</b>	<b>-132.4</b>	<b>-105.2</b>	<b>-115.4</b>	<b>-93.2</b>	<b>-83.2</b>
<b>Revenues of social security funds</b>	<b>781.8</b>	<b>812.0</b>	<b>825.3</b>	<b>857.7</b>	<b>896.2</b>
Net of transfers from central, state, and local governments	624.1	633.7	672.5	714.9	750.5
<b>Expenditures of social security funds</b>	<b>779.2</b>	<b>803.7</b>	<b>818.9</b>	<b>857.1</b>	<b>898.5</b>
Net of transfers to central, state, and local governments	772.6	793.0	814.6	855.9	897.3
<b>Net lending/ net borrowing social security funds</b>	<b>2.6</b>	<b>8.3</b>	<b>6.4</b>	<b>0.6</b>	<b>-2.3</b>

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:**

**Structural budget balance**



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

## 9. GDP and its components

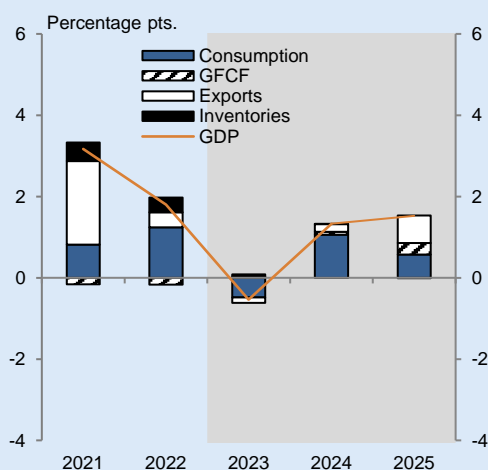
**Table 9.1:**  
Quarterly data

	2023				2024				2025			
	I	II	III	IV	I	II	III	IV	I	II	III	IV
Gross domestic product	-0.1	0.0	-0.3	0.2	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.2
Private consumption	-0.3	0.0	0.1	0.4	0.6	0.7	0.7	0.6	0.3	0.2	0.2	0.2
Government consumption	-1.9	0.1	0.1	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Machinery and equipment	2.1	0.6	-1.0	1.0	1.5	2.0	2.0	1.5	1.0	0.5	0.5	0.5
Constructions	2.7	0.2	-2.2	-1.7	-0.6	0.2	0.5	0.6	0.6	0.6	0.6	0.6
Other investment	-1.6	0.4	0.0	0.3	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6
Change in inventories	-0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Domestic expenditure	-1.0	0.6	-0.2	0.1	0.4	0.6	0.6	0.6	0.5	0.3	0.3	0.3
Exports	0.4	-1.1	-0.7	0.0	0.3	0.6	0.8	1.0	1.0	1.0	0.9	0.9
Imports	-1.5	0.0	-0.5	-0.2	0.1	0.8	1.0	1.1	1.1	1.1	1.1	1.1
Net exports	0.9	-0.5	-0.1	0.1	0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0
Employment (domestic)	45,852	45,918	45,939	45,939	45,929	45,919	45,909	45,899	45,889	45,869	45,839	45,809
Unemployment (registered)	2,527	2,586	2,626	2,646	2,646	2,623	2,591	2,560	2,530	2,490	2,452	2,414

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.

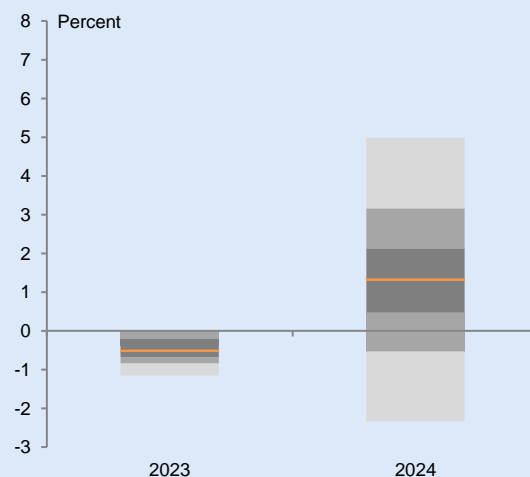
**Figure 9.1:**  
Import adjusted expenditure-side contributions to GDP growth



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.

**Figure 9.2:**  
Forecast intervals for GDP growth



GDP: volumes, change over previous year. Point forecasts: orange lines. Forecast intervals grey shaded areas with confidence levels of 33, 66, and 95 percent. Confidence levels calculated based on historical forecast errors of the Kiel Institute in the second quarter 1994–2022.

Source: Kiel Institute calculations.

## 10. The German economy

**Tabelle 10:**  
The german economy –

	2022	2022	2023	2024	2025
	Bn. Euro	Change over previous year in percent			
<b>Use of gross domestic product, price-adjusted</b>					
GDP		1.8	-0.5	1.3	1.5
Private consumption expenditure		3.9	-0.6	2.1	1.4
Public consumption expenditure		1.6	-2.4	1.5	1.7
Total fixed investment		0.1	-0.3	0.3	2.8
Machinery and equipment		4.0	2.9	4.6	4.3
Construction		-1.8	-2.0	-2.4	2.0
Other equipment		-0.7	-0.6	1.6	2.3
Changes in stocks		0.7	0.1	0.0	0.0
Domestic Demand		3.2	-0.8	1.5	1.7
Exports		3.3	-1.3	0.5	3.6
Imports		6.6	-1.9	0.9	4.3
Net exports		-1.2	0.3	-0.1	-0.1
<b>Use of gross domestic product at current prices</b>					
GDP	3,876.8	7.2	7.3	3.3	2.9
Private consumption expenditure	1,979.3	10.9	5.8	4.3	3.3
Public consumption expenditure	850.9	6.8	4.6	4.3	3.3
Total fixed investment	856.2	11.1	5.8	-0.6	3.9
Machinery and equipment	253.4	11.4	9.0	5.9	5.8
Construction	463.5	14.0	5.1	-5.4	2.6
Other equipment	139.3	2.1	2.5	3.5	4.3
Changes in stocks (€ bn.)		114.1	94.8	97.6	97.8
Domestic Demand	3,800.5	11.1	4.9	3.1	3.4
Exports	1,974.2	15.4	-0.9	0.7	5.0
Imports	1,897.9	25.3	-6.2	0.0	6.3
Net exports (€ bn.)		76.3	175.7	189.1	176.3
Gross national income	4,027.6	7.2	7.5	3.3	3.1
<b>Deflators</b>					
GDP		5.3	7.9	2.0	1.4
Private consumption expenditure		6.7	6.4	2.2	1.9
Public consumption expenditure		5.1	7.3	2.7	1.6
Investment in machinery and equipment		7.1	5.9	1.3	1.4
Investment in construction		16.1	7.2	-3.1	0.6
Investment in other equipment		2.9	3.0	1.9	2.0
Exports		11.7	0.4	0.1	1.3
Imports		17.5	-4.4	-0.9	1.9
<i>Addendum: Consumer prices</i>		6.9	6.0	2.1	2.1
<b>Income distribution</b>					
Net national income (factor costs)	2,890.9	4.4	8.5	2.5	2.7
Compensation of employees	2,023.6	5.5	6.5	5.5	3.7
in percent of national income		70.0	68.7	70.7	71.4
Property and entrepreneurial income	867.4	1.9	13.1	-3.9	0.3
Disposable income	2,164.5	6.3	5.8	5.0	2.7
Saving rate		11.1	11.0	11.4	10.8
Wages and salaries	1,661.8	5.8	6.9	5.6	3.6
Wage per hour		4.4	5.6	4.8	3.6
Unit labor costs		3.6	6.7	4.1	2.2
Productivity per hour		0.5	-1.4	0.7	1.5
Unemployment (1,000)	2,418.1	2,595.7	2,604.3	2,470.8	
Rate of unemployment (percent)		5.3	5.6	5.6	5.3
Total employment (1,000)	45,596.2	45,912.0	45,914.1	45,851.6	
Public sector budget balance					
Public sector budget balance (€ bn.)		-96.9	-108.9	-92.6	-85.5
Public sector budget balance (in percent of GDP)		-2.5	-2.6	-2.2	-1.9
Public debts (in percent)		66.1	64.2	64.2	64.5
Change in stocks, net exports: Lundberg-component (contribution to GDP growth); employment, unemployment: as defined by the Federal Employment Agency (BA); public debts: in relation to GDP.					
Source: Federal Statistical Office, Fachserie 18, Series 1.2; shaded: Kiel Institute forecast.					

## 11. National accounts

National Accounts									
Forecast period: 2023 to 2025									
	2023	2024	2025	2023		2024		2025	
				H1	H2	H1	H2	H1	H2
<b>1. Production</b>									
Change over the same period of the preceding year in %									
Persons in employment	0.7	0.0	-0.1	0.8	0.5	0.1	-0.1	-0.1	-0.2
Hours worked	0.9	0.7	0.0	0.9	0.9	0.6	0.8	0.0	0.0
Hours worked by person in employment	0.2	0.7	0.1	0.1	0.4	0.5	0.8	0.1	0.2
Labor productivity <sup>1</sup>	-1.4	0.7	1.5	-1.1	-1.7	0.0	1.3	1.6	1.4
<b>Gross domestic product, price-adjusted</b>	-0.5	1.3	1.5	-0.3	-0.8	0.5	2.1	1.6	1.5
<b>2. Use of gross domestic product at current prices</b>									
a) EUR bn.									
Consumption expenditure	2 984.7	3 111.9	3 214.8	1 448.8	1 536.0	1 514.2	1 597.8	1 566.7	1 648.1
Private households <sup>2</sup>	2 094.3	2 183.6	2 255.9	1 019.5	1 074.9	1 062.7	1 120.9	1 099.0	1 156.9
Government	890.4	928.3	958.9	429.3	461.1	451.4	476.9	467.7	491.1
Gross fixed capital formation	905.9	900.8	936.0	445.8	460.1	436.2	464.6	449.1	487.0
Machinery and equipment	276.1	292.3	309.2	132.4	143.7	137.8	154.5	146.7	162.4
Construction	487.1	460.7	472.7	246.0	241.0	229.2	231.5	230.2	242.4
Other products	142.7	147.8	154.2	67.3	75.5	69.2	78.6	72.1	82.1
Changes in inventories <sup>3</sup>	94.8	97.6	97.8	32.6	62.2	55.2	42.4	55.7	42.1
Domestic expenditure	3 985.5	4 110.3	4 248.6	1 927.1	2 058.4	2 005.6	2 104.7	2 071.4	2 177.2
Net exports	175.7	189.1	176.3	90.7	85.1	108.0	81.1	99.7	76.6
Exports	1 955.8	1 968.6	2 067.4	985.0	970.8	970.7	997.8	1 012.3	1 055.1
Imports	1 780.0	1 779.4	1 891.1	894.3	885.7	862.8	916.7	912.6	978.6
<b>Gross domestic product</b>	<b>4 161.2</b>	<b>4 299.4</b>	<b>4 424.9</b>	<b>2 017.8</b>	<b>2 143.4</b>	<b>2 113.6</b>	<b>2 185.8</b>	<b>2 171.1</b>	<b>2 253.7</b>
b) Change over the same period of the preceding year in %									
Consumption expenditure	5.5	4.3	3.3	5.9	5.0	4.5	4.0	3.5	3.1
Private households <sup>2</sup>	5.8	4.3	3.3	7.0	4.7	4.2	4.3	3.4	3.2
Government	4.6	4.3	3.3	3.5	5.7	5.2	3.4	3.6	3.0
Gross fixed capital formation	5.8	-0.6	3.9	8.9	3.0	-2.1	1.0	2.9	4.8
Machinery and equipment	9.0	5.9	5.8	13.0	5.5	4.1	7.5	6.5	5.1
Construction	5.1	-5.4	2.6	8.8	1.6	-6.9	-4.0	0.5	4.7
Other products	2.5	3.5	4.3	2.0	2.9	2.9	4.1	4.1	4.5
Domestic expenditure	4.9	3.1	3.4	5.0	4.8	4.1	2.3	3.3	3.4
Exports	-0.9	0.7	5.0	2.7	-4.4	-1.4	2.8	4.3	5.7
Imports	-6.2	0.0	6.3	-0.8	-11.1	-3.5	3.5	5.8	6.7
<b>Gross domestic product</b>	<b>7.3</b>	<b>3.3</b>	<b>2.9</b>	<b>6.6</b>	<b>8.1</b>	<b>4.7</b>	<b>2.0</b>	<b>2.7</b>	<b>3.1</b>
<b>3. Use of gross domestic product, price-adjusted (chain-linked, 2010=100)</b>									
a) EUR bn.									
Consumption expenditure	2 389.9	2 435.3	2 471.2	1 177.7	1 212.2	1 194.0	1 241.4	1 213.9	1 257.2
Private households <sup>2</sup>	1 695.3	1 730.1	1 754.2	833.3	862.0	845.3	884.8	859.5	894.8
Government	693.8	704.5	716.1	344.0	349.8	348.2	356.3	354.0	362.1
Gross fixed capital formation	659.5	661.8	680.2	324.7	334.8	319.4	342.3	328.0	352.3
Machinery and equipment	229.0	239.4	249.6	110.4	118.6	112.7	126.7	118.5	131.1
Construction	308.2	300.8	306.9	155.3	152.9	148.4	152.3	150.6	156.3
Other products	124.0	126.0	128.9	58.7	65.3	59.3	66.7	60.6	68.3
Domestic expenditure	3 101.2	3 148.2	3 201.8	1 530.4	1 570.8	1 543.6	1 604.6	1 572.1	1 629.7
Exports	1 619.3	1 628.2	1 687.5	814.4	804.9	805.8	822.3	830.0	857.5
Imports	1 469.0	1 482.0	1 545.5	727.1	741.9	722.6	759.4	749.6	795.9
<b>Gross domestic product</b>	<b>3 257.3</b>	<b>3 300.6</b>	<b>3 350.9</b>	<b>1 620.6</b>	<b>1 636.7</b>	<b>1 629.3</b>	<b>1 671.3</b>	<b>1 655.2</b>	<b>1 695.7</b>
b) Change over the same period of the preceding year in %									
Consumption expenditure	-1.1	1.9	1.5	-1.3	-0.9	1.4	2.4	1.7	1.3
Private households <sup>2</sup>	-0.6	2.1	1.4	-0.5	-0.7	1.4	2.6	1.7	1.1
Government	-2.4	1.5	1.7	-3.2	-1.6	1.2	1.8	1.7	1.7
Gross fixed capital formation	-0.3	0.3	2.8	0.6	-1.2	-1.6	2.2	2.7	2.9
Machinery and equipment	2.9	4.6	4.3	5.7	0.4	2.1	6.8	5.1	3.5
Construction	-2.0	-2.4	2.0	-2.0	-2.0	-4.4	-0.4	1.5	2.6
Other products	-0.6	1.6	2.3	-0.6	-0.5	1.1	2.1	2.1	2.4
Domestic expenditure	-0.8	1.5	1.7	-0.5	-1.1	0.9	2.1	1.8	1.6
Exports	-1.3	0.5	3.6	0.1	-2.6	-1.1	2.2	3.0	4.3
Imports	-1.9	0.9	4.3	-0.3	-3.4	-0.6	2.4	3.7	4.8
<b>Gross domestic product</b>	<b>-0.5</b>	<b>1.3</b>	<b>1.5</b>	<b>-0.3</b>	<b>-0.8</b>	<b>0.5</b>	<b>2.1</b>	<b>1.6</b>	<b>1.5</b>

National Accounts (cont.)									
Forecast period: 2023 to 2025									
	2023	2024	2025	2023		2024		2025	
				H1	H2	H1	H2	H1	H2
<b>4. Deflators (2010=100)</b>									
Change on the same period of the preceding year in %									
Private consumption <sup>2</sup>	6.4	2.2	1.9	7.5	5.4	2.8	1.6	1.7	2.1
Government consumption	7.3	2.7	1.6	6.9	7.5	3.9	1.6	1.9	1.3
Gross fixed capital formation	6.2	-0.9	1.1	8.3	4.2	-0.5	-1.3	0.3	1.9
Machinery and equipment	5.9	1.3	1.4	6.9	5.1	1.9	0.7	1.3	1.6
Construction	7.2	-3.1	0.6	11.0	3.7	-2.5	-3.6	-1.0	2.1
Exports	0.4	0.1	1.3	2.6	-1.8	-0.4	0.6	1.2	1.4
Imports	-4.4	-0.9	1.9	-0.5	-8.0	-2.9	1.1	2.0	1.9
<b>Gross domestic product</b>	<b>7.9</b>	<b>2.0</b>	<b>1.4</b>	<b>6.8</b>	<b>9.0</b>	<b>4.2</b>	<b>-0.1</b>	<b>1.1</b>	<b>1.6</b>
<b>5. National income</b>									
a) EUR bn.									
Primary income of private households <sup>2</sup>	2 779.4	2 915.0	2 996.9	1 357.4	1 422.0	1 420.6	1 494.4	1 470.7	1 526.2
Employers social contributions	378.6	398.1	415.1	183.2	195.5	191.3	206.8	200.0	215.1
Gross wages and salaries	1 776.4	1 875.0	1 942.9	846.0	930.4	888.9	986.1	930.3	1 012.7
Other primary income <sup>4</sup>	624.3	641.9	638.9	328.2	296.2	340.4	301.5	340.4	298.5
Primary income of other sectors	705.6	701.1	733.3	307.3	398.3	336.2	364.9	340.9	392.4
<b>Net national income</b>	<b>3 485.0</b>	<b>3 616.1</b>	<b>3 730.2</b>	<b>1 664.6</b>	<b>1 820.4</b>	<b>1 756.8</b>	<b>1 859.3</b>	<b>1 811.6</b>	<b>1 918.6</b>
Consumption of fixed capital	843.3	857.0	880.6	421.0	422.3	428.4	428.6	437.0	443.6
<b>Gross national income</b>	<b>4 328.4</b>	<b>4 473.2</b>	<b>4 610.8</b>	<b>2 085.7</b>	<b>2 242.7</b>	<b>2 185.2</b>	<b>2 288.0</b>	<b>2 248.6</b>	<b>2 362.3</b>
memorandum item:									
Net national income (factor costs)	3 135.8	3 215.2	3 303.3	1 497.8	1 638.0	1 557.8	1 657.4	1 597.5	1 705.8
Property and entrepreneurial income	980.7	942.0	945.3	468.6	512.1	477.5	464.5	467.2	478.1
Compensation of employees	2 155.0	2 273.2	2 358.0	1 029.2	1 125.9	1 080.2	1 192.9	1 130.3	1 227.8
b) Change over the same period of the preceding year in %									
Primary income of private households <sup>2</sup>	5.4	4.9	2.8	5.3	5.6	4.7	5.1	3.5	2.1
Employers social contributions	4.7	5.1	4.3	4.9	4.5	4.4	5.8	4.5	4.0
Gross wages and salaries	6.9	5.6	3.6	7.3	6.5	5.1	6.0	4.6	2.7
... per employee	6.1	5.6	3.8	6.3	5.9	5.0	6.1	4.8	2.9
Other primary income <sup>4</sup>	1.9	2.8	-0.5	0.7	3.2	3.7	1.8	0.0	-1.0
Primary income of other sectors	17.2	-0.6	4.6	9.6	23.7	9.4	-8.4	1.4	7.5
<b>Net national income</b>	<b>7.6</b>	<b>3.8</b>	<b>3.2</b>	<b>6.1</b>	<b>9.1</b>	<b>5.5</b>	<b>2.1</b>	<b>3.1</b>	<b>3.2</b>
Consumption of fixed capital	6.9	1.6	2.8	9.0	4.9	1.7	1.5	2.0	3.5
<b>Gross national income</b>	<b>7.5</b>	<b>3.3</b>	<b>3.1</b>	<b>6.6</b>	<b>8.2</b>	<b>4.8</b>	<b>2.0</b>	<b>2.9</b>	<b>3.2</b>
memorandum item:									
Net national income (factor costs)	8.5	2.5	2.7	7.7	9.2	4.0	1.2	2.5	2.9
Property and entrepreneurial income	13.1	-3.9	0.3	9.7	16.3	1.9	-9.3	-2.2	2.9
Compensation of employees	6.5	5.5	3.7	6.9	6.2	5.0	6.0	4.6	2.9
<b>6. Disposable income of private households <sup>2</sup></b>									
a) EUR bn.									
Mass income	1 788.5	1 888.2	1 962.8	858.8	929.7	902.6	985.6	947.5	1 015.3
Net wages and salaries	1 212.9	1 278.8	1 319.2	573.2	639.7	601.6	677.2	629.4	689.8
Social benefits other than social transfers in kind	730.7	771.5	813.9	361.7	369.0	380.1	391.4	401.1	412.9
less: Levies on social benefits, taxes on consumption	155.1	162.1	170.3	76.1	78.9	79.2	82.9	83.0	87.4
Other primary income <sup>4</sup>	624.3	641.9	638.9	328.2	296.2	340.4	301.5	340.4	298.5
Other transfers received (net) <sup>5</sup>	-123.2	-126.8	-133.5	-55.3	-67.9	-58.5	-68.3	-62.8	-70.7
<b>Disposable income</b>	<b>2 289.6</b>	<b>2 403.2</b>	<b>2 468.2</b>	<b>1 131.7</b>	<b>1 157.9</b>	<b>1 184.4</b>	<b>1 218.8</b>	<b>1 225.2</b>	<b>1 243.1</b>
Change in pension entitlements	62.5	62.1	62.1	30.3	32.1	30.2	32.0	30.2	32.0
Consumption expenditure	2 094.3	2 183.6	2 255.9	1 019.5	1 074.9	1 062.7	1 120.9	1 099.0	1 156.9
Saving	257.7	281.8	274.5	142.5	115.2	151.8	130.0	156.3	118.1
Saving ratio (%) <sup>6</sup>	11.0	11.4	10.8	12.3	9.7	12.5	10.4	12.5	9.3
b) Change over the same period of the preceding year in %									
Mass income	7.7	5.6	4.0	8.6	6.9	5.1	6.0	5.0	3.0
Net wages and salaries	8.4	5.4	3.2	9.4	7.6	5.0	5.9	4.6	1.9
Social benefits other than social transfers in kind	6.1	5.6	5.5	6.8	5.5	5.1	6.1	5.5	5.5
less: Levies on social benefits, taxes on consumption	5.6	4.5	5.1	5.8	5.5	4.0	5.0	4.7	5.4
Other primary income <sup>4</sup>	1.9	2.8	-0.5	0.7	3.2	3.7	1.8	0.0	-1.0
<b>Disposable income</b>	<b>5.8</b>	<b>5.0</b>	<b>2.7</b>	<b>7.2</b>	<b>4.5</b>	<b>4.7</b>	<b>5.3</b>	<b>3.4</b>	<b>2.0</b>
Consumption expenditure	5.8	4.3	3.3	7.0	4.7	4.2	4.3	3.4	3.2
Saving	3.8	9.3	-2.6	6.8	0.4	6.5	12.8	3.0	-9.1



National Accounts (cont.)									
Forecast period: 2023 to 2025									
	2023	2024	2025	2023		2024		2025	
				H1	H2	H1	H2	H1	H2
<b>7. Revenue and expenditure by general government <sup>7</sup></b>									
a) EUR bn.									
<b>Revenue</b>									
Taxes	955.1	998.1	1 044.7	466.2	488.9	489.9	508.2	513.6	531.1
Social contributions	706.4	749.9	786.7	342.0	364.4	360.5	389.4	379.6	407.1
Property income	21.9	23.0	24.2	13.0	8.9	13.6	9.4	14.3	9.9
Other current transfers	30.1	31.6	33.0	13.5	16.7	14.2	17.4	14.9	18.1
Capital transfers	18.8	20.0	21.2	8.4	10.4	9.0	11.0	9.6	11.6
Sales	156.2	169.8	176.8	74.1	82.1	80.9	88.9	83.8	93.0
Other subsidies	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
<b>Total</b>	<b>1 888.7</b>	<b>1 992.6</b>	<b>2 086.8</b>	<b>917.2</b>	<b>971.5</b>	<b>968.1</b>	<b>1 024.5</b>	<b>1 015.8</b>	<b>1 071.0</b>
<b>Expenditure</b>									
Intermediate consumption <sup>8</sup>	613.1	646.7	670.0	296.6	316.5	315.3	331.4	327.3	342.7
Compensation of employees	331.3	345.6	355.9	156.1	175.2	164.3	181.3	169.7	186.2
Property income (interest)	35.3	42.1	48.1	17.4	17.9	20.8	21.3	23.8	24.3
Subsidies	73.7	46.4	44.7	41.6	32.1	23.1	23.3	21.0	23.7
Social benefits	659.2	697.8	734.3	326.2	333.0	343.6	354.3	363.5	370.8
Other current transfers	96.1	96.4	97.3	44.9	51.2	44.6	51.8	45.0	52.4
Capital transfers	82.3	90.9	95.3	31.5	50.8	35.2	55.7	36.9	58.4
Gross capital formation	107.6	120.4	127.8	45.3	62.3	50.8	69.6	54.3	73.5
Net acquisitions of non-produced non-financial assets	-1.0	-1.1	-1.1	-0.4	-0.6	-0.5	-0.6	-0.5	-0.6
<b>Total</b>	<b>1 997.7</b>	<b>2 085.2</b>	<b>2 172.3</b>	<b>959.3</b>	<b>1 038.3</b>	<b>997.2</b>	<b>1 088.0</b>	<b>1 041.0</b>	<b>1 131.3</b>
<b>Net lending</b>	<b>-108.9</b>	<b>-92.6</b>	<b>-85.5</b>	<b>-42.1</b>	<b>-66.8</b>	<b>-29.1</b>	<b>-63.5</b>	<b>-25.3</b>	<b>-60.2</b>
b) Change over the same period of the preceding year in %									
<b>Revenue</b>									
Taxes	0.9	4.5	4.7	-0.3	2.1	5.1	3.9	4.8	4.5
Social contributions	6.0	6.2	4.9	6.3	5.6	5.4	6.9	5.3	4.5
Property income	24.3	4.9	5.2	42.1	5.1	4.6	5.4	4.9	5.6
Other current transfers	7.5	4.8	4.6	11.4	4.6	5.2	4.4	5.0	4.3
Capital transfers	0.1	6.1	5.9	-5.9	5.6	6.9	5.4	6.7	5.3
Sales	9.1	8.8	4.1	10.9	7.4	9.2	8.4	3.6	4.5
Other subsidies	-2.6	0.0	0.0	-6.1	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>3.7</b>	<b>5.5</b>	<b>4.7</b>	<b>3.5</b>	<b>3.9</b>	<b>5.6</b>	<b>5.5</b>	<b>4.9</b>	<b>4.5</b>
<b>Expenditure</b>									
Intermediate consumption <sup>8</sup>	3.3	5.5	3.6	3.2	3.4	6.3	4.7	3.8	3.4
Compensation of employees	7.6	4.3	3.0	4.9	10.1	5.2	3.5	3.3	2.7
Property income (interest)	33.2	19.3	14.2	38.0	28.8	19.5	19.0	14.4	14.1
Subsidies	5.4	-37.1	-3.7	45.7	-22.4	-44.5	-27.4	-9.1	1.7
Social benefits	6.5	5.9	5.2	7.3	5.7	5.3	6.4	5.8	4.6
Other current transfers	-13.8	0.3	1.0	2.7	-24.4	-0.6	1.2	0.8	1.1
Capital transfers	-8.3	10.5	4.8	34.5	-23.4	11.9	9.6	4.7	4.8
Gross capital formation	6.7	11.9	6.2	6.1	7.1	12.1	11.7	7.0	5.6
Net acquisitions of non-produced non-financial assets	-0.7	9.9	0.0	-35.5	46.2	26.6	0.0	0.0	0.0
<b>Total</b>	<b>4.1</b>	<b>4.4</b>	<b>4.2</b>	<b>7.7</b>	<b>1.1</b>	<b>3.9</b>	<b>4.8</b>	<b>4.4</b>	<b>4.0</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 paid 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, <i>Fachserie 18: National Accounts</i> ; Kiel Institute calculations and forecasts.									