Arduous recovery amid high and only gradually easing inflation – outlook for the German economy up to 2025

Over the projection horizon, the German economy is set to recover only arduously from the crises of the past three years. In particular, it is still struggling with the consequences of high inflation, though this is, at least, easing. As a result, and on the back of strongly rising wages as well as a robust labour market, households' real income and their consumption expenditure recover gradually. Real government consumption declines sharply this year due to pandemic-related expenditure petering out, and then rises significantly again. The higher financing costs brought about by tighter monetary policy are, however, dampening private investment, especially in housing construction. In addition, the stronger euro and the high wage dynamics constitute a headwind for exporters. Thanks to rising foreign demand, exports are still increasing moderately. Overall, the economy only slowly regains its footing in the current year, and grows somewhat more strongly over the remainder of the projection period.

Owing to the sluggish start at the turn of the year, real gross domestic product (GDP) falls on average in 2023, by 0.3% in calendar-adjusted terms. The German economy then grows by 1.2% in 2024 and by 1.3% in 2025. Compared with the December projection, the GDP growth rate for 2023 has been revised upwards slightly, mainly because the situation on the energy markets eased. For 2024 and 2025, on the other hand, it has been revised downwards. This is due, first and foremost, to higher interest rates and decreased competitiveness.

The inflation rate as measured by the Harmonised Index of Consumer Prices (HICP) falls from 8.7% last year to 6.0% in 2023. In the years 2024 and 2025, it decreases further, to 3.1% and 2.7%. First of all, energy price inflation, in particular, is receding strongly. On the other hand, core inflation (i.e. excluding energy and food) is proving to be more persistent than previously anticipated. It only peaks in the current year, at 5.2%. This is because labour costs are climbing strongly, profit margins are turning out higher again, and increased energy costs are being passed through to the prices of other goods with a lag. As from 2024, the latter effects gradually peter out, and profit margins normalise somewhat. However, the high price pressure exerted by labour costs only eases noticeably by 2025. Overall, core inflation falls to 3.1% in 2024 and 2.8% in 2025. Compared with the December projection, the headline inflation rate was revised downwards due to energy, especially in 2023 and 2024. Core inflation is consistently higher.

The general government deficit ratio falls slightly to 2.4% in 2023 and significantly to 1.2% in 2024; in 2025, it remains virtually unchanged. Coronavirus measures are largely being eliminated in 2023. At the same time, the volume of support measures related to the energy crisis and high inflation is still rising slightly. This volume decreases strongly in 2024 before these measures fall away in 2025. The debt ratio falls to 62% in 2025.

With regard to inflation, risks are tilted to the upside. High inflation could become more entrenched if wages and profits rise even more strongly. A pass-through of this kind is possible in an environment of high aggregate demand. This underscores the importance of decisive monetary policy action in counteracting more persistent inflation and the economic and societal risks it entails.

Economic outlook[1]

German economy contracted in past winter half-year, as expected in December projection

The German economy contracted in the last winter half-year (Q4 2022 and Q1 2023) by almost 1%, i.e. to the extent expected in the December 2022 projection.[2] This put it in a technical recession, which is said to occur when real GDP declines in two consecutive quarters in seasonally adjusted terms.[3] Under the influence of inflation fuelled by high energy prices, private consumption fell sharply. Meanwhile, decreased foreign demand depressed exports. Furthermore, government consumption fell substantially. For example, pandemic-related public healthcare expenditure on measures such as testing and vaccination no longer took place. The decline in both private as well as government consumption was even steeper than expected in December. In return, investment held up better than anticipated and expanded somewhat despite the rise in financing costs. The unexpectedly mild weather conditions bolstered housing construction. Business investment benefited from a faster than expected easing in the energy markets and a more significant easing in supply bottlenecks for intermediate goods. Industry, which had experienced surprisingly positive output overall in the winter half-year, also benefited from this.

Economic output likely to rise again slightly in the current quarter

Economic output is likely to rise again slightly in the current quarter. According to the ifo Institute, enterprises' assessment of the business situation was more positive than in the preceding quarter, particularly in the services sector. The Bundesbank's weekly activity index (WAI) also shows an upward trend.[4] Private consumption should bottom out as, thanks to steeply increasing wages, households' real disposable income is stabilising in spite of what is still a very high inflation rate. This helps service providers, which are likely to significantly expand their overall activity. The rather positive results of S&P Global's purchasing managers' survey also give indications of this. Industry is likely to largely withstand the still-ongoing decline in demand. Fallen energy prices are having something of an easing effect, the order books are still very well stocked, and supply bottlenecks are likely to continue diminishing.[5] This will also

June 2023 projection

Year-on-year percentage change

Item	2022	2023	2024	2025
Real GDP, calendar adjusted	1.9	– 0.3	1.2	1.3
Real GDP, unadjusted	1.8	– 0.5	1.2	1.2
Harmonised Index of Consumer Prices	8.7	6.0	3.1	2.7
Excluding energy and food	3.9	5.2	3.1	2.8

Source: Federal Statistical Office (up to Q1 2023). Annual figures for 2023 to 2025 are Bundesbank projections.
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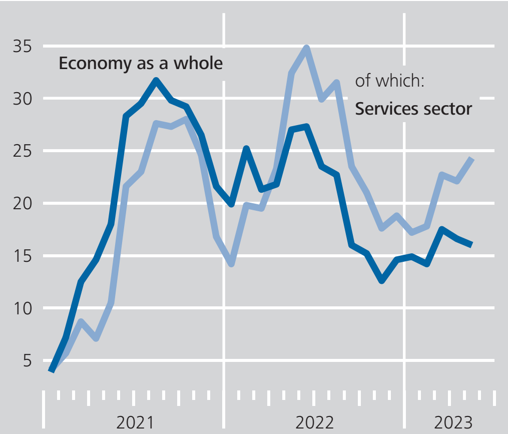
Business situation

Balances, seasonally and calendar adjusted



Source: ifo Institute.
Deutsche Bundesbank

1 This projection for Germany was finalised on 31 May 2023. It was incorporated into the projections for the euro area published by the European Central Bank (ECB) on 15 June 2023.
2 See Deutsche Bundesbank (2022a). Intermittent signs that the German economy might have performed significantly better in the winter half-year have ultimately proven illusory, based on the latest data.
3 Seasonal adjustment here and in the remainder of this text also includes adjustment for calendar variations, provided they can be verified and quantified.
4 The WAI includes high-frequency indicators, such as the toll index, footfall figures and credit card payments, that are available up to early June. The GDP growth rate for the past 13 weeks implied by the WAI is currently well into positive territory. See Deutsche Bundesbank (2023a).
5 See the box on pp. 11-12.

support exports. In the construction sector, by contrast, a decline in output is to be expected.

In particular, the German economy is still struggling with very high inflation and its consequences …

Over the remainder of the projection horizon, the German economy is still struggling with the consequences of very high inflation, in particular. However, inflation is continuing to decline – first and foremost as a result of weaker energy inflation. As wages see ongoing strong growth thanks to a robust labour market, households' real income situation will improve, and their consumption expenditure will expand markedly. The lower market prices for gas and electricity will also ease the burden on firms' energy costs. However, high wage growth means that firms will see a steep rise in labour costs. Additionally, the euro has appreciated as a result of tighter monetary policy in the euro area. As foreign demand is rising and supply bottlenecks will likely have eased for the most part by the end of the year, exports will see moderate growth nonetheless. Higher financing costs will still represent a drag on private investment, which will carry on dwindling until next year in the case of housing construction. By contrast, real government investment is expected to rise steeply throughout the projection horizon, particularly for military equipment. Furthermore, following a setback this year, real government expenditure will again increase substantially in subsequent years. Overall, the expansion of economic activity is likely to increase only gradually in the second half of the year. The economy will then see somewhat stronger growth over the remainder of the projection horizon.

… and is recovering only arduously from the crises of the past three years

This means that the German economy is recovering only arduously from the crises of the past three years. Owing to a sluggish start due to a decline in the past winter half-year, economic output will contract in the middle of the current year, too. In calendar-adjusted terms, real GDP will decrease by 0.3%. It will then grow by 1.2% in 2024 and by 1.3% in 2025. The annual average GDP rate has thus been revised upwards slightly compared with the December 2023 projection, mainly due to the more relaxed situation in the energy markets.

Technical components of the GDP growth projection

% or percentage points

Item	2022	2023	2024	2025
Statistical carry-over at the end of the previous year[1]	0.8	– 0.2	0.4	0.5
Fourth-quarter rate[2]	0.8	0.3	1.3	1.3
Average annual GDP growth rate, calendar adjusted	1.9	– 0.3	1.2	1.3
Calendar effect[3]	– 0.1	– 0.2	0.0	– 0.1
Average annual GDP growth rate[4]	1.8	– 0.5	1.2	1.2

Source: Federal Statistical Office (up to Q1 2023). Annual figures for 2023 to 2025 are Bundesbank projections. **1** Seasonally and calendar-adjusted index level in the fourth quarter of the previous year in relation to the calendar-adjusted quarterly average of the previous year. **2** Annual rate of change in the fourth quarter, seasonally and calendar adjusted. **3** As a percentage of GDP. **4** Discrepancies in the totals are due to rounding.

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Revisions since the December 2022 projection

Year-on-year percentage change

Item	2023	2024	2025
GDP (real, calendar adjusted)			
June 2023 projection	– 0.3	1.2	1.3
December 2022 projection	– 0.5	1.7	1.4
Difference (in percentage points)	0.2	– 0.5	– 0.1
Harmonised Index of Consumer Prices			
June 2023 projection	6.0	3.1	2.7
December 2022 projection	7.2	4.1	2.8
Difference (in percentage points)	– 1.2	– 1.0	– 0.1

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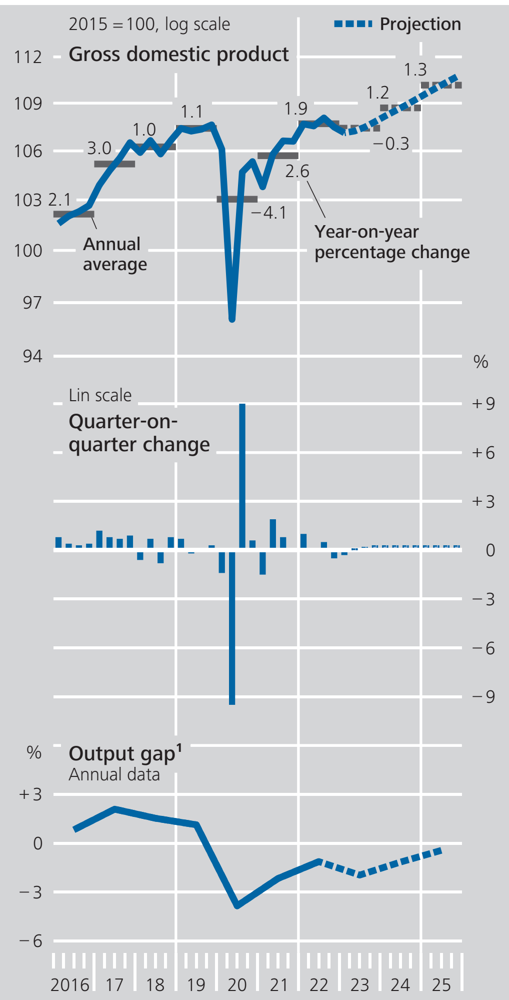
By contrast, GDP growth is projected to be significantly weaker for 2024 and slightly weaker for 2025, reflecting mainly higher interest rates and exporters' reduced price competitiveness.

Economy will not come close to achieving potential output until end of projection horizon

Economic output will not come close to returning to potential until the end of the projection horizon. However, the fact that there is a negative output gap over the entire projection horizon is not due to a lack of demand. Rather, severe supply disruptions in the recent past will continue to weigh on the real economy for a longer period of time – also via price and wage costs. However, only a portion of these developments are deemed permanent. This means

Aggregate output and output gap

Price, seasonally and calendar adjusted



Sources: Federal Statistical Office and Bundesbank calculations. Annual figures from 2023 to 2025 are Bundesbank projections. **1** Deviation of GDP from estimated potential output based on the annually estimated output gap.
Deutsche Bundesbank

that their impact on GDP is only partly reflected in lower potential output, as the Bundesbank's concept of potential output is based on sustainable economic performance on the supply side. Nevertheless, the estimate of the German economy's potential output over the projection horizon had already been revised downwards – at first only moderately, in December 2021, due to pandemic effects, and most recently, substantially in December 2022 on account of Russia's war on Ukraine.[6] As a result, the energy supply in Germany deteriorated sustainably, with the result that energy will remain more expensive in the future. From a structural point of view, the aggregate supply side has not changed significantly further in comparison with the December projection.[7] In the current projection, then, the estimated growth rate of potential output has hardly been adjusted, amounting to +0.6% this year, +0.4% in 2024 and +0.6% in 2025.

Economic activity in detail

Private consumption is bottoming out and will expand markedly as from 2023-24 winter half-year

Private consumption suffered from high inflation in the past winter half-year. Real disposable income declined sharply, and households reduced their price-adjusted consumption expenditure to an even greater degree than expected in the December projection. At the same time, they only slightly offset the surge in inflation by saving less. Private consumption will probably rise again slightly in the current quarter: in spite of continued high inflation, households' income situation is set to stabilise due to steeply rising wages and robust labour market conditions (see the chart on p. 9). This is consistent with the fact that, according to the GfK survey, the previously very poor consumer sentiment has already improved markedly and the propensity to save has decreased slightly. The saving ratio is thus likely to continue declining somewhat. This is also assumed for the remainder of the projection horizon, because precautionary motives will probably lose significance as inflation eases and uncertainty is lessened. However, strong catch-up effects in consumption that was financed by the savings involuntarily built up during the pandemic are

6 See Deutsche Bundesbank (2021, 2022b).
7 The extent to which the market prices for energy, which have fallen since December, also signify permanently lower energy costs in Germany than assumed back then cannot be quantified at present.

Underlying conditions for macroeconomic projections

This projection is based on assumptions by Eurosystem experts about the global economy, exchange rates, commodity prices and interest rates. These were made on the basis of information available as at 23 May 2023. The assumptions regarding economic activity in the euro area are derived from projections compiled by the national central banks of the euro area countries.[1] These projections incorporate fiscal measures as soon as they are adequately specified and are deemed likely to be implemented.

Slight pick-up in global economic growth

To be sure, the global economy slowed down less significantly in the final quarter of 2022 than expected in the December projection and started 2023 on a sound footing. However, stubbornly high inflation in many countries and tighter monetary policy continue to weigh on economic activity, especially in the advanced economies where the outlook has been revised downward somewhat. More restrictive credit supply conditions in the United States, also in connection with the recent banking turmoil, are likely to dampen economic growth there. In China, by contrast, the discontinuation of the zero-COVID policy has spurred demand. Overall, global economic activity over the projection horizon looks set to develop at a similar pace to that assumed in December. On an annual average, the global economy excluding the euro area is expected to grow by 3.1% both this year and in 2024. A somewhat higher growth rate of 3.3% is anticipated for 2025. International trade (excluding the euro area) contracted in the fourth quarter of 2022, bringing the average annual growth rate projected for 2023 down to 1.3%, considerably weaker than assumed in the December projection. However, growth is then set to pick up again, with a rate of 3.4% anticipated for both 2024 and 2025, broadly in line with the December projection.

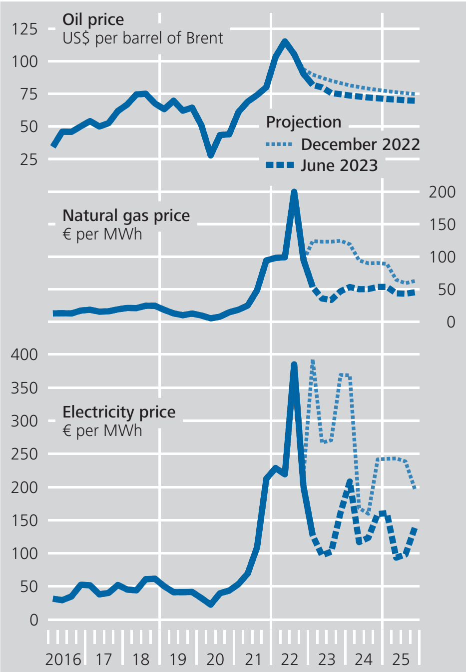
High inflation rates in the euro area continue to dampen purchasing power

Economic activity in the euro area slipped slightly in both the fourth quarter of 2022 and the first quarter of 2023.[2] Uncertainty regarding energy supply and other supply bottlenecks, which had affected manufacturing and construction in particular, has decreased. However, persistently high inflation continues to weigh on households' purchasing power, despite energy prices having now fallen considerably. While government measures have eased some of the strain stemming from energy expenditure, inflation is now broadly based and therefore very high for other goods as well. At the same time, given the progressive monetary policy tightening, the cost of credit-financed expenditure for firms and households has gone up.[3] The situation on the labour market remains robust and underpins the macroeconomic outlook. Thanks to declining inflation, decreasing uncertainty regarding the supply and cost of energy as

1 The projections by the national central banks of the euro area countries were completed on 31 May 2023.
2 Compared with the flash estimate for the first quarter of 2023, Eurostat revised the quarterly rate of euro area price and seasonally adjusted GDP downward by 0.2 percentage point to -0.1%. Excluding the strong downward revision of the Irish GDP rate by 1.9 percentage points to -4.6%, however, euro area GDP would have picked up slightly, by 0.1%. When the detailed results were published by the Federal Statistical Office on 25 May 2023, German GDP growth, too, was projected to be weaker, at -0.3%, than in the flash estimate, in which stagnation had been expected in the first quarter.
3 Taken in isolation, credit supply conditions that are more restrictive than those to be expected as a result of rising interest rates are assumed to have only a limited effect on euro area economic growth and to hardly impact the outlook for inflation at all.

Oil, natural gas and electricity prices

Quarterly averages



Sources: Bloomberg, European Energy Exchange and ECB staff. Projections derived from forward quotations.
Deutsche Bundesbank

well as robust developments on exporters' sales markets, the euro area economy is again set to record more significant growth over the projection horizon, despite higher interest rates. For the euro area (excluding Germany), economic growth of 1.4% is expected for the current year, which is well above the December projection. With growth rates of 1.7% in 2024 and 1.8% in 2025, economic activity is then assumed to expand by somewhat less than estimated in the December projection.

German exporters' sales markets are likely to see slightly slower growth than world trade over the projection horizon. This is because import growth in the advanced economies, which are home to a large proportion of German export markets, is lagging somewhat behind global trade dynamics overall.

Technical assumptions of the projection

Energy commodity prices have declined in recent months and thus remained lower than assumed in the December projection. Although forward quotations from that time indicated that natural gas prices would increase in the first quarter of 2023, this did not come to pass. European gas consumers' efforts to save energy, mild winter temperatures and high imports of liquefied natural gas contributed to well-filled gas storage facilities and helped ease gas prices in European wholesale trade. Against this backdrop, European electricity prices, which are closely linked to gas prices, have also fallen considerably since the winter. Forward quotations indicate that, as of the 2023-24 winter half-year, European gas prices may again be somewhat higher than their current level and then decline slightly once more after the 2024-25 winter half-year. For the European electricity markets, futures show higher prices for the winter months in both years up to the end of the projection horizon.

Uncertain demand prospects and persistently high exports of Russian crude oil to non-sanctioning countries contributed to the decline in prices on the global crude oil markets. At the same time, OPEC's announcement of a significant production cut-back as of May propped up prices. Market quotations suggest that crude oil prices will continue their decline over the next two years. Overall, the assumptions for energy commodity prices therefore remain well below those contained in the December projection. Prices for other commodities are also expected to decline further initially, before rising slightly in 2025 on an annual average.

Agricultural producer prices in the euro area slipped somewhat in recent months from the peak reached last winter. This is likely also due to declining energy prices, which had an impact on fertiliser prices, amongst other things. Forward quotations suggest that producer prices for food will initially continue to fall slightly before then holding steady in 2024 and 2025 at a level somewhat below the assumptions contained in the December projection.

In December 2022, February 2023 and March 2023, the ECB Governing Council decided to raise the key interest rates by another 50 basis points at each of those meetings. These decisions were motivated by the fact that inflation is significantly too high and, according to both the December projection and the projection compiled by ECB staff in March, is likely to remain above the euro area target of 2% for too long. At its meeting in May 2023, the ECB Governing Council raised the key interest rates again, albeit by only 25 basis points. Furthermore, the Eurosystem began gradually reducing its asset purchase programme (APP) portfolio at the start of March 2023. Future decisions by the ECB Governing Council are expected to ensure that key interest rates will be raised to levels sufficiently restrictive to achieve a timely return of inflation to its medium-term target. Key interest rate decisions will continue to be "data dependent". In the money market, interest rates have gone up significantly in recent months. EURIBOR futures are still set to follow a slight upward trajectory over the coming months, but then to decline gradually as of the fourth quarter of 2023. Yields on ten-year Federal bonds (Bunds) were also up on the level reached when the December projection was finalised. The yield trajectory derived from futures prices will remain more or less constant over the projection horizon. Similar to the EURIBOR, the yield level over the projection horizon will also significantly exceed the December projection. For bank loans, financing costs are also expected to be higher than in the December projection.

Major assumptions of the projection

Item	2022	2023	2024	2025
Exchange rates of the euro				
US dollar/euro	1.05	1.08	1.09	1.09
Effective[1]	116.8	121.2	121.5	121.5
Interest rates				
Three-month EURIBOR	0.3	3.4	3.4	2.9
Yield on government bonds outstanding[2]	1.2	2.4	2.4	2.4
Prices				
Crude oil[3]	103.7	78.0	72.6	70.4
Natural gas[4]	123.1	42.4	51.9	46.5
Electricity[4,5]	258.4	122.0	152.0	122.7
Other commodities[6,7]	6.6	− 11.5	− 2.0	1.3
Food[7,8]	40.6	− 1.4	− 2.7	− 0.3
German exporters' sales markets[7,9]	6.5	1.1	3.1	3.2

1 Compared with 42 currencies of major trading partners of the euro area (EER-42 group of currencies); Q1 1999 = 100. **2** Yield on the most recent German Federal bond in each case with an agreed maturity of ten years. **3** US dollars per barrel of Brent crude oil. **4** Euro per MWh. **5** Wholesale prices in the euro area based on data from the European Central Bank. **6** In US dollars. **7** Year-on-year percentage change. **8** Producer prices for food in the euro area based on data from the European Commission. In euro. **9** Calendar adjusted.

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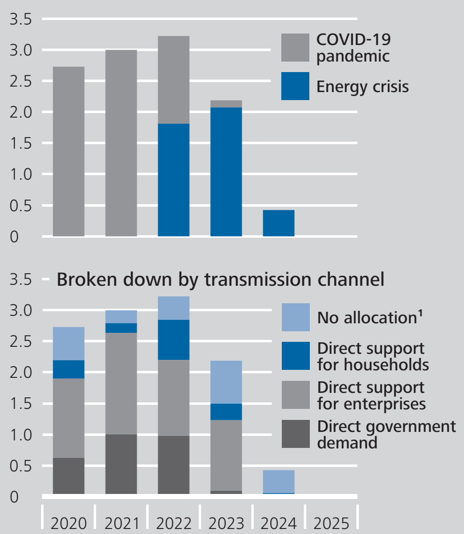
Since the conclusion of the December projection, foreign exchange markets have perceived the euro area's monetary policy stance and outlook to be tighter than that of the US Federal Reserve. This pushed up the value of the euro, which was trading at US$1.09 in the period underlying the exchange rate assumptions and thus just under 6% higher than assumed in the December projection. The euro's appreciation against the currencies of 41 major trading partners came to just over 3%.

Fiscal policy shaped by crisis-related fiscal measures

With a volume of just over 2% of GDP, temporary crisis-related support measures will significantly increase the government deficit in 2023, too (see the chart on p. 8). However, these burdens will fall significantly on the year, as the coronavirus measures are

Temporary fiscal measures affecting the deficit that are directly linked to the COVID-19 pandemic and the energy crisis*

As a percentage of GDP



* Bundesbank estimate. This definition does not include longer-term fiscal projects, such as those for climate change mitigation. **1** VAT rate and energy tax rate cuts, revenue shortfalls due to employers' one-off payments being exempt from income tax and social contributions, and reduction in fares for local public transport (€9 ticket).

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largely expiring. Of the aid provided in the wake of the energy crisis, the broadly based electricity and gas price brakes constitute the largest strains in 2023. After deducting the revenue drawn from sales on the electricity market, the impact of these strains on the deficit will amount to just over 1% of GDP in 2023. In addition, the Economic Stabilisation Fund for Energy Assistance is disbursing supplementary assistance. The fact that many employers are paying employees part of their wages and salaries as inflation compensation bonuses that are exempt from tax and social contributions is dampening government revenue. Furthermore, VAT on natural gas and district heating will continue to be charged at a reduced rate up to the end of the first quarter of 2024. The impact of the crisis measures on deficits can still only be projected with a high degree of uncertainty. Lower gas and electricity prices have now pushed down the estimated fiscal costs of the energy price brakes significantly below those contained in the December 2022 projection. Moreover, no further assistance is planned for gas trading companies.

In 2024, transfers under the electricity and gas price brake will fall sharply in annual terms. In this projection (as in the Federal Government's plans), they will continue until the end of April 2024.[4] Due to lower energy prices, however, the costs will only be minor. Bonuses exempt from tax and social contributions will continue to lead to higher revenue losses.

The projection also includes fiscal policy measures that will affect the government budget on balance in the longer term. On the revenue side, income tax cuts are beginning to take effect. In particular, the tax scale shifts from year to year in order to compensate for bracket creep in the previous year.[5] Contribution rates for the social security funds are rising significantly: the general contribution rate to the long-term care insurance scheme will increase by 0.35 percentage point as at 1 July 2023 as a result of the reform of long-term care. The supplementary contribution rates to the health insurance scheme will be raised considerably, especially as of 2024. On the expenditure side, investment in military machinery and equipment and spending on climate change mitigation are increasing sharply, based on projects under the Federal Armed Forces Special Fund and the Climate and Transformation Fund. Moreover, the latest wage agreements for central and local government significantly inflate personnel expenditure.

4 So far, these price brakes can be applied until the end of 2023. However, current legislation allows them to be extended by means of regulations until the end of April 2024.
5 The shifts up to 2024 have already been adopted. The projection assumes that legislation will be passed in order to continue this practice in 2025, too.

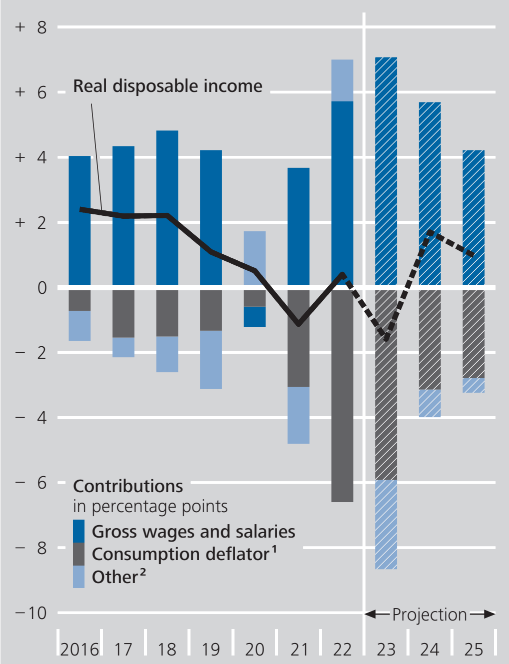
no longer assumed.[8] As from the third quarter, steeply increasing wages amid diminishing inflation will lead to perceptible gains in purchasing power. Private consumption will thus recover markedly, a development that will become particularly apparent in 2024. In 2025, however, it will lose momentum. At that point, wages will no longer be seeing such strong growth, and employment will have stopped expanding owing to demographic factors.

Exports benefit from diminishing supply bottlenecks and rising foreign demand, but are curbed by declining competitiveness

Exports fell somewhat more sharply in the fourth quarter of 2022 than expected in the December projection, owing to declining foreign demand and high energy prices. However, they were much more robust in the first quarter of 2023. After the turn of the year, lower energy prices supported production in energy-intensive industry, and diminishing supply bottlenecks probably helped firms to process the stocks of orders on their books, which were, in some cases, considerable. Despite a further fall in foreign demand, they therefore offset part of the previous decline in exports. Lower energy prices and diminishing supply bottlenecks are likely to ease the burden on enterprises over the remainder of the year, too, as indicated by the results of the Bundesbank's business survey.[9] This should also benefit exports, which are thus likely to grow somewhat in the current quarter, even though foreign orders in industry have been trending downwards of late. This is also indicated by the slightly positive ifo export expectations. In the second half of the year, exports will gain some momentum in line with the assumed increase in foreign demand.[10] The growing sales markets will also provide the necessary impetus for the remainder of the projection horizon, but this will not be passed through in full. Permanently elevated energy prices, an appreciating euro under a tighter monetary policy and strong domestic wage pressures will have a lasting impact on the competitiveness of German exporters. As a result, exports will expand at a substantially weaker pace than the sales markets.[11]

Households' real disposable income

Year-on-year percentage change



Sources: Federal Statistical Office and Bundesbank calculations. **1** With a negative sign in the chart: an increase in prices lowers the increase in real disposable income. **2** Disposable income excluding gross wages and salaries (including, inter alia, government transfers, mixed income and investment income).
Deutsche Bundesbank

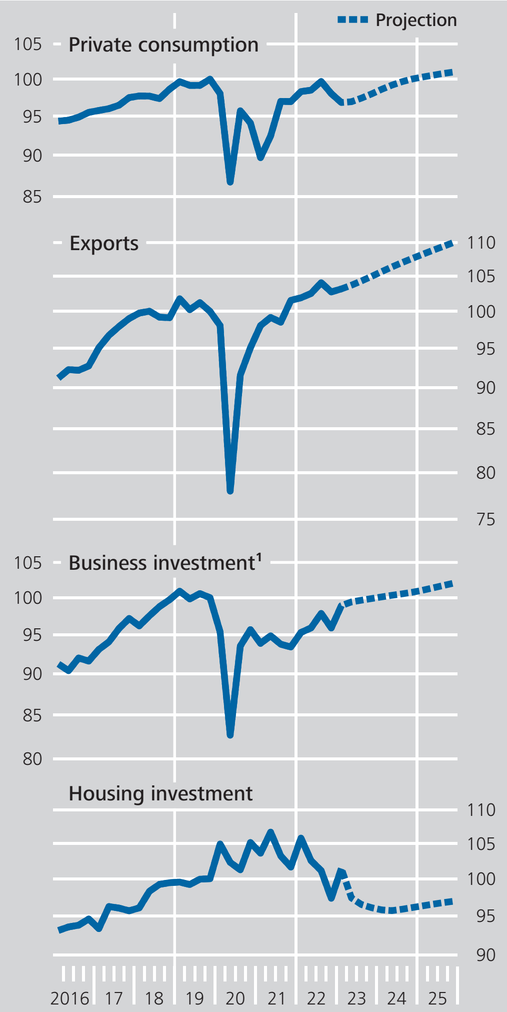
Business investment constrained by higher financing costs

Business investment held up better than expected in the 2022-23 winter half-year. In spite of higher financing costs and the initially still high uncertainty regarding energy supply, enterprises markedly increased their investment.

8 High inflation is likely to have depressed real private wealth, thereby eliminating a portion of coronavirus savings. For this reason, too, they have probably now been used up by lower income households, or, at the latest, will be used up once energy bills have to be paid this year. This is indicated by figures in the Bundesbank's Distribution Wealth Accounts (DWA); see Deutsche Bundesbank (2022c). Data on the financial accounts also show that households have been purchasing bonds on a larger scale again for some time now; see Deutsche Bundesbank (2023b). This is probably due to shifts from very liquid assets to less liquid but higher-interest assets, and makes it less likely that households will spend the money they saved up during the pandemic on a larger scale as they had planned to do in some cases a year ago; see Deutsche Bundesbank (2022d).
9 See the box on pp. 11-12. The projection assumes that the availability of intermediate products will return to its usual level by the end of 2023. The stabilising effect of diminishing supply bottlenecks will therefore peter out at the turn of 2023/24.
10 See the box on pp. 5 ff.
11 A portion of energy-intensive production in Germany (and its exports) may even have been permanently lost. See p. 12.

Expenditure components

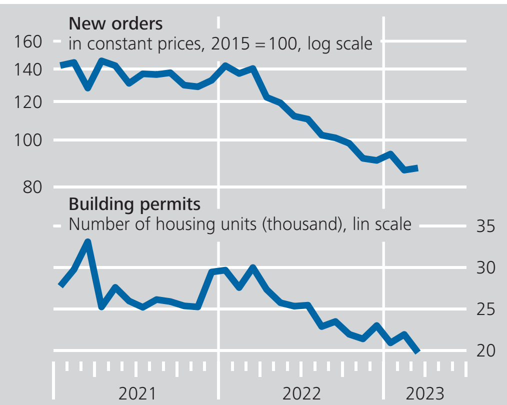
Q4 2019 = 100, log scale, price, seasonally and calendar adjusted



Sources: Federal Statistical Office and Bundesbank projections. **1** Private non-residential fixed capital formation.
Deutsche Bundesbank

Demand indicators for housing construction

Seasonally and calendar adjusted



Source: Federal Statistical Office.
Deutsche Bundesbank

Investment activities are also likely to have benefited from the easing in the energy markets. In addition, the availability of some capital goods improved as supply bottlenecks diminished. For the current quarter, survey results from the ifo Institute point to a further, but probably distinctly smaller, increase in business investment. Manufacturers of capital goods experienced a stabilisation of their business climate at a high level, according to ifo Institute data, and their production expectations most recently rose again slightly. Over the remainder of the projection horizon, robust export dynamics, expiring supply bottlenecks and the catch-up potential still available suggest that business investment will continue to increase.[12] Investment is also likely to be boosted by the German economy's transition to more climate and environment-friendly production methods. At the same time, though, financing conditions, which deteriorated considerably as a result of the tightening of monetary policy, are having a noticeable dampening effect. Overall, therefore, business investment is seeing only very muted expansion.

Downward trend in private housing investment interrupted only briefly

Housing investment rose sharply at the beginning of 2023 after having contracted, in some cases significantly, for three consecutive quarters. However, this increase, which comes as a surprise when compared with the December projection, is largely due to the relatively mild weather in January and February. The downward trend in housing investment is therefore likely to have been interrupted only briefly, as the demand for housing construction is currently severely depressed. New orders and building permits continued to decline significantly in view of higher financing and construction costs.[13] In addition, residential real estate prices have been declining since mid-2022. The projection assumes that these will stabilise over

12 Business investment has not yet recovered from the declines experienced since the start of the pandemic. Even after the most recent increase, in the first quarter of 2023 it was still around 1% lower than its Q4 2019 level.
13 In line with this, construction firms are increasingly reporting a shortage of orders, according to the ifo Institute.

The impact of negative supply-side factors on German firms' business activity

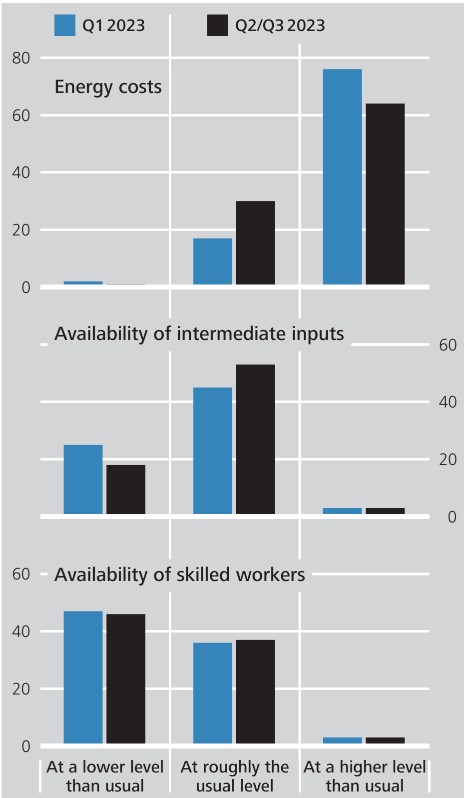
For some time now, various supply-side factors have been affecting the German economy. Even before the coronavirus pandemic, the shortage of skilled workers had begun to present a significant obstacle,[1] with the labour market suffering from shortages for quite a while, mainly as a result of demographic change.[2] Since the beginning of 2021, bottlenecks in key intermediate inputs have also been negatively impacting German firms' business activity.[3] And finally, the war against Ukraine and the tense situation in the energy markets that it caused led to an unprecedented rise in energy prices. More recently, the situation eased and energy prices fell significantly. By historical standards, however, they remained at an elevated level.

In order to assess the impact of these three negative supply-side factors – the shortage of skilled labour, supply chain disruptions and higher energy costs – on the provision of goods and services by German enterprises in the near future, the Bundesbank surveyed a total of 2,590 enterprises as part of the Bundesbank Online Panel Firms (BOP-F) in April 2023.[4]

For the first quarter of 2023, just over three-quarters of firms reported that energy costs were higher than usual. By contrast, fewer than two-thirds expected costs to remain at a higher level than usual in the summer half-year (April to September 2023).

Level of selected supply-side factors at German enterprises*

Percentage of firms



Source: Bundesbank Online Panel Firms, April 2023. * Based on the responses of 2,590 enterprises to the question: "At what level were the following factors in the first quarter of 2023 (January to March 2023) compared with the usual level for your enterprise? And at what level will these factors likely be in the period from the second to third quarter of 2023 (April to September 2023)?" Differences between the sum of the percentages and 100% represent the responses "does not apply to my enterprise" and "don't know".

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1 In 2017, for example, just under half of the firms responding to a corporate survey conducted by the Cologne Institute for Economic Research (Institut der deutschen Wirtschaft, IW) reported that the shortage of skilled workers was dampening their investments; see Bardt and Grömling (2017).
2 See Fitzenberger (2023) and Federal Employment Agency (2023). Labour market bottlenecks have played a prominent role in the Bundesbank's macroeconomic projections for at least six years; see, for example, Deutsche Bundesbank (2017).
3 This is particularly true of firms in the manufacturing sector. In the spring of 2022, it was foreseeable, in the light of the Ukraine war, that industrial production would be hurt by supply bottlenecks for longer than previously expected; see Deutsche Bundesbank (2022e).
4 The full questionnaire will be available from 23 June 2023; see Deutsche Bundesbank (2023c). The relevant questions were asked only in April 2023 (wave 27). The answers were received between 3 and 25 April 2023.

In the past quarter, supply bottlenecks remained a major factor for just over one-quarter of all firms (around one-third in the manufacturing sector). Supply bottlenecks are expected to ease further in the summer half-year, with fewer than one in five enterprises still expecting a lower availability of intermediate inputs than usual then (just over one-quarter in the manufacturing sector). If the results are weighted on the basis of enterprises' sales, the share is actually only 2% (9% in the manufacturing sector).[5]

The shortage of skilled workers is likely to remain a widespread obstacle in 2023. Almost half of the surveyed firms stated that access to skilled workers was more difficult in the past quarter, and virtually no enterprise said it was at a higher level than usual. Looking to the summer half-year, enterprises do not expect the situation to change significantly.

The three supply-side factors may have an impact not only through the number of firms affected but also through their intensity at these firms. Those firms reporting a deviation from the usual level for one of these negative factors reported a predominantly negative impact on their business activity.[6] Compared with the first quarter of 2023, the intensity of the impact remains virtually unchanged in the current summer half-year.[7] In relation to the projection, the survey results as a whole indicate a slight relief in terms of energy costs and a discernible relief in terms of supply bottlenecks in the current summer half-year. Supply bottlenecks are assumed to completely dissipate by the end of the year.

The higher than usual energy costs are currently having a noticeable dampening effect on German enterprises' business activity. An important question is whether business activity would not recover even if energy costs were to return to their usual level (roughly that of 2021). Weighted by sales, slightly more than half of those firms for which higher energy costs had a negative impact in the first quarter of 2023 expect that their business activity would recover completely. However, 40% of firms expect only a partial recovery and 6% expect no recovery at all.[8] The fact that so many firms do not expect their business activity to recover fully even if energy costs were to return to their usual levels suggests that other negative factors are at play, which firms do not expect to disappear if energy costs come down again. In addition, some of the decline in production recorded by energy-intensive industry in the past year may be permanent.

5 This takes into account the fact that supply bottlenecks are likely to have a stronger macroeconomic impact where an enterprise is large than for a small enterprise. For each possible answer, the weights are calculated as the sum of the respective enterprises' sales divided by the sum of the sales of all enterprises that were asked the question. In the first quarter, the weighted share was 15% (23% in manufacturing).
6 This analysis only looked at the responses of firms that reported a certain deviation in both of the surveyed periods. Weighted by sales, the deviations in all factors cause 10% to 15% of firms to be "very negatively" impacted. In terms of supply bottlenecks and the shortage of skilled workers, around 85% state that they had been impacted "fairly negatively". There are hardly any firms that see no impact here. Looking at the higher energy costs, meanwhile, around two-thirds of firms reported having been impacted "fairly negatively". By contrast, the higher energy costs have no impact on around one in five enterprises.
7 There are indications that the intensity is waning in relation to energy costs at best, as a small number of firms see energy costs remaining higher than usual, yet do not expect this to have any further impact despite higher costs previously having affected them somewhat adversely.
8 In the manufacturing sector, the results are even clearer: only 43% of industrial firms expect their business activity to recover completely, whereas 55% expect a partial recovery at best.

the course of the year and see a moderate increase over the remainder of the projection horizon.[14] In this environment, housing investment will again decline markedly from the second quarter of 2023 until the coming year. From the second half of 2024 onwards, however, it will slowly start to recover. This is because the fundamental demand for housing will remain intact, in part due to the high level of immigration. In addition, investment in housing stock is likely to increase in connection with the energy transition. Even so, the expansionary path onto which housing investment will veer in the second half of the projection horizon is very flat.

Government consumption falls in 2023 as pandemic-related health spending ends

Real government consumption will decline sharply this year and, when viewed in isolation, will dampen economic activity.[15] The main reason for this is that the pandemic-related health spending from previous years, such as for testing and vaccination in particular, will come to an almost complete end. This will not be offset by higher expenditure on additional staff or refugees, for example. Real government consumption will pick up again from 2024 and then grow somewhat more strongly than real GDP.

Nominal government investment will grow sharply over the projection horizon. However, there will still be large price increases here.

14 However, they will increase less than fundamental factors would suggest. Overvaluations of residential real estate will therefore gradually decline over the projection horizon. For more information on overvaluations last year, see Deutsche Bundesbank (2023d).
15 It has been announced that, in the national accounts, public transport enterprises will be reclassified under general government as of the second quarter of 2023; for more information, see Eurostat (2022). This has not been taken into account for this projection, as the exact implementation of this change is yet to be determined. The reason for the reclassification is that the €49 Deutschland-Ticket will significantly increase the need for government subsidies. This means that transport enterprises will no longer obtain sufficient funding from market revenues in order to be classified as part of the corporate sector. This reclassification is likely to increase real government consumption, amongst other things, as transport services that were previously attributed to the private sector will then be attributed to general government. For GDP as a whole, however, the reclassification should not play any major role.

Key figures of the macroeconomic projection

Year-on-year percentage change, calendar adjusted[1]

Item	2022	2023	2024	2025
GDP (real)	1.9	– 0.3	1.2	1.3
GDP (real, unadjusted)	1.8	– 0.5	1.2	1.2
Components of real GDP				
Private consumption	4.9	– 1.4	2.1	1.3
Memo item: Saving ratio	11.3	11.1	10.8	10.5
Government consumption	1.2	– 2.6	1.3	2.1
Gross fixed capital formation	0.5	1.6	0.8	1.8
Business investment[2]	2.4	3.4	1.0	1.1
Private housing construction investment	– 2.0	– 3.8	– 2.0	0.8
Exports	3.5	1.2	2.5	2.3
Imports	7.0	0.3	3.3	2.8
Memo item: Current account balance[3]	4.3	6.4	6.4	6.2
Contributions to GDP growth[4]				
Domestic final demand	2.8	– 0.9	1.5	1.5
Changes in inventories	0.4	0.2	– 0.1	0.0
Exports	1.6	0.6	1.2	1.1
Imports	– 2.9	– 0.2	– 1.5	– 1.3
Labour market				
Total number of hours worked[5]	1.5	1.1	1.0	0.1
Employed persons[5]	1.3	0.8	0.4	0.0
Unemployed persons[6]	2.4	2.6	2.5	2.4
Unemployment rate[7]	5.3	5.6	5.3	5.1
Memo item: ILO unemployment rate[8]	3.1	2.9	2.8	2.8
Wages and wage costs				
Negotiated wages[9]	2.6	4.7	4.5	3.3
Gross wages and salaries per employee	4.1	6.0	5.2	4.1
Compensation per employee	3.7	5.7	5.3	4.3
Real GDP per employed person	0.6	– 1.1	0.8	1.3
Unit labour costs[10]	3.2	6.9	4.4	2.9
Memo item: GDP deflator	5.6	6.0	3.7	2.8
Consumer prices[11]	8.7	6.0	3.1	2.7
Excluding energy	5.2	6.4	3.1	2.8
Energy component	34.7	4.7	3.4	1.8
Excluding energy and food	3.9	5.2	3.1	2.8
Food component	10.6	11.5	2.8	2.6

Sources: Federal Statistical Office (up to Q1 2023); Federal Employment Agency; Eurostat. Annual figures for 2023 to 2025 are Bundesbank projections. **1** If calendar effects present. For unadjusted data, see the table on p. 22. **2** Private non-residential fixed capital formation. **3** As a percentage of nominal GDP. **4** In arithmetical terms, in percentage points. Discrepancies in the totals are due to rounding. **5** Domestic concept. **6** In millions of persons (Federal Employment Agency definition). **7** As a percentage of the civilian labour force. **8** Internationally standardised as per ILO definition, Eurostat differentiation. **9** Unadjusted figures, monthly basis. Pursuant to the Bundesbank's negotiated wage index. **10** Ratio of domestic compensation per employee to real GDP per employed person. **11** Harmonised Index of Consumer Prices (HICP), unadjusted figures.

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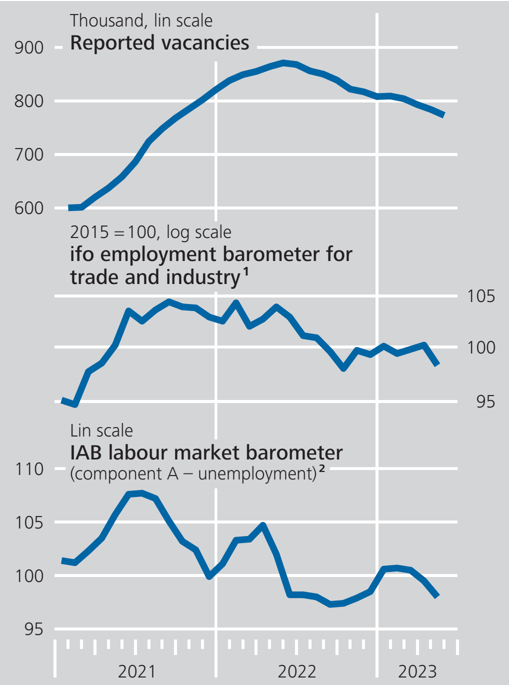
Leading indicators for the labour market

Seasonally adjusted



Sources: Federal Employment Agency, ifo Institute and Institute for Employment Research (IAB). **1** Qualitative employment plans of 9,000 surveyed enterprises for the next three months. **2** Values below 100 correspond to rising unemployment.

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Government investment grows sharply due to rising military expenditure

These will dampen real growth. Despite this, real government investment will also rise considerably. This is due, in particular, to increasing investment in military equipment. Government investment in construction will also rise, however.

Imports see fairly strong expansion over the projection horizon

Real imports fell sharply in the past winter half-year. Lower energy imports also played a role in this regard. Over the remainder of this year, however, import demand will gradually pick up again. In particular, rising exports and recovering private consumption will be accompanied by increased demand for imports. As energy markets ease, and due to the lower prices, energy imports are set to go back up. Overall, however, the decline in the past winter half-year will mean that import growth will only be low on average over 2023. Over the remainder of the projection horizon, imports will see fairly sharp expansion in line with aggregate demand.

Current account balance for 2023 slightly higher than 6% of GDP

According to the projection, the German current account surplus will rise to 6.4% of GDP this year, compared with only 4.3% in 2022. The key factor is the considerable rise in the trade balance. This is reflected in the terms of trade, which improved markedly in favour of the German economy again as the prices of energy and other imported commodities eased. In light of the assumption that commodity prices will fall slightly and export prices will rise sharply at the same time, this trend will continue over the projection horizon, but will greatly diminish. By contrast, real trade flows of goods and services will tend to have a dampening effect over the projection horizon. This is because the competitiveness of German exporters will be constrained by higher energy prices and sharper rises in wage costs compared to those of their competitors.[16] This will dampen exports, whilst import demand from domestic consumption will see comparatively strong growth. On the whole, no major changes in the trade balance are expected for 2024 or 2025. The current account surplus, too, will see hardly any change over the projection horizon, remaining consistently at just over 6%.

Labour market

Labour market less burdened than expected by weak economic activity

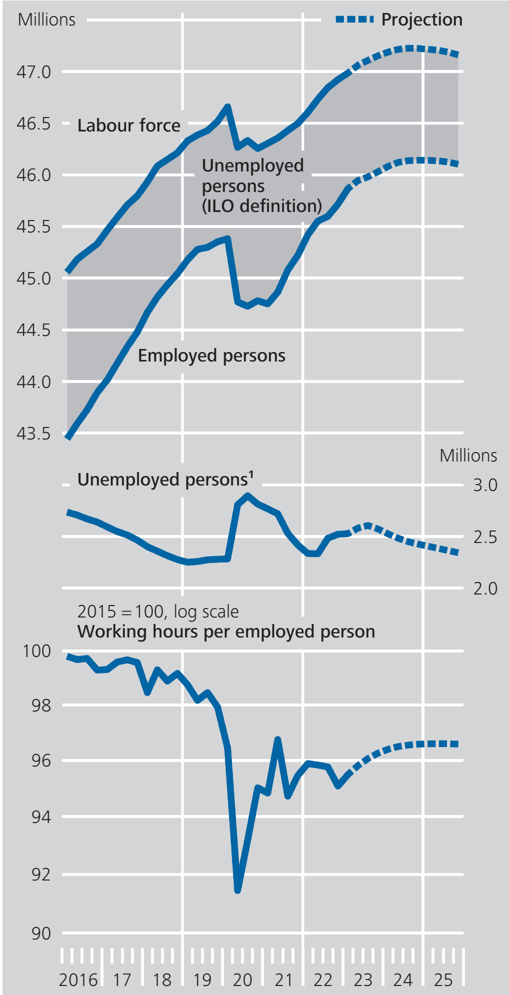
Despite the decline in economic output in the 2022-23 winter half-year, there was a marked increase in employment during this period. The December projection expected that employment would only stagnate. However, the total number of hours worked grew to a lesser extent. This was related, first, to the fact that low-paid part-time employment rose particularly sharply; this type of employment generates fewer additional hours worked. Second, the number of working hours per employed person dropped to a very low level in the fourth

16 This holds true not only for the euro area. As is typical in the Eurosystem's Broad Macroeconomic Projection Exercise, this projection assumes a constant exchange rate, which means that no relief can be provided to exporters through this channel.

quarter of 2022 and only partially recovered in the first quarter of 2023. This was attributable to exceptionally high levels of sick leave.[17] Due to the weak economic activity, there was an increase in the number of registered unemployed persons, although this was only small and less than had been expected in December. Demand for labour eased somewhat. In this context, the high number of vacancies decreased slightly over the past half-year. The pronounced labour market tightness, measured by the ratio of vacancies to unemployed persons, abated only moderately, and the shortage of skilled workers remained a widespread problem (see the box on pp. 11 ff.).

Labour market

Seasonally and calendar adjusted, quarterly data



Sources: Federal Statistical Office, Federal Employment Agency and Bundesbank projections. **1** Unemployment according to national definition (in accordance with Section 16 of the Third Book of the German Social Security Code (*Sozialgesetzbuch*)).
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Very high immigration bolsters labour supply

Immigration reached a new high in 2022 at 1.45 million persons in net terms. The vast majority of these arrivals were refugees to Germany. Immigration can, in principle, help to stabilise the decline in the labour force caused by demographic change. However, in the case of refugees, such as those from Ukraine, integration into the labour market is cost-intensive and time-consuming. For this projection, it is assumed that there will be no repeat of the high level of immigration from Ukraine over the past year, but that there will also be no massive emigration back. Compared with the December 2022 projection, assumed net immigration for the current year has been revised upwards by 100,000 persons to 450,000. In subsequent years, immigration will decline slightly but remain high.[18] Nevertheless, and despite increasing individual propensity to work, the labour supply will begin to decline during the course of 2025. This is because the dampening effects of demographic change will also no longer be able to be offset by net immigration.

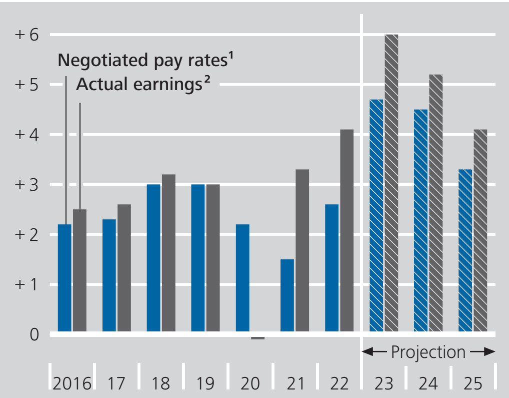
Employment growth expected to decline in the short term …

Given the only sluggish economic recovery, the pace of employment growth is likely to slow markedly in the current summer half-year. This is also indicated by the less expansionary hiring intentions amongst enterprises. By contrast, the depressed working hours amongst employed persons should continue to recover gradually. A moderate rise in unemployment is also expected over the coming months. However, a particular role will be played here by the fact that refugees who arrived in Germany over

17 Short-time work, by contrast, did not play a major role. For more information on the individual components of the working time measurement concept, see Institute for Employment Research (2023).
18 Net migration of 350,000 persons is assumed for 2024 – 50,000 persons higher than in the December projection – and net migration of 300,000 persons is assumed for 2025.

Negotiated wages and actual earnings

Year-on-year percentage change, monthly basis



Sources: Federal Statistical Office and Bundesbank projections. **1** According to the Bundesbank's negotiated wage index. **2** Gross wages and salaries per employee.

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the past year will then be increasingly available to the labour market.[19]

… but labour market remains in good shape and tightness increases again in 2024 and 2025

The underlying trend of the labour market, however, will remain in good shape over the remainder of the projection horizon. Demand for labour will remain high and the supply of labour will, assuming there is no one-off effect of additional refugees from Ukraine, grow only slightly over time. This means that the number of registered unemployed persons will also start to decline again towards the end of the current year, especially as the economic recovery will increasingly gain momentum. At the same time, labour market tightness will increase again and it is likely that it will again become more difficult to fill vacancies. Employment will rise only slightly in 2024, while the unemployment rate will return to its level of 2022. On average over 2025, employment will not yet begin to decline on the year, despite a diminishing labour force. This is because unemployment will continue to fall somewhat further. The ratio will then return almost to its previous record low from 2019.

Labour costs and prices

Negotiated wages rise sharply …

The most recent wage agreements exceeded the strong rises in wages that were agreed upon last year. They were also well above the expectations of the December projection. For example, when calculated on a yearly basis, wage growth amounted to 6.3% for the public sector (central and local government), 6.1% for Deutsche Post, and 5.1% for the textiles and clothing industry.[20] In some sectors, the unions achieved a considerably higher percentage of their demands than on average over previous years. This is likely to be a result of the confluence of high inflation, a robust and structurally tight labour market, and diminishing risks to economic activity. Similar underlying conditions are likely to continue to prevail in the coming months, too. Inflation rates will decline considerably over the remainder of the projection horizon. At the same time, however, the labour market will become tighter. This is conducive to employees' bargaining positions and their efforts to obtain greater compensation for previously suffered losses in real wages.

… with inflation compensation bonuses playing an important role in 2023 and 2024

Most of the recent wage agreements provide for a mix of permanent rises in scheduled pay rates and inflation compensation bonuses that are not subject to tax or social security contributions. In some sectors, these permanent pay rises will only take effect with a significant time lag, while the inflation compensation bonuses will be paid out primarily this year. Overall, negotiated wages will rise by 4.7% in 2023 and by just a slightly lower rate of 4.5% in 2024. As of 2025, any inflation compensation bonuses will again be subject to tax and social security contributions. It can be assumed that they will then be substituted by permanent wage in-

19 The influx of refugees has not had a major impact on the unemployment statistics over the past six months. These individuals are not included in the unemployment statistics while they are attending language and integration courses, even if they are recorded as seeking employment, as they are unavailable to the labour market during this time. In the coming months, some of these individuals will be likely to complete these courses and then become visible in the unemployment statistics.

20 These calculations always refer to a notional recipient of the agreed basic pay rate. Due to the fixed amounts of inflation compensation bonuses, wage increases are higher for lower pay grades and lower for higher pay grades. This applies similarly to cases in which base amounts have been agreed upon.

creases in some cases. Nevertheless, the increase in negotiated wages will be markedly lower than in the two years prior.[21]

Actual earnings achieve highest growth rates since 1992

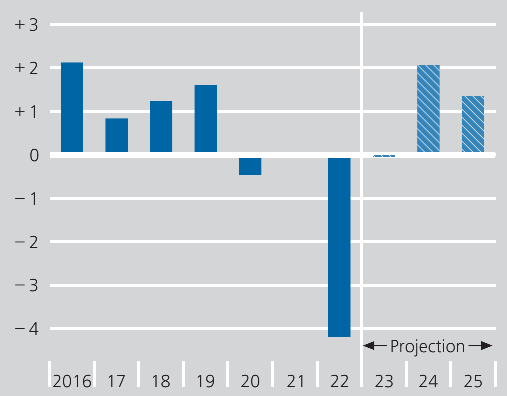
Growth of actual earnings will consistently outpace that of negotiated wages over the projection horizon. This year, roles will be played in this regard by widespread inflation compensation bonuses in sectors that are not bound by collective agreements, delayed adjustments in wages to the strong rise in the minimum wage as of October 2022, and larger performance bonuses. In subsequent years, wage drift will be somewhat lower, but remain clearly positive. This is because, in an environment of increased labour market shortages and recovering economic activity, paid overtime and benefits outside of the agreed pay scales will be increasingly prevalent. At 6% this year and 5.2% next year, actual earnings will rise at their fastest rates since 1992. In 2025, wage growth will wane significantly but remain well above average. This strong wage growth will compensate for a large proportion of earlier losses in purchasing power. However, real actual earnings in 2025 will still be markedly below their level from 2019. The real wage losses incurred since then will thus not have been fully recouped.[22] From a corporate perspective, the sharp rise in wages will also cause a considerable increase in labour costs. Measured in terms of compensation per employee, labour costs will rise only slightly less than actual earnings in 2023. In 2024 and 2025, labour costs will actually rise slightly more than actual earnings. This is due to the assumed increases in the contribution rates for the statutory health insurance and long-term care insurance schemes.

Substantial domestic inflation this year, as unit labour costs rise sharply and profit margins widen

The combination of sharply rising labour costs, a robust labour market, and declining economic output will lead to an exceptionally strong rise in unit labour costs this year. This will contribute to substantial domestic inflation, which, as measured by the GDP deflator, is expected to amount to 6%. Another factor in this is that enterprises are initially likely to widen their profit margins slightly once again, after already expanding them to a large extent earlier. This will lead to sharp rises in profits and additional price pressures.[23] This is because demand will be high, which is apparent from the large number of orders on hand in industry, for instance. At the same time, there will still be some supply-side bottlenecks for intermediate goods at first, which will continue to encourage costs to be passed through to sales prices to a greater degree than usual.[24] This is partly due to the fact that the persisting high-inflation environment makes it more difficult for con-

Real actual earnings per employee*

Year-on-year percentage change



Sources: Federal Statistical Office, Bundesbank calculations and Bundesbank projections. * Gross wages and salaries per employee, deflated by the Harmonised Index of Consumer Prices.
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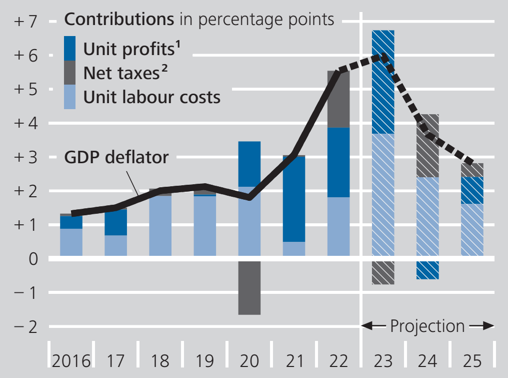
21 All past pay agreements included in the Bundesbank's negotiated wage statistics (around 500 collective wage agreements and provisions governing civil servant pay) are factored into the projections of negotiated wage increases. They are extrapolated beyond their contractual terms, taking into account the overall economic situation and industry-specific idiosyncrasies.
22 Real actual earnings are calculated as nominal actual earnings deflated by the HICP on a monthly basis.
23 Aggregate profit margins are defined here as the ratio of the gross value added deflator to unit labour costs and are calculated on the basis of data from the national accounts. They rose sharply by 2.1% in 2021 and 2.4% in 2022, after falling by 1.1% in 2020. They are linked to unit profits (defined as the ratio of gross operating surplus to real GDP and also calculated on the basis of data from the national accounts) via unit labour costs and thus the wage share. The more the rise in unit profits exceeds the rise in unit labour costs, the greater the rise in profit margins. Conversely, profit margins decrease if unit labour costs rise more sharply than unit profits. It is thus even possible for unit profits to rise while profit margins remain stagnant. This occurs when unit profits and unit labour costs increase at the same rate.
24 See, for example, Gödl-Hanisch and Menkhoff (2022).

GDP deflator

Year-on-year percentage change



Source: Federal Statistical Office and Bundesbank calculations. **1** Ratio of gross operating surplus to real GDP. **2** Ratio of net taxes on production to real GDP (taxes on production less subsidies) to real GDP.

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sumers to correctly assess price signals and evade price increases.

In subsequent years, unit labour costs rise at diminishing rates and profit margins normalise; domestic inflation thus falls to 2.8% by 2025

Although profit margins are likely to rise again slightly on average over 2023, they should start to normalise during the course of this year. Ultimately, supply bottlenecks will gradually ease and the pent-up demand will abate. Accordingly, enterprises' pricing power will diminish again. This will likely continue over the remainder of the projection horizon. At the same time, unit labour costs will continue to rise sharply. However, their growth in 2024 and 2025 will be lower than before, as productivity will increase perceptibly and wage growth will slow. Unit profits will thus be somewhat subdued and will make a significantly smaller contribution to domestic inflation.[25] Overall, the rate of the GDP deflator will gradually decline to 2.8% in 2025. For Germany, this is still an unusually high level of domestic inflation by historical standards.

Inflation rate lower than expected due to energy, but rate excluding energy surprisingly persistent

Overall, HICP inflation fell significantly more sharply than expected in the winter half-year. Following record double-digit figures of more than 11% in the autumn of 2022, it fell back to 6.3% in May 2023. In the December projection, it had been forecast only to abate to 7.4% in May. The lower figure is mainly attributable to the easing in the energy markets.[26] It was to be expected that energy price inflation would greatly diminish as a result of government relief measures, and this did, in fact, turn out to be the case. However, energy commodity prices – especially market prices for gas and electricity – also fell much more sharply than expected. Furthermore, it is likely that these lower prices were passed through to end consumers somewhat more quickly than usual. Food price inflation, by contrast, continued to rise. The strong and broad-based rise in prices observed here since last year continued for longer than expected. Unfavourable weather conditions in some producer countries amplified upward pressures at the beginning of this year. Finally, the core rate (excluding energy and food) has remained surprisingly high since the previous projection was finalised. This applies to inflation in the prices of both goods and services, thus revealing a stronger price trend for underlying inflation than had been expected in December.

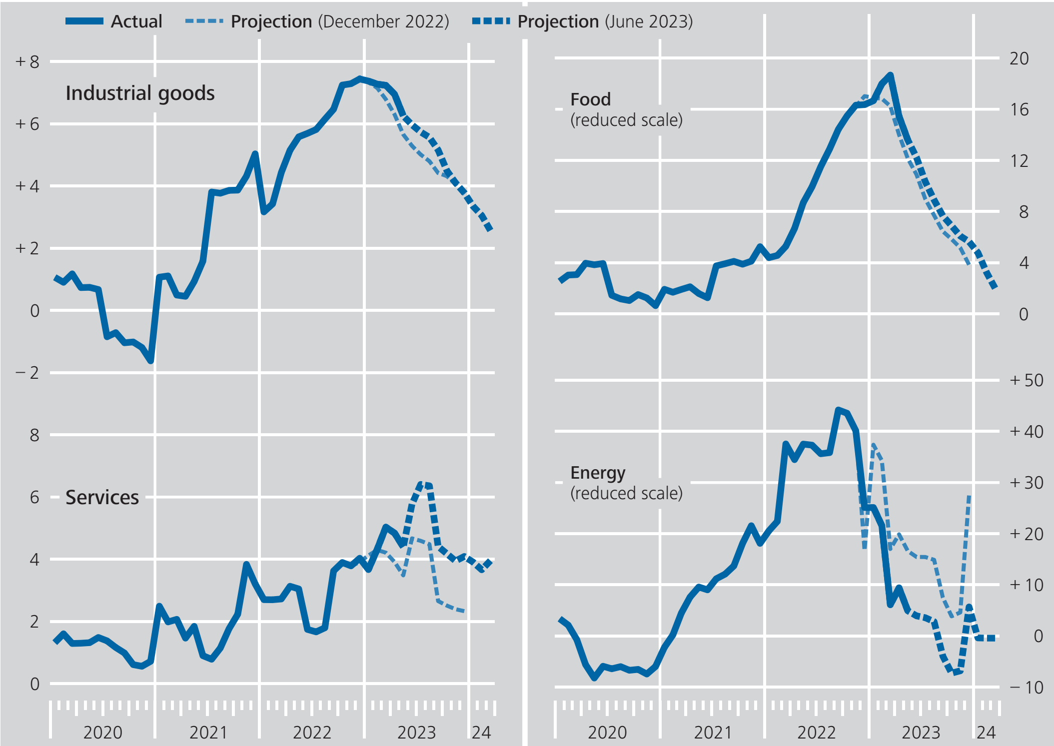
Core rate likely to peak only just this year, while headline inflation already in decline

According to the projection, annual energy inflation will continue to decline this year and will be negative for a period of time in the autumn. Oil prices, for instance, are projected to fall somewhat further. In addition, consumer rates for electricity and gas are likely to decrease slightly over the course of the year. There are also signs that food price inflation will no longer be as broadly based as it has been thus far. For example, dairy products have recently become cheaper. Prices for unprocessed fruit and vegetables have also receded. However, as a result of the sharp rises in prices at the start of 2023, inflation for food products will remain in double digits overall on average for the year. In the case of goods (excluding energy and food) and services, it is likely that price pres-

25 Based on the definitional relationships on the income side of GDP in the national accounts, the increase in the GDP deflator can be broken down into the following components: unit labour costs, net taxes – defined here as taxes on production (less subsidies) per unit of real GDP – and unit profits.
26 In addition, a role was played by the fact that, as part of the annual update, the weight of energy in the HICP was significantly reduced. See Deutsche Bundesbank (2023e).

Latest revisions to projections for selected HICP components in Germany

Year-on-year percentage change



Sources: Federal Statistical Office and Bundesbank projections.
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sures will be maintained by corporate profit margins, which are widening slightly again. At the same time, the price pressure driven by labour costs, which is already high, will continue to mount. Combined, these will result in the core rate rising from 3.9% last year to 5.2% this year.[27] By contrast, headline HICP inflation will abate from 8.7% to 6.0%.

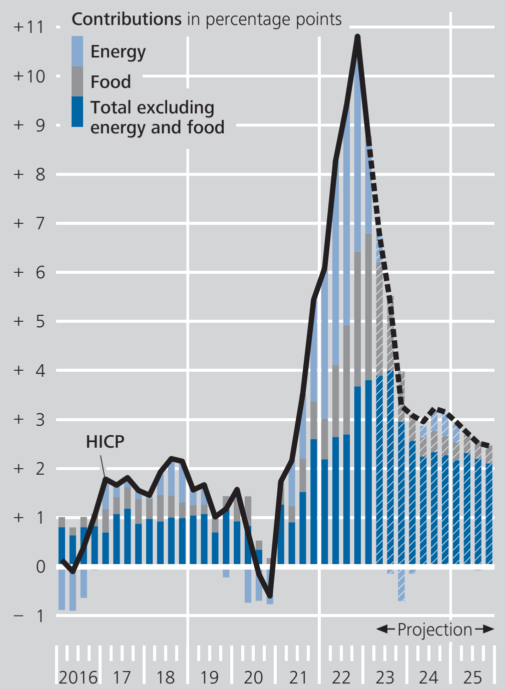
Energy and food price inflation will decline in 2024 and profit margins will fall, but labour costs will continue to put pressure on prices

Energy price inflation in 2024 will initially only be slightly lower than in 2023. One reason for this is the increase in the carbon price levied on petroleum products and gas since 2021.[28] Furthermore, in the second quarter of the year, government relief measures, such as the temporary reduction in the VAT rate for natural gas and district heating, as well as the electricity and gas price brakes, will expire. According to the projection, the uncapped retail tariffs for electricity and gas will be only slightly higher than the levels of the price brakes. As a result, consumer prices will rise only slightly once the price brakes expire. This rebound effect is thus set to be significantly smaller than had been expected last December. Food price inflation is expected to decline very significantly. One factor here is the assumed fall in producer prices. In addition, weather-related price pressures will have dissipated, and lower energy prices will have an indirect easing effect. Much the same applies to the core rate. Here, there will additionally be an easing of the upward pressure from profit margins, as these are set to decline somewhat. At the same time, the sharp rise in labour costs will continue to put considerable pressure on prices. On balance, the core rate will drop to 3.1% and will thus be on a par with the headline rate.

27 According to Bundesbank estimations, the introduction of the €49 Deutschland-Ticket in May is likely to dampen the rate excluding energy and food by 0.25 percentage point on average over the year.
28 See Deutsche Bundesbank (2019). The increase in the carbon price originally planned for 2023 was postponed by one year because of the energy crisis.

Contributions to headline HICP inflation by component

Quarterly, year-on-year percentage change



Sources: Federal Statistical Office, Bundesbank calculations and Bundesbank projections.
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In 2025, the headline rate will fall to 2.7% and the core rate will fall to 2.8%

In the final year of the projection horizon, the inflation rate will continue to decline somewhat, though it will remain at a high level. Energy price inflation will continue to ease owing to lagged adjustments to the lower market prices for electricity and gas. The price pressure from labour costs, which is significant for the rate excluding energy, will also no longer be as exceedingly strong as in previous years. However, it will still be considerable, partly because the rising labour costs will be passed through to consumers, in some cases with a significant time lag. Import prices will also continue to exert some inflationary pressure. Finally, other cost factors will play a greater role than in the past, for example in terms of the green transformation. All in all, the headline rate for 2025 will fall to 2.7% and the core rate will fall to 2.8%.

Public finances

Deficit ratio set to drop somewhat in 2023 as crisis burdens diminish

According to this projection, the general government deficit ratio will stand at 2.4% for 2023, down slightly on the year (2022: 2.7% of GDP). This is because, on balance, temporary crisis measures are placing less pressure on the budget (for more on the measures, see pp. 7-8). However, the deficit will fall significantly less than the decline in temporary crisis measures would indicate. This is first of all because high inflation and its consequences are increasingly pushing up expenditure, with interest expenditure and current operating expenditure, in particular, rising significantly. Second, general government is increasing its expenditure on defence and climate policy substantially. And third, tax developments are restrained, which is also indicated by the subdued tax revenue growth over the course of the year to date.

Deficit ratio will drop significantly in 2024 due to expiry of temporary crisis measures

Compared with the previous year, the deficit ratio will fall considerably in 2024 to 1.2%. In 2025, it will remain more or less unchanged at 1.1%. The temporary crisis measures will expire to a large extent in 2024 and completely in 2025. This, however, will be counteracted by rising shortfalls in the central government's off-budget entities for climate mitigation and the armed forces. In addition, inflation will increasingly impact major wage-related expenditure, with compensation for employees and pension expenditure growing significantly as a result of dynamic wage increases.

Significant additional expenditure will lead to structural deficit

The structural budgetary position will deteriorate over the projection horizon[29] on the back of significant increases in expenditure. Expenditure on pensions, climate protection and defence, in particular, will grow considerably up to 2025. The structural deficit will ultimately amount to around 1% of GDP in 2025.

29 The structural budgetary position is calculated here by adjusting for cyclical influences and temporary effects (such as temporary crisis measures).

Debt ratio will fall towards 60%

According to this projection, the debt ratio will fall significantly and amount to 62% at the end of 2025 (2022: 66.2%). The decline is mainly due to the strong growth in nominal GDP, which constitutes the debt ratio's denominator. In addition, central government is financing part of its 2023 deficit using cash reserves accumulated during the coronavirus pandemic rather than through new borrowing. Moreover, it is paring back debt related to coronavirus assistance loans and bad bank portfolios stemming from the financial crisis. If looked at in isolation, other factors will increase debt somewhat in 2023. As financial transactions, they do not impact the deficit. They include a central government loan to build up capital in the statutory pension insurance scheme and transfers to the IMF Resilience and Sustainability Trust, a trust fund for pandemics and climate protection in low-income countries. Furthermore, it should be noted that surpluses run by the Federal Employment Agency and the long-term care insurance scheme, in particular, are not used to repay debt, but instead to increase reserves.

Risk assessment

Risks to economic growth tilted to downside, but risks to outlook for inflation rate tilted to upside

Owing to a significant reduction in gas consumption and increased deliveries from other countries, uncertainty regarding the gas and electricity supply in Germany has declined significantly since December. However, a renewed heightening of tensions in the energy markets cannot be ruled out. For this reason, too, the projections described here are subject to a degree of uncertainty which, while lower than in December, remains elevated. Additional uncertainties exist, particularly about how long the high inflation will persist. From today's perspective, the risks with regard to inflation appear to be mostly tilted to the upside, and those with regard to economic growth mostly to the downside.

Impact of monetary policy tightening could be stronger than assumed, especially via banking or financial market channel

In view of the high inflation rates, the Eurosystem started to rein in its very expansionary monetary policy in December 2021.[30] The effects of this monetary policy normalisation and tightening are now widely visible. In this projection, they have a dampening effect on business and housing investment, for example, and, through weaker aggregate demand, also on inflation. So far, there are no indications for Germany that the tightening of monetary policy is having a significantly stronger effect than empirically estimated historical correlations would suggest. Nevertheless, the tighter monetary policy could also give rise to stronger or unintended effects. For example, the possibility of turmoil occurring in the European banking sector due to the interest rate hikes cannot be ruled out.[31] The tighter monetary policy could also have an increased impact on the financial system if there were a considerable fall in house prices. In the event of future credit defaults, lenders could incur higher losses because the collateral on real estate loans would be worth less. In the worst-case scenario, these risks could have a negative impact on the real economy through reduced lending.[32] Overall, stronger effects of the tighter monetary policy therefore represent a downside risk to economic growth and price inflation.

Downside risks to the real economy remain due to geopolitical tensions and with respect to the energy supply – albeit to a lesser extent than before

The easing in the gas market has led to gas storage facilities currently being much better filled than they were in the past at this time of year. Owing to this and other factors, the probability of a gas shortage in the coming winters is significantly lower than in the December projection. Nevertheless, it is not possible to rule out energy supply problems arising once again. Gas deliveries could be lower than assumed here or gas consumption could be higher – for

30 At that time, it was decided to end net asset purchases, both under the pandemic emergency purchase programme (PEPP) and – faster than initially envisaged – under the asset purchase programme (APP). Furthermore, the key interest rates were raised sharply. For more information, see p. 7.
31 A case in point – albeit comparable to the situation in Germany only to a limited extent – is represented by the events surrounding Silicon Valley Bank, which became distressed in March 2023 in part owing to tighter monetary policy in the United States.
32 See Deutsche Bundesbank (2022f).

Key figures of the macroeconomic projection – non-calendar adjusted

Year-on-year percentage change

Item	2022	2023	2024	2025
GDP (real)	1.8	– 0.5	1.2	1.2
GDP (real, calendar adjusted)	1.9	– 0.3	1.2	1.3
Components of real GDP				
Private consumption	4.9	– 1.5	2.2	1.1
Memo item: Saving ratio	11.3	11.1	10.7	10.4
Government consumption	1.2	– 2.6	1.3	2.1
Gross fixed capital formation	0.4	1.1	0.6	1.6
Business investment[1]	2.2	2.9	0.8	0.9
Private housing construction investment	– 2.1	– 4.3	– 2.2	0.6
Exports	3.4	0.7	2.3	2.1
Imports	6.9	– 0.1	3.1	2.7
Memo item: Current account balance[2]	4.2	6.4	6.4	6.2
Contributions to GDP growth[3]				
Domestic final demand	2.8	– 1.1	1.5	1.4
Changes in inventories	0.4	0.2	– 0.1	0.0
Exports	1.6	0.3	1.1	1.1
Imports	– 2.9	0.0	– 1.4	– 1.2
Labour market				
Total number of hours worked[4]	1.3	0.8	1.0	0.0
Employed persons[4]	1.3	0.8	0.4	0.0
Unemployed persons[5]	2.4	2.6	2.5	2.4
Unemployment rate[6]	5.3	5.6	5.3	5.1
Memo item: ILO unemployment rate[7]	3.1	2.9	2.8	2.8
Wages and wage costs				
Negotiated wages[8]	2.6	4.7	4.5	3.3
Gross wages and salaries per employee	4.1	6.0	5.2	4.1
Compensation per employee	3.7	5.7	5.3	4.3
Real GDP per employed person	0.5	– 1.3	0.8	1.2
Unit labour costs[9]	3.2	7.1	4.5	3.0
Memo item: GDP deflator	5.5	6.0	3.7	2.8
Consumer prices[10]	8.7	6.0	3.1	2.7
Excluding energy	5.2	6.4	3.1	2.8
Energy component	34.7	4.7	3.4	1.8
Excluding energy and food	3.9	5.2	3.1	2.8
Food component	10.6	11.5	2.8	2.6

Sources: Federal Statistical Office (up to Q1 2023); Federal Employment Agency; Eurostat. Annual figures for 2023 to 2025 are Bundesbank projections. **1** Private non-residential fixed capital formation. **2** As a percentage of nominal GDP. **3** In arithmetical terms, in percentage points. Discrepancies in the totals are due to rounding. **4** Domestic concept. **5** In millions of persons (Federal Employment Agency definition). **6** As a percentage of the civilian labour force. **7** Internationally standardised as per ILO definition, Eurostat differentiation. **8** Monthly basis. Pursuant to the Bundesbank's negotiated wage index. **9** Ratio of domestic compensation per employee to real GDP per employed person. **10** Harmonised Index of Consumer Prices (HICP).

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example, due to an unusually cold winter. This would be accompanied by additional price increases. If gas were then actually to be rationed, economic output could be significantly lower.[33] There is also a risk of mounting or additional geopolitical tensions, especially in connection with the Ukraine war, but also in Asia, for example. They could have an impact on global commodity prices or trigger sanctions that could disrupt supply chains. Such supply-side impediments are likely to weigh on global and German economic activity and increase price pressures.

Uncertainties regarding the development of commodity and food prices

The forward prices for crude oil on which these projections are based point to a certain decline in prices. However, the price of oil could also increase. For example, the International Energy Agency expects the global oil markets to be significantly undersupplied in the remainder of the year, partly as a result of rising Chinese demand.[34] By contrast, prices for other commodities, such as food, could fall faster than assumed in the projection. In the case of food prices for end consumers, cost reductions could also potentially be passed through more quickly if competition in the retail trade has a greater impact than expected. In the case of energy, too, the lower market prices for natural gas and electricity could be passed through to consumers even more quickly than assumed. In both cases, the inflation rate would decelerate more rapidly and economic activity would be strengthened.[35]

There are upside risks to domestic demand, for example with regard to fiscal policy. The Federal Government is currently discussing new expenditure, such as higher defence spending and subsidies for cheaper industrial electricity.

33 See the December calculations on the impact of an adverse risk scenario in Deutsche Bundesbank (2022g).
34 See International Energy Agency (2023).
35 However, this would probably also give rise to greater political leeway to expand climate policy measures. For example, the Federal Government postponed the increase in the carbon price at the beginning of 2023 due to the high energy prices. If it were to be raised sooner again in the light of lower energy prices, this – viewed in isolation – would increase inflationary pressures.

Upside risks to economic activity and inflation in the form of more expansionary fiscal policies or greater depletions of coronavirus savings

If fiscal policy were subsequently to become more expansionary than assumed, this would probably bolster real GDP growth, but at the same time further increase inflation.[36] There would be similar consequences if the remaining coronavirus savings that households accumulated involuntarily in 2020 and 2021 were to be used for consumption purposes to a greater extent than assumed in the projection. The saving ratio could then fall significantly below its pre-pandemic level. Private consumption – and economic activity – would recover more strongly. At the same time, however, price pressures would also increase.

Risk of core inflation persisting for longer amid higher wages and profit margins

Underlying inflation has recently proved surprisingly persistent, and there is a risk that the persistence of the core rate over the projection horizon will also be greater than assumed. For example, wages could grow even more strongly, say if workers succeed in fully recouping the real wage losses they have suffered. More sharply rising wages would also be expected if the situation on the labour market were to become even tighter than assumed. Both of these factors would have stronger second-round effects on prices, which would contribute to high inflation becoming entrenched. If demand is stronger than expected, firms may additionally be able to maintain higher profit margins for an extended period of time or raise them even further. However, in such a scenario where wages rise more sharply, profit margins increase, or where both happen together, inflation is likely to remain significantly higher for a longer period of time than expected in the projection. In the medium term, this would increase the risk of the already very high inflation rate becoming further entrenched. This underscores the importance of decisive monetary policy action in counteracting persistently high inflation and the associated economic and societal risks it entails.

36 Uncertainty also still remains about the fiscal costs of measures relating to the Economic Stabilisation Fund for Energy Assistance. This applies to the energy price brakes in particular. In this case, however, the fiscal costs are less relevant for the macroeconomic projection: If they are lower, this reflects lower energy costs for end consumers in Germany, and if they are higher, it reflects higher energy costs for such consumers. The price brakes thus shield households' purchasing power and enterprises' profit situation to a large extent from potential fluctuations in energy costs.

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