Outlook for the German economy for 2022 to 2024

The German economy will see strong growth over the projection horizon. Initially, however, it will experience another setback in the fourth quarter of 2021 and the first quarter of 2022. Tightened protective measures related to the pandemic will be the key factor. Furthermore, supply bottlenecks for intermediate input products are still ongoing. From the second quarter of 2022, however, the economy will pick up significant momentum again. If – as assumed – the pandemic-related restrictions are mostly lifted at that time, private consumption will increase considerably. In this context, a role will also be played by the fact that there will likely be additional spending from the involuntary savings that have been built up during the course of the pandemic. Moreover, it is assumed that the supply bottlenecks will be resolved by the end of 2022. Above all, exports will receive a strong boost for a time due to backlog and catch-up effects. Growth in real gross domestic product (GDP) will normalise towards the end of the projection horizon.

Following growth of 2½% this year, this scenario will see calendar-adjusted GDP continue to rise sharply over the next two years, with growth of just over 4% in 2022 and just over 3% in 2023. In 2024, GDP growth will abate to around 1%. Aggregate capacity utilisation will be at an above average level in both of the final two years of the projection horizon.

This year, the rate of inflation as measured by the Harmonised Index of Consumer Prices (HICP) will rise sharply to around 3¼%. This is attributable not only to one-off effects, such as the expired temporary reduction in value added tax or the introduction of carbon emissions allowances. In addition, inflationary pressures were driven to a greater extent by the sharp rise in energy prices on the international markets, amongst other things. Furthermore, cost increases due to delivery and transport bottlenecks were passed through to consumers, and, in addition, profit margins were widened in the face of higher demand. These factors, as well as the most recent depreciation of the euro, will cause the rate of inflation to rise slightly higher still to just over 3½% on average next year, even though the one-off effects will largely fade away. Only once these additional inflationary factors have also expired in 2023 will the inflation rate see a considerable decrease. At around 2¼%, however, it will remain at a relatively high level in 2023 and 2024, too. The key reasons for this are sharply rising wages and the good general economic situation, but also the costs of transitioning to a climate-neutral economy.

In this projection, the government deficit and debt ratios will fall rapidly. This is attributable to the strong economic recovery and the expiration of crisis assistance measures. The planned fiscal projects of the new German Federal Government are not yet included in this projection, however. They are likely to make the new government's fiscal policy markedly more expansionary than estimated here.

Compared with the June 2021 projection, significantly lower economic growth is expected for 2021 and 2022, and significantly higher growth is expected for 2023. The upswing has thus been slightly postponed. The rate of inflation has risen consistently primarily due to unexpectedly severe supply bottlenecks as well as wages and energy prices rising more sharply than anticipated. Taking consideration of the new Federal Government's planned projects as outlined in the coalition agreement, the risks to economic growth seem largely balanced as things stand today. For inflation, however, the risks are tilted to the upside.

Economic outlook[1]

German economy sees strong recovery in Q2 and Q3 2021 …

The German economy saw a strong recovery in the second and third quarters of 2021. The decisive factor was the easing of coronavirus pandemic containment measures as of May 2021. This mainly benefited high-contact services sectors, such as accommodation and food service activities as well as parts of the bricks-and-mortar retail sector. Due to the fact that opportunities for consumption were available once again, there was a considerable decrease in the household saving ratio, which had previously been exceptionally high as a result of the pandemic. The recovery would have been even more pronounced if, in particular, industry had not been hampered by supply bottlenecks for intermediate input products and sharp rises in commodity prices. Despite greater demand, value added fell to a considerable degree. This also dampened enterprises' exports and investment in machinery and equipment. Overall, real GDP rose by 3¾% in seasonally adjusted terms[2] during the second and third quarters of 2021 combined. This was markedly lower than had been expected in the June 2021 projection.[3] In the third quarter of 2021, real GDP still fell short of its pre-crisis level from the fourth quarter of 2019 by just over 1%.

December 2021 projection

Year-on-year percentage change

Item	2021	2022	2023	2024
Real GDP, calendar adjusted	2.5	4.2	3.2	0.9
Real GDP, unadjusted	2.5	4.1	3.0	0.9
Harmonised Index of Consumer Prices	3.2	3.6	2.2	2.2
Excluding energy and food	2.2	2.3	1.8	2.1

Source: Federal Statistical Office. Annual figures for 2021 to 2024 are Bundesbank projections.
Deutsche Bundesbank

… but likely to suffer limited setback in Q4 2021 and Q1 2022

In the fourth quarter of 2021 and first quarter of 2022, the German economy is likely to suffer a renewed setback. As things stand today, GDP may fall slightly. This is chiefly attributable to the fact that coronavirus containment measures have been tightened once again as a result of the fourth wave of the pandemic. This is having a negative impact on private consumption, in particular. This projection assumes that these containment measures will not be largely rolled back until the second quarter of 2022.[4] In addition to this, industry is still unlikely to shift back into forward gear in the fourth quarter of 2021 or first quarter of 2022. While demand for industrial products remains high, the range of orders on hand is currently at a record level. Nevertheless, the supply bottlenecks are likely to continue for some time. This projection assumes that these bottlenecks will begin to ease gradually during the course of the first quarter of 2022.

Strong upswing in future, considerably less momentum as of 2024

From the second quarter of 2022, the economy will pick up significant momentum again. The upswing will be driven by private consumption as well as exports and corporate investment. In this context, it is assumed that the supply bottlenecks will have been fully resolved by the end of next year. Industrial output will receive a strong boost from backlog and catch-up effects. For a time, it is set to even exceed the level that would have been expected if there had not been any supply bottlenecks previously. At that point, enterprises will work through some of the backlogs of orders that have been built up so far. This will be reflected in temporary sharp rises in exports and corporate investment. They will then lose consider-

1 This projection for Germany was completed on 1 December 2021. It was incorporated into the projections for the euro area published by the ECB on 16 December 2021.
2 Seasonal adjustment in this text also includes adjustment for calendar variations, provided they can be verified and quantified.
3 See Deutsche Bundesbank (2021a).
4 There is a risk that the future course of the pandemic could also be much more unfavourable, such as due to a new variant of the virus leading to further economic restrictions (see the comments on risk assessment on pp. 36 ff.). This has not been assumed in the baseline of the projection (including for the Omicron variant).

able momentum again towards the end of the projection horizon. Next year, private consumption will see strong growth, not only due to the likelihood of the pandemic containment measures being largely rolled back. It will also be fuelled further by additional savings that were accumulated during the pandemic being spent partially for consumption purposes. In 2024, this effect will no longer apply. Private consumption will therefore even decline slightly.[5]

Recovery lagged compared with June projection due to supply bottlenecks and pandemic

For the German economy as a whole, this thus indicates a strong upswing – with just a temporary interruption – which will lose momentum only as from 2024. Following a rise of 2½% this year, calendar-adjusted real GDP may see even stronger growth in 2022 and 2023, at just over 4% and slightly more than 3% respectively. In 2024, economic growth will then diminish considerably to around 1%. Here, looking at the annual averages obscures both the dip in the fourth quarter of 2021 and first quarter of 2022 as well as the fact that economic growth will have already lost considerable momentum during the course of 2023. Compared with the projection from June, the German economy will recover more slowly. The main reasons for this are the unexpectedly severe supply bottlenecks and the impact of the pandemic during the fourth quarter of 2021 and first quarter of 2022, which is greater than anticipated due to the more contagious Delta variant of the coronavirus. It is estimated that the upswing will also be somewhat weaker overall, as the higher rates of inflation will reduce households' purchasing power. In 2023, GDP will therefore not quite achieve the level projected in June.

Above average aggregate capacity utilisation from second half of 2022

As a result of the strong upswing, aggregate capacity will be utilised to an above average degree again from as early as the second half of next year. In the following two years, it will then even be significantly overutilised. This assumes that potential output will only be moderately impaired by the pandemic. At the pro-

5 See Deutsche Bundesbank (2021b).

Technical components of the GDP growth projection

% or percentage points

Item	2021	2022	2023	2024
Statistical carry-over at the end of the previous year[1]	2.2	0.9	2.1	0.4
Fourth-quarter rate[2]	1.2	5.4	1.5	0.7
Average annual GDP growth rate, calendar adjusted	2.5	4.2	3.2	0.9
Calendar effect[3]	0.0	− 0.1	− 0.2	0.0
Average annual GDP growth rate[4]	2.5	4.1	3.0	0.9

Source: Federal Statistical Office (up to Q3 2021). Annual figures for 2021 to 2024 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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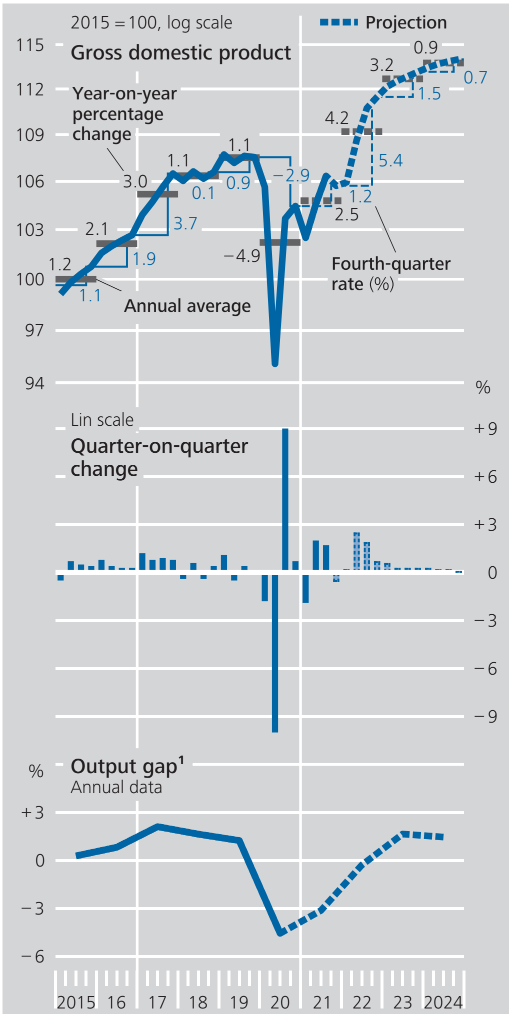
Aggregate output and output gap

Price, seasonally and calendar adjusted



Sources: Federal Statistical Office and Bundesbank calculations. 2021 to 2024 Bundesbank projections. **1** Deviation of GDP from estimated potential output.

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Revisions since the June 2021 projection

Year-on-year percentage change

Item	2021	2022	2023
GDP (real, calendar adjusted)			
December 2021 projection	2.5	4.2	3.2
June 2021 projection	3.7	5.2	1.7
Difference in percentage points	– 1.2	– 1.0	1.5
Harmonised Index of Consumer Prices			
December 2021 projection	3.2	3.6	2.2
June 2021 projection	2.6	1.8	1.7
Difference in percentage points	0.6	1.8	0.5

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Supply bottlenecks in manufacturing

Sources: Federal Statistical Office and ifo Institute. 1 Percentage of enterprises reporting that their production is being impeded by materials shortages.

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jection horizon, it may be around 1% lower than would have been expected had the pandemic not occurred (see the box on pp. 30 ff.). This year, the growth rate of potential output is estimated at 1.0%. The potential rate will rise to 1.2% in both 2022 and 2023 before declining marginally in the final year of the projection horizon as a result of demographic factors.

Supply bottlenecks and capacity constraints will continue to weigh on exports and commercial investment for some time

In the second and third quarters of 2021, the unexpectedly persistent supply bottlenecks and capacity constraints for key intermediate input products impaired not only industrial production, but also exports and commercial investment. The supply difficulties are initially likely to continue for some time. Specifically, the available indicators largely do not suggest that the situation will ease any time soon.[6] According to a special survey by the ifo Institute, industrial enterprises expect supply bottlenecks to continue to weigh on their business until around mid-2022.[7]

Backlog and catch-up effects give strong boost to exports once supply bottlenecks have been resolved

As the supply bottlenecks are resolved over the course of next year, industry will be able to close the gap between actual output and the theoretical output that would have been possible had the bottlenecks not occurred. This will give exports a strong boost. Subsequently, at least part of the built-up orders on hand will also be fulfilled. The pace of export growth will wane again towards the end of the projection horizon. The backlog and catch-up effects will then peter out, and the sales markets of German exporters will also see more moderate growth (see the box on pp. 22 ff.). Furthermore, German enterprises will lose a certain amount of market share: particularly in trade

6 However, the ifo business and export expectations recently brightened again somewhat amongst industry, including in the automotive sector. In addition, according to Markit PMI, delivery times did not grow to as great an extent in November as they had previously. By contrast, the ifo survey found that the impairments to industrial production due to materials shortages intensified again somewhat in November.

7 The duration of this varies by sector. For example, given that the problems in the automotive sector are especially pronounced, it may take longer to resolve supply bottlenecks in this sector than in many other industrial sectors. See ifo Institute (2021a).

Underlying conditions for macroeconomic projections

This projection is based on assumptions made by Eurosystem experts about the global economy, exchange rates, commodity prices and interest rates. They are based on information available as at 25 November 2021. The assumptions regarding economic activity in the euro area are derived from projections made by the national central banks of the euro area countries.[1] These projections incorporate the fiscal policy measures that have been either adopted or adequately specified and are deemed likely to be implemented. The projects set out in the incoming Federal Government's coalition agreement do not yet meet these criteria. They are therefore not included (for more information, see pp. 38 ff.).

With regard to the coronavirus pandemic, it is assumed that the containment measures in place in the euro area will be eased and thereafter largely rolled back following the final quarter of 2021 and the first quarter of 2022. Furthermore, the supply bottlenecks for intermediate input products that are putting pressure on industry and world trade are expected to be resolved only gradually.

Global economy remains on road to recovery, high global price pressures let up slightly

The momentum of global economic growth in the second and third quarters of 2021 was slightly weaker than was expected in the June outlook. The main reason for this was the resurgence of the pandemic in a number of countries. In addition, shortages of key intermediate input products were more acute than anticipated six months ago. The supply bottlenecks in industry and surging energy commodity prices caused producer prices worldwide to rise sharply. This was reflected in high consumer price inflation rates, amongst other things. Assuming that supply bottlenecks are resolved over time and the pandemic is gradually brought under control, the global economy should remain on the road to recovery over the projection horizon. Price pressures are expected to let up again over this period.

The US economy is being supported to a lesser extent by expansionary fiscal measures than had been assumed in the June outlook.[2] In addition, the sharp rise in inflation is pushing down real incomes, while supply-side limits to production are curbing growth. Aggregate economic activity in China is being adversely affected by factors such as the government's zero-COVID policy and a slumping residential real estate market.

The global economy (excluding the euro area) looks set to expand by 4½% next year following growth of 6% this year. Rates of 4% and 3¾% are assumed for 2023 and 2024, respectively. At 11%, the pick-up in international trade (excluding the euro area) will be significantly stronger in 2021; at 4% in 2022, it will then lag slightly behind the rise in global economic activity. This expansion is expected to edge ahead of growth in gross domestic product (GDP) again in the years thereafter (4½% in 2023 and 4% in 2024).

1 The projections made by the national central banks of the euro area countries were completed on 1 December 2021.
2 For information on the economic effects of the planned fiscal packages in the United States, see Deutsche Bundesbank (2021c).

Major assumptions of the projection

Item	2021	2022	2023	2024
Exchange rates of the euro				
US dollar/euro	1.18	1.13	1.13	1.13
Effective1	120.7	118.3	118.3	118.3
Interest rates				
Three-month EURIBOR	– 0.5	– 0.5	– 0.2	0.0
Yield on government bonds outstanding2	– 0.3	– 0.2	– 0.1	0.0
Commodity prices				
Crude oil3	71.8	77.5	72.3	69.4
Other commodities4,5	34.4	5.7	– 2.2	– 2.1
German exporters' sales markets5,6	9.1	4.8	4.9	3.7

1 Compared with 42 currencies of major trading partners of the euro area (EER-42 group of currencies); Q1 1999 = 100. **2** Yield on German government bonds outstanding with a residual maturity of over nine and up to ten years. **3** US dollars per barrel of Brent crude oil. **4** In US dollars. **5** Year-on-year percentage change. **6** Calendar adjusted.

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Recovery in euro area continues – coronavirus-related setback in the fourth quarter of 2021 and the first quarter of 2022

Economic activity in the euro area by and large recovered in the second and third quarters of 2021 amid a significant decline in infection rates, as expected in the June outlook. The services sector, in particular, experienced a considerable revival in response to the easing of containment measures. By contrast, persistent supply bottlenecks for some intermediate input products limited manufacturing sector output. However, this affected economic growth in other euro area countries to a lesser extent than it did growth in Germany. This was on account of the automotive industry, which was hit especially hard by the bottlenecks, being less significant to those countries on average. With supply problems and containment measures being more severe than anticipated, growth in the fourth quarter of 2021 and first quarter of 2022 is set to be weaker than indicated by the June outlook. Economic activity in the euro area is expected to continue its recovery towards the tail end of the projection period. Supply bottlenecks will gradually dissipate, global demand will expand, and pandemic-related restrictions will be overcome. For the euro area (excluding Germany), economic growth is put at 6.2% for 2021. Given the subdued expectations for the fourth quarter of 2021 and the first quarter of 2022, the growth rate envisaged for the coming year has been revised slightly downwards compared with the June outlook (4.2%). Growth is projected to be at a rate of 2.8% in 2023 and 1.9% in 2024.

On average for 2021, German exporters' sales markets will see slower growth than world trade. This is chiefly attributable to the slump in UK imports in the first quarter. However, due especially to the anticipated dynamic rebound in demand for imports among trading partners within the euro area, it stands to reason that the sales markets will expand at a greater rate than world trade in 2022 and 2023. Their growth rate will then be slightly less than that of world trade in 2024.

Technical assumptions of the projection

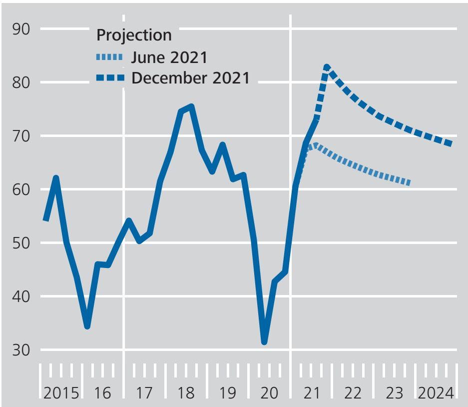
Due to high demand coupled with short supply, oil prices in recent months rose far above the level that had been assumed in the June outlook. With storage facilities less full than usual and reduced delivery quantities from Russia, natural gas prices also reached record highs. However, the assumptions derived from forward quotations indicate that fossil fuel prices will fall over the projection horizon. The US dollar-denominated prices of other commodities dropped slightly more sharply from their peak in May than had been assumed in the June outlook. Following a slight increase next year compared with the annual average for 2021, they are expected to gradually decrease up to the end of the projection horizon.

The Eurosystem continued its net asset purchases under the asset purchase programme and the pandemic emergency purchase programme (PEPP) in the third and fourth quarters. However, the ECB Governing Council decided in September 2021 to moderately taper the volume of monthly net asset purchases under the PEPP compared with the previous two quarters. The new monetary policy strategy adopted by the Governing Council in July 2021 includes an adjusted, now symmetric 2% inflation target over the medium term.[3] Against this background, the Governing Council's forward guidance was also revised, under which policy rates will now remain at their present or lower levels until the Governing Council sees inflation reaching 2% well ahead of the end of its projection period and durably for the rest of the projection horizon. On the money market, interest rates fell slightly in recent months due to continued ample liquidity, the results of the monetary policy strategy review and concerns regarding the spread of the Delta variant of the coronavirus. In view of the higher perceived level of inflation risk, EURIBOR futures are on a steeper upward trajectory over the projection horizon than had been assumed in the June outlook. Yields on ten-year Bunds were down compared with June because of supply bottlenecks for intermediate input products, together with fears that the economic impact of the pandemic will be felt for longer, heightening uncertainty about the business cycle going forward. While the yield trajectory derived from forward quotations is slightly upward, it is below what was assumed in the June outlook. Bank lending rates are likewise expected to rise gradually. All in all, however, financing conditions will remain favourable for enterprises and consumers.

Since the finalisation of the June outlook, expectations of faster than anticipated monetary policy tightening in the United States have caused the euro to depreciate against the dollar. In the period underlying the exchange rate assumptions, the euro stood at US$1.13 and was thus 6½% below the figure assumed in the June outlook. As measured against the currencies of 42 important trading partners, the euro depreciated by 3¼%.

Oil price

US$ per barrel of Brent, quarterly averages



Sources: Bloomberg and ECB projections.
Deutsche Bundesbank

Fiscal policy (excluding projects planned by the incoming Federal Government): expiring coronavirus response measures and rising social contribution rates

Substantial temporary fiscal support measures in response to the coronavirus crisis have been putting government finances under pressure this year, with their cost equating to around 3% of GDP.[4] For 2022, this cost is already estimated to be considerably lower: while the measures will still be of some relevance in the first quarter (primarily coronavirus-related business aid and

3 See Deutsche Bundesbank (2021d).
4 Coronavirus response measures are relatively narrowly defined here (for more information, see Deutsche Bundesbank (2021a), p. 21). At 2¾%, their financial impact was somewhat smaller in 2020: while the tax measures will be less significant in 2021, there will have been a sharp increase in transfers to enterprises and spending on COVID-19 tests and vaccinations.

healthcare spending), the vast majority of them will then expire from the second quarter onwards. The response measures will play almost no role at all in later years. Generally speaking, government-guaranteed loans and capital injections only increase general government debt (not the deficit). It is assumed that debt of this nature will for the most part have been brought back down by the end of 2023.

By contrast, other fiscal policy measures (not related to the coronavirus crisis) will cause the deficit to be higher in net terms in 2022 than in 2021. Profit-related taxes and wage tax will be curbed, in particular, by firms' accelerated write-offs of capital equipment and further adjustments to the income tax scale. In addition, inflows from the European Union's Next Generation EU (NGEU) programme will decrease perceptibly.[5] However, a small amount of additional revenue will be generated by higher tobacco taxes. As from 2023, measures not related to the coronavirus crisis will then reduce the deficit markedly. This is largely on account of the fact that the contribution rates of the social security funds will rise sharply. As things currently stand, the additional central government grants previously paid out will cease to be issued starting in 2023. The contribution rate is projected to rise by a total of 2¼ percentage points up to 2024. This primarily concerns the contribution rates for the health insurance and pension insurance schemes, and to a lesser extent the long-term care insurance scheme. Under the legal status quo, the contribution rate for the unemployment insurance scheme will rise by 0.2 percentage point in 2023.

5 In Germany, NGEU is primarily used to finance existing programmes, thus reducing the deficit in the German government budget in this respect.

with partner countries in the euro area, German exporters are becoming less competitive as a result of comparatively strong growth in prices and labour costs.

Commercial investment exhibits same growth pattern as exports

Commercial investment will exhibit the same development pattern as exports during the projection horizon. Once the supply-side problems start to wane, it will see strong growth again. It will also be supported by a number of factors: a continuingly high level of aggregate demand, rising capacity utilisation, an investment backlog caused by supply bottlenecks, and persistently favourable financial conditions. Similar to exports, the pace of growth is likely to slacken only towards the end of the projection horizon.

Private consumption following pandemic-related damper in Q4 2021 and Q1 2022 …

The time path of private consumption will remain heavily influenced by the pandemic and the containment measures. The previous waves of infection, the measures taken to contain them, and the more cautious consumer behaviour all resulted in a sharp drop in private consumption and, conversely, led to involuntary saving among households.[8] Due to the recent renewed flare-up of the pandemic, containment measures have been tightened once again. Furthermore, consumers are likely to avoid certain opportunities for consumption due to fear of infection. For this reason, private consumption will prospectively suffer another pandemic-related setback in the fourth quarter of 2021 and first quarter of 2022. However, this damper will be significantly smaller in magnitude than in previous waves of the pandemic. This is because it is assumed that it will be possible to implement containment measures in a more targeted manner. For more information on the uncertainties surrounding this – for example, with regard to the new Omicron variant of the coronavirus – see the comments on risk assessment on pp. 36 ff.

8 See Deutsche Bundesbank (2021b, 2020a).

… with temporarily strong growth due to partial spending of involuntary savings

As from the second quarter of 2022, private consumption will see strong growth. While the high rates of inflation will lead to a certain loss of purchasing power, the key factor is nevertheless the assumption that the pandemic situation will then ease considerably and the containment measures will be largely rolled back. Furthermore, some of the involuntary savings that have been built up during the pandemic will be spent for additional consumption. For a period of time, consumers will thus spend more of their disposable income than they did before the pandemic.[9] Consequently, the saving ratio will temporarily dip below its pre-crisis level. In future, however, it will almost return to that level, as it is assumed that households will not change their saving behaviour over the long term.[10] This means that a continually diminishing percentage of disposable income will be consumed until the saving ratio normalises. Starting from a high level, consumption expenditure will thus decline slightly until the end of the projection horizon. Once this normalisation process has been completed, private consumption should again grow more strongly in line with disposable income.

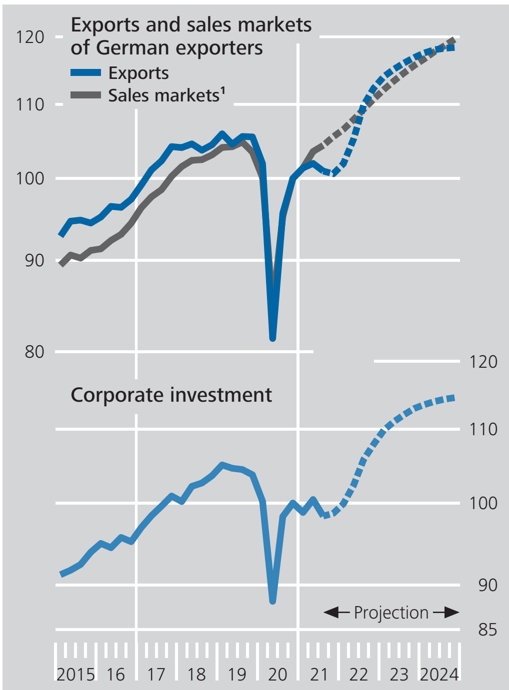
Rise in housing investment

As was the case for commercial investment, housing investment fell short of the expectations set out in the June projection in the second and third quarters of 2021, and even declined slightly overall. Supply issues for key intermediate input products made an impact on this type of investment, too. Demand nevertheless remained robust, with high levels of new orders and issued construction permits. For this reason, housing investment should rise again once the supply bottlenecks have been resolved. In light of the recent sharp rises in

9 This assumption is based on the results of the Bundesbank Online Panel Households (BOP-HH) from March 2021; see Deutsche Bundesbank (2021e). According to these results, between 25% and 45% of the additional savings built up during the pandemic may be spent on goods or services in the future; see Deutsche Bundesbank (2021b).
10 According to the results of the BOP-HH survey, respondents are planning to spend a similar proportion of their income for consumption purposes after the pandemic as they had before the pandemic; see Deutsche Bundesbank (2021b).

Exports and corporate investment

Q4 2020 = 100, seasonally and calendar adjusted, log scale



Sources: Federal Statistical Office and ECB. Bundesbank and ECB projections from Q4 2021. **1** Values calculated and projected by ECB experts used as a basis for the Bundesbank projections.
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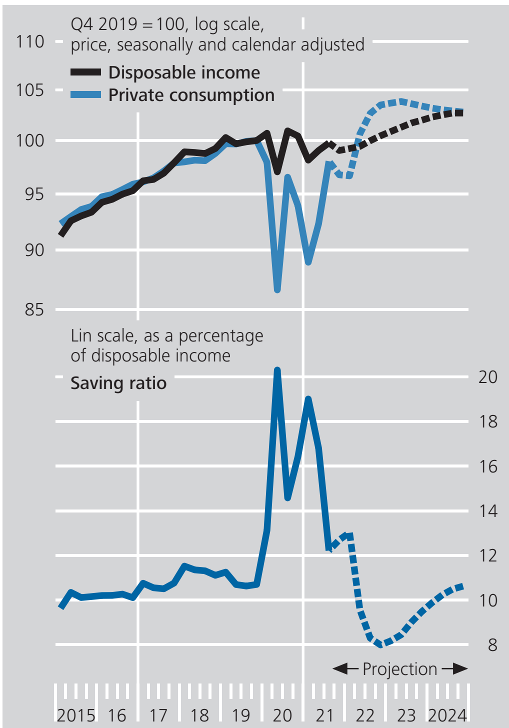
Private consumption and saving ratio



Sources: Federal Statistical Office and Bundesbank calculations. Bundesbank projections from Q4 2021.
Deutsche Bundesbank

Key figures of the macroeconomic projection

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

Item	2020	2021	2022	2023
GDP (real)	– 4.9	2.5	4.2	3.2
GDP (real, unadjusted)	– 4.6	2.5	4.1	3.0
Components of real GDP				
Private consumption	– 6.1	0.3	7.3	2.7
Memo item: Saving ratio	16.1	15.2	9.7	8.8
Government consumption	3.5	3.5	– 1.8	0.9
Gross fixed capital formation	– 3.0	1.4	3.4	5.2
Business investment[2]	– 7.4	2.5	4.9	7.2
Private housing construction investment	2.5	1.9	1.1	2.0
Exports	– 10.1	6.8	6.0	7.6
Imports	– 9.2	7.2	5.8	8.1
Memo item: Current account balance[3]	6.8	6.6	6.2	6.2
Contributions to GDP growth[4]				
Domestic final demand	– 3.1	1.3	4.0	2.8
Changes in inventories	– 0.9	1.0	– 0.2	0.3
Exports	– 4.7	3.0	2.8	3.7
Imports	3.8	– 2.7	– 2.4	– 3.6
Labour market				
Total number of hours worked[5]	– 5.4	2.1	3.0	1.7
Employed persons[5]	– 0.8	– 0.1	0.8	0.7
Unemployed persons[6]	2.7	2.6	2.4	2.2
Unemployment rate[7]	5.9	5.7	5.2	4.9
Memo item: ILO unemployment rate[8]	3.9	3.6	3.2	2.9
Wages and wage costs				
Negotiated pay rates[9]	2.2	1.7	2.3	2.8
Gross wages and salaries per employee	– 0.1	3.2	3.9	3.5
Compensation per employee	0.4	3.5	3.5	3.8
Real GDP per employed person	– 4.1	2.6	3.4	2.5
Unit labour costs[10]	4.7	0.9	0.2	1.3
Memo item: GDP deflator	1.6	2.8	2.9	2.4
Consumer prices[11]	0.4	3.2	3.6	2.2
Excluding energy	1.0	2.3	2.6	2.2
Energy component	– 4.5	10.2	11.5	2.6
Excluding energy and food	0.7	2.2	2.3	1.8
Food component	2.3	2.9	3.5	3.5

Sources: Federal Statistical Office; Federal Employment Agency; Eurostat. 2021 to 2023 Bundesbank projections. **1** If calendar effects present. For unadjusted data see the table on p. 21. **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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costs in the construction sector, however, the pace of growth will likely be somewhat slower than previously anticipated. The underlying conditions will remain favourable against the backdrop of the recovery on the labour market and the comparatively low interest rates. In addition, some of the savings built up involuntarily during the pandemic will be used to invest in real estate.[11] At the end of the projection horizon, however, this effect will reverse in a similar way to private consumption. Furthermore, the number of new households being formed will rise at a slower rate (in net terms) due to demographic factors. Growth in housing investment will then be considerably more subdued.

Steeply increasing prices a temporary drag on government investment

Government investment will have decreased substantially in 2021; against a backdrop of steeply increasing prices, nominal investment expenditure has almost stagnated after strong gains in previous years. Crisis-related hesitancy at the local government level coupled with supply and implementation bottlenecks may have played a role in this development. In due course, however, public finances are set to largely recover from the crisis. Supply constraints are likely to ease somewhat, too, and price pressures will let up as from 2023. Overall, in view of relatively strong nominal growth, government investment is expected to increase from 2022 onwards, including after price adjustment.

Strongly fluctuating government consumption due to coronavirus expenditure

Government consumption has expanded significantly once more in 2021 on account of the coronavirus pandemic. Additional expenditure on vaccines and tests is one of the drivers here. By 2023, however, coronavirus-related additional spending in the area of healthcare will largely have ceased. Towards the end of the projection horizon, government consumption will again see the same dynamic growth as

11 See Deutsche Bundesbank (2021a). Some of the additional savings used to invest in real estate are also likely to be partially absorbed by higher prices.

prior to the pandemic, chiefly on the back of expenditure for health and long-term care.

Imports rise sharply

Over the projection horizon, imports will rise sharply in line with total demand. In the final quarter of 2021 and the first quarter of 2022, global delivery bottlenecks will continue to dampen goods imports. Furthermore, the exacerbated pandemic situation is likely to weigh on imports of services due to the associated reduction in international travel. Over the course of the coming year, exports and corporate investment will regain significant momentum. Imports will make up a large share of the intermediate goods required for this, meaning that they too will see strong growth. In addition, household demand will generate a strong stimulus, especially in 2022 and 2023. Households are likely to spend some of the savings they have involuntarily accumulated during the pandemic on travelling abroad to a greater extent. This will boost imports of services. At the end of the projection horizon, import growth will ease up due, above all, to weakening domestic demand.

Current account balance decreases to 6¼% of nominal GDP

At just over 6½% of nominal GDP, Germany's current account surplus in 2021 could fall somewhat short of its 2020 level. The trade surplus will decline somewhat more considerably. This reflects, first and foremost, the significantly worse terms of trade resulting from increased prices of crude oil and other imported raw materials. One year ago, this trend was reversed. In 2022, the trade surplus and current account surplus will sink somewhat further, chiefly on account of the ongoing deterioration in the terms of trade. In 2023, the current account surplus could linger at 6¼%.

Labour market

Strong labour market recovery in Q2 and Q3 2021

The labour market saw a strong recovery in the second and third quarters of 2021, bolstered by the extensive lifting of containment measures. Short-time work declined substantially. As a result, the average hours worked per worker rose significantly once more. Employment also continued to recover. This was mirrored by a significant decline in registered unemployment, though it has not yet returned to its pre-crisis level. Aside from this, the persistent supply bottlenecks also made their presence known in the labour market in the form of an increased number of registrations for short-time work in particularly affected sectors of the economy, for example. In spite of this, labour shortages were on the rise again.

Temporary interruption to recovery in Q4 2021 and Q1 2022

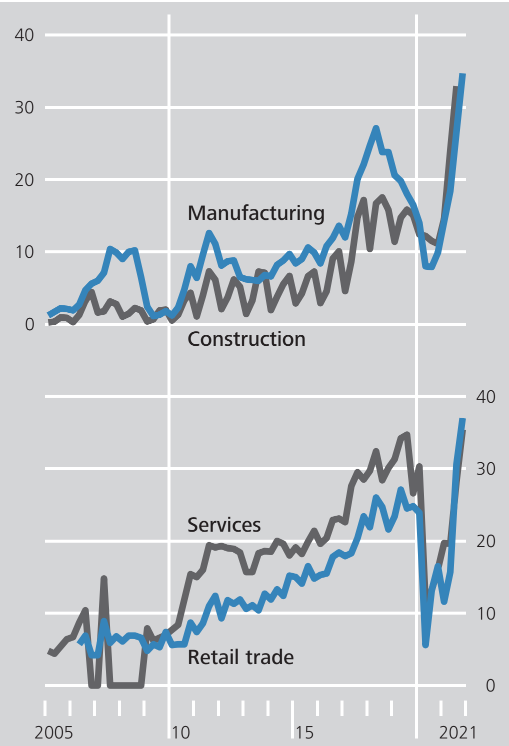
In the final quarter of 2021 and the first quarter of 2022, the labour market recovery will be temporarily interrupted. In the short term, the number of persons in short-time work could actually increase and the number of hours worked per worker could decrease. That said, fluctuations here should be considerably down on the first quarter of the current year, when well over three million people were in short-time work due to the substantial restrictions on economic life. The rise in employment will probably come to a near halt in the final quarter of 2021 and the first quarter of 2022, with unemployment declining no further for the time being.

New momentum in further course of 2022

Generally, however, it is assumed that the labour market will make a sound recovery. Next spring, it will pick up speed again as the economy regains momentum. Employment will then rise comparatively strongly – particularly for jobs subject to social security contributions, which already exceeded their pre-crisis level in the third quarter of 2021. By contrast, there will only be a brief interruption in the trend decline in both exclusively low-paid part-time employment and self-employment. As next year comes to an end, employment will, on the whole, be as high as it was prior to the pandemic. Accordingly, unemployment will decline over the further course of 2022, returning to its low pre-crisis level by the end of the year. The hours worked per worker will go back up. From mid-2023 onwards, the positive trend in employment will peter out gradually, making person-

Production limited by labour shortages*

As a percentage of enterprises, quarterly



Source: ifo Institute. * Results based on the ifo business survey.
Deutsche Bundesbank

Hours worked and short-time work

Seasonally and calendar adjusted

Sources: Federal Statistical Office, Federal Employment Agency and Bundesbank projections. **1** All recipients of short-time working benefits: cyclical short-time working benefits, seasonal short-time working benefits and transfer short-time working benefits.
Deutsche Bundesbank

nel shortages resulting from demographic effects ever more noticeable.

Labour supply to recover up to 2023, …

The labour supply will expand markedly in 2022. It has fallen over the past two years on account of the pandemic: immigration to Germany decreased and some employed persons (temporarily) left the labour market, whilst others remained in education longer or ended their working lives somewhat earlier than planned. However, labour force participation will probably increase again swiftly, as conditions on the labour market have not fundamentally deteriorated.[12] Immigration is also likely to be somewhat higher once more.[13] The overall number of employed persons in Germany will rise up to mid-2023. However, it will not quite return to its level of the start of 2020 due to demographic shifts.

… but dampening effects of demographic trend in the medium term; labour market tightness to increase further accordingly

In the medium term, it can be assumed that the labour supply will contract. Unfavourable demographic trends will outweigh the positive influence of immigration and the rise in age-specific labour force participation. Labour market tightness, already substantial, will thus be further exacerbated. Unemployment could even fall slightly below its low pre-crisis level. However, this presupposes a good fit between qualifications held and the requirements of the jobs on offer. The hours worked per worker could also rise further towards the end of the projection horizon, counteracting the trend seen in the past. This will primarily be the result of high cyclical demand for labour, an improved work-life balance and the reduction in exclusively low-paid part-time employment.

Labour costs and prices

Following the low wage agreements in the first half of 2021 resulting from the pandemic, ever higher wage increases were gradually being

12 See also the box on pp. 30 ff.
13 Following net immigration of 220,000 persons in 2020, the figure is expected to increase to around 300,000 persons as from 2022.

Negotiated wages to grow at accelerated pace as from 2022; growth rates in 2023-24 similar to those prior to the crisis

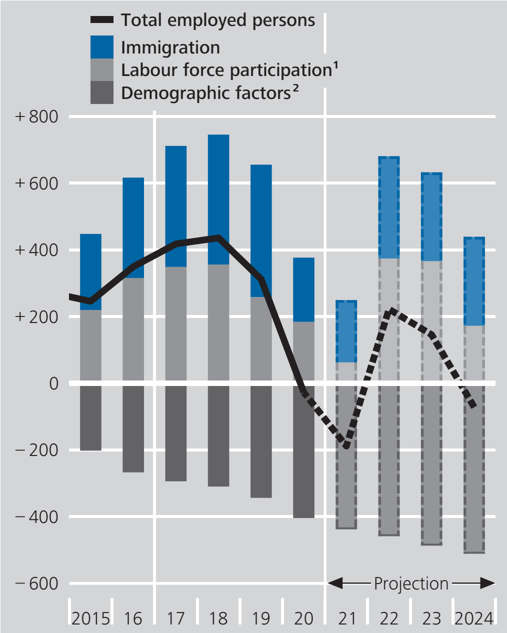
negotiated during the second half of the year. Next year, wage agreements are likely to be greater on account of the economic recovery, the marked decline in unemployment and the high inflation rate. However, this development will only be reflected in overall negotiated wages from the second half of the year onwards. In the first half of 2022, only a few of the larger sectors (such as the chemicals industry) will be negotiating new collective wage agreements; thus, the influence of the old, low agreements will still be predominant. In the subsequent two years, negotiated wages will then rise considerably more strongly – chiefly on the strength of increasing labour market tightness. Further factors here will be a strong upturn and above-average aggregate capacity utilisation. Inflation rates, which are currently very high and will probably remain relatively high going forward, will also play a certain role. However, it is assumed that this will only have a minimal effect over the next few years. Overall, against this backdrop, similarly high growth rates will be reached in 2023 and 2024 as those seen during the peak of economic activity prior to the crisis.[14]

Actual earnings and employee compensation rise steeply over projection horizon as a whole

Actual earnings are recovering significantly this year. Instrumental factors here are declining short-time work and hours worked, the latter of which are primarily increasing on account of the former. This trend is set to continue into next year. Coupled with a greater number of bonus payments and paid overtime, this will lead to a rise of almost 4% – the highest annual average growth rate seen in a long time.[15] In the medium term, growth will recede slightly as the exceptional boost from increased hours worked abates. The influence of favourable economic conditions and the perceptibly growing labour supply shortages will not fully compensate for this. However, as a general trend, wages and salaries will rise in 2023 and 2024 at accelerated rates, and the wage increase towards the end of the projection horizon will also far exceed the average. Rising social security contributions on the part of employers will generate still higher compensation per employee.

Determinants of labour supply in Germany

Thousands of persons, year-on-year change



Sources: Federal Statistical Office and Bundesbank calculations. 2021 to 2024 Bundesbank projections. **1** Refers to the domestic population. **2** Contains changes in the domestic labour force as well as changes resulting from shifts in the age structure of the domestic population to labour force participation.

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Normalisation of unit labour costs …

Unit labour costs will rise only slightly this year and the next after the pandemic-induced sharp increase in 2020, because labour productivity per employed person is making a strong recovery. In 2023, the recovery of productivity will largely be complete. The relatively steeply increasing wages will then increasingly feed through to unit labour costs, which could potentially rise by around 3% in 2024.

The initially subdued growth in unit labour costs will afford scope for a strong recovery of

14 All past pay agreements included in the Bundesbank's negotiated pay rate 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 term, taking into account the overall economic situation and industry-specific features.
15 The Federal Cabinet-approved increases in the general minimum wage (to €9.82 an hour as from January 2021 and to €10.45 an hour as from July 2022) were taken into account in this projection. However, the further increase to €12 an hour set out in the incoming government's coalition deal has not yet been included (see p. 38).

Pandemic-induced damage to German potential output moderate so far

The coronavirus pandemic and the measures taken to contain it have been putting a strain on economic activity in Germany since the second quarter of 2020. The extent to which, as things stand now, this has brought about lasting damage to German potential output can be measured using the approach that also underlies the Bundesbank's estimate of potential output.[1] A production function containing the following factors of production – capital input and number of hours worked – as well as total factor productivity (TFP) forms the framework.[2] In analytical terms, the damage to potential output caused by the pandemic can be determined by its effects on the individual components. The starting point is a comparison of potential output from the current projection for Germany with the results from the last pre-pandemic estimate, conducted in December 2019.[3] In this context, the differences are to be adjusted for changes that do not stem from the pandemic.[4]

The pandemic dampens the potential number of hours worked mainly as a result of its unfavourable impact on the group of persons of working age and on labour force participation. The number of persons of working age was primarily depressed by lower net immigration in 2020 and in the first half of 2021.[5] Even though certain catch-up effects are expected in 2022, immigration over the projection horizon will be lower than previously expected owing to the pandemic. Labour force participation sank especially due to "discouraged worker" effects among segments of the population that are less strongly attached to the labour market, which are not unusual in economically difficult phases. This applies, for instance, to persons not entitled to unemployment benefits, entry-level workers or immigrants. The underlying conditions suggest, however, that these groups will rejoin the labour market after the pandemic is overcome. Labour force participation will already normalise during the projection horizon.

Pandemic-related changes in trend hours worked and structural unemployment are of little significance for the potential number of hours worked. On the one hand, hours worked per worker were raised in arithmetical terms by the fact that the number of persons working exclusively in low-paid part-time jobs with their shorter working day fell relatively sharply. On the other hand, both the number of, as well as hours worked by, self-employed persons and persons with second jobs – groups each with very high numbers of hours worked – decreased substantially. Even if these changes

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1 For more on the methodology behind estimating potential output, see Deutsche Bundesbank (2007, 2017).
2 Enterprises' pandemic-related preventative healthcare or location-specific hygiene measures can be interpreted as additional factors of production. The associated costs might have diminished the efficiency of the production process in arithmetical terms. The assumption here is that these health-related operational expenses will subside in the medium term and therefore not cause damage to potential output.
3 For the December 2019 projection, see Deutsche Bundesbank (2019a).
4 For instance, the projections of capital input and trend TFP already diverge prior to 2020, partly because the historical data in the national accounts have since been revised. For the potential labour supply, the contributions of the labour force participation of older persons, which are estimated to be higher from today's perspective, are deducted. They correlate with the development prior to the pandemic, which was better than was estimated in December 2019.
5 The potential number of hours worked might also have been dampened by the pandemic-induced higher mortality of persons of working age. According to a special study conducted by the Federal Statistical Office, mortality in the relevant age group did not show any notable growth compared with the reference period prior to the pandemic, however.

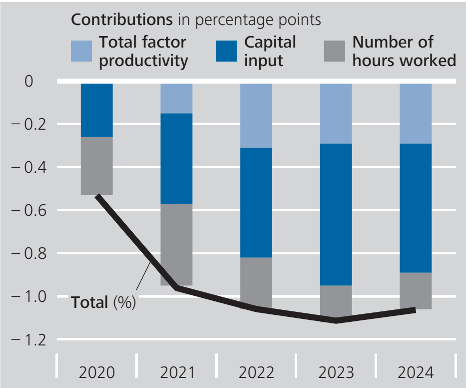
persist to some degree, they result in overall limited structural losses of hours worked.[6] Moreover, the higher long-term unemployment in 2021 and 2022 is likely to contribute to unemployment becoming entrenched to a certain degree. Given the drop in the labour supply due to demographic change, it stands to reason that the resulting somewhat higher structural unemployment will recede in the medium term. Overall, the dampening effect of the coronavirus pandemic on the potential number of hours worked was mainly perceptible in the acute phase of the pandemic. By contrast, in the imminent period of recovery, certain catch-up effects are to be expected, resulting in a net reduction in the potential labour supply of ¼% in 2024 compared with a scenario without a pandemic.

Capital input, too, declines on account of the pandemic. Investment in machinery and equipment (including information and communications technology goods) as well as software and databases fell in 2020 and expenditure on research and development showed hardly any increase. However, overall, investment in machinery and equipment only fell around half as sharply as it did during the financial and economic crisis in 2009. Additional expenditure during the pandemic on digital infrastructure for the deployment of remote working or digital distribution channels was a factor in this.[7] In addition, the intensity of use of the capital stock is likely to have diminished. This tends to lengthen the useful life, reduces the depreciation rate and supports potential output.[8] However, part of the existing capital stock might have become obsolete owing to shifts in the production structure – on account of changed consumer preferences, amongst other factors – which would have a dampening effect on potential output. However, available national accounts data do not suggest any noticeable discrepancies, at least for 2020, in the depreciation rates according to categories of capital goods. Even so, owing to enterprises' reduced investment activity, capital input is likely to contract by 1¾% on balance by the end of the projection horizon on account of the pandemic.

Identifying the pandemic-related changes in trend TFP development is subject to greater uncertainty than in potential labour or capital input. Productivity effects might arise during the pandemic due, inter alia, to long-term shifts in resources or market shares of sectors or enterprises with differing productivity levels. Evaluations on the basis of the Bundesbank Online Panel Firms (BOP-F) point to temporary productivity-supporting shifts, as the reduction in employment in sectors with below average productivity turned out to be particularly sharp. In addition, evaluations of sectoral data on insolvencies suggest that the productivity-damaging effect of the delay to corporate insolvencies in the past year owing to government assistance measures was limited.[9] However, the reduced number of market entries is likely to have had a dampening effect on productivity by partially eliminating the efficiency-enhancing or competition-enhancing contribution of successful start-ups.[10] Moreover, because global supply chains have been disrupted

6 Actual hours worked fell very sharply during the pandemic, but this was almost exclusively due to cyclical effects such as the deployment of short-time work schemes, the absence of overtime or declining balances on working time accounts.
7 As long as parts of the capital stock are only duplicated here, this does not necessarily increase the efficiency of the production process.
8 Capital input feeds into the Bundesbank's estimation of potential output. This involves weighting asset types by their share in the total user costs of the tangible fixed assets used in the production process. See Deutsche Bundesbank (2012).
9 See Deutsche Bundesbank (2021f).
10 See Alon et al. (2018) or Aghion et al. (2004).

Contribution of the coronavirus crisis to aggregate potential output



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by the pandemic, there is a shortage of some intermediate goods. Converting production processes to less tailored input products or interrupting them more frequently reduces efficiency. In total, this amounts to a loss in the level of trend TFP of ¼% towards the end of the projection horizon on account of the coronavirus pandemic.

In summary, the damage to the potential output of the German economy caused by the pandemic, as things stand today, is likely to be moderate. In 2024, it will make up around 1% of potential output.[11] In the medium to long term, there is little to suggest that potential growth rates will be permanently reduced due to the coronavirus pandemic.

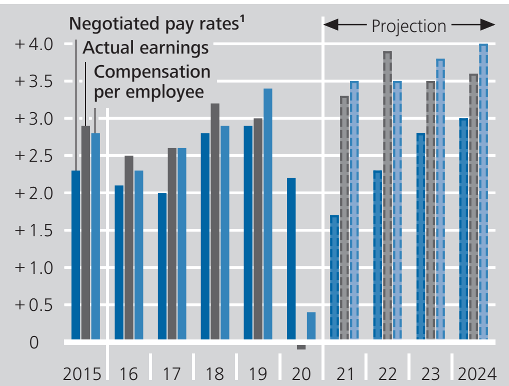
11 The damage to potential output in the wake of the economic and financial crisis of 2008-09 was put at around 2%. See Deutsche Bundesbank (2009).

… and of profit margins; domestic inflation consistently strong

aggregate profit margins.[16] The backdrop of high domestic and foreign demand coupled with simultaneous supply bottlenecks will not only help to pass on rising cost pressures to consumers, but also to further increase profitability. In 2024, profit margins could be somewhat compressed once again. Alongside the sharp increase in unit labour costs, the loss of momentum of aggregate demand resulting from the progressive normalisation of private consumption and exports will be a contributing factor. Domestic inflation as measured by the GDP deflator is set to be consistently strong in view of the movement of unit labour costs and profit margins in opposite directions. From a starting point of almost 3% in 2021 and 2022, it is likely to see a minimal decline to around 2½% in subsequent years.

Negotiated pay rates, actual earnings and compensation of employees

Year-on-year percentage change, monthly basis



Source: Federal Statistical Office and Bundesbank projections. **1** According to the Bundesbank's negotiated wage index.
Deutsche Bundesbank

Rise in inflation rate recently much stronger than previously anticipated, …

Inflation as measured by the HICP rose exceptionally strongly in the second and third quarters of 2021, increasing from 2% in March to 6% in November. A very clear rise had already been expected in the June projection, as the base effect of the temporary lowering of the

16 In 2020, margins were substantially depressed in order to cushion the effect of unit labour costs, which were rising exceptionally strongly at that time.

turnover tax rate is expanding the year-on-year rate of the HICP.[17] However, inflation in November, which was already high, once again overshot its expected level, by 1¾ percentage points.[18] Prices of non-energy industrial goods, in particular, rose very strongly. This was due in large part to persistent supply bottlenecks and significantly increased transport costs, which were reflected in import and producer prices. Service providers also increased their prices more substantially than expected. High price increases were primarily seen in the sectors hit hardest by business closures. At 4.1%, the core rate excluding energy and food was up on the June projection by just over one percentage point. From the fourth quarter onwards, energy prices also rose surprisingly sharply, due above all to the steep increase in crude oil prices.

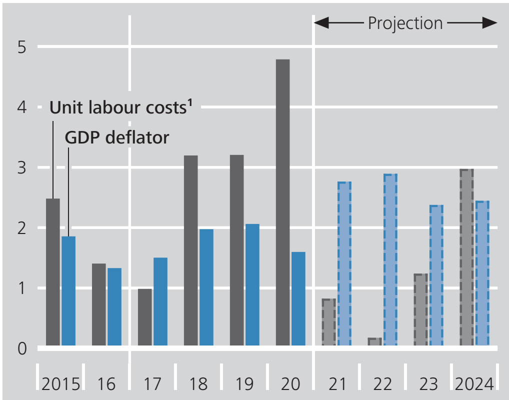
… and will thus reach 3.2% in the current year

Overall, HICP inflation is likely to reach 3.2% in the current year. Just under one percentage point of this will be attributable to the reversal of the reduced turnover tax rate and the introduction of carbon pricing in the areas of heating and transport.[19] The core rate will rise to 2.2%. Just under ½ percentage point of this will be attributable to tax changes.

The inflation rate will rise further in the coming year, to 3.6%. The aforementioned one-off effects will elapse, and the crude oil price will assumedly decline gradually. Nevertheless, energy

Unit labour costs and GDP deflator

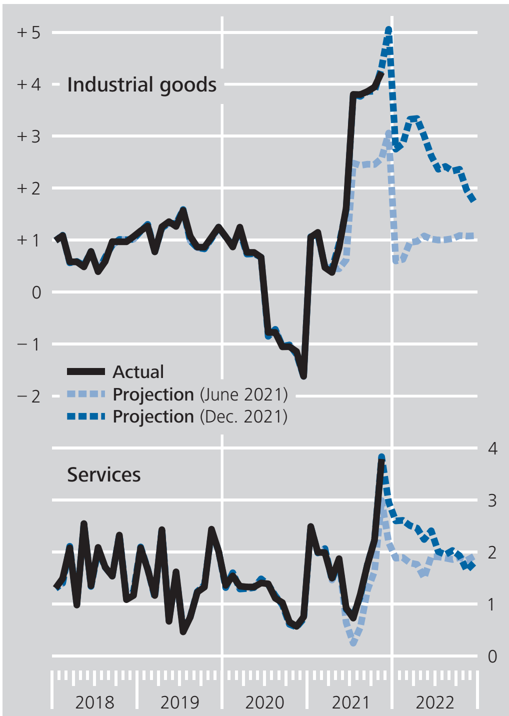
Year-on-year percentage change, calendar adjusted



Sources: Federal Statistical Office and Bundesbank projections. **1** Ratio of domestic compensation per employee to real GDP per employed person.
Deutsche Bundesbank

Recent upward revisions to projections for selected HICP components

Year-on-year percentage change



Sources: Federal Statistical Office and Bundesbank projections.
Deutsche Bundesbank

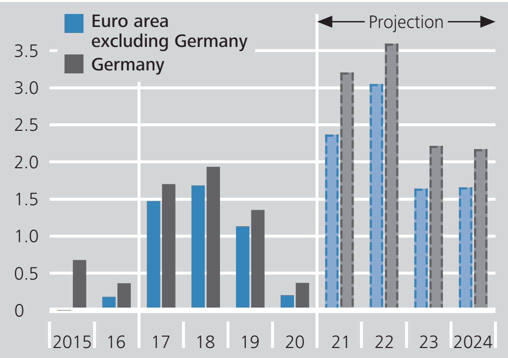
Further slight increase in headline inflation in the coming year due to higher price increases in energy and food, …

prices are likely to see even slightly stronger growth. Consumer rates for gas are expected to be raised by just under one-fifth on average, as the market price for natural gas on the spot market more than quadrupled this year. Furthermore, renters' expenses will only be adjusted to the higher crude oil price with a cer-

17 See Deutsche Bundesbank (2020b) and Deutsche Bundesbank (2021g).
18 Furthermore, in November, a one-off statistical effect increased the inflation rate by just over ¼ percentage point. It resulted primarily from the fact that, due to the annual adjustment of the HICP weights to the consumption structure of the previous year, the share of package holidays was considerably lower than in 2020 on account of travel restrictions. The weights for 2020 are based on the period prior to the start of the pandemic. The one-off effect greatly increased the inflation rate at the start of 2021, dampened it substantially at mid-year and boosted it again at the end of the year. On an annual average, its impact was neutral. For more information, see Deutsche Bundesbank (2021h). This one-off statistical effect was already taken into account in the June projection. It does not occur in the national Consumer Price Index (CPI). Also on account of this fact, the inflation rate in November 2021 was markedly lower according to this definition.
19 See Deutsche Bundesbank (2019b, 2021a).

Consumer prices*

Year-on-year percentage change



Sources: Federal Statistical Office, Eurostat and Bundesbank calculations. 2021 to 2024 Bundesbank projections (for Germany) and calculations based on Eurosystem projections (for the euro area excluding Germany). * Based on the Harmonised Index of Consumer Prices.
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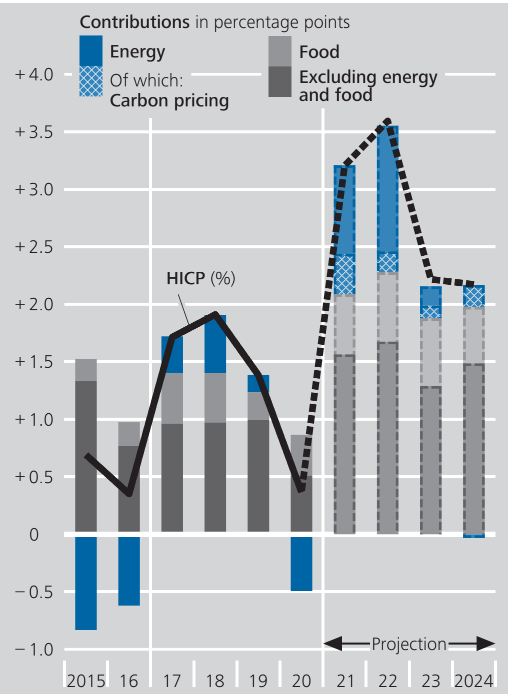
Contributions of selected components to headline HICP inflation

Year-on-year change



Sources: Federal Statistical Office and Bundesbank calculations and projections.
Deutsche Bundesbank

tain time lag. Lastly, consumer prices for electricity will increase in spite of the substantial relief afforded by the renewable energy (EEG) levy. Food prices, too, will presumably rise somewhat more sharply than in 2021; steep increases in agricultural producer prices over the course of the current year will make themselves felt here. Additionally, there are further cost-driving factors to consider, such as substantial wage growth in retail trade, the supply bottlenecks and the transition to greener and more animal-friendly production methods.

… but core rate also just as high as in 2021

On an average for 2022, the core rate could be just as high as in the current year. As it is assumed that supply bottlenecks will only ease towards year-end, the prices of industrial products excluding energy are initially likely to continue rising markedly. The depreciation of the euro and the increase in actual earnings will also have a price-driving effect. The latter will also be an instrumental factor in price increases in services, which will exceed those seen in 2021. Another factor here is that enterprises will probably continue their efforts to recoup previous pandemic-related profit losses via higher prices. The core rate is only likely to fall below 2% again at the end of 2022.

Temporary dip in core inflation in 2023, then back up to just over 2% in 2024

In 2023, core inflation could potentially slip a little further initially before then picking up again in 2024. This dip in 2023 chiefly stems from the fact that the remaining supply bottlenecks are likely to have been resolved. The rate of price increase will therefore fall considerably, especially for industrial goods. Furthermore, mark-ups to compensate for previous impairments caused by the pandemic will no longer be a significant factor at this point in time. In the last year of the projection horizon, the sharp rise in labour costs will be increasingly felt. Moreover, there will be a time lag before the high aggregate capacity utilisation is reflected in prices. Additional factors are also likely to drive up prices. Transitioning the economy to become climate-neutral – a goal to which more and more firms are committing themselves – will entail costs that will probably be passed on to consumers. When setting prices, firms are also likely to assume that the trend inflation rate will be somewhat higher going forward. In addition to structural shifts due to demographic trends and climate change, the Eurosystem’s new monetary policy strategy also has a certain role to play here.[20] This new strategy stipulates that inflation expectations should be anchored at a somewhat higher level over the medium term.[21] According to the Consensus Economics forecast, long-term inflation expectations for Germany have already risen notably and currently amount to around 2% – precisely the new target figure set for the euro area. Core inflation could pick up to 2.1% again in 2024.

Headline inflation in 2023-24 much lower than before, but still comparatively high

Headline inflation is set to drop considerably to 2.2% in 2023 and then linger at this level – which is still high from a longer-term perspective – in 2024. 2023 will see not only a temporary, perceptible dip in core inflation, but also a sharp deceleration in energy price increases. Carbon prices will rise by the same amount as in 2022 and the share of rental costs will be adjusted to reflect higher prices for natural gas.[22] However, the price of crude oil is not expected to go up sharply, as it has in the past, but instead to fall. Although energy price inflation will continue to slow in 2024, dampening headline inflation, core inflation will increase. Food prices will also carry on expanding at an above average pace. As in 2023, the anticipated slight decline in agricultural producer prices will roughly offset the rises in retailers' wage costs.

Public finances

High deficit ratio in 2021 reflects temporary crisis-related burdens

The general government deficit ratio is expected to fall slightly in 2021, potentially amounting to around 4% (2020: 4.3% of GDP). The pressure on the budget from temporary coronavirus response measures is still somewhat higher than in 2020, totalling around 3% of GDP, and the cyclical impact on government finances is set to remain virtually unchanged. However, tax revenue is rising very steeply. Profit-related taxes and VAT are growing at a much faster rate than their nominal macroeconomic reference variables.[23]

It was not possible to include the projects planned by the incoming Federal Government in this projection (see the box on pp. 22 ff.). With this in mind, the deficit ratio is set to fall considerably to 1¼% next year. The burdens stemming from the coronavirus response measures will largely have been unwound. In addition, the robust economic upswing will provide substantial relief for the general government budget. However, the very sharp growth in tax revenue recorded in 2021 is not likely to be as dynamic going forward. The deficit ratio is set to keep falling in 2022 and 2023. Government finances will be buoyed by further coronavirus response measures coming to an end and the continued economic recovery. A hefty rise in contribution rates, especially for the statutory health insurance and statutory pension insurance schemes, is also on the cards. This will give social contributions a major boost.

Excluding the incoming Federal Government's measures, deficit ratio set to fall

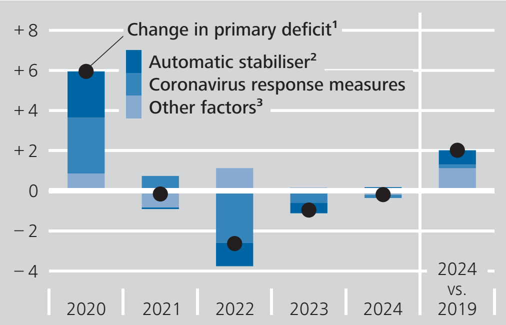
Structural easing of budgetary stance already, even before incoming government implements new measures

Towards the end of the projection horizon, favourable economic conditions should mean that the general government budget is more or less balanced. In structural terms, it will be running a slight deficit.[24] This constitutes a year-on-year structural deterioration of the general government budget as, even before incorporating measures to be implemented by the incoming Federal Government, expenditure is expected to rise dynamically – especially social spending, but also spending on education and infrastructure. As a result, by the end of the projection horizon, the structural ratio of primary expenditure (excluding interest expenditure) may well have risen to a new post-

20 See European Central Bank (2021a).
21 This is suggested by the ECB's survey of professional forecasters published after the strategy review. The survey reveals that a majority of respondents revised their longer-term inflation expectations for the euro area as a whole somewhat upwards in response to the new monetary policy strategy. See European Central Bank (2021b).
22 The incoming Federal Government's plans to abolish the renewable energy (EEG) levy in 2023 have not yet been included in the projections.
23 For more detailed information on the development of tax revenue, see Deutsche Bundesbank (2021i), pp. 65-67.
24 Cyclical factors and temporary one-off effects have been stripped out of the structural variables. In the period under review, the deducted temporary effects are broadly identical with coronavirus response measures. Towards the end of the projection horizon, they will be virtually negligible.

Stabilising effect of the general government budget*

As a percentage of GDP, year-on-year change



* Bundesbank estimates. A positive change shows fiscal expansion. **1** Government deficit excluding interest expenditure. **2** Change in cyclical deficit. **3** All other factors that influence the primary deficit (including measures not directly relating to the coronavirus crisis).

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reunification peak. In comparison with 2021, the structural expenditure ratio will see very little change over the medium term: since part of 2021's high tax revenue is deemed temporary, tax revenue generated in the ensuing period will grow at a slower pace than GDP for a certain time. However, additional revenue from the steep rise in contribution rates for the social security funds will make up for at least some of this.

Factoring out new measures, debt ratio may be back to nearly 60% in 2023

The debt ratio is to rise to around 70% this year (2020: 68.7%), but is likely to fall again in the years that follow. Factoring out any new measures to be implemented by the incoming Federal Government, the debt ratio may be back to nearly 60% as early as in 2023. There are three factors driving the decline in the debt ratio. First, nominal GDP growth in the denominator is expanding relatively sharply. This will push down the ratio even though the government budget will still initially record deficits. Second, the coronavirus-related one-off effects that do not affect the deficit but did previously drive up debt (especially assistance loans, equity injections and higher cash reserves) will be scaled back. Third, the portfolios of state-owned bad banks are likely to diminish further.

Risk assessment

All in all, risks to economic growth balanced, but risks to outlook for inflation rate tilted to upside

The macroeconomic projections outlined here are subject to all manner of uncertainties, in particular surrounding the further course of the pandemic as well as its direct and indirect fallout, additional fiscal and economic policy measures to be implemented by the incoming Federal Government, and difficulties gauging the impact of the current rather dynamic price environment on future rises in wages and consumer price inflation. All in all, these risks to economic growth appear to be more or less balanced from today's perspective (tilted to the downside in the short term, and more to the upside in the medium term). As far as the outlook for the inflation rate is concerned, the risks are skewed to the upside.

Downside risks for future trajectory of the pandemic

In the short term, there are already significant risks stemming from the future trajectory of the pandemic and its direct macroeconomic consequences. Given current infection rates, the economy may face a heavier blow than assumed in the projections. Even larger setbacks may persist beyond the short term, too, especially if virus variants which prove much more resistant to the vaccines available spread rapidly. The impact of the most recent variant – Omicron – is also unclear; virtually nothing was known about its properties on 1 December 2021 when the projections were finalised. The projections therefore assume that it will not require any extensive additional containment measures that could impede economic activity. However, if more extensive, longer-lasting protective measures do prove necessary as a result of new virus variants, these may constrain domestic private consumption, and a weaker global economy would weigh on German exports and investment. Moreover, taken in isolation, additional disruptions to global value chains and logistics as a result of the pandemic could intensify supply bottlenecks. All in all, if this unfavourable scenario were to materialise, the economy could suffer a greater setback. Protective and hygiene measures, capacity limitations and additional disruptions to supply chains would exert inflationary pressure. The dampening effect of weaker demand on prices may initially prevail, especially if prices for crude oil or other energy commodities come in well under the high level anticipated in the projections.[25]

Uncertainties stemming from pent-up demand and supply bottlenecks

Uncertainties arise not only as a direct result of the pandemic, but also indirectly as repercussions thereof. For instance, households may use savings accumulated – mostly involuntarily – during the pandemic for additional consumption expenditure to a greater or lesser extent than assumed here. This would have a corresponding knock-on effect on economic activity and inflation (for more information, see Deutsche Bundesbank (2021b)). But the catch-up and backlog effects of households' pandemic-related pent-up demand are not the only factors that are relevant for the projection here: export and corporate investment constraints caused by supply bottlenecks also play a major role. It is possible that supply chains will ease earlier and quicker than expected. Economic activity would then pick up faster and, taken in isolation, alleviate the upward price pressures. That said, there is also a risk that bottlenecks will become even more severe. This would constrain the recovery more tightly and for longer as well as step up price pressures. An environment where demand has become more strongly pent-up and a greater amount of the cost pressure accumulated due to bottlenecks is passed on to final consumers than previously poses an additional upside risk to inflation.

Downside risks to GDP and inflation rate if foreign demand proves weaker

The anticipated sharp recovery of exports and investment is predicated in key measure on demand remaining at the buoyant level seen thus far and global trade recovering as expected, at

25 In the Eurosystem's December projection, scenarios for the euro area as a whole based on different assumptions regarding the pandemic and the impact of the coronavirus crisis on potential output in the long term were calculated (see European Central Bank (2021c)). The macroeconomic implications of these various scenarios for Germany will probably, on the whole, be similar to those for the euro area in its entirety.

Key figures of the macroeconomic projection – non-calendar adjusted

Year-on-year percentage change

Item	2020	2021	2022	2023
GDP (real)	– 4.6	2.5	4.1	3.0
GDP (real, calendar adjusted)	– 4.9	2.5	4.2	3.2
Components of real GDP				
Private consumption	– 5.9	0.3	7.2	2.6
Memo item: Saving ratio	16.1	15.1	9.6	8.8
Government consumption	3.5	3.5	– 1.8	0.9
Gross fixed capital formation	– 2.2	1.6	3.7	5.4
Business investment[1]	– 6.7	2.6	7.5	8.0
Private housing construction investment	3.4	2.1	0.9	1.5
Exports	– 9.3	7.0	5.8	7.2
Imports	– 8.6	7.4	5.6	7.8
Memo item: Current account balance[2]	7.0	6.7	6.3	6.2
Contributions to GDP growth[3]				
Domestic final demand	– 2.8	1.3	4.0	2.8
Changes in inventories	– 0.9	1.0	– 0.3	0.2
Exports	– 4.3	3.0	2.7	3.5
Imports	3.5	– 2.8	– 2.3	– 3.4
Labour market				
Total number of hours worked[4]	– 4.9	2.2	2.7	1.5
Employed persons[4]	– 0.8	– 0.1	0.8	0.7
Unemployed persons[5]	2.7	2.6	2.4	2.2
Unemployment rate[6]	5.9	5.7	5.2	4.9
Memo item: ILO unemployment rate[7]	3.8	3.6	3.2	2.9
Wages and wage costs				
Negotiated pay rates[8]	2.2	1.7	2.3	2.8
Gross wages and salaries per employee	– 0.1	3.3	3.9	3.5
Compensation per employee	0.4	3.6	3.5	3.8
Real GDP per employed person	– 3.8	2.6	3.3	2.3
Unit labour costs[9]	4.3	1.0	0.2	1.4
Memo item: GDP deflator	1.6	2.8	2.9	2.4
Consumer prices[10]	0.4	3.2	3.6	2.2
Excluding energy	1.0	2.3	2.6	2.2
Energy component	– 4.5	10.2	11.5	2.6
Excluding energy and food	0.7	2.2	2.3	1.8
Food component	2.3	2.9	3.5	3.5

Sources: Federal Statistical Office; Federal Employment Agency; Eurostat. 2021 to 2023 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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Projects planned by the new Federal Government: potential impact on projections for the economy and public finances

Germany's new Federal Government has agreed on the key projects contained in the coalition deal.[1] However, the measures have not yet been specified in enough detail to have been included in the projections. In particular, information about their exact structure and potential financial impact is often lacking.

Public finances and fiscal policy measures

On balance, the projects outlined in the coalition agreement will result in additional government spending and (to a lesser extent) lower government revenue. However, it is not clear precisely what financial impact they will have or when they will be implemented. The same is true of the intended funding measures. It has been broadly announced that these will include, for instance, thoroughly reviewing central government spending, cutting environmentally harmful subsidies, increasing administrative efficiency and cracking down on tax evasion. Besides this, the plans appear to involve a sizeable volume of additional borrowing. However, it is not clear to what extent this would be compatible with the debt brake.[2] All in all, the government's plans are expected to result in higher general government deficit and debt levels than those presented in this projection. It is not yet possible to predict the scale or the timeframe of the necessary adjustments, however.

A large part of the expected measures with an impact on public finances relate to social spending, education, digital transformation, decarbonisation of the economy and transport infrastructure. These projects will have an impact on macroeconomic developments through various channels. For one thing, direct government demand is likely to expand. Government consumption will rise in comparison to the baseline if more staff are hired or if healthcare spending is increased, for example. Besides this, additional government investment is planned – in transport and education infrastructure, for instance.[3] For another thing, some measures may generate significant indirect demand effects. They are intended to encourage additional private sector investment in digitalisation and climate action, for instance. Measures to this end include speeding up tax write-offs and granting loans at favourable rates. Unspecified changes to unemployment benefit II are also planned, which could also lead to more extensive social transfers. The planned abolishment of the renewable energy (EEG) levy with effect from 2023 will lead to higher net income for enterprises and households. Moreover, the government has signalled that it may provide financial relief to households in order to compensate for the price increases stemming from climate policy. Looking at social security funds, higher central government transfers are intended to curb the prospective rise in contribution rates. In addition, the ceilings for mini-job and midi-job earnings will potentially be raised, and further tax relief measures have been announced (e.g. the constitutionally necessary change regarding the changeover to the deferred taxation of pensions).

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1 See Bundesregierung (2021).
2 See Deutsche Bundesbank (2021i), pp. 69 f., and Independent Advisory Board to the Stability Council (2021), pp. 26 ff.
3 In this context, many of the areas mentioned in the agreement (such as education and administration) are almost entirely the responsibility of state or local governments. Central government measures will therefore require cooperation with them, as well as potential amendments to the Basic Law.

The measures intended to be implemented through public sector enterprises (primarily Deutsche Bahn and KfW) may also stimulate economic activity. Depending on how they are structured, these enterprises or individual transactions would be classified to the government sector and would influence general government deficit and debt levels (such as the KfW loan programmes commissioned and extensively secured by central government during the coronavirus crisis).

The extent to which funding measures that involve, for instance, cutting expenditure elsewhere will dampen expansionary stimuli is not yet clear (see above).

Higher minimum wage and other regulatory changes

According to the coalition agreement, the statutory general minimum wage will be raised to €12 an hour. No date has been set for this. This increase would be in addition to the hike to €10.45 already agreed upon with effect from 1 July 2022. In comparison to when the minimum wage was introduced in 2015, the group of people who are directly affected and the share of the aggregate wage bill will probably be somewhat larger as a result of the announced raise. By contrast, the average percentage increase in the gross hourly wages of the directly affected employees is likely to be significantly lower.[4] On balance, the planned increase in the minimum wage will probably not directly raise the wage bill quite as strongly as when it was introduced in 2015.[5] Moreover, as before, spillover effects to employees in higher wage brackets are expected. All in all, the increase is likely to perceptibly boost upward wage pressure.

The coalition is aiming to introduce measures to bring in more skilled workers from third countries. This includes work migration measures for people who meet certain criteria (points system), extending the EU Blue Card at the national level to include non-academic professions and removing the expiry date of end-2023 for the Western Balkans arrangement. The projection already assumes that there will be a rising proportion of migration from third countries owing to the pull effects of growing labour shortages in Germany and the simultaneous decline in immigration from other EU countries. As a result, this is not expected to have any meaningful additional impact on the supply of labour within the projection horizon.[6]

Faster approval procedures or regulatory changes to areas such as climate policy could also have an impact on the supply side. However, such effects are even harder to gauge and likewise depend on the specific ways in which measures are structured and implemented.

Impact on the real economy and prices compared to the baseline of the projection

All in all, the coalition deal is set to significantly stimulate demand, especially from 2023. Real GDP could thus then grow at a perceptibly stronger rate. However, from 2023, aggregate capacity utilisation is already extremely high in the baseline of the projection.

4 Although higher wages could curb employment, this would have feedback effects on wages, reducing wage growth somewhat. However, there will also be significantly more labour market bottlenecks in the lower wage brackets over the years to come. This will tend to mitigate the impact on employment.
5 At the time, estimates put the size of the stimulus for the aggregate wage bill at ½%. See Deutsche Bundesbank (2014, 2015a).
6 The measures outlined in the agreement still also need to be fleshed out and it will take time to integrate the additional migrants into the labour market once the plans have been implemented.

For one thing, wage costs would go up as a result of the planned sharp rise in the minimum wage. For another, social security contributions should be raised less strongly than projected – however, the impact of this will probably be far less significant. In conjunction with an already-tight labour market, there is therefore considerable upside risk to wages compared with the baseline.

Both the demand stimulus stemming from high capacity utilisation and the higher wage costs will tend to drive prices up. In a very back-of-the-envelope calculation, higher wages could push prices up by approximately one-third.[7] However, the abolishment of the renewable energy (EEG) levy in 2023 will have a countervailing effect. It will make electricity rates distinctly lower for consumers – although it is uncertain as to whether the scrapping of the levy will be passed through in full to households. What is more, however: if lower electricity costs in the corporate sector resulting from the abolishment of the renewable energy (EEG) levy lead to lower retail prices, this will also dampen consumer prices. However, the scale of this effect will be difficult to gauge. Compared to the baseline, the elimination of the levy would curb the inflation rate only slightly in 2023 as a significant lowering of the charge has already been factored in here owing to the current legal situation (as well as in 2024). In 2024, it would even nudge the inflation rate up slightly. Overall, the risk for the inflation rate towards the end of the projection horizon is distinctly tilted to the upside owing to the measures announced in the coalition agreement.

7 See also Deutsche Bundesbank (2019c).

least in the underlying trend.[26] However, if foreign demand were to experience a setback, the orders placed to date could be cancelled and new orders may be put on hold. This would weaken exports, be a significant drag on the economic recovery and lower the rates of inflation – also because the price of commodities would likely then fall. And it is not just the pandemic that is a threat to the global economy: dangers of a setback of this nature stem from other sources, too. For instance, if other currency areas tighten monetary policy in order to contain inflation trends, this may produce unintended side effects, such as plunging international financial markets into turmoil as a result. Crises in emerging markets – such as a sharp downturn on the Chinese real estate market – may also weigh on global recovery.[27]

Measures from coalition agreement strengthen outlook for economic upturn and point overall to higher inflation rates

The incoming Federal Government's fiscal and economic policy is another potential source of domestic risk. Although the measures have not yet been specified in enough detail to have been included in the projections, demand looks set to be given a considerable stimulus, especially as of 2023 (see the box on pp. 38 ff.). Plans to step up climate protection could trigger sizeable additional private investment. The envisaged significant raising of the statutory minimum wage may have a knock-on effect on wage growth and, subsequently, inflation,[28] even if – taken in isolation – abolishing the renewable energy (EEG) levy will lower the rate of inflation in 2023. The overall package of measures is thus likely to amplify both the economic upturn and inflation.

26 In this case, contrary to the futures prices assumed here, the upturn in demand could push the price of crude oil up further or, at least, prevent it from falling. Note, however, that the price of crude oil has fallen perceptibly since the assumptions were made and is set to be somewhat lower over the medium term. If it remains at this level, this would have a slight dampening effect on the rate of inflation in 2022.
27 See Deutsche Bundesbank (2021j).
28 For more information on the impact that introducing the minimum wage in 2015 had on prices, see Deutsche Bundesbank (2015b).

Outlook for inflation particularly uncertain; additional upside risks if second-round effects via inflation expectations and wages are greater

Given the current environment, the outlook for inflation is particularly uncertain.[29] The current exceptionally high inflation rates themselves are a source of upside risk. Second-round effects via higher wage rises have not yet played a major role and have been factored into these projections to only a limited extent. However, there has already been a perceptible increase in longer-term inflation expectations in Germany. The longer the high inflation rates persist, the more likely that these will be given greater consideration in wage agreements. This would also have an impact on firms' price setting and could keep inflation rates at a persistently higher level.

29 In addition to risk from the macroeconomic context, statistical and econometric factors are also adding to the uncertainties. For instance, a change in consumer behaviour as a result of the pandemic could again clearly shift the weightings in the HICP basket of goods and distort next year's results in a similar way to this year; see Deutsche Bundesbank (2021h). As far as the forecast models are concerned, the extent to which historical relationships still apply in the current, exceptional situation is not clear. The fact that, of late, inflation has repeatedly been greater than would be expected on the basis of such regularities prompts certain doubts.

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