

## Outlook for the German economy – macroeconomic projections for 2020 and 2021 and an outlook for 2022

*The German economy will gradually emerge from its current lull over the projection horizon. Growth in domestic demand will probably not be as dynamic as it was during the boom period of previous years. This is due mainly to growth in households' real disposable income, which will ease primarily on the back of a significant slowdown in employment growth. However, exports are expected to slowly but surely shake off stagnation and go on to increase more strongly again over the course of 2020, in keeping with foreign demand. These developments should see industry pick up and the current two-speed nature of Germany's economy become less pronounced. The country's distinctly supportive fiscal policy and highly accommodative monetary policy will provide an additional boost.*

*In this scenario, calendar-adjusted real gross domestic product (GDP) is likely to grow by only around ½% next year, as it did this year. Economic output will then expand at a distinctly faster pace in 2021 and 2022. Growth could reach just under 1½% per year, which would be on much the same scale as potential output. Following the high levels of utilisation previously recorded, aggregate capacity utilisation is set to be more or less average next year. Capacity utilisation in Germany will remain within normal range over the remaining course of the projection horizon, too.*

*The rate of inflation, which has already decreased substantially this year, will probably sink slightly further still for a time next year. Falling energy prices are the main culprit here. A marked rise in inflation is anticipated in 2021, with energy prices set to rebound strongly, primarily in response to the climate measures recently adopted. Given robust wage growth overall, rising import prices and recovering profit margins, the projections indicate that inflation excluding energy and food will remain broadly unchanged at its present level. It could edge upwards to 1.6% in 2022. Headline inflation could then be even higher owing, above all, to the sharper rises in energy prices.*

*The general government surplus is expected to decrease to 1½% of GDP this year. A gradual reduction in the surplus is on the cards in the years ahead, driven primarily by fiscal loosening and the associated rise in spending. The debt ratio will remain on its downward trajectory and is expected to fall below 60% by 2020 at the latest.*

*Compared with the projections from June 2019, markedly lower economic growth is now assumed for 2020. In view of the downward revision of wage growth and the output gap, slightly lower inflation excluding energy and food is anticipated for the next two years. In 2020, the impact of lower energy prices on headline inflation will be amplified even further. By contrast, this will be almost entirely offset in 2021 by higher energy prices. For economic growth and, to a lesser extent, for the rate of inflation, the risks are tilted to the downside as things stand today.*

*German economy trod water in Q2 and Q3 2019*

## Economic outlook<sup>1</sup>

The German economy trod water in the second and third quarters of 2019. Adjusted for seasonal and calendar effects, real GDP changed little during these quarters taken together.<sup>2</sup> It was thus slightly lower than had been expected in the June outlook.<sup>3</sup> The persistence of the weak underlying cyclical trend that began back in mid-2018 was due, first and foremost, to shrinking output in the export-dependent industrial sector, which has now seen five consecutive quarters of contraction. Conversely, the more domestically oriented sectors proved to be resilient and continued to provide some

positive impetus. They were helped by the still favourable income situation for employees. Although the labour market is gradually beginning to show signs of the effects of the economic slowdown, it has nevertheless shown itself to be fairly robust on the whole. On the demand side, this was to the benefit of private consumption and private housing construction investment. By contrast, business investment contracted markedly amidst ongoing weakness in the export and industrial sectors.

The economic slump is likely to persist through the final quarter of 2019 and the first quarter of 2020. There is little prospect of anything more than a very subdued rise in GDP. However, as things currently stand, there is no reason to expect that Germany will slide into recession.<sup>4</sup> On the contrary, the first tentative signs that industry is gradually picking up are emerging. For example, ifo Institute data suggest that business and export expectations in this sector have recently improved somewhat. Furthermore, the orders situation did not deteriorate any further in recent months. The export-oriented industrial sector could therefore stabilise before the domestically oriented sectors are affected to a greater extent. The two-speed economy that has recently been shaping activity in Germany would then slowly become less pronounced.

*Little prospect of anything more than a very subdued rise in GDP in Q4 2019 and Q1 2020*

### December 2019 projections

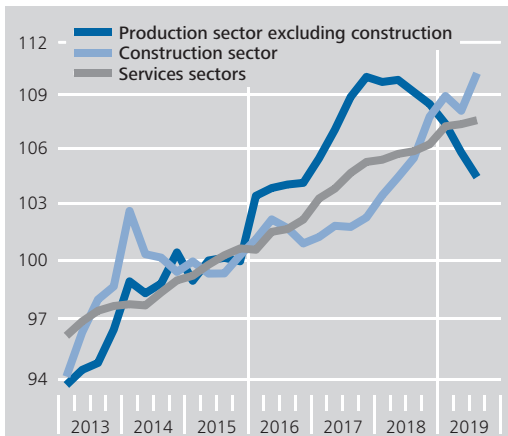
Year-on-year percentage change

	2019	2020	2021	2022
Real GDP, calendar adjusted	0.5	0.6	1.4	1.4
Real GDP, unadjusted	0.5	1.0	1.4	1.3
Harmonised Index of Consumer Prices	1.4	1.3	1.6	1.9
excluding energy and food	1.4	1.5	1.5	1.6

Source: Federal Statistical Office. 2019 to 2022 Bundesbank projections.  
 Deutsche Bundesbank

### Key components of gross value added

2015 = 100, seasonally and calendar adjusted, log scale



Source: Federal Statistical Office.  
 Deutsche Bundesbank

The German economy will probably regain some momentum over the remainder of the projection horizon. This growth will mainly be driven by exports, which, over the course of next year, are expected to slowly but surely shake off stagnation and go on to increase

*Return to somewhat higher economic growth over remainder of projection horizon*

<sup>1</sup> These projections for Germany were finalised on 27 November 2019. They were incorporated into the projections for the euro area published by the ECB on 12 December 2019.

<sup>2</sup> Real GDP fell by 0.2% in the second quarter of 2019 and rose by 0.1% in the third quarter. It should be borne in mind when assessing the weak economic output observed in the second and third quarters of the year that it was elevated in the first quarter of 2019 as a result of one-off factors.

<sup>3</sup> See Deutsche Bundesbank (2019a).

<sup>4</sup> See Deutsche Bundesbank (2019b). This is provided no major negative shocks materialise; see the section entitled "Risk assessment" on p. 20.

more strongly, in keeping with foreign demand. This should help industrial activity recover, and business investment is likely – albeit with a certain time lag – to return to marked growth. Domestic demand will remain on a steep upward trajectory, though growth will not be as strong as it was during the boom period of previous years. Germany’s distinctly expansionary fiscal policy, coupled with a monetary policy which is likewise supportive, will provide an additional boost. At the same time, however, households’ real disposable income will increase at a slower rate than in previous years, largely on account of less dynamic employment growth. As a result, growth in private consumption will probably be markedly weaker in the coming years than this year. Housing construction investment, too, is likely to see only moderate growth.

*GDP growth in 2020 likely to be considerably weaker than projected in June 2019*

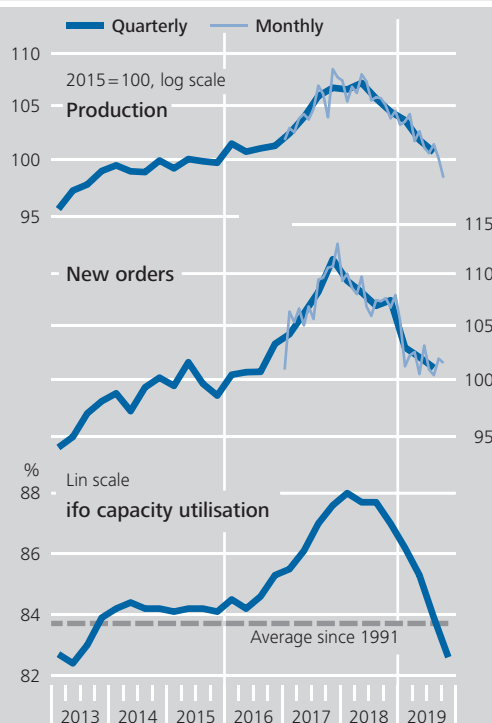
All in all, the situation paints the picture of a “soft landing” for the German economy, after which the economy will return to growth at rates close to those for potential output. Following an increase of only around ½% this year and again next year, calendar-adjusted real GDP could be markedly higher again in the two years thereafter, growing at a rate of just under 1½% per year (see the table on p. 2).<sup>5</sup> Compared with the June outlook, a considerably lower rate of GDP growth is therefore clearly on the cards for next year (see the adjacent table). The main reason for this is that global demand developed more unfavourably than anticipated and is now being assessed as weaker going ahead, too. This is reflected in distinctly lower expectations for exports and business investment.

*Normalisation of aggregate capacity utilisation*

According to these projections, Germany’s economic output will fall considerably short of potential output not only this year but also next year. Aggregate capacity utilisation, which was still significantly above average in 2018, will therefore normalise. In 2021 and 2022, economic output could then grow more or less in line with potential output.<sup>6</sup> As a result, capacity

## Manufacturing sector

Seasonally and calendar adjusted



Sources: Federal Statistical Office (unadjusted figures) and ifo Institute.

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## Revisions since the June 2019 projection

Year-on-year percentage change

Item	2019	2020	2021
<b>GDP (real, calendar adjusted)</b>			
December 2019 projection	0.5	0.6	1.4
June 2019 projection	0.6	1.2	1.3
Difference in percentage points	-0.1	-0.6	0.1
<b>Harmonised Index of Consumer Prices</b>			
December 2019 projection	1.4	1.3	1.6
June 2019 projection	1.4	1.5	1.7
Difference in percentage points	0.0	-0.2	-0.1

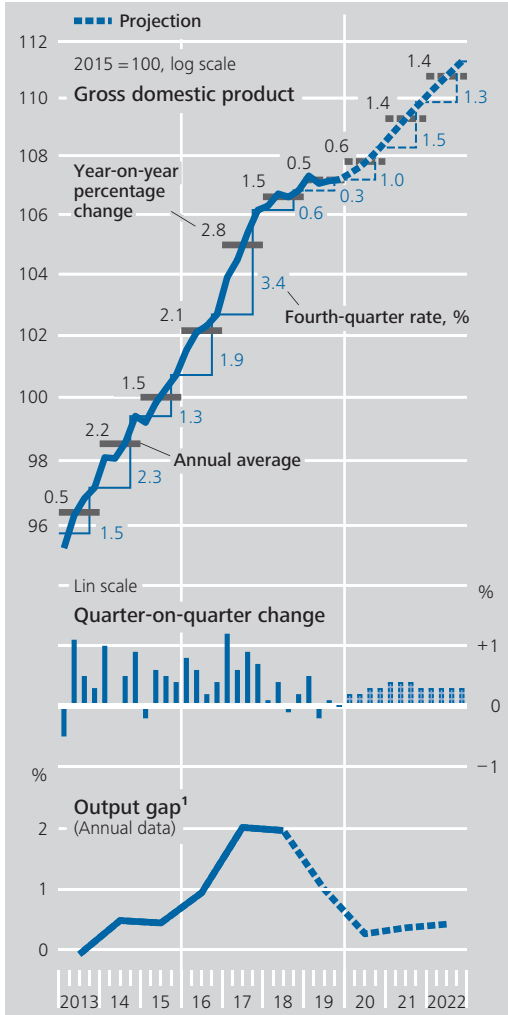
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<sup>5</sup> Without adjusting for calendar effects, the growth rate for 2020 will be considerably higher, at 1.0%, as that year has more working days than 2019. There will be a slightly negative calendar effect in 2022 (see the table on p. 9).

<sup>6</sup> The growth rate of potential output for 2019 is put at 1.5%. It is likely to fall to 1.3% in the years thereafter owing to the demographically driven decline in the potential labour supply.

### Aggregate output and output gap

Price, seasonally and calendar adjusted



Sources: Federal Statistical Office and Bundesbank calculations. 2019 to 2022 Bundesbank projections. <sup>1</sup> Deviation of GDP from estimated potential output. Deutsche Bundesbank

### Leading indicators for exports

Seasonally adjusted



Sources: Federal Statistical Office, Association of German Chambers of Commerce and Industry (DIHK) and ifo Institute. Deutsche Bundesbank

utilisation in Germany will probably remain within normal range.

Since the start of 2018, the underlying trend for German exports has been very weak, with brief upward and downward fluctuations being observed time and again. However, the first tentative signs of a possible end to this slump are now emerging. For example, despite remaining stuck in negative territory, ifo export expectations three months ahead bottomed out at their lowest point to date in September.<sup>7</sup> Furthermore, the underlying trend dynamics of new orders received from abroad by German industry, i.e. not taking account of volatile large orders, have emerged from a protracted decline and have now stabilised. In the absence of any further setbacks relating to foreign demand, it is assumed that export growth will gradually recover over the course of 2020. This recovery is likely to continue in the years thereafter, with exports rising roughly in line with the expected gradual strengthening of sales market growth. Over the remainder of the projection horizon, exports will probably grow at a pace only slightly slower than that of foreign demand. A certain reduction compared with the rate of sales market growth is to be expected for exports to other euro area countries. This is to take into account losses in German exporters' competitiveness owing to comparatively high domestic cost pressures.

*Exports recover gradually*

Lagging somewhat behind the downturn in industry, business investment decreased markedly in the second and third quarters of 2019 – the first contraction since 2016. This decline is likely to continue initially, as evidenced by the still shrinking level of capacity utilisation in manufacturing and, in the short term, ongoing weak foreign demand for German industrial goods. Furthermore, the business environment

*Business investment sees initial decline followed by significant growth*

<sup>7</sup> By contrast, the latest export expectations published in the autumn survey by the German Chambers of Commerce and Industry (DIHK), which relate to the next 12 months, were still very negative. However, a large part of the survey was presumably conducted prior to the recent easing of tensions in relation to Brexit as well as the trade talks between the United States and China.

## 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 19 November 2019. The assumptions regarding economic activity in the euro area are derived from projections made by the national central banks of the euro area countries.<sup>1</sup> These projections incorporate all fiscal policy measures which have been either adopted or adequately specified and are deemed likely to be implemented.

### Outlook for global trade lagging behind muted global economic growth

The slight acceleration in the pace of global economic growth (excluding the euro area) anticipated in the June projection did not materialise in the second and third quarters of 2019. At this point, a somewhat faster momentum is not expected until next year, the pace of which will then pick up only marginally over the further course of the projection period. The growth momentum of the advanced economies (excluding the euro area) will slacken slightly as a result of increasingly mature economic cycles, mounting supply-side restrictions and the diminishing impact of expansionary monetary and fiscal policies.<sup>2</sup> In addition, the growth rates anticipated for China will be low by historical standards. However, taken as a whole, the group of emerging market economies will largely be in tune with the increasing momentum underlying several Asian and Latin American economies. All in all, annual growth rates for the global economy (excluding the euro area and weighted by purchasing power parity) should be just under 3% for this year and just over 3% for next year, while expansion rates for 2021

and 2022 are expected to come to 3¼% and 3½% respectively.

Weak industrial and investment activity,<sup>3</sup> as well as trade disputes, will continue to place a strain on international trade. In the second and third quarters of 2019, global trade continued to weaken slightly and was thus considerably below the expectations of the June projection. Global trade (excluding the euro area) is expected to make a very muted recovery over the projection horizon. Following what was – averaged across the current year – a stagnation, growth rates of ¾% for 2020, 2½% for 2021 and 2¾% for 2022 are expected. Hence global trade will remain even less dynamic than global activity at the end of the projection period. Compared with June, the projections for global trade have therefore been revised downwards by a more considerable margin than the outlook for the global economy. German exporters' sales markets likewise showed only weaker growth over the course of 2019 and, similar to global trade, a muted growth momentum is expected over the projection horizon.

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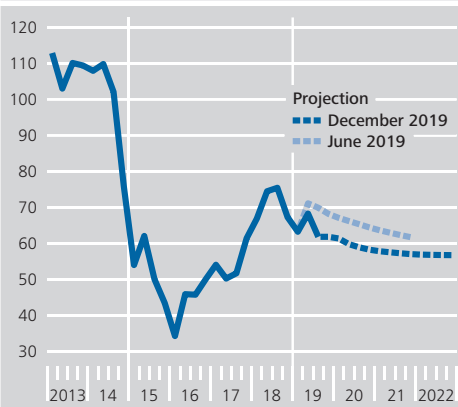
<sup>1</sup> The projections made by the national central banks of the euro area countries were completed on 27 November 2019.

<sup>2</sup> As in past projections, it is assumed, with regard to the United Kingdom's planned withdrawal from the EU, that no tariffs will be imposed before the end of 2020. In the short term, the uncertainty about the implementation of the decision to leave the EU will weigh, above all, on the UK's economic activity. Likewise, over the further course of the projection horizon, economic growth is likely to remain subdued during a transitional phase towards a new trade agreement.

<sup>3</sup> Shifts in the composition of global demand may also be one of the factors weighing heavily on global trade. Whereas the industrial sector, which is export-oriented and produces capital goods, is suffering from weak investment activity, the services sector, which is driven more by household demand, is comparatively robust. See Deutsche Bundesbank (2019c).

### Oil price

US\$ per barrel of Brent, quarterly data



Sources: Bloomberg and ECB projections.  
 Deutsche Bundesbank

### Major assumptions of the projection

Item	2019	2020	2021	2022
Exchange rates of the euro				
US dollar/euro Effective <sup>1</sup>	1.12	1.10	1.10	1.10
Effective <sup>1</sup>	116.7	115.9	115.9	115.9
Interest rates				
Three-month EURIBOR	-0.4	-0.4	-0.4	-0.3
Yield on government bonds outstanding <sup>2</sup>	-0.2	-0.3	-0.2	-0.1
Commodity prices				
Crude oil <sup>3</sup>	63.8	59.6	57.4	56.8
Other commodities <sup>4,5</sup>	-3.8	3.8	2.6	2.4
German exporters' sales markets <sup>5,6</sup>	1.4	1.7	2.5	2.7

<sup>1</sup> Compared with 38 currencies of major trading partners of the euro area (EER-38 group of currencies); Q1 1999 = 100. <sup>2</sup> Yield on German government bonds outstanding with a residual maturity of over nine and up to ten years. <sup>3</sup> US dollars per barrel of Brent crude oil. <sup>4</sup> In US dollars. <sup>5</sup> Year-on-year percentage change. <sup>6</sup> Calendar adjusted.

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### Technical assumptions of the projection

Once the June projection had been finalised, crude oil prices receded perceptibly. Given the apprehension about a further escalation of trade disputes and sluggish industrial activity, global oil demand was expected to weaken yet again. Despite the counterweight provided by tensions in the Middle East and concerns about the ongoing production losses following an attack

on oil refineries in Saudi Arabia, stoking expectations of a shorter supply, price-dampening factors on the demand side prevailed. The assumptions underlying the projections are derived from forward quotations, which indicate a stronger decline in crude oil prices in the coming year than assumed in the June projection. Overall, this equates to a considerably lower level of crude oil prices over the full projection horizon. The prices for other commodities measured in US dollars likewise dropped after the June projection was finalised, pushing down their average for 2019. In light of the expected recovery of the global economy, moderate price increases are anticipated for the following years; however, these, too, are likely to be below the momentum assumed in the June projection.

The Governing Council of the ECB already adjusted its forward guidance on key interest rates at its monetary policy meetings in June and July. Then, at the September meeting, a comprehensive package of measures was adopted. This involved resuming monthly net purchases under the expanded asset purchase programme (APP) of €20 billion as from 1 November 2019. These purchases are to end only shortly before key interest rates are set to be raised. Key interest rates are to remain at their present or lower levels until the inflation outlook for the euro area has robustly converged to a level sufficiently close to, but below, 2% within the projection horizon, and such convergence has been reflected in core inflation dynamics. In addition, at the September meeting the interest rate on the deposit facility was lowered by 10 basis points and the monetary policy stance eased further by adjusting the modalities of the targeted longer-term refinancing operations (TLTRO III).<sup>4</sup> Market expectations re-

<sup>4</sup> See Deutsche Bundesbank (2019d).



garding a future interest rate hike have shifted further into the future as compared with the assumptions of the June projection. Based on the current lower level, it is assumed that the EURIBOR and the yield on long-term German government bonds will record minor gains only towards the end of the projection horizon. Consistent with technical interest rate assumptions, bank lending rates, too, are expected to record only a very moderate increase until 2022. Financing conditions are, therefore, expected to be extremely advantageous across the projection horizon. Accordingly, the percentage of enterprises citing financing difficulties as a risk to their business growth reached a new all-time low, according to the economic survey conducted by the Association of German Chambers of Commerce and Industry (DIHK) in the autumn of 2019.

The comprehensive additional easing measures of the single monetary policy and unexpectedly weak economic data for the euro area dampened the value of the single currency against the US dollar following the finalisation of the June projection. The US dollar was also strengthened by the fact that market participants viewed further interest rate cuts by the Federal Reserve System as less likely. The euro was trading at US\$1.10 in the period relevant to the derivation of the exchange rate assumptions. Compared with the assumptions of the June projection, the euro depreciated by around 1¾% against the US dollar. In relation to the most important currencies for foreign trade, the euro depreciated by ¾% on balance.

#### **Gradually stronger GDP growth in the euro area**

The current weakness of global trade and uncertainty regarding future trade relations

are weighing on euro area economic growth. This has dampened industrial growth in particular, whereas the services sector has shown itself to be more resilient thus far. Against the backdrop of continued expectations of employment growth and rising wages, it is anticipated that domestic growth forces will continue to counterbalance the weak foreign trade. With the muted recovery of non-euro area trading partners' import demand, which is factored into the assumptions on global trade, export growth is likely to pick up again as well. In 2021 and 2022, the euro area economy is likely to return to growth rates that are somewhat above potential growth.

Compared with the June projection, expected GDP growth in the euro area for 2020 (excluding Germany) was revised downwards by around two-tenths of a percentage point to 1.3%, following 1.5% for 2019. For each of the next two years, a growth rate of 1.4% is assumed, representing an unchanged projection for 2021 compared with the June projection.

#### **Considerably looser fiscal policy**

Fiscal policy is set to be loosened considerably over the entire projection horizon, supporting economic activity. The fiscal policy measures will weigh on the government budgets for 2020 and 2021, in particular. Additional spending has been agreed in many areas. Central, state and local governments, in particular, are planning additional spending on transport and digital infrastructures, childcare and education, as well as external and internal security. Furthermore, measures to contain CO<sub>2</sub> emissions will be promoted more heavily as from 2020 (for more information, see p. 18).

The various income tax cuts, in particular in the form of the partial abolition of the soli-

curity surcharge in 2021, will be partly offset by additional revenues from progressive taxation. Revenue is to increase further from 2021 owing to the new allowances for CO<sub>2</sub> emissions in the areas of transport and building heating agreed as part of the package of climate measures. As regards social contributions, the contribution rate to the unemployment insurance scheme will be lowered by 0.1 percentage point to 2.4%. Moreover, there will be relief for occupational pension recipients regarding their contributions to the statutory health insurance scheme. This will increase the pressure to hike the additional contributions to statutory health insurers – a move which is expected in any case on account of the healthcare cost dynamics. Overall, it is assumed that the average rates of additional contributions will increase markedly. All in all, surpluses and shortfalls on the rev-

enue side will largely balance each other out between 2020 and 2022.

in which enterprises are operating remains fraught with heightened economic uncertainty. This relates, inter alia, to the simmering trade disputes between the United States and its trading partners, and to the issue of future technological and regulatory framework conditions relating to matters such as mobility. Low financing costs are unlikely to provide a sufficient counterweight here. As a result, business investment is expected, on average, to experience a further marked decline next year. If, spurred by recovering exports, industrial activity picks up as assumed, it is likely that, initially, the utilisation of available capacity will increase. Consequently, enterprises' propensity to invest will probably respond with a certain time lag, as was the case at the start of the economic downturn. On an annual average, business investment is unlikely to expand again until 2021. As things stand today, this growth could even accelerate in 2022: export business is set to keep picking up, and it could then be possible

to gradually make up for investment measures previously put on ice.

Despite the ongoing economic slowdown, consumer sentiment in Germany is still positive. Looking ahead over the projection horizon, too, private consumption is likely to remain a major mainstay of economic growth. It is anticipated that consumer spending will rise on a scale similar to disposable income. However, real disposable income looks set to increase at a slower rate than during the boom period of previous years. This is down to a variety of factors which, in some cases, will act in opposite directions. Income dynamics will be dented, in particular, by the significant slowdown in employment growth. On top of this, wage growth will probably be slightly lower, most notably in 2020, than the average of previous years. Looking at prices, there will be some relief next year, but higher inflation rates are expected to return in 2021 and 2022. Fiscal policy will boost dis-

*Private consumption remains a major mainstay of economic growth*



posable income, especially when the solidarity surcharge is partially abolished in 2021.

*Moderate growth in housing construction investment*

Housing construction investment has risen sharply so far this year, and is likely to pick up once more in the fourth quarter. The optimistic sentiment amongst enterprises and the well-filled order books suggest that the boom in the construction sector will continue in the next few months. For housing construction in particular, demand remained high in principle on account of the stable labour market and extremely favourable financing conditions.<sup>8</sup> Nevertheless, starting from this high level, housing construction investment will probably then see only moderate growth over the projection horizon. First, construction prices are continuing to rise strongly, albeit at a somewhat slower pace. This suggests that, even given the weaker demand from the industrial sector for construction work at present, it is not easy to expand construction capacity on the supply side due to the tight labour market. This is set to continue. Second, housing construction investment is likely to lose steam due to demand-side factors. Aside from the waning momentum in real disposable income, the diminishing number of new households will also be a factor here. Demographic trends and the expected dip in immigration levels will also contribute to this.

*House prices set to rise more moderately over projection horizon*

House price dynamics abated in the first half of 2019. In particular, the exceptionally high house price inflation in metropolitan areas up to 2018 eased up considerably. Demand for housing grew more slowly, likely also because of the price level that has now been reached. In some cases, it has also shifted away from cities to areas where prices have risen less strongly and supply can be expanded more easily. This trend will probably continue. The expected development of macroeconomic indicators, such as the slowing momentum in real disposable incomes, likewise points to more moderate inflation rates for houses than was previously the case. Nevertheless, inflation rates

### Technical components of the GDP growth projection

% or percentage points

Item	2019	2020	2021	2022
Statistical carry-over at the end of the previous year <sup>1</sup>	0.2	0.0	0.4	0.5
Fourth-quarter rate <sup>2</sup>	0.3	1.0	1.5	1.3
Average annual GDP growth rate, calendar adjusted	0.5	0.6	1.4	1.4
Calendar effect <sup>3</sup>	0.0	0.4	0.0	-0.1
Average annual GDP growth rate <sup>4</sup>	0.5	1.0	1.4	1.3

Sources: Federal Statistical Office; 2019 to 2022 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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will probably level off only gradually given the typical price inelasticity of housing.

Direct government demand will bolster economic growth markedly over the projection horizon, supported by government consumption as well as government investment. Government consumption has risen perceptibly this year, and growth is likely to remain above GDP growth next year, particularly in tangible goods purchases as well as in healthcare and long-term care spending. Government investment, too, is likely to see a distinct increase. Priority areas will include transport and digital infrastructures, childcare and schools. Capacity constraints in the construction sector are expected to curb government investment in construction somewhat less strongly than in the recent past, and price pressures could abate somewhat. This is due mainly to the less pronounced rises in commercial demand. Major increases in investment in machinery and equipment in defence are also probable.

*Government consumption and investment will increase significantly*

Imports, after a period of buoyancy, did not grow any further over the second and third quarters. This lull is likely to be linked to the

<sup>8</sup> Interest rates on mortgage loans will probably remain more or less unchanged at their low level over the projection horizon.

## Key figures of the macroeconomic projection

Year-on-year percentage change, calendar adjusted<sup>1</sup>

Item	2018	2019	2020	2021
GDP (real)	1.5	0.5	0.6	1.4
GDP (real, unadjusted)	1.5	0.5	1.0	1.4
Components of real GDP				
Private consumption	1.2	1.6	1.1	1.1
Memo item: Saving ratio	11.0	10.9	10.9	10.9
Government consumption	1.4	1.9	2.4	2.3
Gross fixed capital formation	3.5	2.7	0.2	1.4
Business investment <sup>2</sup>	3.5	1.6	-1.4	0.7
Private investment in housing construction	3.1	4.2	1.7	1.5
Exports	2.3	1.0	0.8	2.3
Imports	3.7	2.2	1.6	2.6
Memo item: Current account balance <sup>3</sup>	7.5	7.8	7.5	7.4
Contributions to GDP growth <sup>4</sup>				
Domestic final demand	1.7	1.8	1.1	1.3
Changes in inventories	0.3	-0.8	-0.3	0.0
Exports	1.1	0.5	0.4	1.1
Imports	-1.5	-0.9	-0.6	-1.1
Labour market				
Total number of hours worked <sup>5</sup>	1.3	0.5	-0.1	0.2
Employed persons <sup>5</sup>	1.4	0.9	0.1	0.1
Unemployed persons <sup>6</sup>	2.3	2.3	2.3	2.3
Unemployment rate <sup>7</sup>	5.2	5.0	5.1	5.0
Memo item: ILO unemployment rate <sup>8</sup>	3.4	3.1	3.2	3.2
Wages and wage costs				
Negotiated pay rates <sup>9</sup>	2.9	2.9	2.5	2.6
Gross wages and salaries per employee	3.2	3.1	2.5	2.7
Compensation per employee	2.9	3.2	2.3	2.7
Real GDP per employed person	0.2	-0.3	0.5	1.3
Unit labour costs <sup>10</sup>	2.7	3.5	1.8	1.4
Memo item: GDP deflator	1.5	2.0	1.9	1.9
Consumer prices <sup>11</sup>				
Excluding energy	1.9	1.4	1.3	1.6
Energy component	1.6	1.4	1.5	1.6
Excluding energy and food	4.9	1.4	-0.9	1.5
Food component	1.3	1.4	1.5	1.5
Residential property prices <sup>12</sup>	2.6	1.6	1.6	2.1
Residential property prices <sup>12</sup>	6.6	5.3	4.9	4.5

Sources: Federal Statistical Office; Federal Employment Agency; Eurostat; 2019 to 2021 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. **12** Unadjusted figures.

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temporary weakness in exports and business investment, which involve imports to a significant degree. The recent pronounced level of destocking probably also contributed to this. By contrast, robust domestic demand generally provided buoyancy. The projections for the various demand components reveal an initially subdued outlook for imports in the fourth quarter of 2019 and the first quarter of 2020. They are expected to expand rather strongly as time progresses, however, supported by the anticipated stronger export growth and the rebound in business investment. Moreover, the integration of Germany's economy in the international division of labour is still expected to increase at least moderately in the medium term in spite of the present challenges facing the global trade system. It is therefore assumed that the import shares of all demand components will continue to rise. Euro area trading partners should benefit in particular from Germany's rising import demand given their increasing price competitiveness.

*Imports weak initially, but then on trajectory of quite strong growth in medium term*

Despite weak exports, Germany's current account surplus for the first nine months of this year was somewhat above the high level of 2018. In addition to the distinct improvement in the terms of trade as a result of the lower crude oil price, this was also attributable to the higher primary income balance. The latter was pushed up by higher investment income linked to the rise in Germany's net external position. By contrast, current account surpluses are set to narrow over the projection horizon. The terms of trade will probably see, if at all, only a slight further improvement on average over the coming year based on assumptions regarding the crude oil price and the euro exchange rate. It is assumed that net primary and secondary income will expand largely in line with nominal GDP growth. The projections for real trade flows are the main driver here: though export growth has been gradually recovering, imports have consistently grown distinctly more strongly on the back of robust domestic activity, meaning that the trade surplus will gradually fall. The total current account balance could decline to

*Current account surplus down somewhat going forward*

7.4% of nominal GDP by 2021, and then continue to decrease slightly.

## ■ Labour market

*Labour market fairly resilient in Q2 and Q3 2019 in face of cyclical downturn*

The labour market proved to be fairly resilient in the second and third quarters of 2019 in the face of the ongoing cyclical downturn. Nevertheless, employment growth has waned considerably over the last two quarters. After going up in the last quarter of 2018 and the first quarter of 2019 by 260,000 after seasonal adjustment, total employment managed an increase of another 60,000 in the second and third quarters of 2019. Only temporary agency work saw a decrease in employment. Temporary employees are chiefly deployed in the industrial sector, which has been especially affected by the downturn. Enterprises largely maintained their core staff in the face of existing labour shortages and accepted lower labour productivity. The average number of hours worked likewise fell. In particular, overtime was reduced and positive balances on working time accounts were scaled back. Moreover, short-time work caused by cyclical developments rose somewhat, although it still remained at a relatively low level. Overall, the total number of hours worked declined slightly in the last two quarters. As expected, unemployment remained at its low level in recent months, but did not fall any further.<sup>9</sup>

*Little change in labour market situation expected in Q4 2019 and Q1 2020*

There is unlikely to be much change to the overall favourable labour market situation in the next few months. Employment is expected to continue to rise slightly on the whole, also because firms in the sectors hit hardest by the cyclical weakness are largely determined to avoid dismissing their core workforces. Instead, they are likely to resort to other options such as reduced working hours, short-time work and less temporary work in the final quarter of 2019 and the first quarter of 2020 as well. However, leading indicators are pointing to a marginal uptick in unemployment. Employment and underemployment may increase at the same

### Leading indicators for the labour market

Seasonally adjusted



Sources: Federal Employment Agency (unadjusted figures), Ifo Institute and Institute for Employment Research (IAB). <sup>1</sup> Qualitative employment plans of 9,000 surveyed enterprises for the next three months. <sup>2</sup> Values below 100 correspond to rising unemployment.

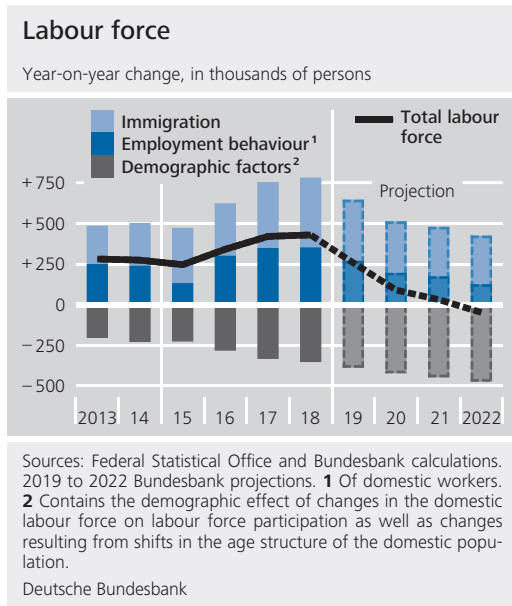
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time because the labour force will expand again somewhat.

It is presumed that the expected firming of economic activity will be accompanied again by stable labour demand in the medium term. The labour supply is unlikely to increase, in contrast to before. Labour force participation in Germany is already very high by international standards and is unlikely to rise to the same extent as it has done over the past decade. The shift in the age structure towards age groups with low participation rates will also have a dampening effect. Immigration, particularly from EU Member States in central and south-eastern Europe (the most important region of origin for the labour market), has already been

*Rise in labour supply constraints in mid-term*

<sup>9</sup> Due to the revision of the number of unemployed persons receiving unemployment benefit II by the Federal Employment Agency in May, the level of registered unemployment shown in the statistics was somewhat higher than at the start of the second quarter, however. The values up to and including April 2019 were not revised retroactively.



weigh the dampening effect of the change in age structure. The total number of hours worked could therefore increase slightly in 2022 as well.

## ■ Labour costs and prices

Negotiated pay rates will probably rise less strongly in 2020 than this year or in 2018. The downturn in the industrial sector is likely to result in fewer new agreements entered into by wage bargainers. The effects of the second round of lower (or even non-existent) incremental increases under old, long-running collective wage agreements such as in the metalworking and electrical engineering industries will also continue to be felt. Both are set to dampen the growth of negotiated pay rates markedly in 2020.<sup>10</sup>

*Negotiated pay rates set to rise less strongly in 2020, ...*

decreasing for some time now. This decline has been amplified even further recently. Following total net immigration of 386,000 people in 2018, on balance only 320,000 people are set to have migrated to Germany this year. As in Germany, demographic change is also being felt in the most significant countries of origin, and the labour markets in these countries are becoming tighter and tighter. Annual net migration of 300,000 is expected in subsequent years. This will have an impact on the size of the labour force, which had still grown considerably in past years. After a small rise in 2020 and 2021, it is expected to decline in 2022.

The year 2021 is expected to have favourable conditions for wage bargainers to agree much stronger wage increases again. The German economy is likely to expand again more steeply, labour productivity will rebound more strongly and the tightness in the labour market will remain high. As things stand today, these trends will firm again somewhat in 2022, giving support to slightly stronger wage growth.

*... but go back up somewhat more sharply in 2021 and 2022*

*Minimal rise in number of hours worked*

Employment growth is unlikely to strengthen even after the current economic slump has come to an end. The employees retained during the downturn are expected to be deployed more productively at first, meaning that unemployment is not set to fall, either. This is underscored by the fact that the low level of unemployment will probably limit the scope for any further increase in employment in any event. Employment will grow only slightly in 2021 and may then decline somewhat, paralleling the growth of the labour force. The number of working hours per employed person is expected to increase again moderately towards the end of the projection horizon. In this case, the impact of the cyclical recovery will out-

The rise in actual earnings is likely to follow a similar time pattern, although the dip in 2020 will probably be somewhat more pronounced. This is because wage drift is unlikely to be at all positive, particularly in 2020. Performance bonuses and remunerated overtime could increase marginally at most, and working hours

*Rise in actual earnings ...*

<sup>10</sup> 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.

<sup>11</sup> Moreover, positive balances on working time accounts and the volume of unpaid overtime are being reduced, especially in the industrial sector. However, this is not reflected in monthly wages and therefore not in the wage drift, which is measured on a monthly basis.

are expected to decline slightly.<sup>11</sup> The return to a solid path of growth will mean that employees will work somewhat more hours in 2021 and firms will award their employees slightly higher bonuses. From a macroeconomic perspective, the increases in the statutory minimum wage will give only a limited boost to average wages.

*... and in labour costs with temporary dip*

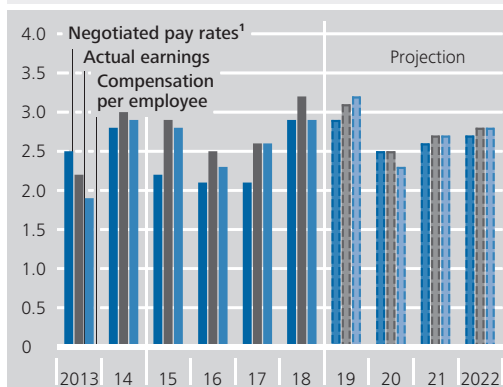
Compensation per employee, which includes employers' social contributions on top of actual earnings, will likewise see much smaller growth in 2020 than in 2019. The return to full joint financing of the statutory health insurance scheme contributed to the especially high rise this year.<sup>12</sup> By contrast, the contribution rate to unemployment insurance will be reduced slightly at the beginning of 2020. In the following years, labour costs are expected to grow more strongly again in line with actual earnings, with average supplementary contribution rates to statutory health insurers rising markedly.

*Measured by the GDP deflator, increased domestic inflation over entire projection horizon*

Unit labour costs are expected to lose considerable momentum in the coming year following another probable significant increase in 2019. This is chiefly due to the expectation that labour productivity will rise substantially once more, alongside weaker wage growth. Weak productivity developments at present are, first and foremost, a reflection of employment growth, which has thus far remained sound in comparison with sluggish economic growth. With the firming of the economy anticipated for the coming year, productivity is expected to swing onto a path of recovery. This is likely to continue into 2021 and 2022. The tangible increase in the capital intensity of labour as a factor of production will be a further bolstering factor here; supply-side constraints will curb employment gains, whilst at the same time fixed capital formation will experience solid growth. The increasing labour productivity will then give rise to further decreasing growth rates for unit labour costs amidst renewed higher wage growth. This should cause aggregate profit margins, too, to return in part to

### Negotiated pay rates, actual earnings and compensation of employees

Year-on-year percentage change, monthly basis



Sources: Federal Statistical Office. 2019 to 2022 Bundesbank projections. <sup>1</sup> According to the Bundesbank's negotiated wage index. Deutsche Bundesbank

normal. In the current economic downturn, they have thus far absorbed the strong unit labour cost growth to a significant extent, and have therefore been highly compressed. On balance, domestic inflation as measured by the GDP deflator, which already saw a marked increase this year, is set to record a similarly high rate in subsequent years.

Compared with the final quarter of 2018 and the first quarter of 2019, consumer price inflation as measured by the Harmonised Index of Consumer Prices (HICP) declined considerably in the second and third quarters of 2019. This was more or less in line with the expectations of the June projection.<sup>13</sup> Prices for food, including beverages and luxury goods, increased more steeply than anticipated, not least on account of an unexpected rise in tobacco prices. At the same time, the prices of package holidays, and, most recently, clothing, increased somewhat less than had been assumed. For this reason, the rate excluding energy and food temporarily fell short of the level projected in June. If the volatile travel and clothing com-

*As expected, inflation rate clearly diminished in the second and third quarters*

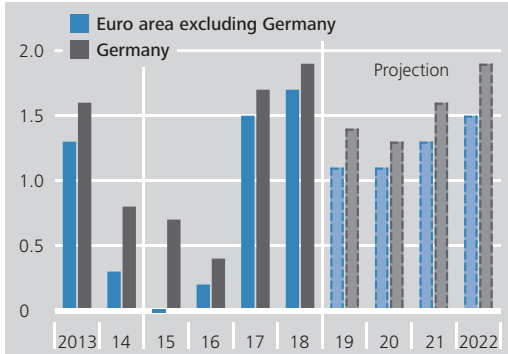
<sup>12</sup> The cut in the contribution rate to the unemployment insurance scheme and the simultaneous rise in the contribution rate to the public long-term care insurance scheme at the beginning of 2019 will cancel each other out from the employer's perspective.

<sup>13</sup> In November, too, the inflation rate, at 1.2%, was basically at the level projected in June.



### Price projection (HICP)\*

Year-on-year percentage change

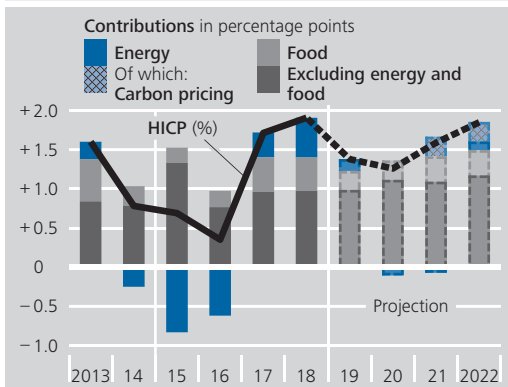


Sources: Federal Statistical Office, Eurostat and Bundesbank calculations. 2019 to 2022 Bundesbank projections (for Germany) and calculations based on Eurosystem projections (for the euro area excluding Germany). \* Based on the Harmonised Index of Consumer Prices.

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### Contributions to headline HICP inflation, by component

Year-on-year change



Source: Federal Statistical Office and Bundesbank calculations. 2019 to 2022 Bundesbank projections.

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ponents are also factored out, however, the prices have risen rather dynamically, as expected.

*Core inflation rate could rise slightly within projection horizon*

In the coming year, the inflation rate excluding energy and food (core inflation) is anticipated to rise slightly. This is chiefly on account of the prices of services, which will probably increase much more steeply. An additional factor here is the absence of a dampening statistical effect in prices for package holidays.<sup>14</sup> Industrial goods prices (excluding energy) already rose strongly in 2019, which can probably also be attributed to the depreciation of the euro. As the exchange rate is expected to remain unchanged,

price inflation over the projection horizon is not likely to remain quite as high. However, it is still set to be significantly higher than the average of the past few years. On the whole, the core inflation rate could initially remain virtually unchanged, increasing slightly further towards the end of the projection horizon. Although cyclical normalisation, taken in isolation, is set to curb inflation with a time lag, wage growth is expected to remain comparatively strong amidst rising import prices. Moreover, past burdens in the form of higher labour costs are likely to be gradually passed onto consumers, with the result that profit margins will recover.

This year, and presumably next year, too, the rise in food prices will be dampened somewhat by declining prices for some agricultural products. Once this trend tails off, robust wage growth in this area is expected to be passed through more strongly to prices again. Energy prices saw only moderate growth this year on account of falling oil prices. A further decrease in the latter is assumed over the projection horizon. For this reason, energy is likely to make a negative contribution to the inflation rate in 2020. As from 2021, by contrast, measures enshrined in the recently adopted climate package will push up prices (for more information, see the box on p. 15). Moreover, increased procurement costs in the electricity market are likely to be passed onto final consumers. Energy prices will then resume making a significant contribution to consumer price inflation.

*Food and energy prices anticipated to rise considerably in 2021 and 2022*

Overall, therefore, the inflation rate could temporarily decline further in the coming year, from 1.4% to 1.3%, before going back up to 1.6% in 2021. In 2022, a further increase appears possible due to a sharper rise in energy prices and the slight pick-up in the core rate. Price dynamics in Germany are thus expected to remain higher than those in the other euro area countries until the end of the projection horizon. Compared with the projection from June of this year, a weaker increase in con-

*Significantly higher inflation rate expected once more towards end of projection horizon*

<sup>14</sup> See Deutsche Bundesbank (2019e).



## The impact of the Climate Package on economic growth and inflation

In mid-November 2019, the Bundestag passed a Climate Package comprising the Federal Climate Action Act (*Bundesklimateilgesetz*) and further climate legislation.<sup>1</sup> The measures envisaged in this package will affect consumer prices and economic growth over and beyond the forecast horizon. This box provides an assessment of these effects.

Under the Federal Climate Action Act, VAT payable on long-distance train journeys is to be lowered from the standard rate of 19% to a reduced rate of 7% from 2020 onwards. The air traffic tax is to be increased from April 2020.<sup>2</sup> These two measures are likely to have almost no net impact on inflation (as measured by the Harmonised Index of Consumer Prices (HICP)). This is because, first, their effects run in opposite directions and thus roughly balance each other out and, second, the share of these services in the HICP basket is low.<sup>3</sup> In the areas of building heating and transport, moreover, the new legislation will require enterprises selling heating fuel and fuel for vehicles to purchase allowances for CO<sub>2</sub> emissions, beginning in 2021. The legislation envisages that the fixed prices for the allowances will begin at €10 per tonne and gradually increase to €35 per tonne in 2025. After that, the price for the allowances will be dictated by the market, with a price span of €35 to €60 per tonne stipulated for 2026. This is likely to have a marked impact on consumer prices for energy and on consumer prices overall, thus also affecting the economy as a whole.

Our first step, therefore, is to estimate purely mechanically the likely direct impact of the climate measures on the energy

components of the HICP. The CO<sub>2</sub> allowances in the area of transport will mainly affect the consumer price component “fuels” (which can be broken down into diesel and petrol), while the allowances for building heating will have the greatest impact on the components “liquid fuels” and “gas”.<sup>4</sup> Each of these products entails a different amount of CO<sub>2</sub> emissions, which means that the price mark-ups resulting from the CO<sub>2</sub> fixed prices will differ. In 2021, for instance, petrol and diesel will experience a mark-up of just under and just over 2½ cent per litre respectively, whereas gas will undergo a mark-up of 0.2 cent per kilowatt hour. In the calculations that follow, it is assumed that the envisaged maximum CO<sub>2</sub> emissions price of €60 per tonne will be reached in 2026.<sup>5</sup> In that case, the mark-up for fuels would rise to around 15 cent per litre and the mark-up for gas would increase to just over 1 cent per kilowatt hour. To compensate for this, the Climate Package envisages a reduction in the renewable energy levy, which is a major cost component of household electricity prices.

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<sup>1</sup> However, during its session at the end of November, the Bundesrat referred several of the proposed measures to the parliamentary mediation committee, notably the reduction of VAT payable on long-distance train tickets, the increase to the standard travel allowance and the tax incentives for the restoration of buildings.

<sup>2</sup> This amounts to an increase of between roughly 45% and 75% depending on flight distance.

<sup>3</sup> This year, long-distance rail travel and air travel each account for only around ½% of the HICP. Without the reduction in VAT on long-distance rail travel, the change to the air traffic tax would slightly increase the HICP.

<sup>4</sup> The component “heat energy” is omitted here as its share in the HICP is close to zero.

<sup>5</sup> The effects calculated here should therefore be interpreted as an upper limit for the direct price impact under the assumed underlying conditions.

### CO<sub>2</sub> emissions and price mark-up per energy component in the consumer price index

Item	Fuels		Heating oil	Natural gas	Electricity
	Petrol	Diesel			
Percentage share in the HICP (2019)	2.93	1.06	1.39	2.67	2.86
CO <sub>2</sub> emissions in kg per litre/kWh	2.37	2.65	2.66	0.20	–
Fixed price per tonne of CO <sub>2</sub> in year	Mark-up in cent per litre/kWh				Reduction <sup>1</sup>
2021 € 10	2.37	2.65	2.66	0.20	– 0.250
2022 € 20	4.74	5.30	5.32	0.40	– 0.500
2023 € 25	5.93	6.63	6.65	0.51	– 0.625
2024 € 30	7.11	7.95	7.98	0.61	–
2025 € 35	8.30	9.28	9.31	0.71	–
2026 <sup>2</sup> € 60	14.22	15.90	15.96	1.21	–

Sources: Federal Office for Economic Affairs and Export Control and Bundesbank calculations. 1 Reduction in the renewable energy levy in cent per kWh, cumulated. 2 Maximum price per tonne of CO<sub>2</sub>.

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To calculate the direct impact on consumer prices as a whole, the respective CO<sub>2</sub> mark-ups are added to the average prices paid by final consumers for the individual energy components. For instance, if a litre of petrol costs €1.19 excluding VAT, as it did in October 2019, the price including the 2021 CO<sub>2</sub> mark-up would be over €1.21. It is assumed that enterprises will pass the mark-ups through in full and that demand for individual energy sources will be price inelastic in the short term. These prices are subject to 19% VAT, meaning that in this example the final consumer would pay €1.42 without the CO<sub>2</sub> mark-up and €1.45 with it. This amounts to a 2% rise.<sup>6</sup> A similar calculation can be performed for the other energy components. In the case of electricity, it should be borne in mind that the renewable energy subsidy is to be lowered under the new legislation. If the results are weighted with the respective shares of the energy components in the HICP basket, energy prices will increase by a net total of just over 2% in each of the years 2021 and 2022. With energy weighted at just over 10% of the HICP, in purely arithmetical terms, headline inflation should rise by around one-quarter percentage point in each of those years. While a smaller impact on consumer prices is likely in the years

2023 to 2025 because of the lower increase in allowance prices, the effect in 2026, at around 0.6 percentage point, would be much more noticeable if the allowances do in fact rise from €35 to €60 per tonne.

The introduction of and gradual increase in the CO<sub>2</sub> price could also have a direct impact on consumer prices excluding energy via additional costs for intermediate consumption in areas such as transport.<sup>7</sup> However, these costs account for only a small share of total production costs. All in all, introducing a CO<sub>2</sub> price should therefore have a very limited direct impact on consumer prices excluding energy. The same should be true of the change to the vehicle tax on new passenger car registrations, which is planned for 2021 and will raise the tax rate for motor vehicles with emissions exceeding certain thresholds. Nonetheless, the share of vehicle tax payments in the HICP basket is not particularly high, and neither is the share of new passenger car

<sup>6</sup> The rate of increase may vary somewhat according to the initial price to which the CO<sub>2</sub> mark-up is added. If this initial price were very high, the rate would be somewhat lower.

<sup>7</sup> Heat generation in large industrial plants is not affected by this measure, as it is already included in the European emissions trading system.

registrations in the total number of passenger cars.

In a second step, we calculate the possible macroeconomic effects of higher energy prices due to the planned CO<sub>2</sub> mark-ups. To enable us to factor in indirect effects and macroeconomic interactions, we carry out simulations with the Bundesbank's macroeconomic model. The price mark-ups for the HICP energy component derived purely mechanically from a disaggregated analysis of individual energy sources are incorporated into the model.<sup>8</sup> In addition, the calculations take account of the fact that, as well as households, enterprises also face higher energy costs for transport and building heating.<sup>9</sup>

The mark-up on consumer prices has a dampening effect on households' purchasing power. Together with real disposable income, consumer spending also falls below its baseline level without carbon pricing. In addition, higher domestic prices lead to an increase in wages, thus weakening the international competitiveness of the German economy. As a result, exports remain below their starting level in the scenario without price mark-ups.<sup>10</sup> The higher energy costs in the corporate sector will probably provide incentives to substitute energy input by capital input and thus encourage higher investment expenditure. On the whole, however, this is outweighed by overall lower aggregate demand related to private consumption and exports having a dampening effect on business investment. According to the simulation results, growth in real gross domestic product (GDP) will be dampened in 2021 and 2022 overall. Taken together, the level of GDP up until 2022 will be roughly one and a half tenths of a percent lower than the baseline level in a scenario without the additional CO<sub>2</sub> price mark-ups.<sup>11</sup> The consequences for the affected

enterprises of the higher cost burden, which are likewise incorporated, play only a minor role in the simulation in terms of GDP and prices.<sup>12</sup> The macroeconomic interactions are also very limited with respect to inflation, not least because consumer prices show only little reaction to somewhat weaker economic output. The simulations do not take into account the desired long-term positive effects on economic growth related to climate action of a timely adjustment to changed global conditions. Technological leadership in selected climate-relevant areas appears more likely by making a rapid adjustment than by adopting a wait-and-see stance. These effects cannot be simulated in the chosen model framework, however.

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**8** The model's behavioural equation for the HICP energy component does not distinguish between different energy sources. The most important determinant is the oil price in euro, including all taxes. The energy tax is set as a weighted average of the taxes levied on the individual energy sources. The price mark-up used for the simulation calculations is also computed as a weighted average and applied as a mark-up on the – volume-related – energy tax. This mark-up is also assumed to be passed through in full to prices paid by households. See Deutsche Bundesbank (2019f) for an overview of how the price block of the macroeconomic model is put together.

**9** To achieve this, the relevant factor prices were increased by an exogenous factor. This is derived from the mark-up relevant to consumer prices but takes account of the fact that enterprises are only partly affected by the adopted carbon pricing legislation.

**10** This analysis assumes that the macroeconomic impact in the above scenario does not provoke a European monetary policy response and that bilateral exchange rates between the euro and other currencies do not react. Irrespective of this, the loss of price competitiveness could be smaller than reported here. For example, it is assumed here that the rise in consumer prices has a negative effect on enterprises' competitiveness. If this assumption is relaxed, the decline in exports is weaker.

**11** Further studies with results of a similar magnitude may be found in the literature, although other countries are considered. For such an overview, see German Council of Economic Experts (2019).

**12** This is not surprising insofar as, according to Bundesbank estimates, the share of energy in the production costs is merely around 3% at the macroeconomic level.

In a third step, the simulation looks at the fact that, along with the measures stated above, the Climate Package contains further projects for promoting climate action. Additional expenditure in this respect is to be financed out of the energy and climate fund, which receives revenues generated from the CO<sub>2</sub> mark-ups on energy prices. These could include subsidies related to the purchase of electric cars and the provision of battery charging infrastructure, for example. The detailed use of revenues is not yet defined in such a way as to enable precise conclusions to be drawn about the extent to which individual sectors have additional scope for expenditure. First of all, households are likely to receive further funding (including tax breaks), and the corporate sector may well also benefit from new government investment incentives. In addition, the government itself will probably use money from the energy and climate fund to raise its investment and consumption expenditure for climate action measures. Overall, the energy and climate fund's expenditure and tax incentives should boost aggregate demand and thus counteract the dampening effects of higher energy prices.

A further simulation using the macroeconomic model therefore assumed that annual income from carbon pricing is of the same size as the outflows from the fund.<sup>13</sup> Moreover, the simulation takes into account additional government expenditure measures which are already envisaged in budget planning for the coming year and which are derived from the energy and climate fund. The macroeconomic impact of the additional expenditure depends on their specific design. Higher government consumption or investment are directly reflected as elements of GDP. By contrast, additional funds for households, for example in the form of transfer payments or tax breaks,

boost disposable income. Their direct impact on demand will be to the same extent that households use the funds for additional expenditure, although part of these funds might be channelled into savings, for example. The macroeconomic impact of investment incentives for enterprises will depend on the extent to which the incentives are actually taken up and lead to additional investments.

Given the fact that the design of the measures is still undecided, the simplifying assumption was made that the respective funds from the energy and climate funds would be available to enterprises, households and the government in equal parts. The simulation assumes that the enterprises fully draw upon and invest the funds made available to them. The second third is used to raise government consumption; households receive the remaining third via transfer payments. This is broadly consistent overall with the approach which was also incorporated into the macroeconomic projections.<sup>14</sup> Households' consumer spending and housing investment financed out of additional disposable income stimulate aggregate demand, as do business investment and government consumption. In line with their respective import shares, they increase imports from abroad. Through higher wages, amongst other factors, the increased aggregate capacity utilisation raises the prices of domestically produced goods and thus dampens price competitiveness.

<sup>13</sup> The assumed development in fund revenues is based on the Federal Government's expectations as outlined in the draft Fuel Emissions Trading Act (Brennstoffemissionshandelsgesetz). It assumes the new carbon pricing will generate revenues of €3.6 billion for 2021 and €6.9 billion for 2022. The expected relevant CO<sub>2</sub> emissions can be determined using the relevant CO<sub>2</sub> price for the respective year as a basis (see table on p. 16) Accordingly, this CO<sub>2</sub> emission of 360 million tonnes in 2021 will be around 4% lower by 2022.

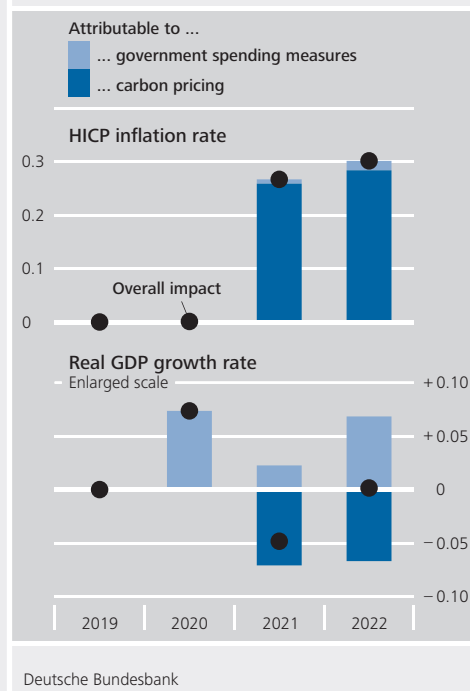
<sup>14</sup> The impact of the tax incentives is not taken into account in the simulation but is included in the projection.

Exports therefore decline slightly below their baseline level.

Overall, government expenditure measures counteract the dampening effect of carbon pricing. If the total impact on gross domestic product growth is cumulated over the years in question, the negative effect on GDP is largely offset. As fiscal policy measures, first and foremost, stimulate aggregate demand, they are likely to have additional inflationary effects. These will have a somewhat lagged impact, however, and according to the simulation results will therefore still be limited in the period under review. Under the assumptions made here, the estimated effects on the HICP, in a macroeconomic context, will be somewhat higher overall than the mechanical estimation of the direct effects of CO<sub>2</sub> premiums on energy prices suggests.

### Estimated impact of climate action on the inflation rate and real GDP growth rate in Germany

Deviation from the baseline in the absence of action in percentage points



sumer prices is anticipated for 2020 above all (see the table on p. 3). In view of the downward revision of the projection for wages and the output gap, the core rate, in particular, is likely to be somewhat lower throughout. The dampening effect on headline inflation will be further amplified in 2020 by the lower energy prices assumed in the projection. By contrast, the rise in energy prices in the following year is set to almost entirely offset the slight downward revision of the core rate.

## Public finances

The general government surplus is likely to decline gradually in the coming years. Starting at 1½% of GDP this year (2018: +1.9% of GDP), it is set to be virtually fully depleted by 2021, according to the projection. The budget will then remain more or less balanced in 2022. Fiscal policy loosening is the chief factor behind this decline. In addition, the positive cyclical effect

on public finances is waning. As a result, revenue from taxes and social contributions, above all, will experience a temporary slowdown in growth. However, lower interest expenditure and reduced spending on bank support measures will ease the pressure on public finances.<sup>15</sup> Economic growth will be markedly bolstered by the loosening of fiscal policy, particularly in the next two years.

The deciding factor behind the fiscal loosening is broad-based dynamic expenditure growth. Considerable growth in spending on pensions, healthcare and long-term care is likely. In addition, central, state and local governments plan to spend more on transport and digital infrastructures, childcare and education, as well as internal and external security. Furthermore, additional expenditure for the promotion of

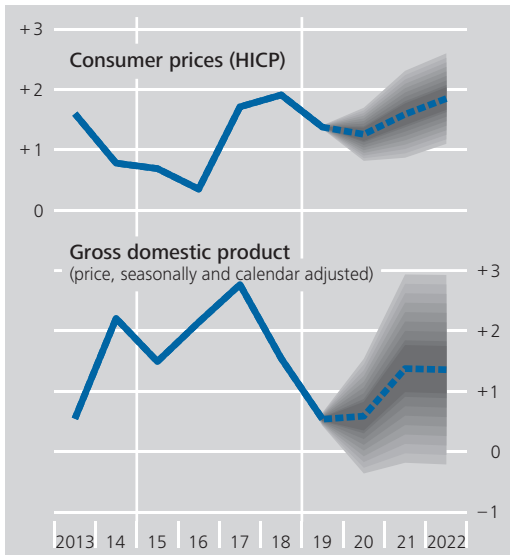
*Spending stance loosened considerably*

*Surplus to be depleted looking forward*

<sup>15</sup> In the current year, payments for Norddeutsche Landesbank (Nord/LB) are weighing on public finances. Be that as it may, the funds for this are lower than those spent on HSH Nordbank last year.

### Baseline and uncertainty margins of the projection\*

Annual data, year-on-year percentage change



Sources: Federal Statistical Office and Bundesbank calculations. 2019 to 2022 Bundesbank projections. \* Uncertainty margins calculated on the basis of the empirical forecast errors. The width of the band distributed symmetrically around the most probable value equals double the mean absolute forecast error for the years 2019 to 2021. The uncertainty margins for 2022 are extrapolated using a model as currently there is still an insufficient number of forecast errors available for this projection horizon.

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measures to reduce CO<sub>2</sub> emissions is envisaged as of 2020. Interest expenditure in particular will decline due to savings created by the refinancing of maturing bonds. In addition, the debt level will sink. Relative to GDP, government spending excluding interest expenditure (primary expenditure) will reach its post-reunification peak at the end of the projection horizon.<sup>16</sup>

On the revenue side, the fiscal stance is broadly neutral. Although various cuts in taxes and other levies (particularly the partial abolition of the solidarity surcharge) will reduce revenue, this will be offset by additional revenue from increases elsewhere (including higher contribution rates to the health insurance institutions and sales of new CO<sub>2</sub> emission allowances) and from progressive taxation. As a result of robust economic developments on the domestic front, the GDP growth structure will remain an abundant source of government revenue. Overall, revenue from taxes and social contri-

*Little overall change in contributions burden*

butions is again set to increase somewhat more strongly than GDP, according to the projection. The tax and social contributions ratio is thus comparatively high, albeit somewhat lower than its last peak at the turn of the millennium.

The debt ratio, i.e. government debt in relation to nominal GDP, is projected to continue declining, falling below 60% by 2020 at the latest (2018: 61.9%).<sup>17</sup> The central, state and local governments' primary surpluses will contribute to this. In addition, the average interest rate will remain clearly below nominal GDP growth, likewise pushing the debt ratio down. Furthermore, government-owned bad banks are expected to deleverage their portfolios further and to repay their debts.

*Debt ratio to fall below 60% by 2020 at the latest*

## Risk assessment

The macroeconomic projections presented here outline the most probable scenario for the German economy from today's perspective. The calculations are based on various assumptions; actual future developments may vary. Industry, which is particularly dependent on exports, is expected to stabilise before the downturn spills over to more domestically oriented economic sectors, which have proven to be notably resilient thus far. This is of especial significance for the projection at the current juncture. However, risks from the global environment persist, which could exacerbate or prolong the downturn in the industrial sector. This would increase the likelihood of a broad-based transfer of risk to the economy as a whole. A situation could then arise in which economic

*Overall risk assessment for economic growth and inflation rate tilted slightly to the downside*

<sup>16</sup> This will also apply to the cyclically adjusted primary expenditure ratio. The figures were adjusted for the balance of notional capital transfers between the government and the corporate sector, particularly in connection with the dissolution of the Treuhand agency.

<sup>17</sup> This year, however, the deleveraging process is likely to lag considerably behind the surpluses recorded by central, state and local governments and the running-down of bad banks' portfolios. One reason for this is the observed rise in cash collateral for derivatives transactions made by bad banks and central, state and local governments. This increases both financial assets and debts.



output declines considerably for an extended period of time in many different sectors of the economy, culminating in an underutilisation of aggregate capacity. Although the danger of such an unfavourable outcome is currently smaller than it was a few months ago, it has not yet been averted. Not least on account of this, the risks with regard to economic activity are tilted to the downside. This is less true with regard to consumer prices as momentum could turn out to be higher, particularly on the strength of potential additional measures to combat climate change.

*Risks to economic growth from global environment, particularly from increasing protectionism, risk of disorderly Brexit and economic downturn in China*

Risks from the global environment continue to emanate from the trade policy stance of the United States, in particular. Uncertainty surrounding the future shape of global trade remains high in spite of signs of easing tensions in the interim, and the risk of increasing protectionism worldwide persists. Not only could this be a further drag on global trade, which is still flagging, it might also severely shake the confidence of enterprises with global operations in the reliability and advantageousness of cross-border production processes. The German industrial sector, which plays an integral role in global value chains, could be particularly hard-hit by this. There would also be negative consequences for Germany's export business in the event of the United Kingdom leaving the European Union in a disorderly process, which still cannot be ruled out, or an economic slump in China. However, the present projection makes conservative assumptions with regard to the outlook for global trade, meaning that more favourable developments could well be possible, too. Should global investment activity rebound more quickly than projected, for example, additional demand stimulus may result in a swifter recovery for German exports and thus lead to greater economic growth.

*Overall risk assessment for inflation outlook tilted slightly to the downside*

The balance of risks with regard to the expected inflation rate appears to be slightly tilted to the downside. Looking at the assumed future crude oil prices, similarly significant risks can be identified on both sides in each case.

## Key figures of the macroeconomic projection – non-calendar adjusted

Year-on-year percentage change

Item	2018	2019	2020	2021
GDP (real)	1.5	0.5	1.0	1.4
GDP (real, calendar adjusted)	1.5	0.5	0.6	1.4
Components of real GDP				
Private consumption	1.3	1.5	1.3	1.1
Memo item: Saving ratio	11.0	10.9	10.9	10.9
Government consumption	1.4	1.9	2.4	2.3
Gross fixed capital formation	3.5	2.7	1.0	1.5
Business investment <sup>1</sup>	3.4	1.5	-0.6	0.9
Private investment in housing construction	3.0	4.2	2.5	1.6
Exports	2.1	1.0	1.6	2.4
Imports	3.6	2.2	2.2	2.6
Memo item: Current account balance <sup>2</sup>	7.4	7.8	7.5	7.5
Contributions to GDP growth <sup>3</sup>				
Domestic final demand	1.7	1.7	1.4	1.4
Changes in inventories	0.3	-0.8	-0.3	0.0
Exports	1.0	0.5	0.8	1.1
Imports	-1.5	-0.9	-0.9	-1.1
Labour market				
Total number of hours worked <sup>4</sup>	1.3	0.5	0.5	0.2
Employed persons <sup>4</sup>	1.4	0.9	0.1	0.1
Unemployed persons <sup>5</sup>	2.3	2.3	2.3	2.3
Unemployment rate <sup>6</sup>	5.2	5.0	5.1	5.0
Memo item: ILO unemployment rate <sup>7</sup>	3.4	3.1	3.2	3.2
Wages and wage costs				
Negotiated pay rates <sup>8</sup>	2.9	2.9	2.5	2.6
Gross wages and salaries per employee	3.2	3.1	2.5	2.7
Compensation per employee	2.9	3.2	2.3	2.7
Real GDP per employed person	0.1	-0.4	0.8	1.3
Unit labour costs <sup>9</sup>	2.7	3.6	1.4	1.4
Memo item: GDP deflator	1.5	2.0	1.9	1.9
Consumer prices <sup>10</sup>				
Excluding energy	1.6	1.4	1.5	1.6
Energy component	4.9	1.4	-0.9	1.5
Excluding energy and food	1.3	1.4	1.5	1.5
Food component	2.6	1.6	1.6	2.1
Residential property prices	6.6	5.3	4.9	4.5

Sources: Federal Statistical Office; Federal Employment Agency; Eurostat; 2019 to 2021 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).

On the one hand, OPEC and its partners have decided to cut back production somewhat further than expected, resulting in a slight price increase.<sup>18</sup> In future, production losses stemming from geopolitical tensions could also result in increased crude oil prices. On the other hand, however, the approved cuts may not be fully implemented, and non-OPEC countries might expand their own production more strongly. The fact that the price of CO<sub>2</sub> allowances in Germany is rising more sharply poses an upside risk to the inflation rate. For example,

the prices set thus far may be deemed insufficient for Germany to reach its outlined emission targets. Higher tariffs or other protectionist measures could also temporarily put additional pressure on consumer prices. By contrast, the inflation rate would be lower if the demand for goods should prove to be weaker than expected on account of these factors.

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<sup>18</sup> The decision was taken after the cut-off date for the assumptions underlying the projection.

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