



GERMAN ECONOMY: UPTURN PUSHING AT ITS LIMITS

I. Pace of expansion slows

1. Supply-side constraints increase
2. Employment growth buoyed by immigration
3. Importance of exports still high
4. Conditions are less favourable
5. Gradual decline in growth expected

II. Developments in detail

1. Expenditure components
2. Consumer price inflation above 2 %
3. Labour market momentum fades slightly
4. Government surpluses tempt to expand public spending

III. Medium-term projection

Appendix

References

This is a translated version of the original German-language chapter "Deutsche Konjunktur: Aufschwung stößt an Grenzen", which is the sole authoritative text. Please cite the original German-language chapter if any reference is made to this text.

SUMMARY

The sustained upturn that Germany has enjoyed over the past nine years has recently lost some momentum. This is partly explained by the **less favourable external environment** and by **considerable production-related problems** in the automotive industry. Another factor is that capacity constraints are causing the pace of expansion to slow down, taking it closer to the trend growth rate. Indications of **macroeconomic overutilisation** of capacity have increased. A **distinct shortage of workers** is observable in many areas. Moreover, wages and consumer prices have picked up.

The **supply of labour has risen significantly** due to the **arrival of migrant workers**, who are now making the biggest contribution to the increase in employment. However, immigration is gradually falling. Furthermore, immigrants are considerably **less qualified** on average so they will probably only be able to fulfil some of the demand for workers in future.

The sustained strong demand for labour, the rise in wages and companies' high levels of orders on hand indicate that the upturn is currently pushing at its limits, especially on the supply side. Nevertheless, **monetary and fiscal policy** remain expansionary. For example, the German government recently introduced a subsidy for people with children who are buying or building a house (Baukindergeld). It has also extended pension entitlements for eligible parents (Mütterrente). This is providing **stimulus on the demand side**.

The German Council of Economic Experts (GCEE) expects the **upturn to continue** this year and in 2019. Gross domestic product (GDP) is likely to fall in the third quarter owing to the temporary production problems in the automotive industry. However, a sustained economic downturn is not expected. Importantly, domestic demand will probably see robust growth due to the ongoing rise in employment, the expected wage increases, the incentives that exist for capital investment and the brisk level of construction activity. Overall, the GCEE predicts average annual growth rates for GDP of 1.6 % for 2018 and 1.5 % for 2019.

The **pace of expansion is expected to diminish**, taking it gradually closer to the potential growth rate. This will be due, in no small part, to the likely slowdown in the rise of employment. Immigration is already reducing, and the remaining labour potential in the German population is limited.

The current upturn has been relatively broad based so far. However, a calculation of growth contributions adjusted for imports shows that **exports remain very important**. Consequently, the combination of the unresolved trade dispute with the United States, the turmoil in some emerging markets, the impending Brexit and the political uncertainty in the euro area poses a considerable risk for the German economy going forward. The risks have increased markedly compared with the situation described in the GCEE Annual Report 2017.

I. PACE OF EXPANSION SLOWS

274. The German **economy** continues to **boom**. The conditions have deteriorated appreciably, however. For one, political **risks** have increased. Added to that, the pace of global trade growth has slowed considerably. [▶ ITEM 191](#) A far **weaker growth in exports** is expected for 2018 and 2019 than anticipated in the German Council of Economic Experts' (GCEE) economic forecast of March 2018. [▶ BOX 4 PAGE 153](#)
275. Further to this, supply-side problems are putting a strain on economic expansion in 2018. This applies in particular to the serious **production problems** facing a number of automotive manufacturers due to the introduction of the new emission certification system. In addition, an unusually **strong flu outbreak** at the start of the year (BKK, 2018) and exceptionally long strike periods also had a dampening effect. As production capacities in the economy are already overutilised, it is likely that businesses will only be able to make up for the lost production, caused by temporary factors, to a limited extent. **Supply-side constraints** are preventing stronger growth of the gross domestic product (GDP) despite strong demand.
276. While foreign demand lagged behind expectations in the first half year, **domestic demand saw robust growth**. Continued growth in employment and wages has meant private consumption has been a strong contributor to growth for many years. [▶ TABLE 4](#) At the same time, businesses are investing in additional capacity due to the high level of capacity utilisation. The huge order backlog in many sectors is an indicator that production cannot keep pace with demand.

▶ TABLE 4

Contributions to growth of gross domestic product by expenditure components¹

Percentage points

	2013	2014	2015	2016	2017	2018 ²	2019 ²
Domestic demand	0.9	1.5	1.5	2.7	1.9	1.9	1.8
Final consumption expenditure	0.6	0.9	1.5	1.9	1.2	1.0	1.3
Private consumption ³	0.3	0.6	0.9	1.1	0.9	0.8	0.9
Government consumption	0.3	0.3	0.6	0.8	0.3	0.2	0.4
Gross fixed capital formation	- 0.3	0.8	0.3	0.7	0.6	0.6	0.5
Investment in machinery & equipment ⁴	- 0.2	0.4	0.3	0.2	0.2	0.3	0.2
Construction investment	- 0.1	0.2	- 0.1	0.4	0.3	0.3	0.3
Other products	0.0	0.2	0.2	0.2	0.1	0.0	0.1
Changes in inventories	0.5	- 0.2	- 0.3	0.2	0.1	0.3	0.0
Net exports	- 0.4	0.7	0.2	- 0.5	0.3	- 0.3	- 0.3
Exports of goods and services	0.8	2.1	2.4	1.1	2.1	1.1	1.4
Imports of goods and services	- 1.2	- 1.4	- 2.2	- 1.6	- 1.8	- 1.4	- 1.7
Gross domestic product (%)	0.5	2.2	1.7	2.2	2.2	1.6	1.5

1 - Deviations in sums due to rounding. 2 - Forecast of the GCEE. 3 - Including non-profit institutions serving households. 4 - Including military weapon systems.

Sources: Federal Statistical Office, own calculations

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This is particularly true of the construction industry where activity is expanding but where strong price increases point to considerable shortages in the sector.

277. In terms of **government spending**, the delayed formation of a government together with provisional budget management and a sharp decline in spending on benefits-in-kind by the states - most likely due to reduced refugee-related spending - did have a dampening effect on expansion for an interim period. However, the already approved measures of the coalition agreement leave no room for doubt that considerable expansionary stimuli can still be expected, particularly as a result of higher transfers due to the mothers' pension II and a sharp increase in defence spending. In the late stages of an upswing and with the overutilisation of capacity in the economy, these fiscal policy measures provide an **additional stimulus that increases demand**.

1. Supply-side constraints increase

278. The pace of growth of the German economy has been ahead of potential in recent years. The growth rates of around 2 % significantly exceeded potential growth, currently estimated at around 1.5 %. [↘ CHART 46 LEFT PAGE 165](#) As a result, the level of capacity utilisation in the German economy steadily increased. There are now clear signs of **overutilisation of capacity in the economy**.
279. **Survey indicators for capacity utilisation** reached a new all-time high in spring 2018 and are currently just below this level (ifo Institut 2018). The estimated macroeconomic **output gaps** also point in this direction. Different institutions put the estimated output gap for 2018 at values ranging from 0.4 % (European Commission) to 1.2 % (IMF), 1.8 % (OECD) and about 2.2 % (Deutsche Bundesbank). Using a production theory estimation method, the German Council of Economic Experts estimates the output gap at 1.4 % [↘ CHART 43 RIGHT PAGE 152](#) Estimation approaches based on factor models also suggest a considerable overutilisation of capacity ([↘ BOX 2; Weiske, 2018](#)).
280. In line with this, data from the Federal Statistical Office indicate that the **order backlog** among businesses in the manufacturing industry is at the highest level ever since records began in 2015. Despite a decline in new orders, the order backlog grew in the first half year, with recent figures indicating that German manufacturers have an accumulation of orders that will take nearly six months to complete. Businesses are apparently finding it increasingly difficult to complete existing orders. Around 45 % of businesses surveyed by the Association of German Chambers of Commerce and Industry (DIHK) (2018) even stated they had to turn down new orders. On export markets, the capacity bottlenecks could result in German businesses losing orders to foreign competitors.
281. Further evidence of the high level of capacity utilisation is found on the labour market. **Labour shortages** continue to rise, with the number of vacancies exceeding 800,000 for the first time ever in June 2018. Employment has increased again by a further 400,000 people since November 2017 and the number of unemployed has dropped by around 110,000. Seasonally adjusted, both labour

market indicators are at their highest and lowest level, respectively, since German reunification. Survey-based indicators of demand for labour, such as the Ifo employment barometer or the BA-X of the Federal Employment Agency (BA) are also at or near record levels.

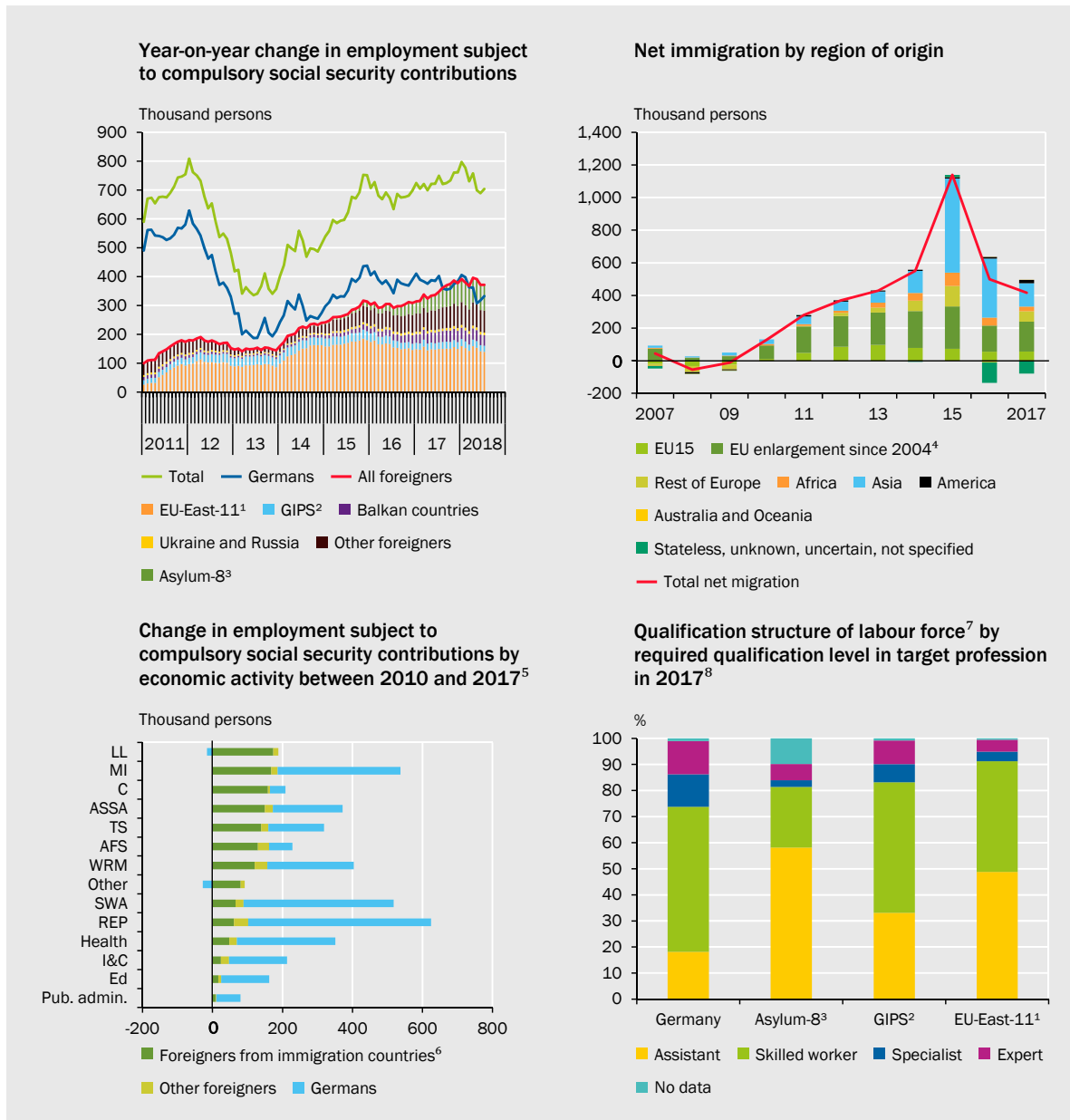
282. Consistent with this, the **length of time open positions remain vacant** has increased steadily since 2010, from 57 days to 107 days according to most recent data (Federal Employment Agency, 2018). Problems filling vacant positions are increasingly cited in surveys as a central obstacle facing businesses. For example, 48 % of businesses surveyed by the Association of German Chambers of Commerce and Industry (2018) now indicate they are unable to fill vacancies either at all or for a longer period due to a lack of suitable candidates. According to the **skills shortage analysis** conducted by the **Federal Employment Agency**, problems are particularly pronounced in technical academic professions and in the health care sector and the construction industry (Federal Employment Agency, 2018). There is an evident **shortage of skilled workers** in these fields, as defined by the Federal Employment Agency. According to the Federal Employment Agency, however, there is still no indication that Germany is facing a nationwide shortage of skilled labour.
283. The **continued growth in wages** is also in keeping with the period of economic boom. The distributive margin, measured as the sum of productivity and consumer price increases, has been more than exhausted in recent years (GCEE Annual Report 2017, Items 273 ff.). Above-average collective wage increases were again negotiated in key collective wage agreements in the first half of 2018, such as in the public service, the metal industry and the construction industry. Overall, the increase in collective wages is likely to be quite strong in 2018 and 2019, at rates of 2.7 % and 2.6 %, respectively. [↘ TABLE 9 PAGE 159](#) With regard to nominal unit labour costs, an increase of 2.5 % and 2.4 %, respectively, can currently be expected in 2018 and 2019. In the other member states of the euro area, the increase in unit labour costs is less pronounced for the most part, with the result that **price competitiveness** in the euro area continues to converge.
284. While wage trends are strong compared with the 2000s, they appear to be rather moderate given the labour shortages described earlier. One reason for this could be the negative experience of high core unemployment in the late 1990s and early 2000s. The parties to collective agreements may feel obliged to exercise a degree of caution so as not to jeopardise the high level of employment. Other reasons could be the high level of net immigration and the increased supply of labour this entails, the growing importance of **non-monetary elements of collective pay agreements** (Deutsche Bundesbank, 2018; GCEE Annual Report 2017, Item 284), and the possible relocation of production capacities to lower-wage countries. The extent to which migration slows wage development is debatable, however (Ottaviano and Peri, 2012; Klinger and Weber, 2018). Similarly, in its estimates the GCEE has so far not found clear evidence of the influence of non-monetary benefits at least on collectively agreed wages. [↘ BOX 5 PAGE 161](#)

2. Employment growth buoyed by immigration

285. Migration has been a **central pillar** of the prolonged upturn in recent years. Since 2010, the number of foreign nationals in jobs subject to compulsory social security contributions has increased by almost 2 million to now stand at 3.5 million people. Such a sharp increase in employment in Germany would not have been possible without immigration. As a matter of fact, most recently **more than half of the growth in employment** has been attributable to foreign workers. [↘ CHART 37, TOP LEFT](#)
286. Most foreign workers have probably only immigrated in the past few years. **Net migration** in the years from 2010 to 2017 adds up to around 3.8 million overall. [↘ CHART 37, TOP RIGHT](#) A particularly large percentage of immigrants come from the other member states of the European Union (EU), particularly Romania, Croatia, Poland, Bulgaria and Italy. Likely reasons for this are the free movement of workers within the EU, the geographical proximity and the existing differences in income within the EU. This group of individuals are primarily **economic migrants**.
287. In addition, there has also been a sharp rise in immigration from countries in the Middle East and Asia, particularly in 2015. [↘ CHART 37, TOP RIGHT](#) For the most part, this influx of people involved **refugee migration**, rather than economic migration, from countries such as Syria, Iraq and Afghanistan. As anticipated, the labour market integration of this group was slow at the start, but there are now increasing signs of success (Brücker, 2018). [↘ ITEM 101](#) Currently, the contribution of individuals from the eight main countries of origin of asylum seekers in Germany (henceforth abbreviated to "Asylum-8 countries") to employment growth is increasing at a faster pace than that of any other group of foreign nationals. [↘ CHART 37 TOP LEFT](#) Compared with 2015, the employment of nationals of "Asylum-8 countries" in jobs with compulsory social security coverage has increased by around 200,000 persons. [↘ CHART 12 RIGHT](#) Since January 2015, a total of around 900,000 asylum seekers have been granted protection status.
288. An analysis of **economic sectors** reveals that immigrants have made a particularly large contribution to employment growth in the area of **labour leasing**. [↘ CHART 37 BOTTOM LEFT](#) In other larger branches of the economy, such as manufacturing, the construction industry or the hospitality sector, immigrants also cover a significant share of the demand for labour. By contrast, their contribution to employment growth in the education sector or public administration is remarkably low, which is probably due not least to the fact that language skills and qualification requirements pose a bigger obstacle in these sectors.
289. It is likely that the relatively **low level of vocational qualifications** among immigrants will generally limit the possibilities of reducing labour shortages through migration. [↘ CHART 37 BOTTOM RIGHT](#) For example, a far greater percentage of people in the immigrant demographic group practices, or seeks to practice, a profession at the assistant level, while only a relatively small percentage works, or would like to work, at the skilled worker or expert level. If (formal) professional education is taken as a measure of the skills and qualifications structure,

the picture presented is consistent with this finding: In 2017, 66.5 % of the German labour force - defined here as the sum of unemployed persons and workers in jobs with compulsory social security coverage - had received training in a school or company. The corresponding percentages for people from the EU11 countries and people from the main countries of origin of asylum seekers are far lower, at around 33.8% and 9.1%, respectively.

↘ CHART 37
Labour market migration



1 – EU-East-11: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia. 2 – GIPS: Greece, Ireland, Portugal, Spain. 3 – Asylum-8 countries, i.e. the eight main countries of origin of asylum seekers in Germany: Afghanistan, Eritrea, Iran, Iraq, Nigeria, Pakistan, Somalia, Syria. 4 – Data for Croatia from 2013. 5 – LL-labour leasing; MI-manufacturing industries; C-construction; ASSA-administrative and support service activities; TS-transportation and storage; AFS-accommodation and food service activities; WRM-wholesale and retail trades, repair of motor vehicles and motorcycles; Others-other services, private households, agriculture, forestry and fishery, mining, energy and water supply, waste management, financial and insurance services, not assigned; SWA-social work activities and accommodation; REP-real estate, professional, scientific and technical activities; Health-health care; I&C-information and communication; Ed-education; Pub. admin-public administration, defence, social security, extraterritorial organisations. 6 – EU-East-11, Asylum-8 countries, GIPS, Russia, Ukraine, Albania, Bosnia and Herzegovina, Kosovo, Macedonia and Serbia. 7 – Defined here as the sum of unemployed persons and workers in jobs with compulsory social security contributions. 8 – Average for 2017.

Sources: Federal Employment Agency, Federal Statistical Office, own calculations

290. In the upswing to date, immigration has played a key role overall in significantly expanding the supply of labour, and has thereby helped to reduced labour shortages. It is a key reason that the situation on the labour market is not as tense as it could be. However, this finding also reveals that the upturn in the German economy depends to a certain extent on a steady influx of foreign workers. The recent drop in migration gives good reason to expect that the contribution of immigration will decline again in the future. Furthermore, it is safe to assume that the problem of **labour shortage** in Germany **cannot be solved by migration alone** due to the frequent lack of appropriate skills and qualifications. This is evident in the health sector, for example. [↘ ITEM 820](#) As the baby-boomer generation gradually enters retirement, the shortage of labour is likely to become more pronounced in the coming decade.

3. Importance of exports still high

291. The current period of expansion of the German economy is already relatively long. According to the business cycle dating conducted by the GCEE (GCEE Annual Report 2017, Box 7; Breuer et al., 2018), this period of expansion began in the second quarter of 2009. Excluding the post-war boom years, this is already the **second-longest upturn** in the history of the Federal Republic, eclipsed only by the slightly longer upturn in the period from 1982 through to 1992. A comparison of this period of expansion with earlier upturns reveals a number of interesting findings.

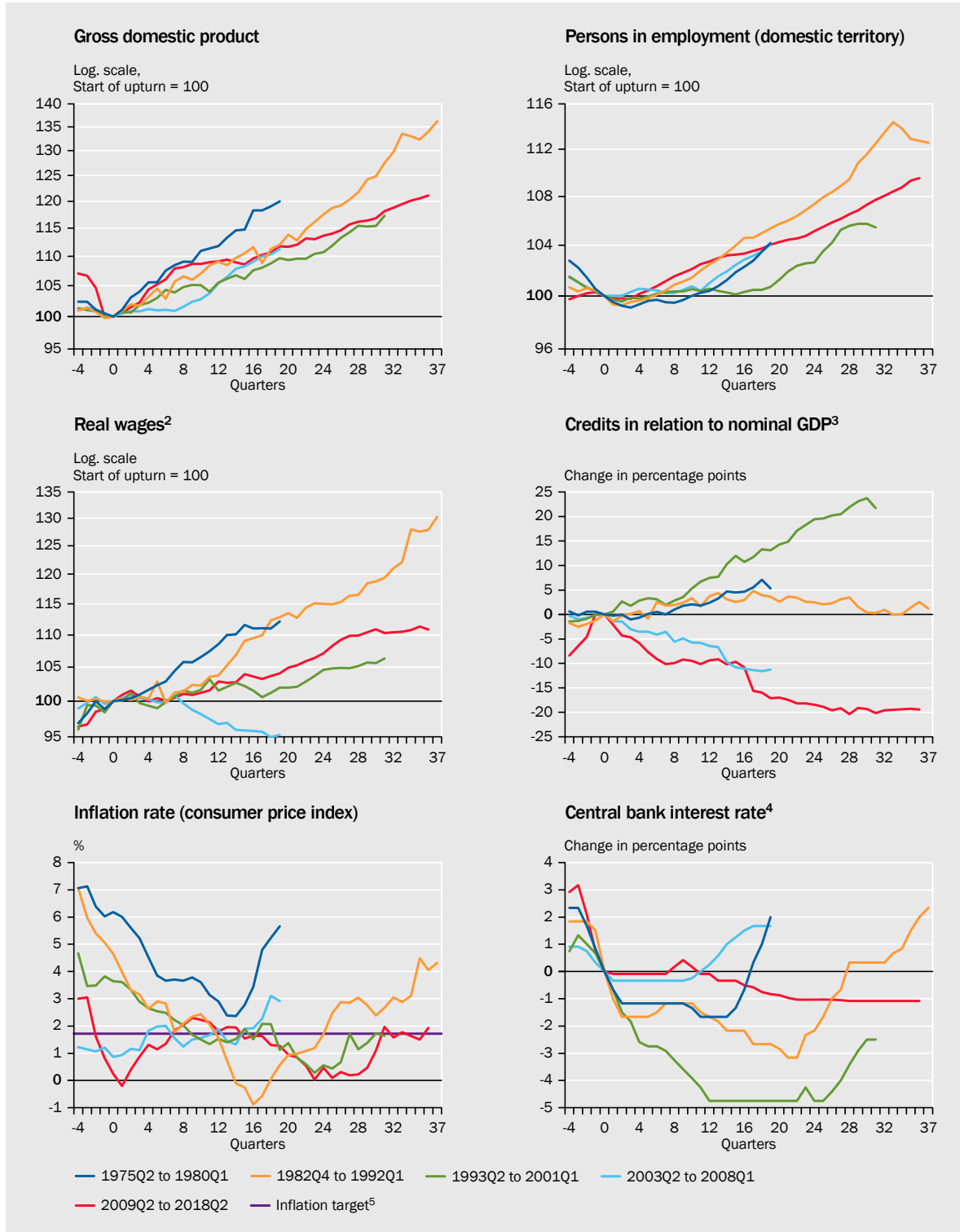
292. The first observation is that there have been **three particular phases** in the current **upturn**. After GDP demonstrated an above-average recovery in the post-crisis years, a longer period of stagnation set in from 2011 onwards in the wake of the crisis in the euro area. [↘ CHART 38 TOP LEFT](#) From today's point of view, the GCEE classifies this as a temporary pause in the economic upturn (GCEE Annual Report 2017, Box 7). Dynamic growth did not recover until 2013. Against this backdrop, it is important not to read too much into the unusual length of the upturn. Besides, the vast difference in the length of earlier upswings demonstrates that the duration alone is of little informative value.

293. The **exceptionally positive development on the labour market** seen in the current upturn is likely to be of greater significance [↘ CHART 38 TOP RIGHT](#), and makes this upturn stand out from other periods of economic expansion. The number of persons in employment has risen steadily since 2009, by roughly 10 % in total (or around 4 million employed persons). At the same time, the unemployment rate has more than halved. The total number of hours worked has even increased more in this upturn than in any other. [↘ TABLE 5](#) This is explained by the fact that - in contrast to earlier periods of expansion - the hours per person employed did not fall further. The period of wage moderation and the agenda reforms that preceded the upturn are likely to have played a role in the strong labour market developments (Dustmann et al., 2014; Burda and Seele, 2017).

294. By contrast, **productivity developments** are remarkably weak in the current upturn. [▶ TABLE 5](#) To some extent this can be considered a concomitant of the positive developments on the labour market, as it partly reflects the successful inte-

▶ CHART 38

Characteristic development of selected indicators during periods of expansion¹



1 – The figures show the developments since the trough of each business cycle. Germany from 1991, former territory of the Federal Republic prior to this. 2 – Gross wages and salaries per hour worked deflated by consumer price index. 3 – Credit to domestic businesses and private individuals. 4 – From 1999 interest rate on the main refinancing operations of the ECB, discount rate of Deutsche Bundesbank prior to this. 5 – Following Bletzinger and Wieland (2017), a value of 1.72 % is assumed for the inflation target.

Sources: Bletzinger and Wieland (2017), Deutsche Bundesbank, Federal Statistical Office, own calculations

gration of less productive workers into the labour market (Elstner et al., 2018; GCEE Annual Report 2015, Items 590 ff.). By contrast, **real wages** have seen stronger growth in the current upturn than in either of the other two upturns since reunification. ↘ [CHART 38 CENTRE LEFT](#) The result of these two developments combined is that real wages and productivity have increased more or less proportionately since the start of this upturn. The period of **wage moderation** is therefore over. This has positive implications for private consumption, which has seen much stronger growth in the current upswing than before. ↘ [TABLE 5](#) On the other hand, however, stronger wage growth has contributed to the fact that Germany's price competitiveness in relation to the rest of the euro area has declined in recent years (GCEE Annual Report 2017, Items 278 f.).

295. Looking at the monetary indicators, the first thing that stands out is the unusually **weak development in credit**, with the volume of credit in relation to nominal GDP having dropped by around 20 percentage points since the start of the upswing. ↘ [CHART 38 CENTRE RIGHT](#) The main reasons for this are probably the good profit performance and the cleaning of balance sheets following the financial crisis. This poor credit growth corresponds to a comparatively subdued development in gross fixed capital formation in the first years of the upswing. Bank lending only began to pick up at a relatively late stage together with the construction industry. ↘ [ITEMS 681 FF.](#) However, at rates of over 4 %, credit is now expanding at a more dynamic rate than in the years before the financial crisis.
296. The **development of interest rates** is unique by historical standards. Never before in the history of the Federal Republic of Germany has there been such a long period without a rise in interest rates. ↘ [CHART 38 BOTTOM RIGHT](#) As can be seen, a significant rise in interest rates has always preceded a recession up to now, and, in turn, an increase in inflation has almost always preceded a hike in interest rates. ↘ [CHART 38 BOTTOM LEFT](#) The only exception here was the rise in interest rates at the turn of the millennium which occurred before the end of the upswing in the 1990s. At this time, the European Central Bank (ECB) had already taken over the monetary policy mandate from the Deutsche Bundesbank and increased interest rates in response to the rising consumer price inflation in the euro area. Currently there are no indications that the ECB will raise interest rates in the near future.
297. Apart from analysing the development of central macroeconomic factors, it is also helpful to compare the **forces driving the current upswing** on the expenditure side with those of previous periods of expansion. Business cycle analysis often uses the statistical contributions to growth from the national accounts. Given their composition, however, these are not a good indicator, as the calculated value for net exports underestimates the importance of exports for growth. This is because total imports are subtracted from total exports to calculate the value for net exports even though a considerable share of the imports should be allocated to the other expenditure aggregates rather than to exports.
298. To get a better insight into actual domestic and external contributions to growth, a more useful approach is to first individually **adjust the expenditure aggregates for their share of imports** and then calculate the contributions to

TABLE 5

Growth rates of macroeconomic indicators in expansion periods in Germany¹

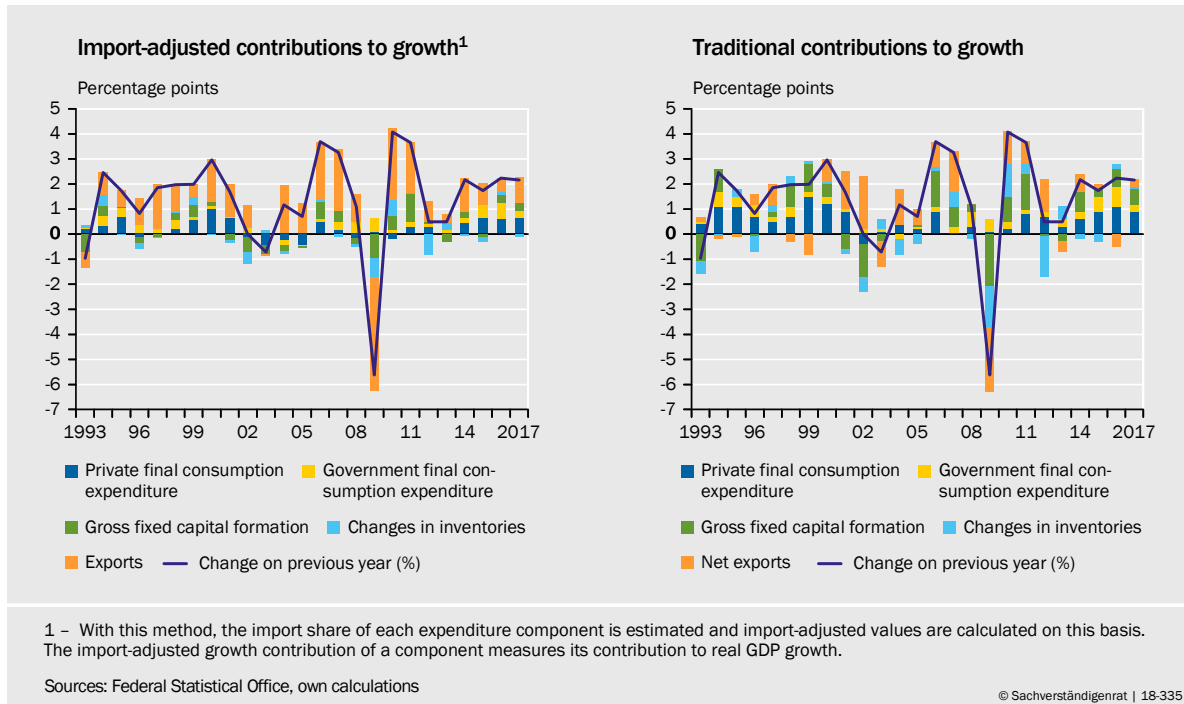
	1975Q2– 1980Q1	1982Q4– 1992Q1	1993Q2– 2001Q1	2003Q2– 2008Q1	2009Q2– 2018Q2
	%				
Gross domestic product and expenditure components					
Gross domestic product	3,9	3,4	2,1	2,3	2,2
Private final consumption expenditure ²	3,7	3,2	1,8	0,6	1,2
Government final consumption expenditure	3,1	1,5	1,7	0,9	1,8
Gross fixed capital formation	6,0	4,5	2,0	3,2	2,9
Exports	6,8	6,3	8,6	9,6	5,5
Imports	7,5	7,0	7,8	7,4	5,3
Labour market and prices					
Persons in employment (domestic territory)	0,9	1,3	0,7	0,8	1,0
Working hours (employed person concept)	0,5	0,4	– 0,1	0,8	1,1
Labour productivity ³	3,4	3,0	2,2	1,4	1,1
Real wages ^{4,5}	2,4	2,9	0,8	– 1,0	1,1
Nominal wages ⁴	6,5	4,9	2,4	1,0	2,5
Nominal unit labour cost per hour worked	3,2	1,9	0,4	– 0,7	1,2
GDP deflator	3,8	2,6	0,8	0,9	1,6
Consumer price index	4,0	2,1	1,6	1,9	1,3
Financial market					
Loan volume (total) ⁶	9,8	7,6	6,2	0,7	1,3
Loan volume (loans for house purchase) ⁶	10,6	6,5	9,4	0,5	2,5
Oil price ⁷	27,8	– 6,1	5,0	29,2	1,5
Nominal effective exchange rate ⁸	5,7	2,1	– 0,9	1,2	– 0,5
<p>1 – Average annualised quarterly growth. 2 – Including non-profit institutions serving private households. 3 – Price-adjusted gross domestic product per hour worked by persons in employment. 4 – Gross wages and salaries per hour worked. 5 – Deflated with the consumer price index. 6 – Lending by the banking system to domestic enterprises and individuals. 7 – US Dollars per Barrel of „West Texas Intermediate“. 8 – Vis-à-vis 25 trading partners (BIS Narrow Indices).</p> <p>Sources: BIS, Deutsche Bundesbank, Fed, Federal Statistical Office, own calculations</p> <p style="text-align: right;">© Sachverständigenrat 18-313</p>					

growth. In the end result, total import-adjusted growth contributions still correspond to the rate of change of GDP but the contributions of exports to growth are higher and the contributions of the other components are lower. Building on Leontief (1941), Kranendonk and Verbruggen (2008) and Bussière et al. (2013) have developed a suitable method to calculate import-adjusted growth contributions (Deutsche Bundesbank, 2017a; Joint Economic Forecast, 2018; Kooths and Stolzenburg, 2018; Lehmann and Wollmershäuser, 2018). Here, the import share of the individual expenditure aggregates is calculated using input/output tables. The GCEE uses the tables of the Federal Statistical Office for this purpose.

299. The results show that the **current upswing is founded on a broader base** than the previous upswing. [▶ CHART 39 LEFT](#) All expenditure aggregates make posi-

↘ CHART 39

Contributions to GDP growth



tive contributions to growth. In particular, however, the domestic economy is a bigger driver of this upturn than in the previous one, a development which must be seen in the light of the extremely positive performance of the labour market. This broad base is likely to have a positive influence on the stability of the upturn.

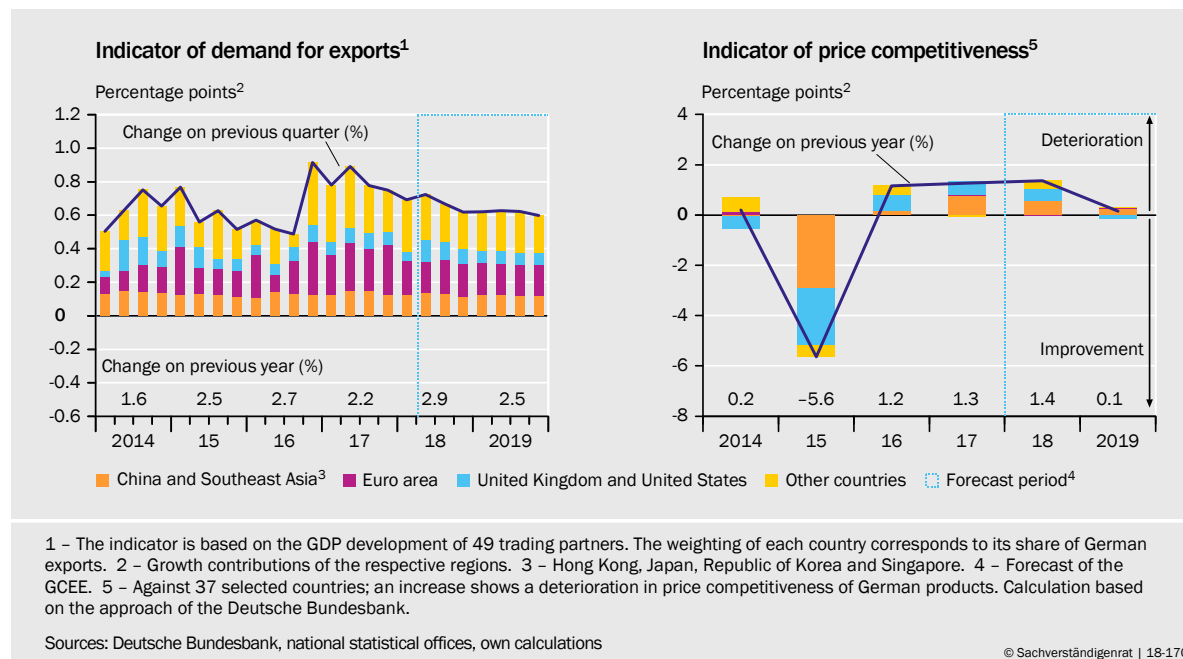
300. The adjustment for imports also reveals, however, that the current upturn is by no means based on the domestic economy alone, which an assessment using traditional growth contributions would suggest. ↘ CHART 39 RIGHT For example, exports in 2017 made an adjusted contribution to growth of around one percentage point and therefore were responsible for around half of the actual growth of the German economy, even though the statistical growth contribution of net exports was only slightly above zero. This clearly illustrates that the **external environment continues to play a very important role** and underlines the potential risks that could result from a slowdown in world trade due to increasing protectionism.

4. Conditions are less favourable

301. The external environment for the German economy has deteriorated compared with the forecast in March 2018. Growth in **world trade** has **slowed again** following the exceptionally strong pace of growth in 2017. ↘ ITEM 191 At the same time, the price competitiveness of the German economy dropped by around one percentage point in both 2016 and 2017. ↘ CHART 40 RIGHT For the forecast period, it can be assumed that world trade will return to moderate growth rates but will not be able to match the performance of 2017. According to the international economic forecast, the growth rate of export-weighted global GDP will slow gradually. ↘ CHART 40 LEFT

↘ CHART 40

Expected development of the external environment



- 302. The dangerous mix of economic risks** present in the external environment is also cause for concern. These include an escalation of the trade dispute with the United States, a return of the crisis in the euro area as a result of Italian budgetary policy, for instance, a disorderly Brexit, and economic turmoil in emerging markets. ↘ [ITEMS 209 FF](#). In particular, if several risks were to materialise simultaneously, this would pose a real threat to the economy. So far, however, there are still no signs of any serious effects on the real economy, such as very subdued investment activity, as a result of the political problems. Furthermore, estimates for the probability of recession currently do not point to an increased recession risk. ↘ [BOX 3](#)
- 303. Monetary conditions** remain expansionary. While there are plans to gradually end net bond purchases, the degree of monetary expansion continues to be high. ↘ [ITEMS 347 FF](#). Lending rates are still well below previous averages, and banks have eased their credit standards (ECB, 2018). Given a consumer price inflation of around 2 % and clear overutilisation of capacity, the expansionary **monetary policy in Germany has a pro-cyclical effect**. This carries with it risks for inflation and financial stability. ↘ [ITEM 364](#)

In the event of an economic downturn or a sharp rise in interest rates, banks may see their credit risk rise. As banks have cut their risk provisioning over the past number of years on account of the positive economic climate, their ability to absorb loss may be limited (Deutsche Bundesbank, 2017b). Germany's **very dynamic real estate market** could also pose a risk to financial stability, particularly so if price increases were to be accompanied by a sharp increase in lending and an easing of credit standards. While there are currently no signs of acute risks deriving from the provision of loans for house purchase, the use of macroprudential instruments could be considered in light of the growing risks. ↘ [ITEM 695](#)

304. The Federal Government is also continuing on an **expansionary path** with its **fiscal policy**. The planned tax measures, benefit increases and investment are set to have an expansionary effect during the forecast period. In 2018, the GCEE is expecting total discretionary fiscal policy measures amounting to around 0.2 % of nominal GDP. Measures amounting to 0.6 % to 0.7 % of nominal GDP are already on the horizon next year. In keeping with this, the structural government balance will drop considerably in 2019 to 0.1 %. [▶ ITEM 332](#)
305. In contrast to the risks, there are also a number of **possibilities** for stronger growth. For example, the **production capacities of the German economy** may be **underestimated**. Estimates of potential output - particularly at the end of the sample - are fraught with uncertainty (Orphanides and van Norden, 2002; Breuer and Elstner, 2017). Furthermore, higher than expected immigration could create new, unexpected production capacities. A greater share of the high demand could be met in either scenario. In addition, following the US tax reform [▶ ITEMS 561 FF.](#) the US economy could grow at a stronger pace than anticipated in the GCEE forecast. This would have positive implications for development in world trade.

[▶ BOX 3](#)

Early identification of recessions

Given the current risks and the overutilisation of capacity in the economy, it is worth examining the empirical possibilities for predicting recessions. Traditionally, this is a very difficult undertaking. Probit and Markov-switching models can, however, provide an empirical point of reference for the current probability of a recession.

In the **probit model**, a binary recession variable is regressed on a number of variables which, from an economic perspective, are thought to be suitable for signalling recessions early on. Kauppi and Saikkonen (2008) and Nyberg (2010) use probit models to predict recessions in the United States. Schreiber et al. (2012) and Proaño and Theobald (2014) apply the method to the German economy. Quickly available monthly indicators from three categories are used as regressors to enable real-time assessment. The first category refers to hard **indicators from the real economy**, such as industrial production and new orders. These indicators already provide information about actual economic activity a few months before GDP data are published.

Hard financial market indicators, such as the interest rate structure and share price indices, make up the second category. In contrast to the first category, these indicators reflect market expectations. For example, if recession fears rise, the demand for fixed-rate long-term government bonds increases and their yields fall compared to the yields of other fixed-interest securities. The third category comprises **soft indicators**, which are survey-based and capture the real-time sentiment of businesses and households.

In an iterative selection process, the following **time series** proved to be particularly useful for predicting recessions. The key criteria here were that the variables have a high explanatory power and that the model produced as few false alarms as possible: the corporate spread (difference between the yields on corporate bonds and government bonds), the spread between yields on long-term and short-term government bonds (ten-year and three-month government bonds), an indicator for the volatility of the DAX index, the ifo business climate index for the manufacturing industry, and the rates of change of incoming orders, industrial production, the number of vacancies and the DAX. Estimates are made for the period from October 1972 through to September 2018. All regressors are included in the baseline specification with contemporaneous values and with additional lagged values, where

these are significant. The GCEE generates the binary recession variable, which is needed for the probit model, from the datings of the German business cycles (GCEE Annual Report 2017, Box 7).

When it comes to **signalling actual recessions in the past**, this **probit model performs rather well**. [↘ CHART 41 TOP LEFT](#) However, a recession is only rarely detected at the exact same time it actually started. Generally, the model signals a recession with a delay of a few months. If all months with an estimated probability of recession of more than 50 % are defined as a recession month, the model is correct in 91 % of the cases. In 17 months (3 %) it incorrectly signals a recession even though there is none (type 1 error), and in 31 months (6 %) it does not signal a recession although there is one (type 2 error).

This first experiment is not very realistic as it requires knowledge of information that was not available at the time of decision-making. To be able to make a more realistic assessment of the possibilities to identify recessions in real time, this simple in-sample analysis is adapted in a two-step process. In the first step, the model is re-estimated on a rolling window basis and the estimation period is truncated two years before the month under observation in each case. The **probability of a recession** is therefore always determined for a time **outside the estimation period**. This takes account of the fact that recession dates are not available at the end of the sample. The second step in the process additionally takes into consideration that a different data basis was available at the time of decision-making owing to statistical revisions and delays in the publication of data. Therefore, incoming orders and industrial production enter into the modified estimation with a delay of two months and as a **real-time dataset**.

The change to a **rolling window model with real-time data** results in an increase in the number of false alarms. The relative frequency of type 1 errors increases from 3 % to 10 %. The recession probability in real time is noticeably higher during the time of the crisis in the euro area in the period from 2011 to 2013. [↘ CHART 41, TOP RIGHT](#) This reflects the fact that during that period it only became clear with the passage of time that the crisis in the euro area would not trigger a serious recession in Germany.

In addition to the probit model, the GCEE - like Chauvet (1998) and Carstensen et al. (2017) - uses a model that combines a dynamic factor model with a **Markov switching model** (MS-DFM). In Markov switching models there are at least two regimes that separate periods of economic expansion and contraction from one another. The transition from one regime to another is determined by a Markov chain (Hamilton, 1989). In the context of the business cycle, a regime is understood to be negative or positive growth rates for GDP or industrial output, for example.

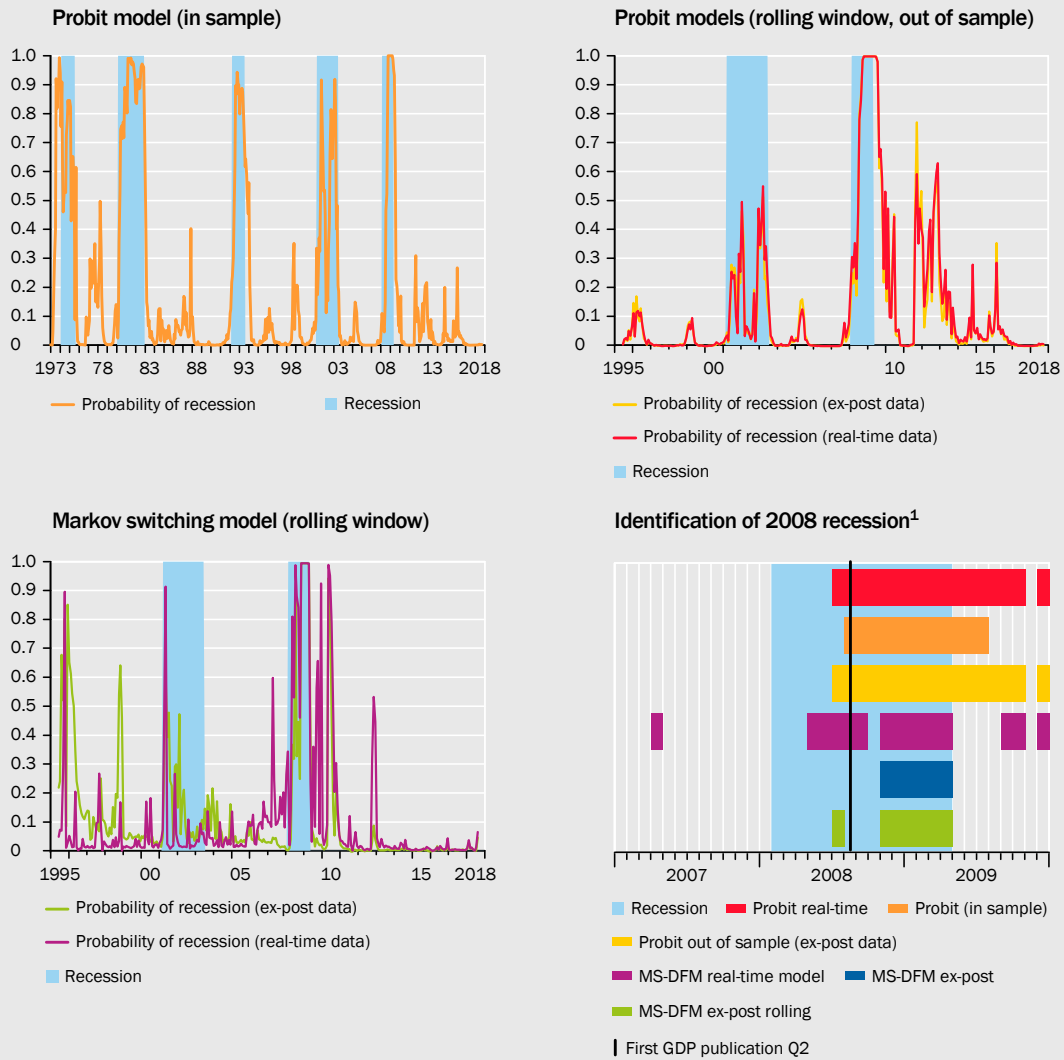
While Carstensen et al. (2017) use three regimes to differentiate between severe and ordinary downturns, only two regimes are used in the analysis here. This enables a comparison with the recession dating of the GCEE and with the probit models. Industrial production is taken as the dependent variable, and an independent variable is generated using the **dynamic factor model**. The model compresses the same variables that were used in the probit model. As with the probit model, a rolling estimation is also first performed with ex-post data and then with real-time data. [↘ CHART 41, BOTTOM LEFT](#)

The possibilities and limitations of predicting a recession can be illustrated using the example of the Great Recession of 2008. [↘ CHART 41 BOTTOM RIGHT](#) The results show that in most cases there is a delay of a few months before the recession probability of the models used here clearly signals the recession that had already started. However, these models do provide an **added value for business cycle analysis** which is not to be underestimated. For one, they signal recessions before the publication of national accounts data for the GDP. For example, the Federal Statistical Office only published a negative GDP growth rate of -0.5 % for the second quarter of 2008 for the first time in August 2008. The models shown here flag the development one or two months earlier in some cases. Furthermore, the models help to assess the relevance of the published GDP figures, as a negative GDP growth rate alone is not enough to declare a recession.

Currently, none of the models used here signal an **increased probability of recession** at the end of the sample. This lends support to the general assessment of a continuation of the upturn.

↳ CHART 41

Probability of recession



1 – For each model, months with an estimated recession probability of over 50% are defined as recession months.

Sources: Deutsche Bundesbank, Federal Statistical Office, ifo, own calculations

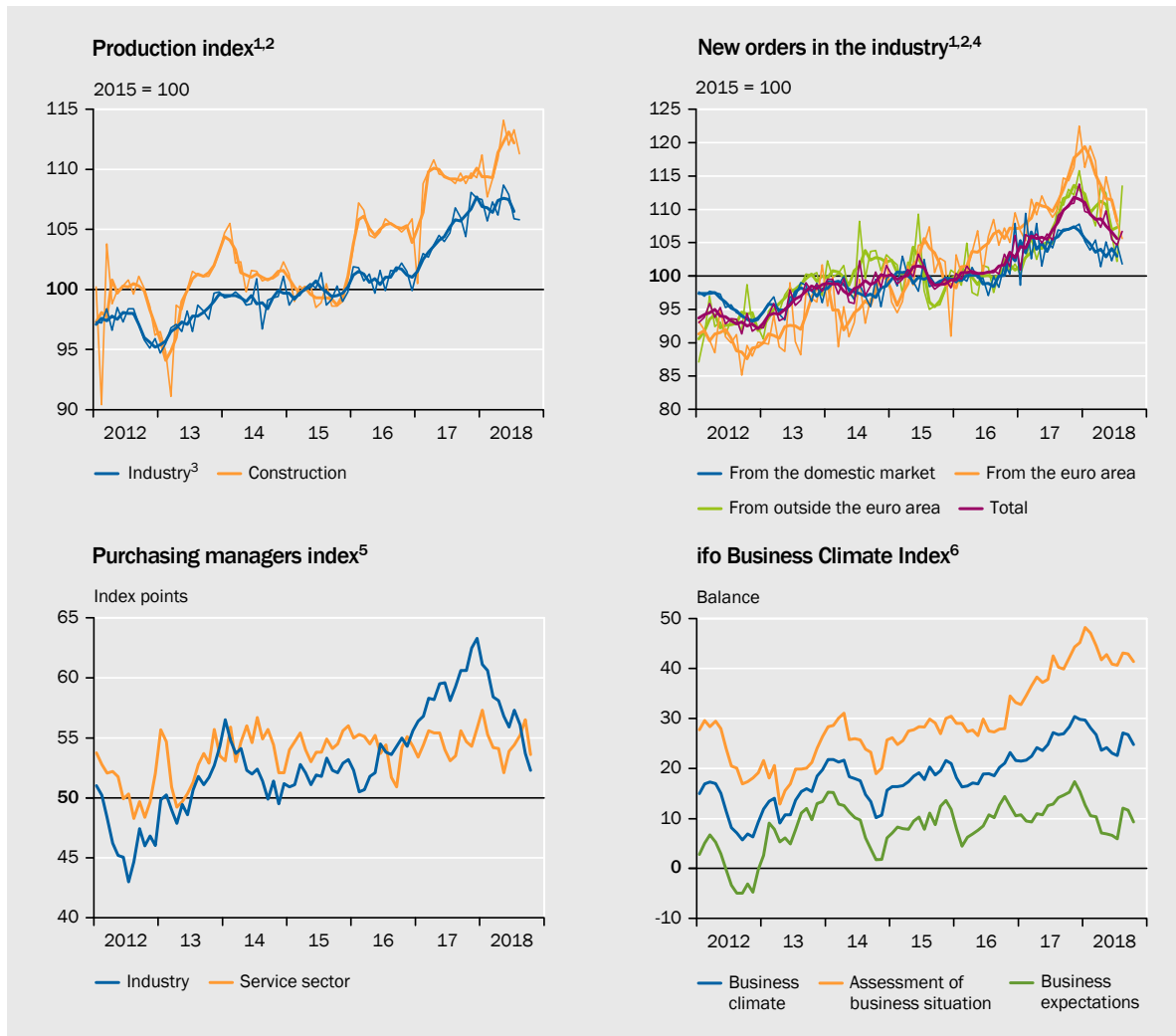
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5. Gradual decline in growth expected

306. Leading indicators have deteriorated since the start of 2018. Many **hard indicators**, such as industrial production and new orders, have dropped. [↪ CHART 42 TOP](#) In August 2018, production in the manufacturing industry was around 1.7 % below the average of the second quarter. While this is likely to be linked to weaker external demand, significant production problems in the automotive industry at the end of the sample were probably a significant contributing factor. A number of manufacturers seem to be experiencing major difficulties in implementing the new, stricter EU emission tests for new vehicles (Joint Economic Forecast, 2018). Passenger car production in September 2018 was down 24 % on the level the previous year (German Association of the Automotive Industry, 2018). In contrast, in other areas of the production sector, such as construction, output has been on an upward trend overall so far this year. [↪ CHART 42 TOP LEFT](#)

[↪ CHART 42](#)

Selected indicators for the economic forecast



1 – Thin line: monthly values; thick line: 3-month moving averages. 2 – Volume index; seasonally adjusted values. 3 – Production sector excluding construction and energy. 4 – Manufacturing sector excluding manufacture of food products and tobacco. 5 – The purchasing managers' index is based on a monthly survey in manufacturing with about 500 participating purchasing managers and managing directors. 6 – Manufacturing, service sector, trade and construction.

Sources: ifo, IHS Markit, Federal Statistical Office, own calculations

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307. Business **sentiment indicators** paint a mixed picture. [↘ CHART 42 BOTTOM](#) The purchasing managers' index for industry has experienced a sharp fall in the year to date and the business expectations index of the ifo Institute of Economic Research (ifo) has also declined. However, ifo's index showing the assessment of the business situation remains at a very high level and has not gone down as much as might have been expected given the far lower level of the ifo business expectations index. The persistent wide gap between the ifo assessment of the business situation and the ifo business expectations might be a reflection of a high uncertainty among the companies surveyed with regard to future developments.

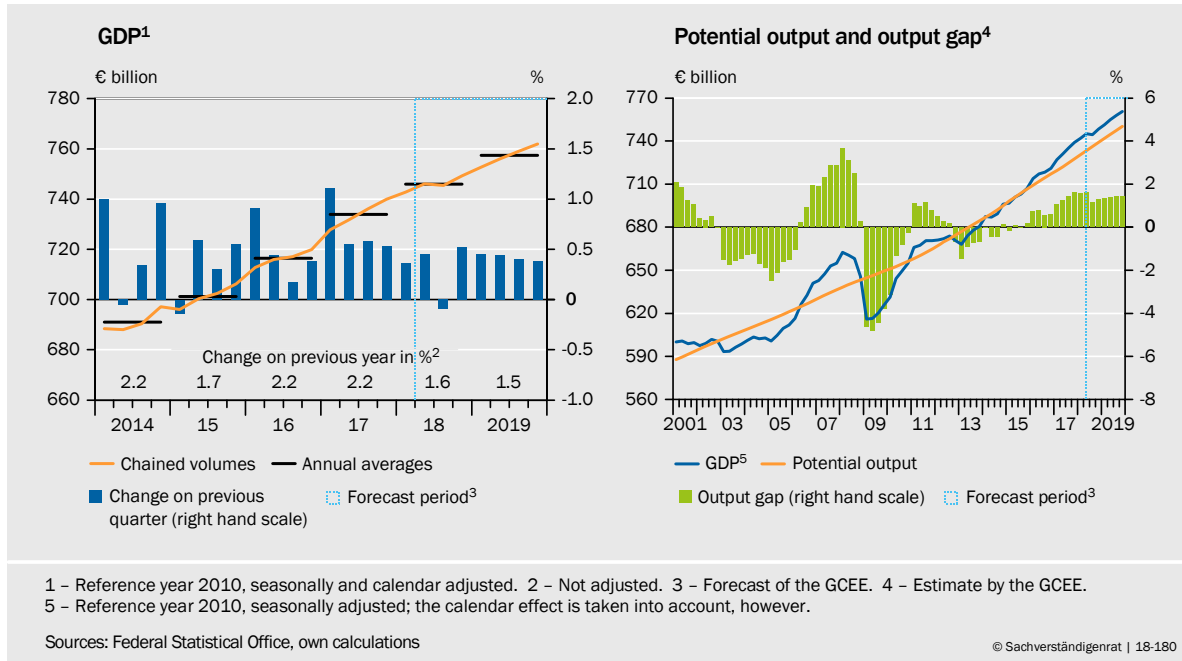
When it comes to interpreting the sentiment indicators, both the change and, because of their construction, the **level of the indicators** are **important**. Purchasing managers' index values above 50 points indicate an economic expansion, and a positive balance for the ifo business expectations index means that there are more companies anticipating an improvement in their situation over the next six months than there are companies expecting a deterioration. The ifo assessment of the business situation is still very close to the all-time high registered in January 2018. One of the main reasons is probably that sentiment in the services sector, which accounts for the largest share of value added (almost 70 %), remains positive and has not deteriorated as much as sentiment in the manufacturing sector.

308. If the available monthly indicators are used for a **short-term forecast of GDP**, the third quarter of 2018 is likely to see a decrease in GDP. In view of the weak levels of industrial output and goods exports during August and September, the GCEE is forecasting that GDP will contract by 0.1 %. [↘ CHART 43 LEFT](#) The problems in the automotive industry are likely to be the main reason for this. However, the high order backlog and the large number of vacancies indicate that this decline will be only temporary. Although companies are unlikely to completely make up for the disruptions to production in the fourth quarter, leading indicators such as the high volume of orders on hand and the recent rise in companies' expectations suggest that GDP will increase again, by 0.5 %.

309. Over the rest of the forecast horizon, a **gradual slowing of growth** despite the **continued upturn** can be expected. In 2018 and 2019, the annual average rates of increase for GDP are predicted to be 1.6 % and 1.5 % respectively. Domestic supporting factors remain intact and are likely to make strong contributions to growth. [↘ TABLE 4](#) As global trade is expanding only moderately, however, the contributions from exports are expected to diminish. Moreover, investment is likely to increase at a slightly slower rate due to the shortage of skilled workers and the greater level of uncertainty.

▸ CHART 43

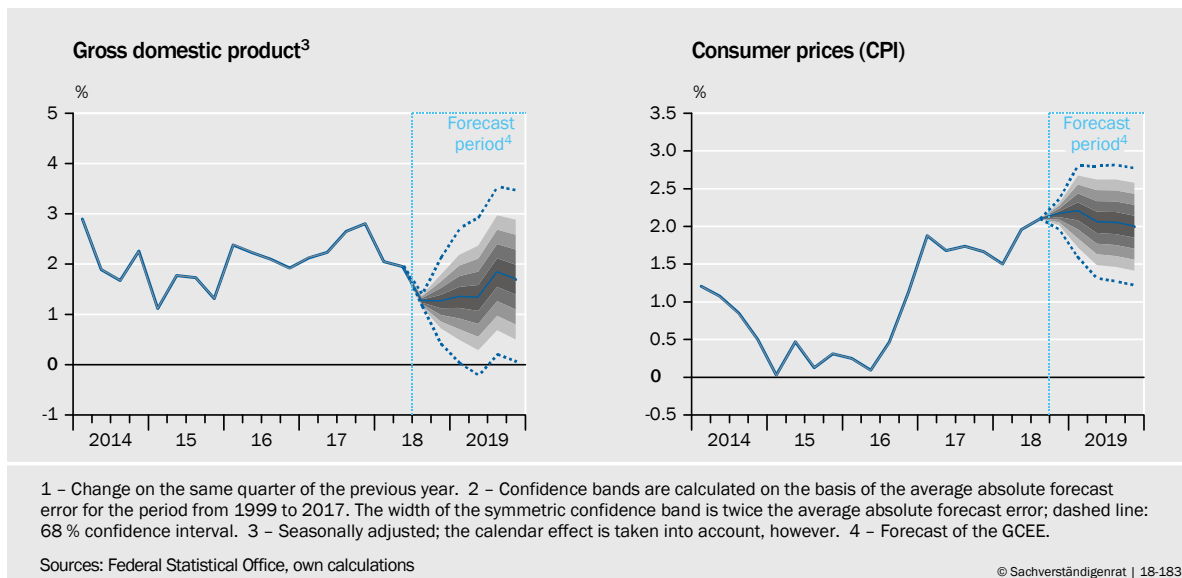
Expected economic development in Germany



310. The high level of capacity utilisation and the reduction in immigration will probably contribute to a gradual lowering of the quarterly GDP rates in the direction of the trend growth rate from the fourth quarter of 2018 onward. Given that capacity is currently overutilised, this shift towards the trend growth rate is a normalisation of **economic activity**. The estimated output gap of 1.4 % will remain largely unchanged in the coming year. ▸ CHART 43 RIGHT As economic forecasts are bound up with considerable uncertainty, the GCEE always publishes not only its point forecast but also the forecast intervals for the rate of change in GDP. The confidence interval of 68 %, calibrated using historical forecast errors from 1999 onward, is between 0.0 % and 3.1 % for 2019. ▸ CHART 44 LEFT

▸ CHART 44

Confidence intervals for gross domestic product and consumer prices^{1,2}



↳ BOX 4

Adjustment of the forecast for 2018

In March 2018, the GCEE forecast GDP growth of 2.3 % for the current year. It was assumed that quarterly growth rates would start with 0.6 % in the first quarter of 2018 and then gradually fall. Domestic demand was expected to make the biggest contributions to growth. However, due to the acceleration of global trade and the buoyancy of exports in 2017, net exports were predicted to contribute 0.6 percentage points as well.

The national accounts data published for the first half of 2018 and the revisions to the data for the preceding period show that the forecast in March 2018 was too optimistic. GDP grew by just 0.4 % in the first quarter of 2018 and was unable to make up for this discrepancy from the forecast in the second quarter. Moreover, the unanticipated production problems in the automotive industry indicate that the third quarter will be very weak. Consequently, the previous forecast errors and the future quarterly rates make it necessary to reduce the expected average annual growth rate for GDP. Overall, the GCEE revises downwards its forecast for 2018 by 0.7 percentage points. ↳ TABLE 6

↳ TABLE 6

Comparison of the spring and the autumn forecasts for the year 2018

	Forecast of the German Council of Economic Experts					
	March 2018		Annual Report 2018		Difference	
	Year-on-Year change ¹	Growth contributions ²	Year-on-Year change ¹	Growth contributions ²	Year-on-Year change ¹	Growth contributions ²
Gross domestic product	2.3	x	1.6	x	- 0.7	x
Domestic demand	1.9	1.8	2.0	1.9	0.1	0.1
Final consumption expenditure	1.3	1.0	1.4	1.0	0.1	0.1
Private consumption ³	1.2	0.6	1.5	0.8	0.3	0.2
Government consumption	1.7	0.3	1.2	0.2	- 0.6	- 0.1
Investment in machinery & equipment ⁴	5.2	0.3	3.9	0.3	- 1.3	- 0.1
Construction investment	0.9	0.1	2.9	0.3	2.0	0.2
Net exports	x	0.6	x	- 0.3	x	- 0.8
Exports of goods and services	6.6	3.1	2.3	1.1	- 4.3	- 2.0
Imports of goods and services	6.4	- 2.6	3.4	- 1.4	- 3.0	1.2

1 - In %. 2 - In percentage points; Deviations in the differences due to rounding. 3 - Including non-profit institutions serving households.

4 - Including military weapon systems.

Source: own calculations

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With regard to the expenditure components, it is clear that by far the largest portion is attributable to the adjustment of the export forecast. Whereas the forecast in March was for growth of 6.6 %, exports are now expected to rise by just 2.3 % in 2018. As a result, the contribution of net exports to GDP growth will be 0.8 percentage points lower. The first reason for this adjustment is the correction of the data for the second half of 2017. The increase in exports during this period was evidently a lot smaller than previously thought, which means the statistical overhang for 2018 is around 1 percentage point lower. ↳ CHART 47 APPENDIX Secondly, there was an unexpected downturn in the growth of global trade during the first half of 2018, resulting in weaker exports than anticipated. Looking back, global trade was exceptionally buoyant in 2017. The GCEE is also forecasting a further drop in exports in the third quarter of 2018, not least because of the automotive industry's current problems. These problems also explain why the contribution from investment in machinery and equipment will now be 0.1 percentage points lower.

Among the domestic expenditure components, the growth of government consumption was overestimated to such an extent that it caused the forecast to be adjusted downward by a sizeable 0.1 percentage points. In contrast with the export forecast, however, this is probably due to temporary factors, such as the slow process of forming a government and the sharp drop in spending on social benefits-in-kind provided by the federal states. The forecast for government consumption in the second half of 2018 has not changed significantly. [↘ CHART 47 APPENDIX](#)

Some of the need for downward adjustment is offset by the upward revision of the forecasts for private consumption and construction investment. The growth contributions of these two components are now both expected to be 0.2 percentage points higher, with subsequent adjustments to the statistical overhang for 2018 playing a big part. In the case of private consumption, this in fact explains the entire forecast adjustment. Another factor in the case of construction investment is that the options for expanding production were apparently underestimated in March 2018.

II. DEVELOPMENTS IN DETAIL

- 311.** The GCEE's forecast should be regarded as the modal value, i.e. the most probable scenario for macroeconomic growth. The expected increase in GDP of 0.8 % on an annualised basis in the second half of 2018 compared with the previous six months gives an expected average annual growth rate of 1.6 %. [↘ TABLE 7](#) The statistical overhang for 2019 is 0.5 %. A comparison of the fourth quarter of 2018 with the same quarter in the previous year shows just a 1.3 % rate of change, which is a clear sign that economic growth has been very close to the potential growth rate in 2018 and this figure falls just short of the average annual growth rate of 1.6 %. **No notable calendar effects** need to be taken into account this year or next year, so it is not necessary to make the usual distinction between original values and calendar-adjusted values.

1. Expenditure components

Foreign trade loses some momentum

- 312. Exports** were relatively weak in the first half of 2018 and actually declined in the first quarter. [↘ CHART 47 APPENDIX](#) Although the poor level of exports to the United States played a part, the **trade dispute** is unlikely to have been the main reason. After all, the tariffs on steel and aluminium were not decided upon until May 2018. Moreover, these tariffs affect only a relatively small proportion of German exports, and the share of total exports accounted for by this group of goods has barely changed so far. Simulations of the Joint Economic Forecast (2018) based on two structural macroeconomic models also indicate that the steel and aluminium tariffs will probably have a fairly small impact in the short term. The weaker exports are more likely to be the result of the return to a slower rate of global trade growth overall. Looking back, it appears that global trade expanded at an exceptionally fast pace in 2017. [↘ CHART 21](#)

TABLE 7

Components of the forecast for real GDP growth (in %)

	2013	2014	2015	2016	2017	2018 ¹	2019 ¹
Statistical overhang at the end of the previous year ²	0.8	0.9	0.7	0.5	0.8	0.5	0.6
Growth rate over the course of the year ³	1.6	2.3	1.3	1.9	2.8	1.3	1.7
Annual rate of change of GDP, calendar adjusted	0.6	2.2	1.5	2.2	2.5	1.6	1.5
Calendar effect (in percentage points)	- 0.1	0.0	0.3	0.1	- 0.3	0.0	0.0
Annual rate of change of GDP ⁴	0.5	2.2	1.7	2.2	2.2	1.6	1.5

1 – Forecast of the GCEE. 2 – Percentage difference between the level of GDP in the last quarter of year t and the average level of quarterly GDP in the total year t (Annual Report 2005 Box 5). 3 – Percentage change of the fourth quarter on the fourth quarter of the previous year. 4 – Deviations in sums due to rounding.

Sources: Federal Statistical Office, own calculations

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- 313.** Given the production problems in the automotive industry, **exports are expected to fall further** in the third quarter. In August, car exports were down by 34 % compared with the same month of the previous year. This was one of the main reasons why the export of goods declined across the economy as a whole during the third quarter. Exports in August were 0.3 % lower than the average for the previous quarter. Moreover, important sentiment indicators, for example the ifo export expectations index, have recently fallen sharply. Following the lapse of these temporary one-off factors, exports are likely to pick up again in the fourth quarter. Nonetheless, the anticipated growth of 2.9 % for global trade in 2019 indicates that expansion rates will remain only moderate. The GCEE predicts export growth rates of 2.3 % for 2018 and 3.0 % for 2019.
- 314.** **Imports** were also weaker than expected in the first half of the year. Given the highly pronounced cross-border division of labour in value creation processes, this weakness is probably a concomitant effect of the weak exports. By contrast, domestic demand is robust and is one of the reasons why imports will expand at a stronger rate than exports this year and next year. The **growth contribution of net exports** is expected to be just into negative territory at minus 0.3 percentage points both in 2018 and in 2019.
- 315.** At the same time, import prices are likely to rise more sharply than export prices in 2018, partly due to the latest oil price hike. This will not be cancelled out by the appreciation of the euro. As a result, the gap between the increase in imports and increase in exports will be even wider on a nominal basis. Consequently, there are likely to be significant **falls in the current account balance** relative to nominal GDP during the forecast period. The GCEE anticipates a current account surplus of 7.2 % and 6.6 % of nominal GDP for 2018 and 2019 respectively. This is a substantial decrease compared with the record high of almost 9 % registered in 2015. However, the balance is unlikely to drop below the EU's threshold of 6 % for the Macroeconomic Imbalance Procedure during the forecast period. [TABLE 8](#)

TABLE 8

Key economic indicators for Germany

	Unit	2016	2017	2018 ¹	2019 ¹
Gross domestic product ²	%	2.2	2.2	1.6	1.5
Final consumption expenditure	%	2.6	1.7	1.4	1.8
Private consumption ³	%	2.1	1.8	1.5	1.8
Government consumption	%	4.0	1.6	1.2	2.0
Gross fixed capital formation	%	3.5	2.9	2.8	2.5
Investment in machinery & equipment ⁴	%	2.2	3.7	3.9	2.5
Construction investment	%	3.8	2.9	2.9	2.5
Other products	%	5.2	1.3	0.7	2.6
Domestic demand	%	3.0	2.0	2.0	2.0
Net exports (growth contribution in percentage points)		- 0.5	0.3	- 0.3	- 0.3
Exports of goods and services	%	2.3	4.6	2.3	3.0
Imports of goods and services	%	4.1	4.8	3.4	4.3
Current account balance ⁵	%	8.5	7.9	7.2	6.6
Persons employed (domestic)	1,000	43,642	44,269	44,856	45,263
Persons employed, covered by social security	1,000	31,508	32,234	32,936	33,486
Registered unemployment, stocks	1,000	2,691	2,533	2,345	2,184
Unemployment rate ⁶	%	6.1	5.7	5.2	4.8
Consumer prices ⁷	%	0.5	1.8	1.9	2.1
General government balance ⁸	%	0.9	1.0	1.6	1.2
Gross domestic product per capita ⁹	%	1.4	1.8	1.3	1.3

1 – Forecast of the GCEE. 2 – Year-on-year change. Also applies to all listed components of GDP. 3 – Including non-profit institutions serving households. 4 – Including military weapon systems. 5 – In relation to nominal GDP. 6 – Registered unemployed in relation to civil labour force. 7 – Year-on-year change. 8 – Regional authorities and social security according to national accounts; in relation to nominal GDP. 9 – Own calculations, year-on-year change.

Sources: Federal Employment Agency, Federal Statistical Office, own calculations

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Investment remains strong

- 316. Gross fixed capital formation** surged in the first half of the year, rising by 3.7 % compared with the previous six months on an annualised basis. The increase in **investment in machinery and equipment** made an exceptionally strong contribution. Brisker investing activity is now also reflected in lending to companies, the latest figures for which show year-on-year growth of around 6 %. Investment in machinery and equipment is likely to continue climbing in the forecast period in view of the capacity constraints that exist, the well-stocked order books, and the ongoing low-interest-rate environment. The problems in the automotive industry will probably trigger a temporary dip in investment in machinery and equipment during the third quarter. The shortages of workers and the recent sharp increase in uncertainty among companies (Grimme and Wollmershäuser, 2018) also point to a slightly more moderate pace overall than the original forecast from March 2018. The GCEE therefore predicts that investment in machinery and equipment will go up by 3.9 % in 2018 and 2.5 % in 2019. [TABLE 8](#)

317. The **construction activity** continues to be very buoyant. Public-sector investment in non-residential construction, which includes infrastructure investment, was up by 7.6 % on an annualised basis in the first half of 2018. At the same time, private-sector residential investment rose by 4.2 %. Demand-side indicators, such as the number of building permits issued, created the expectation of even brisker construction activity. However, surveys on capacity utilisation indicate that the construction sector is already operating at almost full capacity. Construction is therefore unlikely to be able to increase at an even faster rate during the forecast period. The forecast growth rates for 2018 and 2019 are 2.9 % and 2.5 % respectively.
318. Reflecting the high level of capacity utilisation, **prices for construction investment** are climbing rapidly. The rate of change for the corresponding deflator is likely to rise to 4.6 % this year and to reach almost 5 % next year. Consequently, construction prices will play a big part in the increase in the GDP deflator's rate of change to over 2 % in 2019. ↘ [CHART 45 RIGHT](#) The construction deflator's current rate of increase is well above the average rise since reunification of 1.8 %.

Strong growth of consumption expenditures

319. **Private consumption** has emerged from the period of weakness seen in the second half of 2017. However, the quarterly growth rates for private consumption of 0.5 % and 0.3 % in the first half of 2018 were relatively moderate when viewed in the context of the sharp rise in disposable income. One probable reason for this development is the increase in consumer price inflation, which is squeezing consumers' real purchasing power. While interest rates remain low, consumers have also begun **saving a higher proportion of their income again**. The rapid growth of residential construction might be one of the factors at play here.
320. The forecast period is likely to see a **robust expansion of private consumption** owing to the positive employment situation, substantial wage increases and fiscal stimulus. The combination of three changes to the social security system at the start of 2019 is also likely to play a part. Although the contribution rate for social care insurance will go up by 0.5 percentage points, the contribution rate for unemployment insurance will go down by 0.5 percentage points and the additional contribution to statutory health insurance will again be funded in equal part by employer and employee. Overall, this will give a boost to consumers' disposable income. Moreover, there will be an increase in transfers, e.g. as a result of the changes to pension entitlements for eligible parents (*Mütterrente II*). All in all, the GCEE anticipates that private consumption will increase by 1.5 % in 2018 and 1.8 % in 2019.
321. **Government consumption** decreased by 0.3 % in the first quarter of 2018. ↘ [CHART 47 APPENDIX A](#) A reduction of this magnitude has not been seen for around six years. At federal government level, this can be explained in part by the **slow process of forming a government** and the **provisional nature of the budget**. There has also been a sharp drop in social benefits-in-kind provided by

the federal states, which likely reflects the expiry of refugee-related spending. Government consumption will probably return to making a positive contribution in the forecast period, as implementation of the coalition agreement should be accompanied by a marked increase in government services.

2. Consumer price inflation above 2 %

322. Consumer price inflation has **increased** in recent months, reaching 2.3 % in September 2018. It therefore exceeds the ECB’s inflation target for the euro area of below, but close to, 2 %. Food prices and, even more so, energy prices were key contributors to the increase in consumer prices. [↪ CHART 45 LEFT](#) The oil price has maintained its upward trajectory of the past two years. In the year to date, the price of Brent crude has risen from 67 to roughly 80 US dollars per barrel. Based on current forward rates, however, the oil price is predicted to fall slightly in 2019. Consequently, the expected contributions from the energy price component are dropping back down in the forecasts.

323. At approximately 1.5 % in September, **core inflation** is above the long-term average but has not shown a strong uptrend so far, despite the high level of capacity utilisation. [↪ CHART 45 LEFT](#) This may be mainly due to the fact that **nominal unit labour costs** rose by just 1.2 % in 2016 and 1.5 % in 2017. [↪ TABLE 9](#) However, wage rises have accelerated recently. In addition, contributions to statutory health insurance will again be funded in equal part by employer and employee from 2019. This is likely to further increase the companies’ labour costs. The GCEE predicts that nominal unit labour costs will increase by 2.5 % in 2018 and 2.4 % in 2019, particularly in view of the small increase in labour productivity.

[↪ TABLE 9](#)

[↪ CHART 45](#)

Measures of inflation and their components

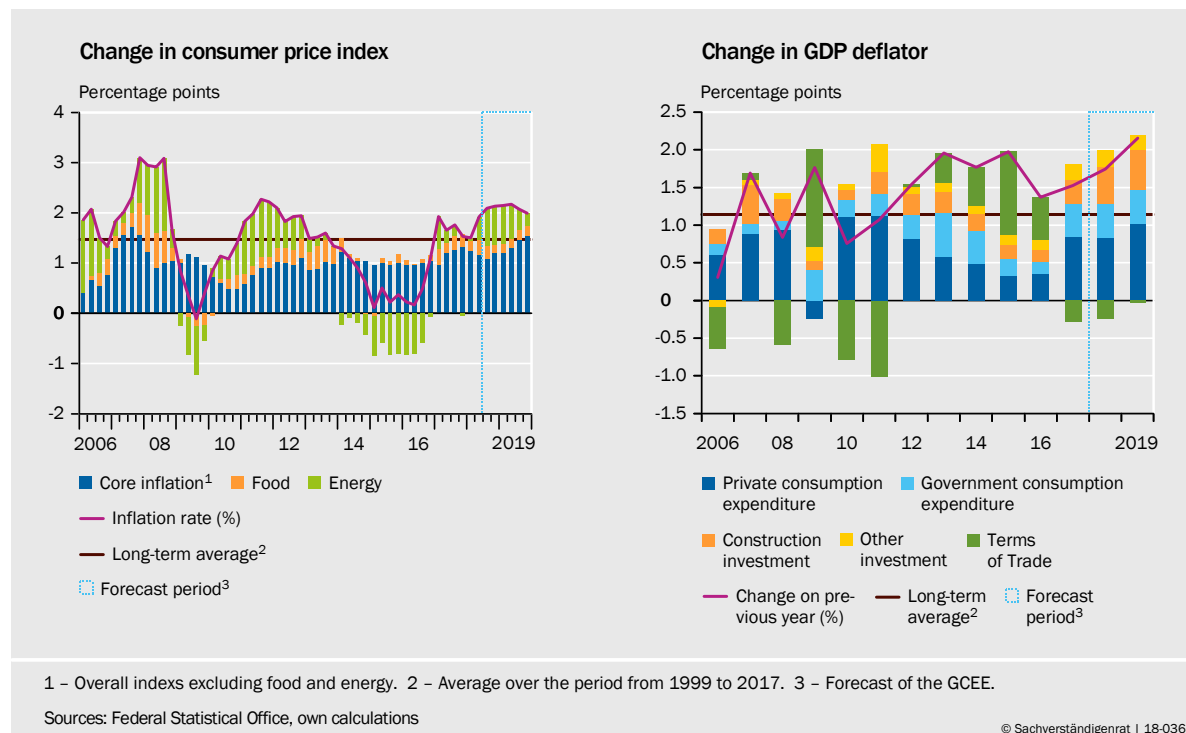


TABLE 9

Wage developments in Germany

Change on the previous year in %

	Collectively agreed wages (hourly concept) ¹	Effective wages ²	Wage drift ³	Compensation of employees per working hour	Labour productivity ⁴	Unit labour costs (nominal) ⁵	Unit labour costs (real) ⁶
2014	3.2	2.3	- 0.9	2.2	1.0	1.1	- 0.6
2015	2.1	2.4	0.3	2.3	0.6	1.8	- 0.2
2016	2.1	2.9	0.8	2.6	1.4	1.2	- 0.2
2017	2.5	2.3	- 0.2	2.4	0.9	1.5	0.0
2018 ⁷	2.7	2.8	0.1	2.6	0.2	2.5	0.7
2019 ⁷	2.6	2.8	0.2	3.1	0.7	2.4	0.3

1 – With the annual report 2018/19, the GCEE for the first time takes into account the index of collectively agreed hourly earnings with special payments of the Federal Statistical Office. The collective wage index of the Deutsche Bundesbank is no longer shown. 2 – Gross wages and salaries (domestic concept) per employees hour worked. 3 – Difference between the increase in effective wages and the increase in collectively agreed wages in percentage points. 4 – Real GDP per working hour (employed person concept). 5 – Compensation of employees per working hour (employee concept) in relation to real GDP per working hour (employed person concept). 6 – Compensation of employees per working hour (employee concept) in relation to nominal GDP per working hour (employed person concept). 7 – Forecast of the GCEE.

Sources: Federal Statistical Office, own calculations

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Companies are predicted to pass on some of the cost increases to consumers, so the core inflation rate will likely increase faster than of late. For 2018 and 2019, the GCEE expects average annual core inflation rates of 1.4 % and 1.7 % respectively. On the basis of this development, combined with the forecast for the energy and food component, consumer price inflation is predicted to be 1.9 % in 2018 and 2.1 % in 2019.

3. Labour market momentum fades slightly

324. The **employment situation is still very positive**, although the pace tailed off slightly in the second and third quarters following strong growth in the first quarter of 2018. Last year, employment increased by about 630,000 persons. In 2018, the increase is likely to be around 590,000 persons. TABLE 10 The average number of people in work in 2018 is expected to be just under 44.9 million, of whom just over 32.9 million are in a job that obliges them to pay social security contributions. The number of people on part-time contracts and earning less than the threshold for employee income tax and social security contributions is likely to have fallen to 4.7 million, a further decrease of 65,000 compared with 2017. Unemployment is also likely to have reduced, to 2.35 million people in 2018. The unemployment rate has more than halved since the record high in 2005 and now stands at 5.2 %.
325. The growing shortage of skilled workers is contributing to a relatively rapid increase in wages. Effective wages, i.e. gross wages and salaries paid per employee hour worked, went up by 2.3 % in 2017. They would have risen more sharply were it not for the **significant upward revision of the labour volume**, as a result of which the number of hours worked by employees in 2017 was subsequently increased by more than 230 million (approximately 0.5 %). The main reason cited by the Institute for Employment Research (IAB) is the stronger increase in paid and unpaid overtime. Furthermore, more people worked full time instead of part time. Without this adjustment, effective wages would have gone

up by 2.6 % in 2017. The GCEE expects effective wages to increase by 2.8 % in both 2018 and 2019. Non-monetary elements in collective negotiation agreements do not appear to have held back wage growth so far. [↘ BOX 5](#)

326. The effects of reforming the Temporary Employment Act (AÜG) should begin to be felt in October 2018. That is when, unless otherwise provided for in works agreements, the first temporary workers reach the end of the maximum permitted period of temporary employment at one company (18 months). However, this is thought to affect only about 12 % of temporary workers, as the typical duration of temporary employment at any one company is far shorter (Haller and Jahn, 2014). The increase in the minimum wage from €8.84 to €9.19 with effect from 1 January 2019 and the restrictions on fixed-term employment set out in the coalition agreement are also expected to have only a minor impact in the forecast period. The **frictions in the labour market** created by such political

↘ TABLE 10

Labour market in Germany

1,000 persons

	2016	2017	2018 ¹	2019 ¹	2018 ¹	2019 ¹
	yearly averages				change on previous year in %	
Labour force potential ²	46,630	47,075	47,329	47,547	0.5	0.5
Labour force ^{3,4}	45,324	45,776	46,213	46,563	1.0	0.8
Unemployed persons ⁵	1,774	1,621	1,476	1,411	- 8.9	- 4.4
Commuter balance ⁶	92	114	119	110	4.2	- 7.4
Employed persons ⁷	43,642	44,269	44,856	45,263	1.3	0.9
Self employed persons	4,334	4,294	4,228	4,183	- 1.5	- 1.1
Employees	39,308	39,975	40,628	41,080	1.6	1.1
Employees subject to social security contributions ⁸	31,508	32,234	32,936	33,486	2.2	1.7
Marginally employed persons (ILO concept) ⁹	5,422	5,369	5,288	5,201	- 1.5	- 1.6
Marginally employed persons (FEA concept) ^{8,10}	7,388	7,436	7,488	7,509	0.7	0.3
Exclusively marginally employed	4,804	4,742	4,676	4,613	- 1.4	- 1.4
Marginally employed in second job	2,584	2,694	2,812	2,896	4.4	3.0
Registered unemployed persons ⁸	2,691	2,533	2,345	2,184	- 7.4	- 6.9
Underemployment excluding short-time work ^{8,11}	3,577	3,517	3,299	3,131	- 6.2	- 5.1
Labour volume (million hours) ¹²	59,477	60,222	61,104	61,624	1.5	0.8
Unemployment rate (FEA) ^{8,13,14}	6.1	5.7	5.2	4.8	- 8.4	- 0.4
Unemployment rate (ILO) ^{14,15}	4.1	3.8	3.4	3.2	- 9.2	- 0.2

1 – Forecast of the GCEE. 2 – Source: IAB. 3 – Persons in their working age with residence in Germany (national concept). 4 – As defined by the national accounts systems. 5 – ILO concept. 6 – Difference of employed workers commuting from foreign countries to Germany and those commuting from Germany to foreign countries. 7 – Employed persons in Germany independent of their residence (domestic concept). 8 – Source: Federal Employment Agency (FEA). 9 – Employees not fully subject to social security contributions but who are employed according to the ILO labour force concept, especially exclusively marginally employed workers and persons with employment opportunities („1-Euro-Jobs”). 10 – Employed workers with a wage up to 450 Euro (§ 8 Absatz 1 Nr. 1 SGB IV). 11 – According to the concept of underemployment by the FEA. 12 – Working hours of employed persons working in Germany. 13 – Registered unemployed persons in relation to civilian labour force. 14 – Yearly averages in %; change on previous year in percentage points. 15 – Unemployed persons in relation to the labour force, in each case persons in private households aged from 15 to 74 years. Source: Eurostat.

Sources: Eurostat, Federal Statistical Office, Institute for Employment Research (IAB), Federal Employment Agency (FEA), own calculations

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measures are unlikely to be felt more strongly until a downturn materialises.

327. The labour market leading indicators of the IAB and ifo remain at a high level, but have lost some momentum over the past few months. This suggests that employment may not rise quite so strongly in the future, which is also supported by the fact that the seasonally adjusted **number of vacant positions tend to rise more slowly**.
328. The GCEE predicts that **employment will continue to rise** in 2019, with the number of people in work advancing by just over 400,000 to 45.3 million. Of this total, around 33.5 million people are likely to be liable for social security contributions. Following a decrease of approximately 190,000 in 2018, the number of people registered as unemployed is expected to fall by a further 160,000 to approximately 2.2 million. The **unemployment rate** is thus likely to drop to **just under 5 %**. Underemployment, which is not limited to people registered as unemployed because it also includes people such as those taking part in schemes to help them find work, is predicted to decrease by just under 170,000 to 3.1 million people in 2019, having fallen by around 220,000 in 2018.

↳ BOX 5

The importance of non-monetary elements in collective negotiation agreements

One potential influence on the level of collectively negotiated wages is the role of non-monetary elements in collective negotiation agreements (GCEE Annual Report 2017 Item 284). The agreements reached in the metalworking and electrical engineering industries, at Deutsche Post and at Volkswagen AG in 2018, for example, include more flexible working hours and a provision that enables employees to choose between a pay increase and additional annual leave.

Pay rises are collectively negotiated in conjunction with provisions on non-monetary elements. Although the additional non-monetary aspects that are negotiated can lead to higher administrative expenses for companies, the options and other non-monetary components result in potentially better working conditions for employees. Possible substitution effects give rise to the hypothesis that collectively negotiated wage rises could be higher if there were not an increase in the non-monetary elements of the collectively negotiated agreements (Deutsche Bundesbank, 2018).

The GCEE's systematic analysis of this link between wage increases and non-monetary components was based on the collectively negotiated agreements that the German Federal Statistical Office makes available for calculating collectively negotiated pay indices. This data was combined with information on non-monetary elements taken from the monthly news reports on collectively negotiated agreements published by the Hans Böckler Foundation's Institute of Economic and Social Research (WSI). The reports from 2009, 2013 and 2017 were used as a sample in the examination of the trends for such components over time. Under this approach, a total of 437 collectively negotiated agreements were combined with extensive information on the related contractual provisions.

In this sample, non-monetary components in collectively negotiated agreements played a minor role. Arrangements relating to working hours were set out in 16 of the collectively negotiated agreements in 2017, affecting 200,000 employees, while arrangements relating to skills training were set out in two such agreements in 2017, affecting 170,000 employees. None of the collectively negotiated agreements for 2017 that were examined included any healthcare measures. The frequency of non-monetary components barely changed in the period 2013 to 2017. In 2009, options for employees

featured in 13 collectively negotiated agreements and escape clauses were included in 22 collectively negotiated agreements as a way of dealing with the global financial crisis.

Multivariate regression analysis revealed no significant correlation between the agreed annual pay increase and the simultaneous agreement of non-monetary components in the individual collectively negotiated agreements. However, the tendency is for negotiated monetary (but not wage-related) components, such as holiday allowances and bonuses, to be accompanied by lower pay settlements. These special payments are not included in the Federal Statistical Office's indices of collectively negotiated pay.

This analysis has so far not found any evidence of substitution effects between wage increases and non-monetary components in collectively negotiated agreements. These findings are valid only at the **level of collectively negotiated agreements**. The hypothesis of whether there are substitution effects between higher pay and non-monetary benefits at workplace level or employee level still needs to be tested.

4. Government surpluses tempt to expand public spending

329. Once again, this year's general government financial surplus is likely to **exceed expectations**. Revenues have remained strong while spending has been temporarily fairly muted. This was particularly the case in the first half of 2018. However, neither of these trends is likely to continue to the same degree.

Firstly, **one-off factors** are expected to reduce the surplus over the second half of 2018: guarantee payments linked to the sale of HSH Nordbank by the federal states of Schleswig-Holstein and Hamburg will be posted in the second half of the year, tax receipts rose sharply in the first six months due to the postponement of dividend payments, and transfers to the EU will increase. However, the impact of these items is likely to be softened by financial penalties to be paid by another vehicle manufacturer this year. Secondly, the **delays in forming a government**, which meant that the budget remained provisional for a long while, have probably reined in the federal government's spending. In fact, its expenditure has fallen slightly year on year. Thirdly, the **decrease in refugee arrivals** has reduced the spending increases in the federal states.

330. Furthermore, the expansionary policy measures that have been adopted should start to take effect in the second half of 2018. **Fiscal policy continues to become more expansionary**. The budgetary impact of discretionary fiscal policy measures is predicted to be in the region of 0.2 % of nominal GDP this year. Measures in the magnitude of 0.6 % to 0.7 % of nominal GDP are envisaged for next year and will focus, above all, on **expenditure**. Investing- and pension-related policy measures are planned, along with increased spending on development aid. On the revenue side, one of the main factors will be higher personal tax allowances for parents. The contribution rate for social care insurance is to be raised, but the effect of this will be virtually cancelled out by the lowering of the contribution rate for unemployment insurance.

331. As a result of the **positive economic situation** and **rising wages**, revenues from taxes and social security contributions remain dynamic. ↘ TABLE 11 However, rising wages are also likely to have an impact on expenditure because public-sector employees' pay will also go up. Whereas the ongoing decrease in unemployment is slowing the increase in monetary social benefits, the introduction of *Mütterrente II* will hasten the increase. Revenues will not be directly affected by the return to an equal split between employer and employee of the funding of the additional contribution to statutory health insurance. However, the statutory pension insurance scheme will be paying the additional contributions for pensioners from next year. The likely further drop in interest payments will have a mitigating impact.

↘ TABLE 11

Public revenues and expenditures and fiscal indices¹

	2017	2018 ²	2019 ²	2018 ²	2019 ²
	billion euro			change on the previous year in %	
Total revenues	1,473.8	1,537.7	1,590.7	4.3	3.4
Taxes	766.4	798.9	827.9	4.3	3.6
Social contributions	548.6	570.9	593.7	4.1	4.0
Other revenues ³	158.9	167.9	169.1	5.7	0.7
Total expenditures	1,439.8	1,484.6	1,549.3	3.1	4.4
Intermediate consumption	156.3	159.7	165.1	2.2	3.4
Compensation of employees	246.7	256.5	266.7	3.9	4.0
Property income (including interest) payable	33.8	31.7	30.8	- 6.1	- 3.0
Subsidies payable	28.4	28.5	29.3	0.3	2.9
Social benefits other than social transfers in kind	506.1	520.2	544.8	2.8	4.7
Social benefits in kind	278.4	287.5	301.3	3.3	4.8
Gross capital formation	72.4	80.3	87.3	10.9	8.6
Other expenditures ⁴	117.8	120.2	124.1	2.0	3.2
Net borrowing/net lending	34.0	53.1	41.3	x	x
Fiscal indices (%)⁵					
Public spending ratio ⁶	43.9	43.8	44.1	x	x
Government consumption ratio	19.5	19.5	19.6	x	x
Social contributions ratio ⁷	15.6	15.7	15.8	x	x
Tax ratio ⁸	23.7	23.9	23.9	x	x
Tax and contribution ratio ⁹	39.3	39.7	39.7	x	x
Net lending/net borrowing	1.0	1.6	1.2	x	x
Structural balance ¹⁰	0.7	0.8	0.1	x	x
Debt-to-GDP ratio ¹¹	63.9	59.9	56.5	x	x
Interest-to-tax ratio ¹²	4.4	3.9	3.7	x	x

1 - National accounts (nominal values). 2 - Forecast of the GCEE. 3 - Sales, other subsidies on production, property income, other current transfers, capital transfers. 4 - Other current transfers, capital transfers, other taxes on production, and net acquisition of non-financial non-produced assets. 5 - In relation to nominal GDP. 6 - Total expenditures. 7 - Social contributions without imputed social contributions. 8 - Taxes including inheritance tax and taxes to the EU. 9 - Taxes including inheritance tax and taxes to the EU, and actual social contributions. 10 - Cyclically adjusted budget balance net of temporary measures. 11 - General government gross debt as defined in the Maastricht Treaty. 12 - Interest payable in relation to taxes including inheritance tax.

Sources: Federal Statistical Office, own calculations

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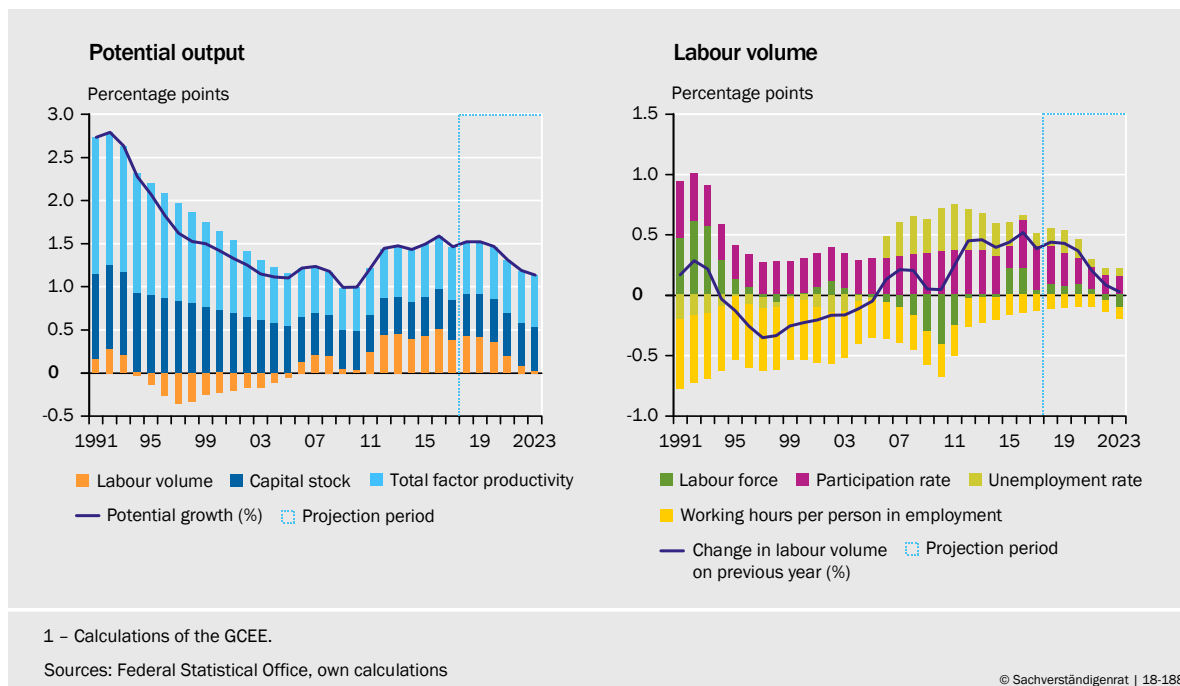
332. Overall, the GCEE anticipates a **surplus** at national level of €53.1 billion (1.6 % of nominal GDP) this year. The predicted figure for next year is €41.3 billion (1.2 % of nominal GDP). The structural balance, i.e. adjusted for business-cycle and one-off effects, is far lower and thus reflects the exceptionally favourable macroeconomic conditions. At 0.8 % of GDP, the structural surplus is likely to be significantly smaller than the actual surplus this year. Next year, it is expected to fall to 0.1 % as a result of expansionary fiscal policy. The debt-to-GDP ratio could drop to just below the Maastricht threshold of 60 % this year. [↘ TABLE 11](#)

III. MEDIUM-TERM PROJECTION

333. The GCEE estimates the growth rates for potential output in order to gauge the medium-term growth prospects. **Potential output** is the level of production that would exist if the production factors' capacity utilisation were normal. The estimate is based on a macroeconomic production function based on the labour volume, capital employed and total factor productivity. The key elements of this approach are the same as those in the European Commission's methodology (Havik et al., 2014). However, the GCEE's approach varies in some regards in order to reflect the particular features of the German economy more accurately, e.g. immigration and demographic trends (Breuer and Elstner, 2017).
334. The estimated rate of increase for potential output is 1.5 % for both 2018 and 2019. However, the contributions from the labour volume will diminish in subsequent years, so the trend growth rate will gradually slow down. [↘ CHART 46 LEFT](#) As a result, the average potential growth rate for the years 2017 to 2023 is estimated at just 1.4 %. The GCEE is therefore raising its estimate of potential output growth slightly, by 0.1 percentage points, compared with last year's forecast. The adjustment is distributed relatively evenly across the individual components. The material level of prosperity, measured by **GDP per capita**, will increase by an average of 1.3 % per year according to the medium-term projection. [↘ TABLE 12](#)
335. The biggest contributor to the growth of potential output is **total factor productivity (TFP)**. The long-term and sustained slowdown in the growth of TFP – from around 1.6 % in 1991 to below 0.5 % in 2009 – appears to have stopped for the time being. One of the likely reasons is that the composition effects of the labour market reforms in the 2000s, which hampered productivity, are gradually falling out of the equation (Elstner et al., 2018; GCEE Annual Report 2015, Item 599 ff.). Nonetheless, the average growth rate for TFP is expected to remain at the relatively low level of 0.6 %.
336. Following the sharp rises in the potential **labour volume** in recent years, the rate of increase is expected to gradually slow down. [↘ CHART 46 RIGHT](#) Firstly, this is due to the diminishing contributions from the **population of working age**. It is assumed that immigration will fall from the current level of around 400,000 people to 200,000 people. At the same time, the effects of an ageing population

↘ CHART 46

Growth contributions of components to potential GDP¹



are becoming ever more noticeable. Secondly, the slower increase in the labour volume is attributable to the diminishing contributions from the **equilibrium unemployment rate**. Having fallen from around 8 % in 2005 to below 4 %, this is not expected to provide additional impetus of any note in the years to come.

- 337. Ultimately, the labour volume is increasing at a slower pace because the potential **participation rate** is no longer rising as sharply as it was. This can be seen from the projection based on a population model. Using the current level as the starting point, the integration of refugees into the job market is pushing up the participation rate. However, the effect of this is being cancelled out because the ageing population means that age groups with a relatively low participation rate

↘ TABLE 12

Results of the medium-term projection¹

	1995 to 2017				2017 to 2023	
	actual		potential		potential	
Gross domestic product (GDP)	1.4		1.4		1.4	
Capital stock	1.6	(0.5)	1.7	(0.6)	1.5	(0.5)
Solow-residual	0.8	(0.8)	0.7	(0.7)	0.6	(0.6)
Volume of labour	0.2	(0.1)	0.1	(0.1)	0.4	(0.3)
Working age population	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Participation rate	0.5	(0.3)	0.5	(0.3)	0.3	(0.2)
Unemployment rate	0.2	(0.1)	0.2	(0.1)	0.2	(0.1)
Average working time	- 0.5	(- 0.3)	- 0.5	(- 0.3)	- 0.2	(- 0.1)
For information purposes: GDP per capita	1.3		1.3		1.2	

1 – Calculations of the German Council of Economic Experts; average annual changes in %. In brackets: growth contributions in percentage points. Differences in sums are due to rounding.
Sources: Federal Statistical Office, own calculations

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are becoming more heavily weighted. Consequently, the actual participation rate across the economy as a whole will probably fall in the years ahead.

338. The reduction in the aforementioned contributions to the labour volume will be mitigated only slightly by the slowdown in the decrease in structural **working hours per person in employment** compared with previous years. [↪ CHART 46 RIGHT](#) The main reason for this is that the average working hours of part-time workers are increasing. In fact, actual working hours per person in employment are likely to go up somewhat in the coming years due to economic factors.

APPENDIX

▶ CHART 47

Components of GDP

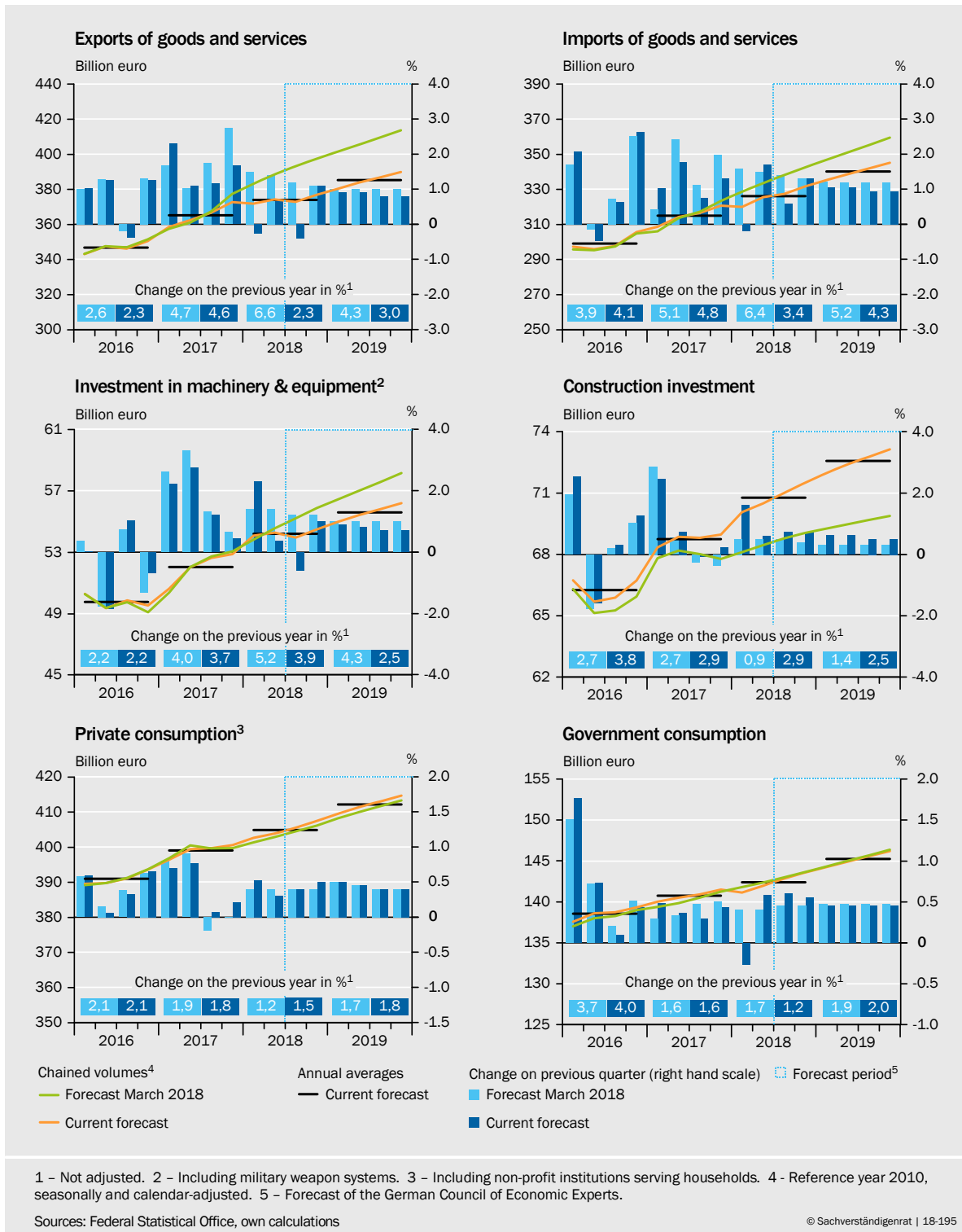


TABLE 13

Key figures of the national accounts

Absolute values

	Unit	2017	2018 ¹	2019 ¹	2018 ¹		2019 ¹	
					1 st half-year	2 nd half-year	1 st half-year	2 nd half-year
Use of domestic product								
at current prices								
Final consumption expenditure	billion euro	2,371.1	2,447.5	2,542.7	1,193.1	1,254.4	1,237.5	1,305.1
Private consumption ²	billion euro	1,732.2	1,786.0	1,852.3	872.8	913.1	903.0	949.3
Government consumption	billion euro	638.9	661.5	690.3	320.3	341.3	334.5	355.8
Gross fixed capital formation	billion euro	665.7	703.8	743.7	339.1	364.7	356.4	387.3
Investment in machinery & equipment ³	billion euro	215.2	224.6	231.6	107.9	116.6	109.9	121.7
Construction investment	billion euro	326.6	351.6	378.3	169.2	182.4	181.6	196.7
Other products	billion euro	123.9	127.6	133.8	62.0	65.6	64.9	68.9
Domestic demand	billion euro	3,029.5	3,157.8	3,295.2	1,542.7	1,615.1	1,609.2	1,686.1
Exports of goods and services	billion euro	1,541.9	1,592.0	1,660.2	792.0	800.0	817.8	842.4
Imports of goods and services	billion euro	1,294.1	1,361.6	1,442.1	662.8	698.8	703.5	738.6
Gross domestic product	billion euro	3,277.3	3,388.2	3,513.4	1,671.8	1,716.3	1,723.5	1,789.9
Chained volumes								
Final consumption expenditure	billion euro	2,158.0	2,188.6	2,228.5	1,074.9	1,113.7	1,093.5	1,135.0
Private consumption ²	billion euro	1,594.7	1,618.6	1,647.2	794.1	824.5	806.7	840.5
Government consumption	billion euro	562.9	569.6	580.9	280.6	289.0	286.5	294.4
Gross fixed capital formation	billion euro	592.8	609.5	625.0	295.2	314.3	301.1	323.9
Investment in machinery & equipment ³	billion euro	207.6	215.7	221.1	103.4	112.3	104.6	116.5
Construction investment	billion euro	274.1	282.1	289.2	137.2	144.9	140.3	148.9
Other products	billion euro	111.7	112.5	115.4	54.9	57.6	56.3	59.1
Domestic demand	billion euro	2,732.4	2,788.3	2,843.4	1,376.9	1,411.4	1,403.3	1,440.1
Exports of goods and services	billion euro	1,457.7	1,490.9	1,535.3	744.0	746.9	758.3	777.0
Imports of goods and services	billion euro	1,258.2	1,301.3	1,357.4	637.1	664.2	662.7	694.7
Gross domestic product	billion euro	2,932.5	2,979.7	3,024.7	1,483.8	1,495.9	1,500.0	1,524.7
Price Development (deflators)								
Final consumption expenditure	2010=100	109.9	111.8	114.1	111.0	112.6	113.2	115.0
Private consumption ²	2010=100	108.6	110.3	112.5	109.9	110.8	111.9	113.0
Government consumption	2010=100	113.5	116.1	118.8	114.2	118.1	116.8	120.8
Gross fixed capital formation	2010=100	112.3	115.5	119.0	114.9	116.0	118.4	119.6
Investment in machinery & equipment ³	2010=100	103.7	104.1	104.7	104.4	103.8	105.0	104.5
Construction investment	2010=100	119.2	124.7	130.8	123.3	125.9	129.4	132.1
Other products	2010=100	110.9	113.4	116.0	112.9	113.8	115.4	116.5
Domestic demand	2010=100	110.9	113.3	115.9	112.0	114.4	114.7	117.1
Terms of Trade	2010=100	102.8	102.1	101.8	102.3	101.8	101.6	102.0
Exports of goods and services	2010=100	105.8	106.8	108.1	106.5	107.1	107.9	108.4
Imports of goods and services	2010=100	102.9	104.6	106.2	104.0	105.2	106.2	106.3
Gross domestic product	2010=100	111.8	113.7	116.2	112.7	114.7	114.9	117.4
Production of domestic product								
Employed persons (domestic)	1,000	44,269	44,856	45,263	44,590	45,129	45,009	45,516
Labour volume	million hours	60,222	61,104	61,624	30,040	31,064	30,213	31,411
Labour productivity (per hour)	2010=100	107.6	107.7	108.5	109.2	106.4	109.7	107.2
Distribution of net national income								
Net national income	billion euro	2,456.4	2,537.0	2,630.9	1,236.5	1,300.5	1,274.4	1,356.5
Compensation of employees	billion euro	1,668.8	1,745.6	1,821.2	834.9	910.6	872.7	948.6
Gross wages and salaries	billion euro	1,366.6	1,431.6	1,489.2	683.2	748.4	711.5	777.7
among them: net wages and salaries ⁴	billion euro	902.9	945.0	981.6	446.5	498.5	464.1	517.5
property and entrepreneurial income	billion euro	787.6	791.5	809.7	401.6	389.9	401.7	407.9
Disposable income of private households ²	billion euro	1,869.9	1,934.3	2,006.5	962.4	971.8	991.5	1,014.9
Savings rate of private households ^{2,5}	%	9.9	10.1	10.1	11.7	8.5	11.3	8.9
For information purposes:								
nominal unit labour costs ⁶	2010=100	111.3	114.1	116.9	109.6	118.6	113.1	120.7
real unit labour costs ⁷	2010=100	99.6	100.3	100.6	97.3	103.3	98.4	102.8
Consumer prices	2010=100	109.3	111.4	113.7	110.7	112.0	113.1	114.2

1 – Forecast of the GCEE. 2 – Including non-profit institutions serving households. 3 – Including military weapon systems. 4 – Compensation of employees minus social contributions of employers and employees and income tax of employees. 5 – Savings relative to disposable income. 6 – Compensation of employees per working hour (employee concept) in relation to real GDP per working hour (employed person concept). 7 – Compensation of employees per working hour (employee concept) in relation to nominal GDP per working hour (employed person concept).

Sources: Federal Employment Agency, Federal Statistical Office, own calculations

Key figures of the national accounts

Change on the previous year in %

2017	2018 ¹	2019 ¹	2018 ¹		2019 ¹		
			1 st half-year	2 nd half-year	1st half-year	2 nd half-year	
Use of domestic product							
at current prices							
3.5	3.2	3.9	3.0	3.5	3.7	4.0	Final consumption expenditure
3.4	3.1	3.7	2.8	3.4	3.5	4.0	Private consumption ²
3.8	3.5	4.4	3.4	3.7	4.4	4.3	Government consumption
5.0	5.7	5.7	5.6	5.8	5.1	6.2	Gross fixed capital formation
4.2	4.3	3.1	5.5	3.3	1.8	4.4	Investment in machinery & equipment ³
6.4	7.7	7.6	6.8	8.5	7.3	7.8	Construction investment
2.9	3.0	4.9	2.6	3.3	4.7	5.0	Other products
4.0	4.2	4.4	3.8	4.6	4.3	4.4	Domestic demand
6.3	3.2	4.3	3.8	2.7	3.3	5.3	Exports of goods and services
7.6	5.2	5.9	4.2	6.2	6.1	5.7	Imports of goods and services
3.7	3.4	3.7	3.7	3.1	3.1	4.3	Gross domestic product
Chained volumes							
1.7	1.4	1.8	1.2	1.6	1.7	1.9	Final consumption expenditure
1.8	1.5	1.8	1.3	1.7	1.6	1.9	Private consumption ²
1.6	1.2	2.0	0.9	1.4	2.1	1.9	Government consumption
2.9	2.8	2.5	2.9	2.8	2.0	3.0	Gross fixed capital formation
3.7	3.9	2.5	5.1	2.9	1.2	3.7	Investment in machinery & equipment ³
2.9	2.9	2.5	2.4	3.4	2.3	2.8	Construction investment
1.3	0.7	2.6	0.4	1.1	2.5	2.6	Other products
2.0	2.0	2.0	1.8	2.2	1.9	2.0	Domestic demand
4.6	2.3	3.0	3.2	1.4	1.9	4.0	Exports of goods and services
4.8	3.4	4.3	3.4	3.4	4.0	4.6	Imports of goods and services
2.2	1.6	1.5	1.9	1.4	1.1	1.9	Gross domestic product
Price Development (deflators)							
1.8	1.8	2.0	1.8	1.8	1.5	2.1	Final consumption expenditure
1.6	1.6	1.9	1.5	1.7	1.8	2.0	Private consumption ²
2.2	2.3	2.3	2.5	2.2	2.3	2.3	Government consumption
2.1	2.8	3.1	2.7	2.9	3.0	3.1	Gross fixed capital formation
0.5	0.4	0.6	0.4	0.3	0.6	0.6	Investment in machinery & equipment ³
3.3	4.6	4.9	4.4	4.9	4.9	4.9	Construction investment
1.5	2.2	2.3	2.2	2.2	2.2	2.4	Other products
2.0	2.1	2.3	2.0	2.3	2.3	2.3	Domestic demand
- 1.0	- 0.8	- 0.3	- 0.1	- 1.4	- 0.7	0.2	Terms of Trade
1.6	0.9	1.3	0.6	1.3	1.3	1.2	Exports of goods and services
2.6	1.7	1.5	0.7	2.7	2.0	1.1	Imports of goods and services
1.5	1.7	2.2	1.8	1.7	2.0	2.3	Gross domestic product
Production of domestic product							
1.4	1.3	0.9	1.4	1.2	0.9	0.9	Employed persons (domestic)
1.3	1.5	0.8	1.5	1.4	0.6	1.1	Labour volume
0.9	0.2	0.7	0.3	- 0.1	0.4	0.8	Labour productivity (per hour)
Distribution of net national income							
3.9	3.3	3.7	3.5	3.0	3.1	4.3	Net national income
4.2	4.6	4.3	4.6	4.6	4.5	4.2	Compensation of employees
4.2	4.8	4.0	4.9	4.7	4.1	3.9	Gross wages and salaries
							among them: net wages and salaries ⁴
3.9	4.7	3.9	4.8	4.5	3.9	3.8	
3.3	0.5	2.3	1.3	- 0.3	0.0	4.6	property and entrepreneurial income
3.4	3.4	3.7	3.4	3.5	3.0	4.4	Disposable income of private households ²
.	Savings rate of private households ^{2,5}
For information purposes:							
1.5	2.5	2.4	2.1	2.8	3.2	1.8	nominal unit labour costs ⁶
0.0	0.7	0.3	0.3	1.1	1.2	- 0.6	real unit labour costs ⁷
1.8	1.9	2.1	1.7	2.0	2.2	2.0	Consumer prices

1 - Forecast of the GCEE. 2 - Including non-profit institutions serving households. 3 - Including military weapon systems. 4 - Compensation of employees minus social contributions of employers and employees and income tax of employees. 5 - Savings relative to disposable income. 6 - Compensation of employees per working hour (employee concept) in relation to real GDP per working hour (employed person concept). 7 - Compensation of employees per working hour (employee concept) in relation to nominal GDP per working hour (employed person concept).

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