

THE WORLD ECONOMY

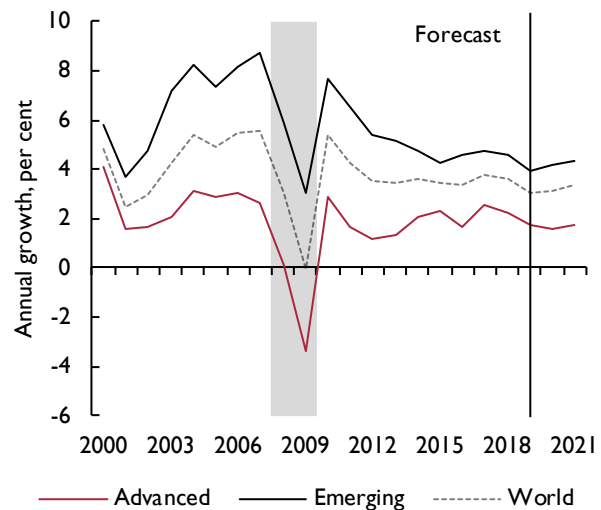
Barry Naisbitt with Janine Boshoff, Ian Hurst, Amit Kara, Cyrille Lenoel, Iana Liadze, Xuxin Mao, Craig Thamotheram and Kemar Whyte*

Global outlook overview

After two years during which global economic growth has slowed from a cyclical peak in 2017 to its slowest rate since 2009, we expect that the growth slowdown will halt this year. We project global GDP growth of 3 per cent this year, effectively the same as last year, and 3¼ per cent next, with these forecasts unchanged from those of three months ago.

The headwinds to output growth since 2017 have been widespread, due to several factors. With China now accounting for around 20 per cent of global GDP,¹ the reduction in GDP growth in China since 2017 as the economy has continued its adjustment path has reduced global growth by about 0.2 percentage points. The era of over 7 per cent annual economic growth in China has ended and growth last year of 6.1 per cent was the slowest for 29 years, reflecting both international factors and the phase of economic development adapting. In the US, the ending of the boost to growth from the fiscal stimulus has occurred at the same time as interest rates increased as part of monetary policy normalisation and US growth has slowed from 2.9 per cent in 2018 to 2.3 per cent in 2019. Last year the imposition of new tariffs by the US (and subsequent retaliation) and uncertainty over future tariff imposition led to disruption and uncertainty in global goods trade. In addition, disruption in the automobile market from changing regulatory and demand patterns has played a role, especially in Germany. Finally, recessions in Argentina and Turkey and slower growth in India, largely from domestic factors, have also contributed to explaining slower overall economic growth. This confluence of factors has worked to reduce global growth.

Figure 1. GDP growth in advanced and emerging economies



Source: NiGEM database and NIESR forecast.

Note: Shading denotes global financial crisis.

We expect that the waning influence of the temporary factors that have slowed growth in the past two years and monetary policy loosening in several economies, especially in the US, will support the pace of growth gradually recovering later this year and into 2021 (see figure 1). A key global uncertainty, however, is how the change in the direction of tariffs that has occurred in the past two years will develop and how it will affect the global trading system. The signing of the Phase One

*All questions and comments related to the forecast and its underlying assumptions should be addressed to Iana Liadze (i.liadze@niesr.ac.uk). We would like to thank Jagjit Chadha and Garry Young for helpful comments and Patricia Sanchez Juanino for preparing the charts and compiling the database underlying the forecast. The forecast was completed on 24 January 2020. Exchange rate, interest rate and equity price assumptions are based on information available to 16 January 2020. Unless otherwise specified, the source of all data reported in tables and figures is the NiGEM database and NIESR forecast baseline.

Table I. Forecast summary

	Real GDP ^(a)												World trade ^(b)
	World	OECD	China	BRICS+	Euro Area	USA	Japan	Germany	France	Italy	UK	Canada	
2010–15	4.0	2.1	8.4	6.3	1.0	2.3	1.5	2.1	1.2	-0.3	2.0	2.3	5.7
2016	3.4	1.8	6.7	5.1	1.9	1.6	0.5	2.1	1.0	1.4	1.9	1.0	2.4
2017	3.8	2.7	6.8	5.6	2.7	2.4	2.2	2.8	2.4	1.8	1.9	3.2	5.8
2018	3.6	2.3	6.6	5.5	1.9	2.9	0.3	1.5	1.7	0.7	1.3	2.0	3.7
2019	3.0	1.7	6.1	4.5	1.2	2.3	1.1	0.5	1.3	0.2	1.3	1.7	2.6
2020	3.1	1.7	5.9	4.9	1.1	2.0	0.4	0.7	1.2	0.4	1.3	1.8	2.7
2021	3.3	1.8	5.7	5.0	1.5	2.0	0.5	1.2	1.7	0.8	1.6	2.1	3.5
2022–26	3.4	1.7	5.2	4.8	1.3	1.6	0.9	1.1	1.4	0.8	1.7	1.8	3.7

	Private consumption deflator					Interest rates ^(c)					Oil (\$ per barrel) ^(d)		
	OECD	BRICS+	Euro Area	USA	Japan	Germany	France	Italy	UK	USA	Japan	Euro Area	
2010–15	1.7	5.4	1.2	1.5	-0.1	1.3	0.9	2.1	1.8	0.3	0.1	0.6	93.0
2016	1.1	4.3	0.4	1.0	-0.5	0.7	0.2	0.1	1.4	0.5	-0.1	0.0	42.9
2017	2.1	3.3	1.3	1.8	0.2	1.5	0.9	1.2	1.4	1.1	-0.1	0.0	54.0
2018	2.5	3.8	1.4	2.1	0.6	1.5	1.5	0.9	2.6	1.9	-0.1	0.0	70.4
2019	2.1	4.2	1.3	1.4	0.5	1.4	1.2	0.4	1.4	2.3	-0.1	0.0	63.7
2020	2.4	4.4	1.5	1.9	1.8	1.8	1.6	0.8	1.7	1.8	-0.1	0.0	64.3
2021	2.3	3.3	1.7	2.1	1.1	1.8	1.6	1.5	2.2	1.8	-0.1	0.0	67.7
2022–26	2.0	3.0	1.5	2.1	1.3	1.6	1.3	1.5	2.0	2.4	0.5	0.4	72.2

Notes: Forecast produced using the NiGEM model. BRICS+ includes Brazil, China, Russia, India, Indonesia, Mexico, South Africa, Turkey. (a) GDP growth at market prices. Regional aggregates are based on PPP shares, 2011 reference year. (b) Trade in goods and services. (c) Central bank intervention rate, period average. (d) Average of Dubai and Brent spot prices.

agreement between the US and China on 15 January may ease some of the uncertainty but further negotiations will take place over Phase Two, giving scope for potential issues to arise.

Into the medium term, we anticipate that the world's two largest economies, the US and China, will show a slowing in potential growth compared to the past two decades. Slightly faster growth in India and other emerging economies continuing to grow more rapidly than advanced economies should contribute to a gradual pick-up in the medium term to around 3½ per cent a year, which is around the average of the past four decades. GDP growth in the advanced economies in the past decade has been supported by continued low policy interest rates and by increased government debt, as shown in figure 2.

With a few notable exceptions, such as Argentina and Turkey, low price inflation has remained a global phenomenon and is forecast to remain so. Below-target inflation has facilitated a loosening in monetary policy at a time of slowing growth. While we expect that this loosening, especially in the US and Euro Area, will

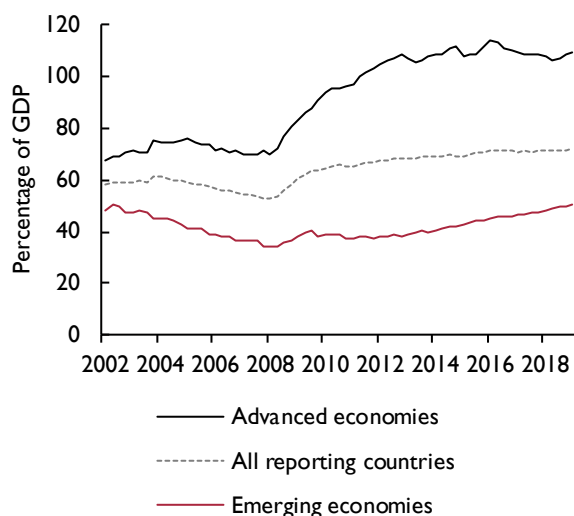
support GDP growth this year and next, with interest rates already at low levels, we do not forecast any substantial further easing in those economies. Fiscal policy is likely to be the next source of policy impetus for growth if such an impetus is needed.

Overview background

World GDP growth last year was the slowest for a decade, with the advanced economies growing by 1¾ per cent, around ½ percentage point lower than the average of the previous five years (figure 1). Emerging economies grew by almost 4 per cent, also around ½ percentage point lower than the previous five-year average and 4 percentage points lower than in the five years of strong growth leading up to 2008.

The slowdown last year was widespread. Of the 46 economies that our NiGEM model covers specifically, the percentage of those countries that saw GDP growth last year at a faster pace than the average of the previous three years was at a nine-year low. Recessions in Argentina, Turkey and Venezuela have largely reflected domestic issues such as economic instability, financial sector problems, sanctions and sharp exchange rate

Figure 2. Government debt-to-GDP ratios

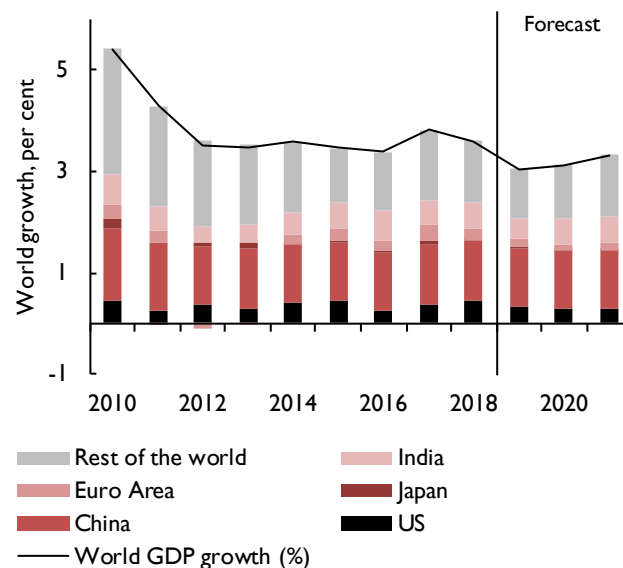


Source: Bank for International Settlements, Credit-to-GDP database.

depreciations rather than being driven by global trends and uncertainties. Among the major economies, the most dramatic slowing has been in Germany – from growth of 2.8 per cent in 2017 to just $\frac{1}{2}$ per cent last year and $\frac{3}{4}$ per cent forecast for this year, before a more notable pick-up forecast to $1\frac{1}{4}$ per cent in 2021. This rapid decline in growth reflected declining industrial activity, especially in the motor sector, and Germany has only just avoided a technical recession as a result of the severity. Our expectation is that the balance of countries seeing faster growth will be similar this year to last but will increase in 2021, as economic policy responses to the slowdown feed through.

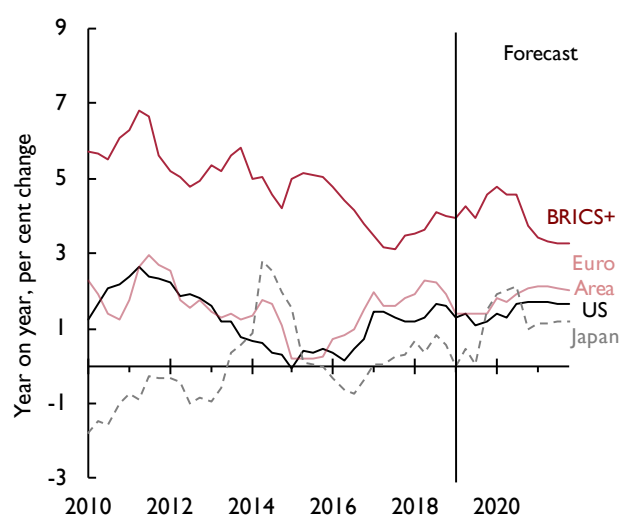
As figure 3 indicates, we do not anticipate any major change in the geographical composition of global economic growth. The three large economic areas (USA, China and Euro Area) have been most affected by the tariff changes. World trade growth slowed substantially in the final quarter of 2018, and it has shown no substantive signs of recovery in the past year, with the on-off nature of tariff negotiations between the US and China likely to have played a substantial role in this. Recent research has indicated that “higher uncertainty about tariffs also dampens investment and GDP” (Caldara *et al.*, 2019). The ‘Phase One’ agreement between the US and China that was signed on 15 January may have settled some of the largest concerns, especially with the reduced tariff rates, and gives a potential upside bias to our US outlook due to additional exports, but ‘Phase Two’ negotiations may continue the uncertainty.

Figure 3. Percentage point contributions to global economic growth (PPP weighted)



Source: NiGEM database and NIESR forecast.

Figure 4. Inflation in advanced and emerging economies



Source: NiGEM database and NIESR forecast.

Note: Consumer expenditure deflator is used for the US, Euro Area and Japan, CPI for emerging markets. BRICS+ – weighted average of Brazil, China, India, Indonesia, Mexico, Russia, Turkey and South Africa.

Box A. The effects of the trade war on inflation¹

by Barry Naisbitt and Kemar Whyte

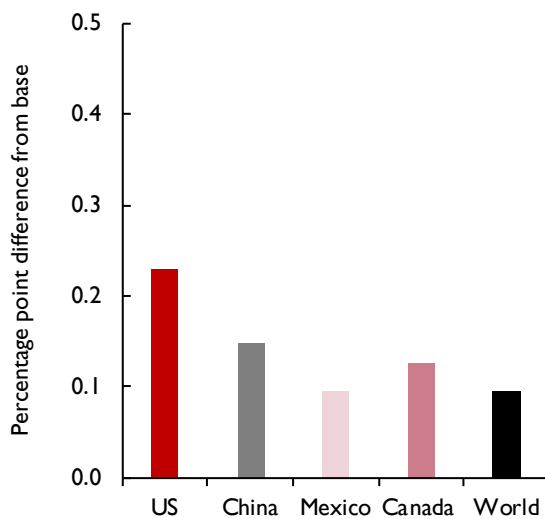
In the past two months some of the uncertainties around the trade war between the US and China have settled. The negotiations between the US and China have culminated in the Phase One agreement, which was signed on 15 January. After this agreement, tariffs on goods traded between the two countries are substantially higher than before the trade war started. Estimates from the Peterson Institute are that the average trade-weighted US tariff rate has risen from 3.1 per cent two years ago to 19.3 per cent and the average tariff by China on US goods has mirrored this, by increasing from 8 per cent to 20.9 per cent (Bown and Kolb, 2019). In previous *Reviews*, the issue about the possible effects of the trade war on output growth has been examined using simulations on our model, NiGEM (Liadze and Haache, 2017; Hantzsche and Liadze, 2018; Liadze, 2018a, b). Following recent research by Amiti *et al.* (2020), this note examines the possible effects of the increase in tariffs on consumer prices. A tariff increase acts as a negative supply shock, raising prices of inputs to production and increasing output prices, leading to lower output.

Since early 2018 the US has imposed tariffs on goods imported from China in a series of stages, with a series of announcements made on prospective tariff rates on certain types of goods from China and on total import values. From solar panels, via steel and aluminium, the list of goods affected extended to machinery and electrical equipment and then to consumer goods. It has been estimated that after the Phase One agreement almost two-thirds of imports from China will be affected by tariffs (Bown, 2019). Although the tariffs have been wide-ranging and have marked a break from the post-WWII trend of reducing barriers to trade, the Phase One agreement did roll back some of the previously proposed tariff increases,² but not all of them.³ It also sets an ambition for US exports to China⁴ and China has promised to provide more protection for American companies' intellectual property and to stop requiring US companies to share their technology as a cost of doing business in China.

To examine the effects of these increases in tariffs on prices we report the results of a simulation on our NiGEM model in which the average US tariff rate on imports from China permanently increases by 15 percentage points, simplifying from the estimated 16.2 percentage point increase, and Chinese tariffs on US exports also increase permanently by 15 percentage points (rounding up from 12.9 percentage points). The simulations of tariff effects work through higher import prices. This channel is supported by Amiti *et al.* (2020) who note that: "we find that US tariffs continue to be almost entirely borne by US firms and consumers".

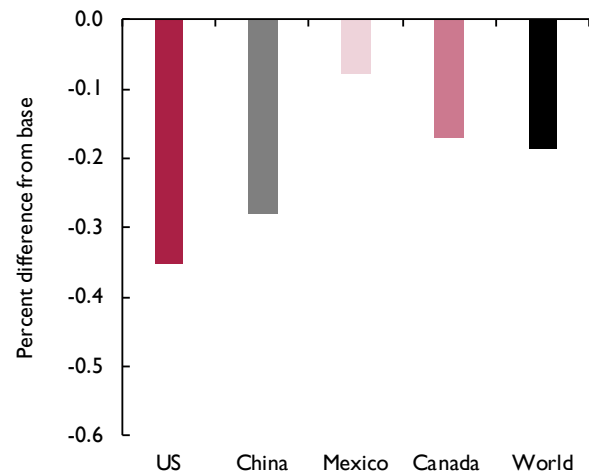
Figure A1 shows that the consumer price inflation rate both in the US and China would increase by about 0.2 percentage points relative to the baseline projection over three years following a 15 per cent increase in tariffs, a result consistent with previous work (Liadze, 2018a). In the simulation we assume that exchange rates and financial markets are forward looking and respond

Figure A1. Average annual impact on inflation over 3 years (annual, per cent)



Source: NiGEM database and simulation

Figure A2. Average annual impact on GDP over 3 years (annual, per cent)



Source: NiGEM database and simulation

Box A. (continued)

to expected changes in interest rates. As a consequence, if expectations of interest rates are raised as a result of a policy change then bond and equity prices will fall and the exchange value of the domestic currency will increase instantaneously, bringing some effects forward.

The extent to which global prices are affected by the tariff shock is also shown. With higher US tariffs leading to higher US inflation, there is a bias towards higher US policy interest rates which contributes towards an appreciation of the US dollar, in real effective terms. Other economies, except China, might experience increases in import prices via relative depreciations of their currencies. Relative to the baseline, inflation globally is increased by 0.1 percentage points, on average, over a three-year horizon. For the US, China and the global economy, the increases in inflation dampen over a three-year horizon. Mexico and Canada (economies closely linked to the US in trade) see similar increases. Higher import prices raise inflation and depress output in all the countries discussed. However, the magnitude and persistence of this effect depends on the sensitivity of domestic prices to import prices as well as the differences in the reactions of the monetary policy authorities. For reference, figure A2 illustrates the average effect over three years on GDP. The results, which show a fall in world GDP of 0.2 per cent relative to baseline, with a larger fall in the US, are similar in size to those previously reported (Liadze, 2018b).

The increases in inflation that arise from the tariff shocks are against a background of a sustained period of low inflation, especially in the advanced economies. In this context, the monetary authorities do not actively respond to mitigate the increase in inflation in the model simulation. Perhaps more important than the precise results of the simulations, however, is that the trade war might possibly contribute towards a more widespread change in the direction of trade liberalisation that has been evident for several decades. The uncertainty caused by the tariffs themselves, the manner of the announcement of tariff increases and the speculation about 'what is next' may well cause larger effects than those captured by the simulations reported here. Given the fall in world trade growth last year, these uncertainties appear to have played an important role in the global economy.

NOTES

- 1 The authors would like to thank Jagjit Chadha, Cyrille Lenoel, Iana Liadze, Xuxin Mao, and Garry Young for helpful comments and suggestions.
- 2 US tariffs on \$162 billion of US imports from China scheduled for imposition at 15 per cent on 15 December did not come into effect. These duties would have hit US imports of toys, consumer electronics, and other goods. President Trump reduced to 7.5 per cent the tariffs of 15 per cent he had imposed on over \$100 billion of imports on 1 September, 2019.
- 3 The 25 per cent tariffs imposed on \$250 billion of imports prior to 1 September and those imposed in July, August, and September of 2018 – primarily on imported parts and components – remain unchanged.
- 4 China is committing that over the next two years it will import no less than \$200 billion of US goods and services on top of the amounts that it imported in 2017 in four broad categories of goods. The Agreement noted that "The United States and China expect China's increased imports of U. goods and services to continue on this same trajectory for several years after 2021" (Office of the US Trade Representative, 2020).

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The long economic expansion following the financial crisis, with the US economy now in its longest recorded period of expansion, has seen falling unemployment rates and tightening labour markets in the advanced economies, with some economies reporting multi-decade lows in their unemployment rates. There have been some signs of increases in wage growth and unit labour costs as a result, and these might help raise inflation towards central bank targets.

So far, however, consumer price inflation remains below target (see figure 4). Quite why this is, is not fully understood. There may be an issue in understanding recent trends in inflation, with some economists arguing that structural relationships such as the Phillips curve have broken down. Recent IMF research for the Euro Area has suggested that increases in wage growth now produce lower impulses to price inflation than previously.² While stable Phillips curves have been estimated for the Euro Area (e.g. Ball and Mazumder, 2019), this research notes that there is still some role for possible ‘missing inflation’ in recent years. The continued undershoot of target inflation in the G7 economies remains an issue for monetary policymakers in those economies.

Inflation has fallen in emerging market economies too, with reductions in the BRIC economies over the past decade. However, there have been rapid increases in prices in Argentina and Turkey in the past three years which will take time to reduce.

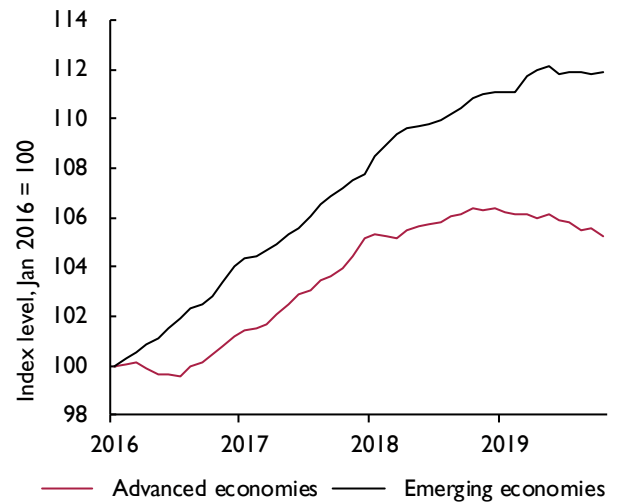
Continued low inflation created the space for monetary policymakers to pursue more stimulatory monetary policies last year when economic growth slowed. We do not expect any substantial further monetary easing in the short term in the US or Euro Area, but a bias towards loosening will continue. Inflation expectations have increased a little but appear firmly anchored and this contributes to our projection that inflation will remain low.

Recent economic developments

Economic activity

The key economic developments in the second half of last year were the continued downward pressure on indicators of industrial production on a widespread basis, but especially in the advanced economies. Indicators of activity in the service sectors of advanced economies have, to date, not moved with the industrial indicators, so that overall activity has been more stable than that highlighted by the performance of industry. Recent trends in industrial production are shown in figure

Figure 5. Recent trends in industrial production



Source: CPB World Trade Monitor.

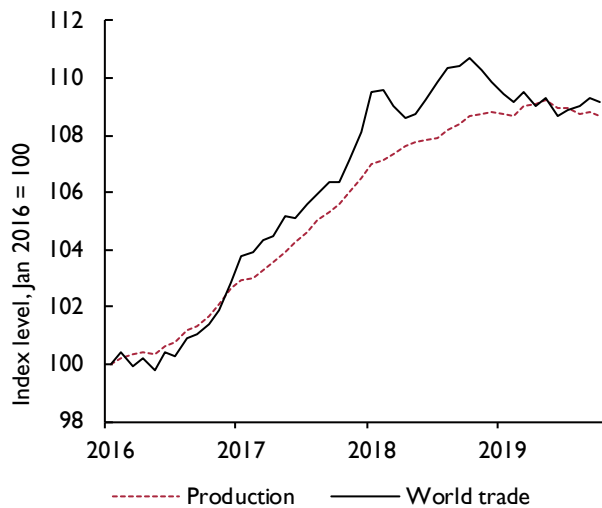
5, but the most recent global PMI activity indicators showed a second successive monthly acceleration in the rate of global economic expansion in December, with the manufacturing index sustaining its gains from the low in mid-year, and so suggesting a possible trough in activity has been reached.

The automotive sector appears to have been particularly adversely affected over the past year, especially in Europe. This has arisen from a combination of slowing export demand, the need to adapt to changes in emissions regulations and the changing pattern of consumer demand, with anticipated demand for electric vehicles requiring changes in production technology. New car production in Germany was down by an annual 7 per cent in December 2019 and output in 2019 was the lowest since 1996. In December 2019, exports of cars from Germany were 14 per cent down on a year earlier. With the auto sector accounting for around 20 per cent of German manufacturing output, the reversal in this sector has had a substantial effect on the industrial sector as a whole.

International trade

The trade war between the US and China has had a disruptive effect on world trade through two mechanisms. First, the imposition of tariffs by the US marks a major change in the direction of trade reform that has progressed through from the 1950s. Measures show heightened trade uncertainty, which reflects both

Figure 6. Industrial production and merchandise trade



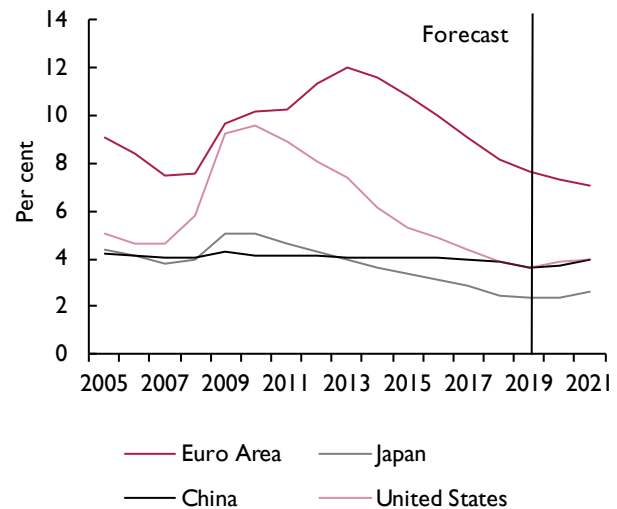
Source: Netherlands Bureau for Economic Policy Analysis (CPB).

the nature of the process by which tariff changes have been announced and the uncertainty about the possible imposition of further tariffs. The latter may well have caused some businesses to reconsider their global supply chain planning, with potential longer-term effects on trade. The second effect comes from the effects of the tariffs themselves on trade and on potential inflation. Simulations with our NiGEM model reported previously (Haache and Liadze, 2017a; Liadze, 2018a, b) show the direct impact of the tariffs to be to reduce output growth, although it is possible that the adverse uncertainty effects could outweigh the adverse direct effects. Box A discusses the potential effects of tariffs on inflation.

The initial tariffs enacted by the USA in January 2018 on solar panels and washing machine imports became transformed into a wider policy. The unexpected increase in US tariffs on \$200 billion of Chinese goods from 10 per cent to 25 per cent in May last year had a broad negative effect on trade sentiment but the recent Phase One agreement, the outline of which was announced in December and in which some of the proposed tariff increases were rolled back, offers a potentially more positive start to this year. Our forecast assumes that no new tariffs are introduced, which creates a possible downside risk if the trade war re-ignites.

The slowdown in world trade growth has been sharper than the slowing in global industrial production, possibly reflecting some disruption to global value

Figure 7. Unemployment rates



Source: NiGEM database and NIESR forecast.

Table 2. Unemployment rates and wage increases

	Unemployment rates (%)			Average earnings increases (%)		
	2019	2018	Change	2019	2018	Change
USA	3.7	3.9	↓	3.6	2.9	↑
Euro Area	7.6	8.2	↓	2.4	2.0	↑
Japan	2.4	2.4	–	3.0	2.0	↑
Canada	5.7	5.8	↓	2.2	2.6	↓
UK	3.8	4.1	↓	3.9	2.8	↑
Australia	5.2	5.3	↓	2.5	2.1	↑

Source: NiGEM database.

chains from the tariff increases. While monthly figures on movements in world trade are volatile, after using three-monthly averages to smooth the volatility, as figure 6 shows, the level of world trade is now below its peak of October 2018.

Labour markets

A key issue arising from the generally tighter labour market picture, as evidenced by falling unemployment rates, especially in the advanced economies, concerns whether this is being or will be translated into faster wage growth and unit cost growth and, if so, whether that will lead to rising price inflation. As table 2 shows, across a number of economies the lower unemployment rates now appear to be reflected in faster average

Box B. The emerging importance of underemployment in Europe

by Janine Boshoff and Barry Naisbitt¹

Following the Great Recession a decade ago, unemployment rates spiked in most developed countries with an associated collapse in both nominal and real wage growth. Since then, output and unemployment rates have widely recovered to their pre-recession levels, but low nominal wage growth has meant that real wages have not improved significantly, despite an environment of low inflation. This raises the question of whether there has been a structural change in labour markets that explains the ongoing subdued wage growth. There is a debate about whether the Phillips Curve, especially in Europe, has shifted in some way that reductions in the unemployment rate are not affecting price inflation in the way they used to previously (Hantzsche, 2018; Cœuré, 2019).

Research conducted at the ECB decomposed low wage growth in the Euro Area into three main drivers, with labour market slack (as measured by the unemployment rate) acting as a major drag on wage growth until the end of 2016. Thereafter, low past inflation and low productivity growth has suppressed wage growth (Nickel *et al.*, 2019). There is, however, a growing body of research that links measures of underemployment to wage growth (Zimmermann, 2018). Bell and Blanchflower (2018) posit that underemployment could have a longer-term negative impact on wage growth: having involuntary part-time employees who want more hours effectively keeps wages down, as they are willing to increase their hours without an increase in their wage rate.

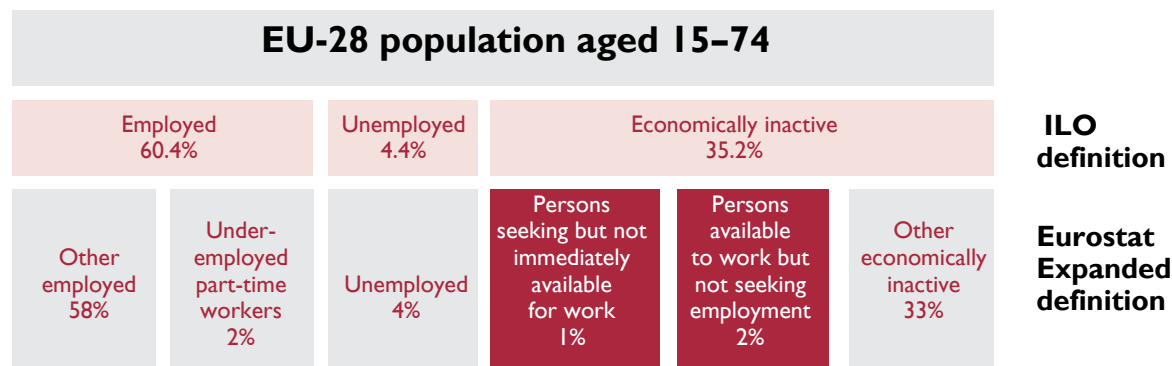
Research at the IMF indicated that a 1 percentage point increase in underemployment (measured as involuntary part-time employment) is associated with, on average, a 0.3 percentage point decrease in nominal wage growth. The effect is more marked in advanced countries where the unemployment rate is below pre-Great Recession averages, with a 1 percentage point increase in underemployment associated with a 0.7 percentage point decline in nominal wage growth (Hong *et al.*, 2018).

The issue of the role played by underemployment in both the Great Recession and the subsequent recovery is one that previous articles in this Review have examined in detail (Bell and Blanchflower, 2011, 2018). This box examines the potential impact of underemployment on wage growth in selected European countries, based on an experimental new dataset compiled by Eurostat.

Eurostat has historically published unemployment statistics based on the International Labour Organization (ILO) definition² but since the Great Recession this has proved insufficient to capture the variations in labour market attachment that is becoming increasingly evident (De La Fuente, 2011). To this end, Eurostat has created an additional three new indicators that are designed to supplement the official unemployment rate. The indicators provide expanded labour statuses based on relative attachment to employment and the labour market (see figure B1). These are:

- **Underemployed part-time workers** include persons who, although employed, would like to work more hours. Under the ILO definition, these people are recorded as employed, and this new indicator identifies the underutilised labour amongst persons employed. The part-time requirement in the definition captures an important distinction between insufficient volume of work (those employed part-time involuntarily) and insufficient income (those employed full-time and wanting more hours).

Figure B1. International Labour Organization (ILO) labour status and supplementary indicators, 2018



Source: Adapted from De La Fuente (2011).

Note: Indicators are calculated as percentage of the EU population aged 15–74.

Box B. (continued)

- **Persons seeking work but not immediately available** are captured in the ILO definition as economically inactive despite self-identifying as jobseekers. This can include people about to graduate from studies looking for employment or jobless people who have found a job they will start later.
- **Persons available to work but not seeking work** consist of people that are prevented from seeking employment by various personal work circumstances. This group is traditionally captured as economically inactive under the ILO definition because although they want to work and are available to do so, their circumstances prevent them from actively seeking employment.

The indicator ‘underemployed part-time workers’ makes an important distinction between voluntary and involuntary workers: only those people employed part-time involuntarily and would like more hours are considered underemployed. Those who work part-time by choice are not considered underemployed. The two groups ‘persons seeking but not immediately available’ and ‘persons available for work but not seeking’ combined represent what Eurostat has called the **potential additional labour force (PAF)** representing the portion of the labour force that has a stronger attachment to the labour market³ than other economically inactive persons (De La Fuente, 2011). Table B1 provides a snapshot of unemployment, underemployment and PAF rates for 2010 and 2018⁴ for selected countries to illustrate the development in these indicators.

Looking at the unemployment rate as the measure of labour market developments across these European countries, two clear groups emerge: those countries that have experienced a decline in unemployment rates between 2010 and 2018 (i.e. Germany, Spain, Sweden, UK and Switzerland) and those that experienced increases in unemployment rates (i.e. Greece, Italy and, to a lesser extent, Norway). Table B1 indicates that there are diverging trends within these categories as measured by the underemployment rate and the share of the population classified as the potential additional labour force. For example, Spain experienced a decline in the unemployment rate and the potential additional labour force rate, which indicates that a greater number of people have re-engaged with the labour market, but the underemployment rate has increased, indicating that the jobs gained could be informal, low paid or low skilled in nature. By comparison, Switzerland has seen a slight reduction in its unemployment rate but an increase in its underemployment rate and more people in the potential additional labour force, which could suggest that current labour market conditions have incentivised people to withdraw from the job search. Of the five countries with lower unemployment rates in 2018, two have higher underemployment rates. Greece and Italy have seen increases in every labour market indicator.

The question concerning whether underemployment has played a role in reducing potential wage pressure in advanced economies is a complex one and it is hoped that Eurostat’s additional indicators will, over time, provide important insights on this. Furthermore, additional survey iterations could provide important insight into whether underemployment is an equilibrium choice

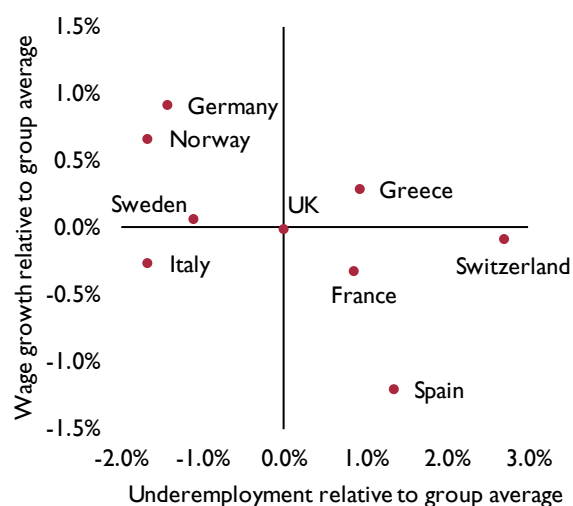
Table B1. Snapshot of labour market indicators^(a) (%)

	Unemployment		Under-employment		Potential additional labour force	
	2010	2018	2010	2018	2010	2018
EU 28	9.6	6.9	3.7	3.3	2.8	2.6
France	8.9	9.1	–	5.1	–	2.2
Germany	7.0	3.4	5.4	2.8	1.7	1.5
Greece	12.7	19.3	2.7	5.2	0.9	1.8
Italy	8.4	10.6	1.7	2.6	6.3	6.7
Norway	3.5	3.8	3.0	2.6	2.3	2.2
Spain	19.9	15.3	4.8	5.6	3.4	2.9
Sweden	8.6	6.4	4.6	3.1	3.3	2.7

Source: Eurostat (2019).

Note: (a) Data for France on underemployment and the potential additional labour force is only available starting in 2014. The underemployment rate is calculated as a share of the labour force that is underemployed. The potential additional labour force is calculated as a share of the working age.

Figure B2. Underemployment and wage growth in 2018



Source: Eurostat, OECD, NIESR calculations.

Box B. (continued)

or an outcome of economic and social phenomena in a particular country. At a preliminary illustrative stage, we have compared wage growth and underemployment on the Eurostat measures relative to average levels amongst nine European countries and found that underemployment had a negative relationship with wage growth in 2018 (see figure B2).

Although Eurostat has only developed these measures starting in 2008, underemployment could well have been characteristic of labour markets for much longer. At this stage, any inferences from the limited data available through Eurostat's additional labour attachment indicators must be necessarily tentative. But, at the very least, examining developments in more detailed labour market indicators than just the overall rate of unemployment should provide insight into how labour markets are developing in different economies.

NOTES

- 1 The authors would like to thank Jagjit Chadha and Garry Young for helpful comments.
- 2 Unemployed persons are those aged 15 to 74 who are without work, are available for work and are actively seeking employment.
- 3 Between 2009 and 2010 permanency rates, which measure the degree to which people remain in or move out of a labour status, for people in the potential additional labour force were much lower than for other economically inactive persons: 10 per cent for persons seeking work but not immediately available and 35 per cent for persons available but not seeking work compared to 90 per cent for other economically inactive people.
- 4 Latest data available from Eurostat.

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Table 3. Recent directions in monetary policy interest rates (per cent)

	December 2019	December 2018	Change
USA	1.75	2.50	↓
Euro Area	-0.50	-0.40	↓
Japan	-0.10	-0.10	-
Canada	1.75	1.75	-
UK	0.75	0.75	-
China	4.15	4.31	↓
India	5.15	6.50	↓
Brazil	4.50	6.50	↓
Russia	6.25	7.75	↓
Australia	0.75	1.50	↓
Turkey	12.00	24.00	↓

earnings growth. A couple of decades ago such a pick-up might possibly have been expected sooner. The reasons for this change are not fully clear – it might, for example, simply reflect changes in timing effects – but there may have been changes in the structure of labour markets that reduce potential inflationary pressures for a given measured unemployment rate. Some interesting data on the role of underemployment that offers some insights into this issue in Europe is discussed in Box B.

Evidence of the slowing pace of industrial production activity has not only been seen in trade. Employment growth is showing signs of slowing – in the US the monthly net change in non-farm payroll employment has recorded smaller average monthly net gains in the past three months than in the same period a year ago and in the Euro Area quarterly employment growth has slowed from 0.3 per cent in late-2018 to 0.1 per cent in late-2019, with unemployment rates, in many cases, already being relatively low (as shown in figure 7). Some slowing would be expected and we do not expect unemployment rates to fall much further.

Inflation

Over the past year inflation in the advanced economies has continued to run close to (and mostly below) official target rates and has tended to run at a lower pace than anticipated. With the exceptions of Argentina and Turkey, inflation in the emerging economies too has remained subdued, despite the prolonged, but relatively slow, global expansion, a feature highlighted in the previous Review (Mao *et al.*, 2019).

Monetary policy

Slower growth with continued low inflation and uncertainty about global economic prospects led several

(but not all) central banks to increase monetary policy accommodation last year.

Even a decade on from the financial crisis several advanced economies still appear fragile and monetary policymakers are providing monetary accommodation such that short-term real interest rates remain negative. Our forecast does not anticipate any substantial changes to this position. Table 3 highlights some notable recent policy rate changes.

International financial markets have a sharp focus on US monetary policy and last year the Federal Reserve moved from a policy of ‘normalisation’ and reduced policy rates in three 25 basis point steps. At 1.75 per cent (the top rate of the current policy range) US policy rates remain substantially higher than in other G7 economies (with the exception of Canada). At the time of setting the forecast assumptions, financial market expectations show only a small bias to further policy loosening in the US this year. In the US the long-term bond yield is also an important indicator of policy tendency to financial markets. After a period in which the yield spread between long- and short-term rates turned negative, raising concerns about a possible future recession, the 10-year yield rose at the end of last year in both relative and absolute terms.

When loosening policy in late 2019, several central banks made reference to weaker global economic conditions. In September the ECB announced a cut in the deposit rate and that it would re-start quantitative easing. Canada and the UK did not reduce rates last year but in Australia rates were cut to an all-time low. In Japan the central bank maintained its ultra-easy monetary policy but is clearly waiting to see how households have reacted to the increase in the consumption tax before considering possible further actions.

Outside the G7, policy rates were reduced in, amongst others, Brazil, India, Malaysia and Chile. This concerted move in monetary policy should support stronger global activity as 2020 proceeds but is not thought to be likely to lead to a major boost to activity.

Financial and foreign exchange markets

Equity prices had a very strong year in 2019. The S&P index rebounded by 30 per cent in the calendar year, although this overstates the strength because of the sharp correction in December 2018, when the S&P index fell by around 12 per cent during a month. While the US market has seen stronger growth than other major markets, they too saw strong gains last year; the Nikkei was up 18 per cent over the year and the FTSE 100 and

the Eurostoxx rose by 12 and 25 per cent respectively, as looser US monetary policy boosted market sentiment despite the slowdown in overall economic growth. The Vix index,³ an indicator of financial market volatility or uncertainty, had spikes in early August and early September as trade and geo-political uncertainties hit, but by the end of 2019 had fallen back to end the year slightly below its post-2004 average.

After reaching its highest point since mid-2011 in early November 2018 (at 3.24 per cent), as the monetary policy tightening cycle gathered pace, the US 10-year bond yield fell as weaker US and global growth prospects and expectations of a change in US monetary policy stance became factored into expectations. US 10-year bond yields fell to 1.47 per cent in early September last year, virtually retracing the July 2016 low. With the spread of the long-term yield over short-term rates turning negative, recession indicator models raised the probability of a recession in 2020 (Lenoel, 2018 and 2019). The change in monetary policy direction in the second half of 2019 led to the yield spread widening again, reducing the year-ahead recession probability. With 10-year bond yields having risen to 1.85 per cent in mid January, they are now back to a similar rate to the average that held in 2016.

The reversal in recent months of the downward trend in longer-term yields has been repeated in other countries, so raising longer-term borrowing costs, although the increase is limited. Some of the downward pressure that emerging economies with exposure to US rates had experienced since late 2018 has modified.

The US real trade-weighted exchange rate appreciated from February 2018 to September 2019 by around 9 per cent, putting pressure on US exporters and on those non-US borrowers needing to repay with US dollar denominated debt. It has since edged down by about 2 per cent in the final quarter of last year. The high value of the dollar remains a focus of President Trump although the latest US Treasury report notes that “In this context [the Phase one agreement and the recent appreciation of the renminbi], Treasury has determined that China should no longer be designated as a currency manipulator at this time”.⁴ The Euro Area has also been a focus of Presidential concern with regard to exchange rate undervaluation, with the euro having depreciated against the US dollar by 13 per cent between early 2018 and September 2019, supporting Euro Area exports.⁵ The Treasury report commented on “[the] real exchange rate undervaluation for some of the more competitive individual member countries in the currency union (e.g., Germany)”. The WTO ruling in the

final quarter of last year in favour of the US over Airbus is likely to mean that the issue of both direct industrial support and support for exchange rate movements will remain a closely watched issue in international markets this year.

Commodity markets

Oil prices at the end of the first half of last year were at \$66 pb, little changed on six months earlier. After falling slightly from that level until showing a brief upward spike in September to \$69 pb after a drone attack damaged Saudi Arabian refinery facilities, Brent oil prices ended the year at \$66 pb. Recent US and Iranian military actions led to raised prices to around \$69 pb briefly but, despite continuing geo-political concerns, on 13 January the Brent oil price was back to \$64 pb. Our forecast assumption for oil prices broadly follows forward markets and, over a three-year horizon, has prices rising to around \$70 pb, giving a small upward bias to inflation, but with the global inflation outlook remaining subdued.

On other commodities, the World Bank commodity price data shows that prices (in dollar terms) for food increased by 5 per cent in the final quarter of last year, while metals and minerals prices were down 2 per cent. In December food prices were 9 per cent up on three months earlier, with meat prices particularly strong, and metals prices were unchanged. Copper prices, sometimes taken to be an indicator of prospective trends, were 4 per cent down on a year earlier in December but 2 per cent up on three months previously.

The increase in meat prices is likely to flow through to consumer price inflation but, aside from this example, there are few signs of potential inflationary pressure from the commodity side in recent data, perhaps reflecting recent subdued demand growth, especially from the industrial sector. The effect that the current fires in Australia may have on some agricultural and possibly mining activities with regard to commodity supply is a possible risk issue.

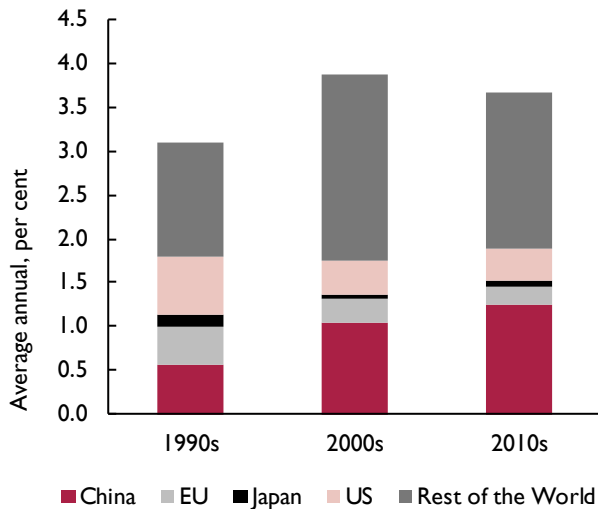
Baseline forecast

Key assumptions

Our baseline forecast includes assumptions about policy interest rates, commodity prices, exchange rates, fiscal policies, and underlying productivity growth. The details on assumptions are set out in Appendix A.

In summary, we assume that in the near term (approximately three years) policy interest rates, exchange rates and commodity prices broadly follow market implied paths which held at the date of the

Figure 8. Contributions to global economic growth (percentage shares of global GDP growth, PPP weighted)



Source: NiGEM database and NIESR forecast.

forecast. These do not imply marked reductions in monetary policy interest rates in this forecast.

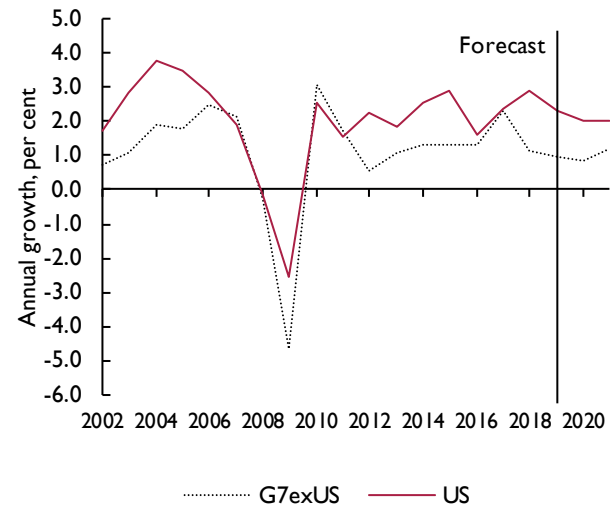
On tariffs, the forecast assumes that tariffs by the US and China are not increased further than already announced.⁶ With regard to government debt, over time, tax rates adjust to ensure that public finances are stable. Productivity growth is forecast to remain subdued relative to the experience of the decade before the financial crisis.

Forecast for economic activity

As the weakness in industrial production and trade emerged during 2019, some of the downside risks to our earlier global growth GDP forecasts were realised and we reduced our forecasts for GDP growth in 2019 and this year. Since our November forecast the incoming data have tended to confirm our outlook expectations rather than favour a more optimistic or pessimistic view. Global trade growth has not deteriorated further, inflation remains subdued and several economies have loosened monetary policy in the past six months. As a consequence, we have maintained our global GDP growth forecasts for 2020 and 2021 at 3 per cent and 3¼ per cent respectively.

In 2013–18 the advanced economies grew by an average annual rate of 2 per cent and the emerging economies by 4.7 per cent. Over the three years from 2018 these growth

Figure 9. GDP growth in G7 economies



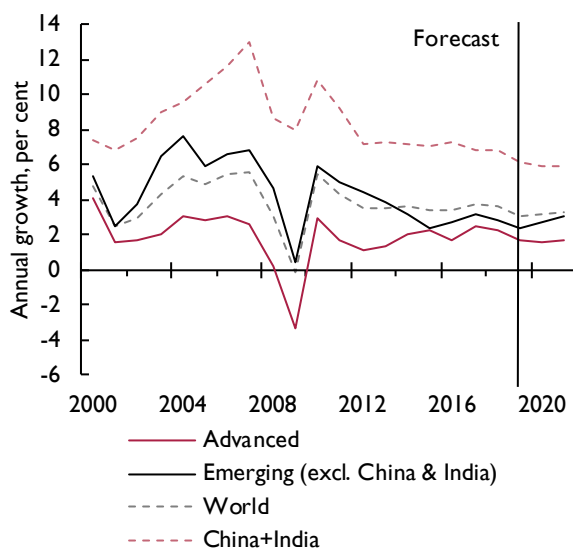
Source: NiGEM database and NIESR forecast.

rates are forecast to fall to 1¾ per cent and 4 per cent respectively as the uncertainties from the trade wars play out at the same time as both China and India experience slower growth. As figure 8 shows, over the past three decades China has made an increased contribution to global GDP growth and, even with our expectation of annual growth in China dropping below 6 per cent, this contribution is expected to continue.

Within the advanced economies, annual output growth in the US outpaced that of the other G7 economies as a group almost every year in the past decade, just as it did in the first decade of this century, as shown in figure 9. Even though we anticipate US GDP growth slowing to 2 per cent this year, US growth looks set to continue its out-performance, especially since the major Euro Area economies are likely to show sluggish growth. Furthermore, the US also has more scope than the other major advanced economies to relax conventional monetary policy further. While our forecast does not assume another policy rate cut, broadly in line with current market expectations, policy rates in the 1.50–1.75 per cent range offer the scope for a further monetary stimulus. Of the other G7 economies, only Canada has as much scope.

In the Euro Area, the 2.7 per cent rate of GDP growth in 2017 has not been sustained, and the overall pace has unwound quickly, to our expectation of 1 per cent growth this year. Both Italy and Germany have skirted

Figure 10. GDP growth in advanced and emerging economies

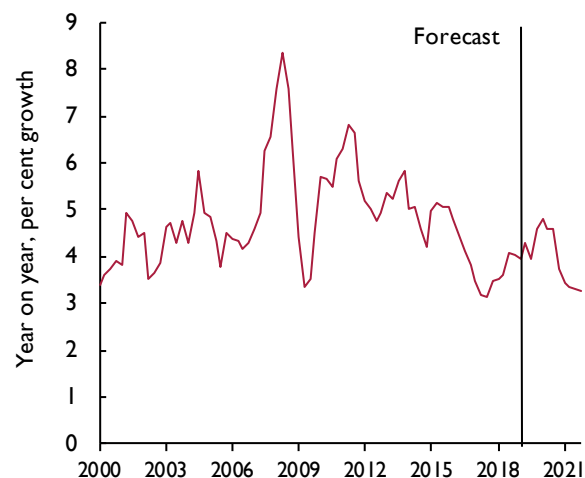


Source: NiGEM database and NIESR forecast.

around technical recessions over the past eighteen months, with industrial production the main cause of concern. With industrial production indicators, especially for cars, remaining negative in Germany, GDP increased by 0.1 per cent in the third quarter of last year and our expectation is that GDP growth last year was $\frac{1}{2}$ per cent, the lowest since 2013. Service sector activity has, however, remained steady and, with the drop in industrial production abating, our forecast is for GDP growth in Germany of $\frac{3}{4}$ per cent this year and $1\frac{1}{4}$ per cent next. France has not experienced the same extent of an industrial downturn and GDP growth has been steadier at around $1\frac{1}{4}$ per cent a year, which is expected to continue. Following the weakening in economic activity in the first half of last year, the ECB reduced interest rates and re-started quantitative easing; a change of policy which should support growth but we doubt that these policies will have strong effects, as discussed in November's *Review* (Sanchez and Young, 2019). The past ECB President Draghi argued for fiscal policy actions to support monetary policy, which is judged to be close to its limits (Draghi, 2019). Further, new fiscal policy actions are not assumed here and some issues around these were also discussed in the previous *Review* (Lenoel, 2019).

While slow GDP growth may expose fragilities, we do not expect a global recession to occur (in 2009 global GDP fell by 0.1 per cent), especially since monetary

Figure 11. Inflation in emerging economies



Source: NiGEM database and NIESR forecast.

Note: Figure shows BRICS+ – weighted average of Brazil, China, India, Indonesia, Mexico, Russia, Turkey and South Africa.

policy is already supportive. However, the slower growth is likely to increase slack and weaken inflation further, so placing increased pressure on meeting inflation targets.

Within the group of emerging economies, India and China stand out both in terms of their scale in the world economy and because of their faster growth rates. They are important to understanding overall growth. To illustrate this, figure 10 recasts figure 1 with the GDP growth path of the emerging economies split into China plus India and then all other economies combined. Growth in China and India combined has slowed from an annual average of $9\frac{1}{4}$ per cent in the 2000s to $7\frac{1}{2}$ per cent in the past decade and to 6 per cent last year. Output growth is expected to slow a little further as these economies move on their development paths over the next five years. The growth of the other emerging economies as a group has slowed over the past two decades – from 5 per cent a year in the 2000s to $3\frac{1}{2}$ per cent in the 2010s. The average pace over the past decade has been faster than that of the advanced economies (2 per cent), but the differential has narrowed since 2014. Our expectation is that this growth will increase a little, not least because the effect of the 'drag' on average growth in recent years from recessions in Brazil, Argentina, Turkey, Russia and South Africa is expected to unwind over the next five years. Countries such as Vietnam, Indonesia, Mexico and Singapore are all forecast to contribute to the

continued growth of emerging economies, especially if some of these economies benefit from trade diversion that has followed on from US tariffs on China.

We continue to expect that the pace of output growth in the advanced economies will remain moderate in the medium term relative to the pre-financial crisis experience. With annual GDP growth in China continuing to slow, but remaining at robust rates, our medium-term forecast projects global GDP growth running at around 3½ per cent a year, lower than the average 4¼ per cent a year in the ten years leading up to the financial crisis.

Forecast for inflation

Low consumer price inflation, relative to the experience before the financial crisis and generally to inflation targets, is the current norm in the advanced economies. For emerging economies the record in recent years has not been as uniform but, with a few exceptions such as Argentina and Turkey, inflation in emerging economies has been low as shown in figure 11 (Mao *et al.*, 2019).

The continued economic expansion, which has brought lower unemployment rates and reduced estimated output gaps in many economies, may be leading to increased capacity utilisation, shortages of certain types of skilled labour and rising wage pressures in some economies. To the extent that, with slow productivity growth, these lead to rises in unit labour costs, they could increase upward pressure on inflation, as could the increases in tariffs on traded goods (an issue examined in Box A). Despite potential upward pressures on inflation, the sluggish international growth environment indicates that falls in unemployment rates are likely to be limited in 2020 and 2021, so restraining any increases in inflation. As a consequence of these factors, the low consumer price inflation trend is expected to continue in the near-term.

Medium-term outlook

In the economic expansion phase since the financial crisis the pace of annual GDP growth in the advanced economies (AE) has been slower than before the financial crisis, despite policy interest rates being held at ultra-low levels for an extended period in several economies. For emerging market economies (EM), the slower average annual pace of growth between 2011 and 2018 (5 per cent) than between 2000 and 2007 (6.7 per cent) is almost entirely due to the slower pace of growth in China (7.4 per cent in the later period compared with 10.6 per cent previously). The slowdown was anticipated and reflects the changing development phases of the Chinese economy.

Economic growth in China last year at 6.1 per cent was the slowest since 1990, but still much faster than in any advanced economy, and annual growth in China is expected to slow further into the medium term (to around 5¼ per cent). This slower pace, given China's scale in the global economy, is likely to contribute to a stabilisation in global economic growth in the medium term, especially as we do not expect the advanced economies to increase their pace of growth significantly. Our expectation for the medium-term is that GDP growth in the advanced economies will be around 2 per cent a year. One possible issue for the Euro Area and US economies concerns the extent to which they may be experiencing 'Japanisation'. This is discussed in detail in Box C.

Emerging economies (including China) are forecast to grow by around 4 per cent a year, giving global output growth at around 3½ per cent a year. The emerging economies will continue to see a growing share of the level of global output. Barring an unanticipated cyclical upswing, we do not anticipate seeing annual global growth repeating the above 4 per cent annual rates seen in the first decade of this century up to the financial crisis on a sustained basis in the medium term.

Given this profile, our forecast shows inflation globally remaining low. If Argentina and Turkey are successful in reducing their recent very high rates of inflation, this would contribute to continued low inflation in the medium term.

Risk issues for the global forecast

Since the initial US announcements on tariffs in early 2018, several factors have contributed to add uncertainty over future global trading conditions. The intermittent nature of announcements about US tariffs as well as the costs of the tariffs themselves and the possibility of a prolonged trade war have increased uncertainty which has created a supply shock, giving a downside risk to earlier expectations for the global economic outlook. Some current global production value chains could be adversely impacted permanently by the uncertainty over future tariffs and the appreciation of the US dollar (see Carreras and Kirby, 2016, and Constantinescu *et al.*, 2014). Tariffs contributed to slower global growth and world trade growth last year. The recent Phase One US-China agreement could lead to a reduction in uncertainty and the quantitative provisions for increased imports into China from the US give an upside bias to the US growth outlook, though not necessarily to the global outlook. However, with a Phase Two agreement as a next stage, there remains a risk that the trade war

could intensify, leading to a prolonged phase of slower GDP and trade growth.

A year ago our expectation was that global GDP growth in 2019 would be just slightly slower than in the previous year at 3½ per cent, with 2020 seeing a similar pace. At that stage the trade war between the US and China had begun – with tariffs at 10 per cent having been set by the US on \$200 billion of imports from China and China having retaliated with tariffs of 5–10 per cent on \$60 billion of goods imported from the US – but had not escalated. Further tariffs were only a possibility and our assessment of the tariff increases already in place using our NiGEM model was that these would likely reduce global growth by around 0.1–0.2 percentage points (Liadze, 2018 a, b). We also noted that the extension to 25 per cent tariffs would likely approximately double this effect. This risk has now materialised.

While our estimates using our NiGEM model of the direct downside effects of the US tariffs on global GDP growth was of a small reduction in the pace of near-term growth (Hantzsche and Liadze, 2018, and Liadze and Haache, 2017a), we noted that these estimates did not take into account any effects from heightened uncertainty about the future trading environment which might depress confidence and business investment at a global level and so further affect global growth. Measuring the effects of such uncertainties is

imprecise but it is possible that the uncertainty effect has been larger than the direct effect of tariffs (Caldara *et al.*, 2019). In terms of risks, the possibility that trade negotiations between the US and China could break down remains, although it has been reduced by the signing of the Phase One agreement. But the risk that US tariffs will (as they already have in certain instances) extend to other countries remains (see Kara *et al.*, 2019).

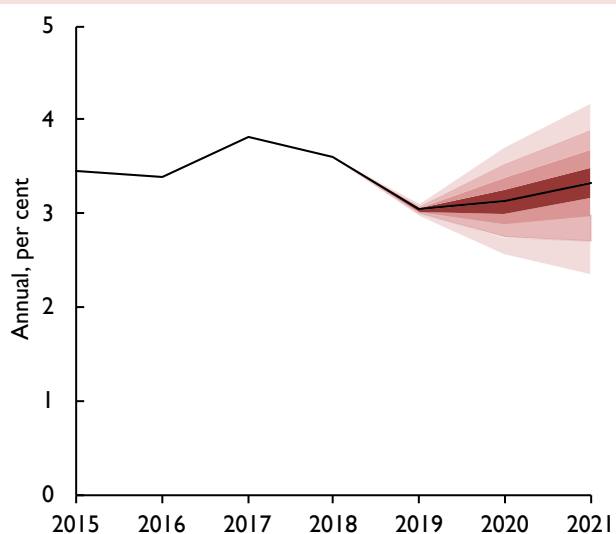
While the pace of the long expansion has slowed, outright recessions have remained limited in scope. Recent recessions in Argentina, Turkey and Italy have not caused wider spillover effects, possibly because their causes have been largely internal or because the geographical influence of the economies involved via trade and financial effects has been limited. However, a US recession or very sharp slowdown there would have more widespread effects. The US economic expansion is now the longest on record and during late 2019 the US yield spread turned negative, flagging up an increased risk of recession in 2020–21 based on the track record of the indicator. Following the reductions in policy interest rates the yield spread has turned positive again and financial market speculation about recession has abated. But, if the indicator is proved accurate, then the slight slowing in growth in the US that is anticipated this year could be more acute and have wider-spread effects.

Recent military tensions around the Gulf act as a reminder that while oil prices have remained relatively stable in recent years, geopolitical effects could lead to sharp price increases that would adversely affect economic prospects. Our previous work shows that oil price increases have important effects on slowing global growth and raising inflation (Lennard and Theodoridis, 2018).

The very recent news about the coronavirus in China raises an additional downside economic risk, particularly for the transport sector, consumer spending and services activity in China. The implications for the international economy are, at this date, uncertain and the ultimate global economic effects will depend on the severity and spread of the coronavirus, and the economic and government responses to it.

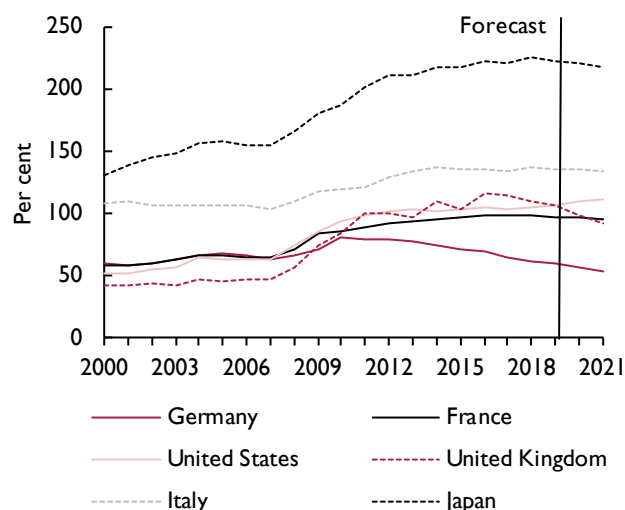
In addition to these concerns, it may be that the prolonged period of low inflation and ultra-low interest rates has created potential vulnerabilities that may not yet be fully understood. These could become evident if there were a downside shock to confidence (perhaps worries about trade relationships might reverberate in financial

Figure 12. Global GDP growth outlook expectation



Source: NiGEM database, NIESR forecast and NiGEM stochastic simulations

Figure 13. Government debt as a share of GDP



Source: NiGEM database and NIESR forecast.

market concerns about profitability). An adverse shock that led to a rapid rise in unemployment might reveal a vulnerability in the household and corporate sectors because of the build-up of debt, with that vulnerability having been masked by the sustained period of ultra-low interest rates (Naisbitt, 2018a, b, 2019a). With interest rates in several economies already close to, or at, the zero lower bound, the relief to indebted households and companies provided by the sharp falls in interest rates in the Great Recession will not be available in the near term. The rebuilding of private debt, and the rise in house prices in several advanced economies in the economic expansion since the crisis, may have created a greater potential vulnerability to the dependability of the income needed to service the debt.

An indication of the extent of 'standard' risks around our forecast for global GDP growth is shown in the fan chart for global economic growth in figure 12, which shows that there are also upside risks to the outlook for global economic activity. As with the downside risks, several sources are possible. The Phase One agreement could prove to be a positive force, reducing uncertainty and increasing business confidence and, perhaps, some of the tariff increases could be rolled back. The

monetary stimulus already provided by the US Federal Reserve and other central banks could have a stronger effect or be added to more than we anticipate and so boost activity. As a result, the slow growth of last year and that which we are currently experiencing could, in retrospect, look like a 'slow patch' rather than a marked 'growth downturn'.

In the medium term, there would be a potential upside risk to our global GDP growth projection if productivity growth were to rebound back to its rate seen in the decade before the financial crisis without necessarily an upward risk to inflation expectations. Given the lack of a consensus agreement on the causes of the slower productivity growth and whether it will be a sustained phenomenon, this possibility cannot be ruled out. If it were to be realised, it could result in higher interest rates in the medium term than in the forecast, especially if it were in the context of a wider global monetary policy 'normalisation'.

Possible policy responses to risks

While interest rates in many major economies are close to the zero lower bound, this does not mean that other monetary policy initiatives could not be followed as a response to adverse shocks. At this stage, though, it would seem more likely that stimulative fiscal policy actions could be adopted, especially as government debt as a share of GDP in several advanced economies has stabilised, as shown in figure 13. Many emerging market economies have more scope to reduce policy interest rates, should this be required, but would need, as ever, to be mindful of both foreign exchange rate and domestic inflationary considerations. The expectation of continued low interest rates and mounting evidence of needs for infrastructure and climate change investment could become a factor in decisions to increase government borrowing in an international context.

In the Euro Area the issue of fiscal policy coordination is an important one, as the Euro Area has a common monetary policy but not a fiscal policy. The possibility of more active fiscal policies has already been mentioned by former ECB President Draghi and, although fiscal space in the Euro Area is limited when measured against the fiscal rules in the Stability and Growth Pact, and those countries with fiscal space may not want to use it, pressure may build for a broader Euro Area fiscal approach.

Box C. Are the Euro Area and the US en route to Japanisation?!

by Cyrille Lenoël, Corrado Macchiarelli and Barry Naisbitt

Until the past decade Japan was generally thought to be a peculiar example of an economy with deflationary tendencies, very slow growth, and monetary policy stuck at the zero lower-bound interest rate. After a major asset price boom and bust cycle – in both housing and equities² – in the 1980s, the Japanese economy had a much slower rate of economic growth in the following decades and experienced persistent bouts of deflation with monetary and fiscal policies seemingly unable to stimulate growth or raise inflation.

Since the financial crisis, the Euro Area and US economies have had a period during which their economies showed some of the same characteristics as Japan. This note examines their experience in the context of whether they are en route to Japanisation. We conclude that the period from 2013 to 2016 was very similar to that situation but that the US has now clearly moved away from that experience. The Euro Area, however, while it cannot be described as having suffered Japanisation, has not moved as decisively away from that experience.

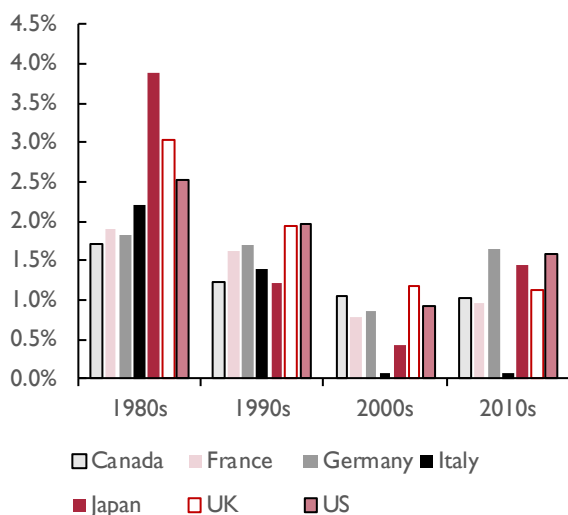
Characteristics of the Japanese experience

After experiencing rapid economic growth up to and during the 1980s, the average annual pace of GDP growth in Japan has since fallen. Part of this can be explained by over-investment in the second half of the 1980s, which reduced the rate of return on capital and lowered investment subsequently. The inefficiency of the corporate sector, exacerbated by high leverage, further reduced investment, amplifying the wealth effects of the stock market crash (Bayoumi, 1999). In discussions of Japanese economic growth performance, there has often been a focus on GDP growth. Because of the population dynamics, rather than focussing on GDP growth, a focus on growth of GDP per head or GDP per head of working population would be a more appropriate measure. Growth of GDP per head, which also fell sharply in the 1990s, has not shown as large a decline as GDP growth. As figure C1 demonstrates, based on these measures the performance in term of economic growth of the Japanese economy appears stronger.

In terms of GDP per head growth, even in the ‘lost decade’³ of the 1990s, Japan only just under-performed Canada and Italy, although the gap between its performance in the 1980s and in the 1990s was much greater than in any of the other G7 economies. Since the start of this century, however, it is Italy that has performed worst in terms of GDP per head growth, by a considerable margin.

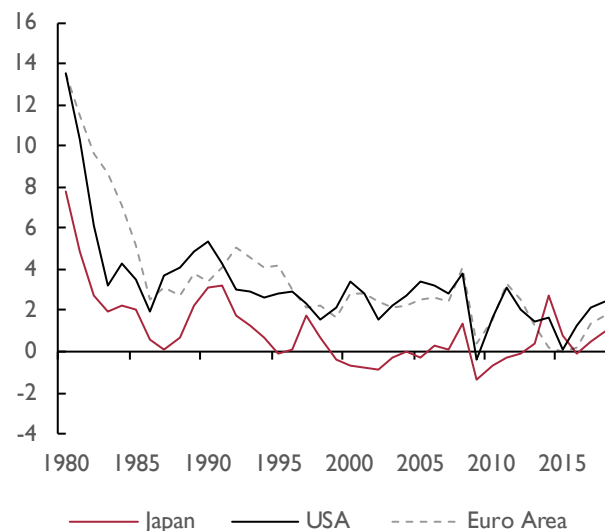
As shown in figure C2, inflation has been consistently lower than in the other major economies – so much so that Japan has experienced periods of deflation. Japan has had inflation generally below 2 per cent and has consistently seen inflation below its explicit target of 2 per cent which was introduced in 2013.

Figure C1. GDP per head growth in the G7 (per cent)

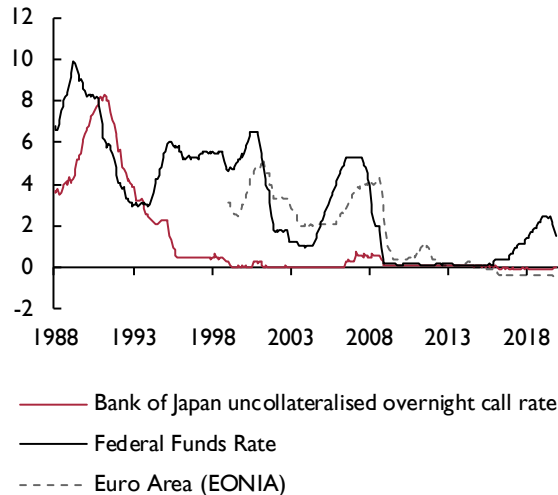


Source: NiGEM database.

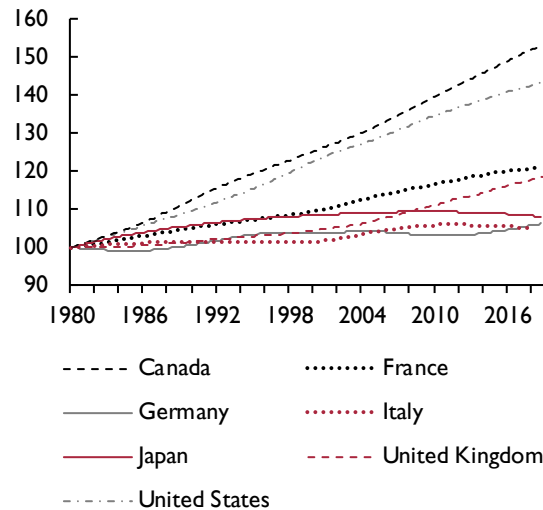
Figure C2. Inflation in Japan, the US and Euro Area (annual, per cent)



Source: FRED Economic Database, St. Louis Federal Reserve Bank.

Box C. (continued)**Figure C3. Policy interest rates in Japan, the US and the Euro Area (per cent)**

Source: ECB Statistical Data Warehouse, FRED Economic Database and Bank of Japan.

Figure C4. Population (index: 1980=100)

Source: NiGEM database.

The Japanese authorities have used monetary and fiscal policies to try to achieve faster growth and to push inflation consistently towards 2 per cent but have, so far, failed to do so. In the thirty years since the asset price crash, Japan has seen average annual GDP growth of 1 per cent and average annual inflation of 0.4 per cent.

It has policy interest rates currently below zero, at -0.10 per cent, and it has seen its public sector debt to GDP ratio explode from about 63 per cent in 1991 to more than 223 per cent to date; the highest in the G7 by far.

The other main characteristics of Japan's experience were dealing with the aftermath of a banking crisis triggered by an asset crash, deflation, a prolonged stagnation of economic activity and a reduction in its working population. The enduring problems were that, in the face of these forces, in effect monetary and fiscal policies were unable to push the Japanese economy back to its pre-crisis trend growth rate and, more importantly, to prevent a gradual deflation. As Ben Bernanke noted (Bernanke, 2002): "Japan's economy faces some significant barriers to growth besides deflation, including massive financial problems in the banking and corporate sectors and a large overhang of government debt. Plausibly, private-sector financial problems have muted the effects of the monetary policies that have been tried in Japan, even as the heavy overhang of government debt has made Japanese policymakers more reluctant to use aggressive fiscal policies."

The banking sector was not restructured quickly in Japan and lending to households and companies became severely curtailed, with problems with some insolvent companies ('zombie companies': see Caballero *et al.*, 2008) not resolved. In a vicious circle, this led to a decline in economic activity, triggering even more defaults on loans, and asset prices declining further, that was a main cause of persistent deflation and economic stagnation. The background of a declining population and a ballooning debt because of fiscal policy mistakes could only make things worse.

In this sense, Japan has had a unique problem added to by its demographic changes. Since the mid-1990s the Japanese population has grown cumulatively by less than 10 per cent between 1980 and 2018, a much slower experience than other major economies, and its working age population has shrunk (figure C4). This has weighed negatively against Japan's recovery from its 'lost decade(s)'.

Since the financial crisis, the possibility that either the US or the Euro Area could be experiencing what has been called 'Japanisation' has become a subject of economic discussion. It has some similarities to the idea of the advanced economies entering a period of secular stagnation (Summers, 2014). In this note, we follow Ito (2016) in examining the issue and discuss the extent to which the notion of 'Japanisation' applies to the Euro Area and the US.

Box C. (continued)

Aspects of comparing economic experience

Ito (2016) identifies several aspects to the economic conditions which are called 'Japanisation'. Although no consensus has emerged on a precise definition, Ito (2016) defines it as the combination of:

- a sustained period of stagnant growth, with the economy's growth rate below potential;
- real interest rate remaining higher than the natural real rate of interest;
- policy rates at the nominal zero-lower bound; and
- deflation.⁴

The Euro Area currently is also experiencing a prolonged period of below potential growth and below target inflation despite the ECB having followed a very accommodative monetary policy, with negative policy interest rates and a broad quantitative easing programme in place (the so-called Asset Purchase Programme). The US has fared differently. During the past decade, the US economy has avoided deflation and achieved average annual GDP growth of 1.6 per cent in the longest expansion in US history. After almost seven years at 0.1 per cent, the Federal Reserve started to raise US policy interest rates at the end of 2015, taking them to the 2.25–2.50 per cent range at the end of 2018 as part of policy normalisation. While policy rates were cut again in 2019, the main features of Japanisation with regard to interest rates and economic growth do not seem present in the US.

On the financial side, the fall in Euro Area asset prices during the financial crisis was not as great as in Japan in 1989–90, and the preceding asset price bubble was not as big (see figure C5) but clearly there remain specific problems in the banking systems of some countries, such as Italy, compared to the US and UK banking sectors where recapitalisation has been faster.

It can be argued that the Euro Area did not experience one financial crisis, but two. The first was the Global Financial Crisis in 2008 when Euro Area banks were exposed to the subprime mortgage crash through asset-backed securities and the subsequent freezing of credit markets. The second was the sovereign debt crisis in 2012 when banks were exposed to the potential risk of Greece, Ireland, Portugal, Spain and even Italy defaulting on their sovereign debt. While Germany's solvency was itself not at stake, German banks were hit by the sovereign crisis as they had significant exposure to Southern European countries' debt.

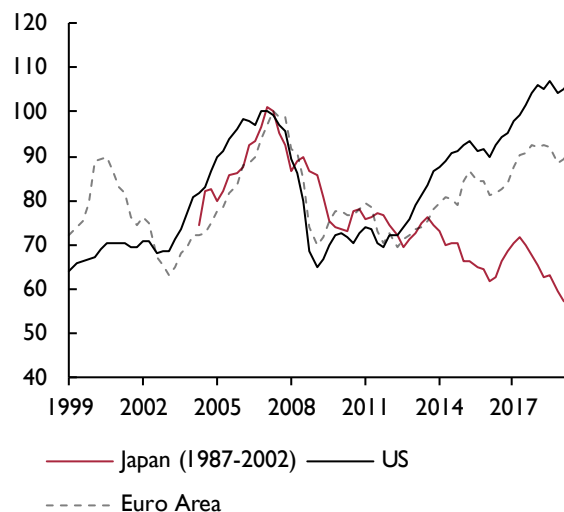
As a proxy indication of the scale of a banking sector crisis it is possible to compare how much banks' capitalisation dropped in countries that experienced a banking crisis during the past 30 years. Based on local banking sector equity indices, after the Global Financial Crisis Italy and Germany suffered similar banking sector capitalisation shocks to that of Japan (about 9 tenths of market capitalisation disappeared). The shocks to the US and UK, while severe, were not as large (only 7 tenths of market capitalisation disappeared).⁵

When monetary policy reaches its limits

With interest rates at ultra-low levels, the Japanese central bank started to increase its balance sheet in the 1990s but did so more remarkably in the following decade, perhaps reflecting Bernanke's criticism and advice in 1999 for Japanese "monetary authorities to [try and] experiment".⁶

To respond to successive shocks, the European Central Bank has ventured into similar territory, reducing its deposit facility rate first to 0 per cent in July 2012 and subsequently to –0.5 per cent starting from November 2019. At the same time, several rounds of quantitative easing were introduced, beginning in 2014. These have led to a ballooning of the ECB's balance sheet, which reached 40 per cent of GDP in 2017 as shown in figure C6, and a progressive curtailing of the short-term rate (figure C3). In this regard, the Japanese experience shows that, if deflation were to set in, there could be scope to increase quantitative easing to more than 100 per cent of GDP (for instance having the ECB buying equities/ETFs) as Japan did in 2019, as an alternative to resorting to even more negative interest rates. The effectiveness on the real-economy side of the several rounds of quantitative

Figure C5. Japan, US and Euro Area asset prices (index = 100)



Source: St Louis Federal Reserve database; simple average of equity and house prices. Japan series has been adjusted so as to start from 1987Q1.

Box C. (continued)

easing in the Euro Area have been thus far limited, however, as argued by Chadha and Hantzsche (2018) and Sanchez and Young (2019). In addition, questions remain about the political implications, as well limits, of such balance sheet policies in a currency union (see Macchiarelli *et al.*, 2019).⁷

Supporting demand through fiscal policy?

Japanese governments have regularly used fiscal policy to boost demand and prevent deflation becoming entrenched. Bernanke (2002) and Ito (2016) have, amongst others, argued that fiscal policy has, however, not been applied in a consistent manner and that structural reform policies have not always had a clear direction.⁸ The Euro Area has the additional difficulty that it does not have a centralised fiscal policy, unlike its monetary policy. Hence, it does not have an overall countercyclical stimulative fiscal policy to support activity. Lenoël (2019), for instance, has examined the size of the fiscal boost required to push up inflation to its target and concluded that it would need to be unreasonably high for some countries that have fiscal space like Germany, given the institutional constraints.

With average government debt to GDP at 87 per cent in 2019, the Euro Area is still far away from the 220 per cent of Japan (figure C7). However, the situation in the Euro Area reflects the unsustainable debt position in some countries, e.g. Italy, which show substantially higher government debt to GDP ratios (currently standing at 136 per cent), with these figures being markedly above the 60 per cent ratio which is central to the Euro Area fiscal rules.

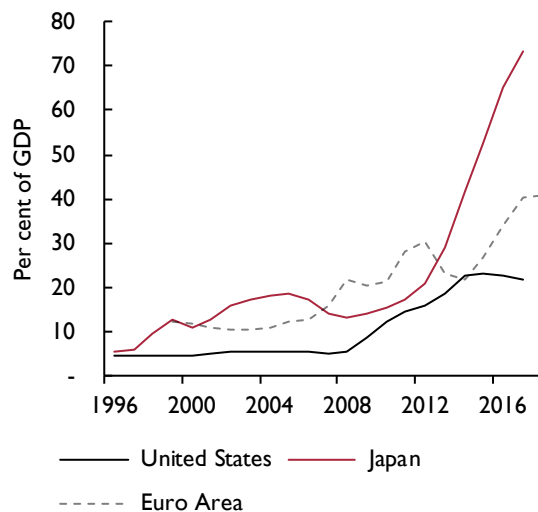
Japanisation?

Just as in the industrial economics case of possible ‘first mover disadvantage’, it may be that Japan has had to struggle with trying to solve a fundamental problem that no other country has been experiencing. Policy errors have prolonged the period of economic hurdle in the case of Japan, but there are lessons to be learned.

In the Euro Area, there are suggestions that the probability of 0 per cent inflation (and hence the risk of deflation) was particularly high between 2013/14 and 2016/17; it seems to be less the case now. This is confirmed if one looks at the Ito (2016) Japanisation Index, which provides a summary measure for the output gap, inflation, and the policy interest rate. In figure C8, the index is constructed for the Euro Area in comparison with Japan; figure C9 shows the US. The figures take into account the uncertainty regarding the size of the output gap by way of using different output gap measurements (for the purpose of this exercise, from the OECD and the IMF).

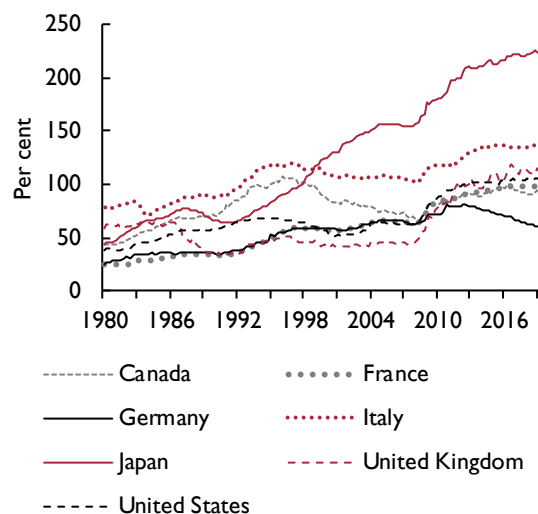
The key feature of the Ito index is the long period of negative readings for Japan in the period from 1997Q3 until 2013. Since then, the index has moved into positive territory. Both the US and the Euro Area indices showed similar negatives to Japan following the financial crisis, but not before.

Figure C6. Central banks' balance sheet size (as per cent of GDP)



Source: Bank of England, World Bank, European Central Bank and NiGEM database.

Figure C7. Government debt to GDP ratios (per cent)



Source: NiGEM database.

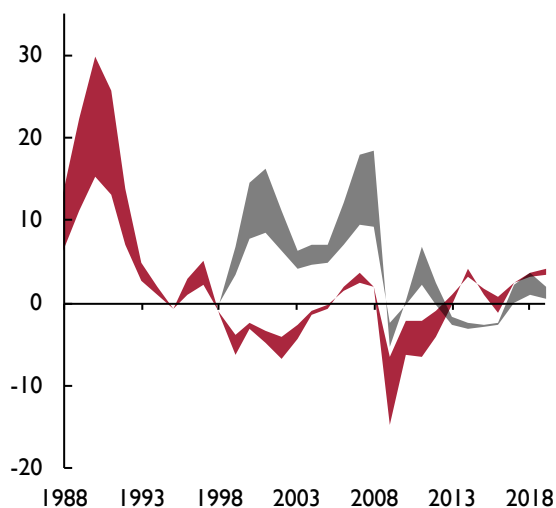
Box C. (continued)

During the 2013–17 years of low inflation and stagnating growth in the Euro Area the index was signalling a risk that it was suffering from Japanisation (figure C8), and the indexes for the Euro Area and Japan somewhat overlapped. The index for the Euro Area has moved into positive territory since 2018, whereas that of Japan has been positive since 2012/13. While it may be too early to conclude that the Euro Area is out of the risk of Japanisation yet, inflation and growth downside risks remain, and the recent trend of the index moving above the Japanese experience of the 1990s and 2000s offers some encouragement. Consistent with this assessment, NIESR forecasts inflation to be around 1½ per cent in both 2020 and 2021 in the Euro Area.

The US Ito index moved decisively into positive territory mid-way through the past decade. During that time, the US economy has avoided deflation and achieved average annual GDP growth of 1.6 per cent in the longest expansion in US history. US policy rates were raised decisively from the Zero Lower Bound in 2015 and are now sufficiently high to consider that the US does not seem at risk of Japanisation.

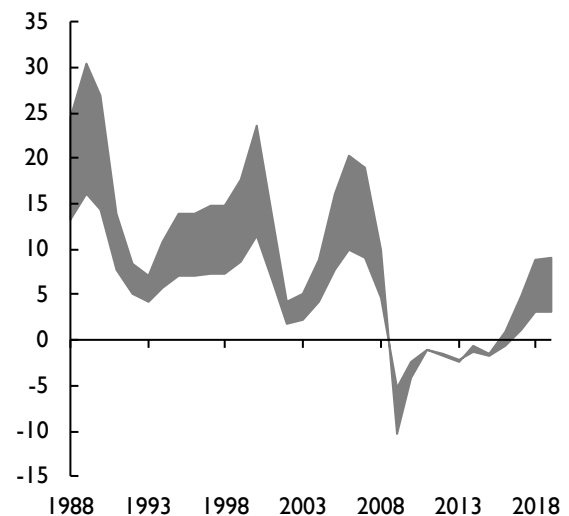
The second half of the past decade has seen a stronger performance by the Japanese economy and the Japanisation index for Japan has moved above its levels of the previous decade and the earlier part of this decade. This may reflect the mixture of fiscal and monetary policies and structural reforms starting to gain traction. Yet, nearly two lost decades is a long time to wait for such an effect. Although the Euro Area has now moved out of its period of repeating the Japanese experience of the 1990s and 2000s, its Japanisation index remains closer to that of Japan than to either its own experience in the 2000s or the US recent experience. So, there are risks that it could slip back into the earlier difficulties. To avoid this, Euro Area policy makers should consider which monetary and fiscal policy measures they could take to avoid such a relapse. Given the risks, then it must be hoped that the lessons learnt from Japan will significantly reduce the possibility of a ‘lost decade’ in the Euro Area.

Figure C8. Japanisation index, Japan (red) and Euro Area (grey)



Source: NIESR calculations.

Figure C9. Japanisation index, US



Source: NIESR calculations.

Box C. (continued)

NOTES

- 1 The authors are grateful to Jagjit Chadha and Garry Young for helpful comments on an earlier draft.
- 2 With troughs in 1991Q3 for housing prices and somewhat earlier for equities (1990Q1)
- 3 We are not clear who first coined the term in the economics literature but Hayashi and Prescott (2002) may be the first in the published academic economics journal literature to use it in a title.
- 4 Combining the latter two characteristics implies the real interest rate, that is the nominal interest rate minus the inflation rate, must be positive. As discussed by Ito (2016), “[i]f the natural rate is the negative, as described in characteristic (2), the actual real interest rate is indefinitely above the natural rate.”
- 5 The peak to trough losses were measured between 2007Q3–2016Q4 for Italy, 2007Q4–2020Q1 for Germany, 1990Q2–2012Q1 for Japan, 2007Q2–2016Q3 for the UK, and 2007Q2–2012Q1 for the US.
- 6 “Japan is not in a Great Depression by any means, but its economy has operated below potential for nearly a decade. Nor is it by any means clear that recovery is imminent. Policy options exist that could greatly reduce these losses. Why isn’t more happening? To this outsider, at least, Japanese monetary policy seems paralyzed, with a paralysis that is largely self-induced. Most striking is the apparent unwillingness of the monetary authorities to experiment, to try anything that isn’t absolutely guaranteed to work.” Bernanke (1999).
- 7 Even if it remains questionable whether there are political incentives to venture into further monetary stimulus, some alternatives to balance sheet policies do exist, such as ‘helicopter money’ or lifting/revising the inflation target (see Macchiarelli *et al.*, 2019).
- 8 Bernanke (2002) noted that, “As a natural result [of the large costs that comprehensive economic reform will likely impose], politicians, economists, businesspeople, and the general public in Japan have sharply disagreed about competing proposals for reform. In the resulting political deadlock, strong policy actions are discouraged, and cooperation among policymakers is difficult to achieve.”

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Prospects for individual economies

United States

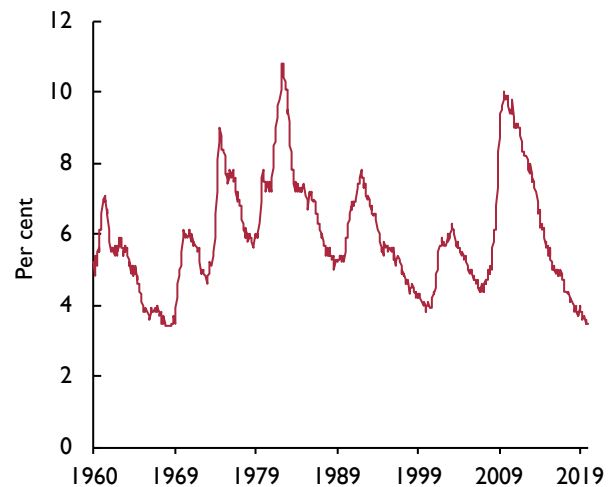
The US economy grew by 2.1 per cent at an annualised rate in the third quarter of last year, effectively the same as the preceding quarter but the pace of growth has slowed since 2018. In part this reflects the effects of the earlier fiscal stimulus tapering off, but it also probably marks a response to the ‘normalisation’ of monetary policy by the Federal Reserve, which started at the end of 2015 and continued until policy rates reached 2.25–2.50 per cent in December 2018, and the general slowdown in the pace of global economic growth. Recognising the slower growth prospects, the Federal Reserve started to reverse policy direction in August last year and cut its policy rate three times last year. At the current 1.50–1.75 per cent range, recent indications from officials are of a ‘wait and see’ nature and financial markets are not firmly looking for another rate reduction in the near future.

Signs of slowing activity have come through most notably in industrial production and, though more muted, in the labour market. Industrial production has fallen by 1 per cent from the recent peak in December 2018. The manufacturing PMI output indicators showed a weakening in the middle of last year, but in the final quarter they recovered back to output levels at the start of the year. Service sector indicators have remained positive for growth and, again, weakness in the middle of the year has turned around in the final quarter of the year. Our forecast is for slightly weaker GDP growth this year and next, at 2 per cent, compared with 2¼ per cent last year.

The unemployment rate has fallen further in the past year, from 3.9 per cent at the end of 2018 to 3.5 per cent at the end of 2019. This marks the lowest unemployment rate since 1969. In the forecast, our expectation is that with slower economic growth than in the past three years the unemployment rate will edge up gradually from this historically low level. The average size of monthly increases in non-farm payroll employment fell to 184,000 in the final quarter of 2019 from 233,000 a year earlier, indicating signs of labour market stabilisation after a prolonged period of economic expansion. Employment is still growing, but the annual rate of growth has slowed over the past year and our forecast would anticipate a continued slowing.

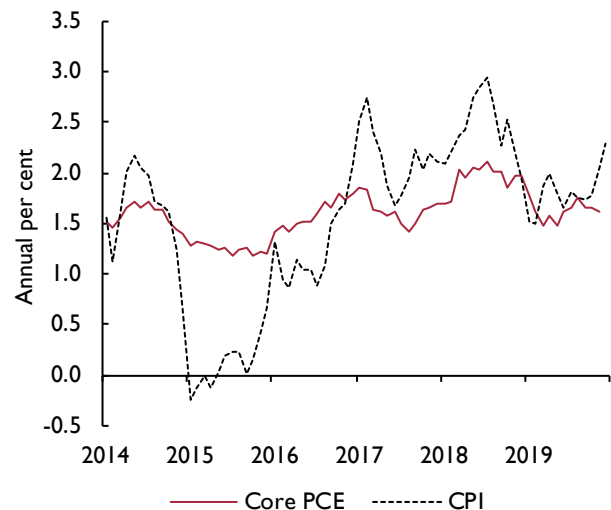
The evidence of the slowing pace of activity has come at the same time as inflation has remained subdued.

Figure 14. US: Unemployment rate



Source: St Louis Federal Reserve, FRED database.

Figure 15. US: Inflation



Source: St Louis Federal Reserve, FRED database.

While the CPI annual inflation measure ran at its highest monthly rate last year in December at 2.3 per cent, this was lower than in eight months of the preceding year. CPI inflation averaged 1.8 per cent in 2019, down from 2.4 per cent in 2018 and 2.1 per cent in 2017. The US Federal Reserve has a much closer focus on the Core PCE inflation measure, with a 2 per cent target rate. In November inflation was below target at 1.6 per cent, an experience that has held for all except nine months since the start of 2015 (see figure 15). The low inflation environment has supported the Federal Reserve's decisions to lower policy interest rates and our forecast is for inflation to remain close to its 2 per cent target into the medium term, and the possible pass-through of the tariff increases on imports represents an upward bias to consumer price inflation.

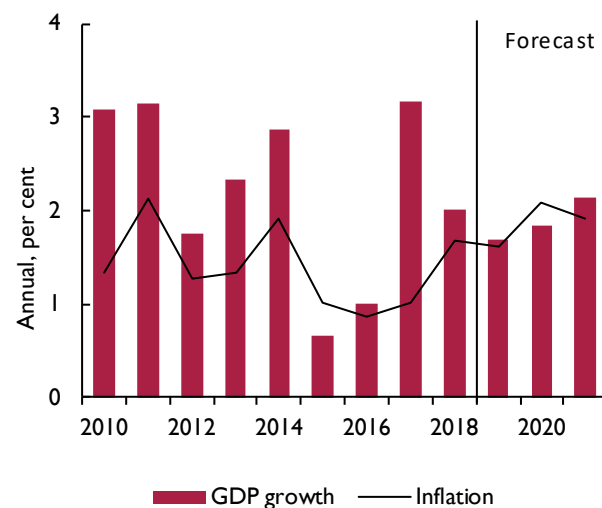
While the trade war with China appears to have settled down with the Phase One agreement, there still remain potential tariff disputes with the Euro Area, especially following the WTO ruling over support for Airbus. As a consequence, trade uncertainty is likely to remain an issue for business. With 2020 being the year of the Presidential election, political factors too could affect confidence and sentiment, especially with an impeachment vote on the President currently adding to the uncertainties.

Canada

Canada's GDP was 1.7 per cent higher in the third quarter of 2019 than a year before, as higher domestic demand replaced net exports as the main source of growth. In October 2019, GDP declined by -0.1 per cent, led by a broad-based decline in manufacturing and no growth in the services sector. We expect geopolitical uncertainty to push up oil prices, which will benefit Canada via its oil and gas exports and investment in those sectors. We forecast GDP growth to be 1¾ per cent in 2020, edging up to 2 per cent in 2021.

Headline consumer price inflation has been hovering around 2 per cent since March 2019 and the latest observation is 2.2 per cent in December 2019. Inflation is expected temporarily to overshoot the 2 per cent median target in the first quarter of 2020 because of higher gasoline prices. Inflation expectations seem to be well anchored, with consumers expecting one-year ahead inflation to be 2.2 per cent according to the Survey of Consumer Expectations conducted in the fourth quarter of 2019.⁷ We anticipate inflation holding around the 2 per cent target rate and, in that context, we forecast that the Bank of Canada is likely to keep its interest rate at 1¾ per cent until the end of the year.

Figure 16. Canada: GDP growth and inflation



Source: NiGEM database and NIESR forecast.

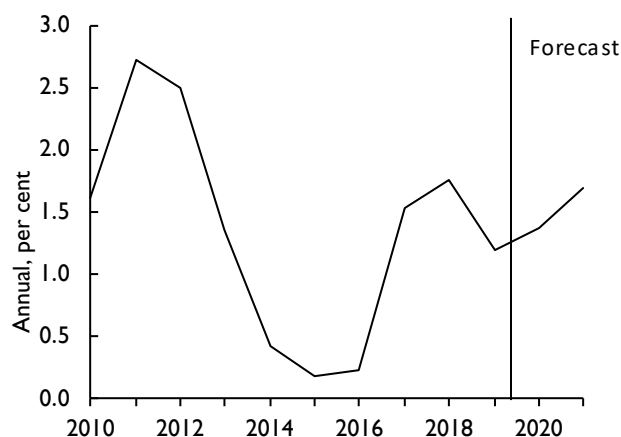
Euro Area

GDP grew by 0.2 per cent in the Euro Area in the third quarter of 2019, the same as in the previous quarter. Once again, two of the largest three economies – Germany and Italy – under-performed the Euro Area average, although the German economy showed a small expansion after the contraction in the second quarter. For 2019 as a whole GDP growth is expected to be 1¼ per cent, continuing the slowing from 2.7 per cent in 2017, and our forecast is for GDP to increase by 1 per cent in 2020 and 1½ per cent in 2021. This profile reflects both some boost from the loosening in monetary policy in the second half of last year and the negative effect of the decline in car production ending.

The Euro Area, indeed Europe more widely, also faces issues on the prospects for trade growth, with President Trump having expressed concern about the depreciation of the euro, the WTO ruling over financial support for Airbus, and the Brexit process. The combination of these factors is likely to weigh on export growth, contributing to only a modest increase in output growth over the next two years.

With a lacklustre performance on GDP growth, the ECB loosened monetary policy further last September, aided by inflation falling sharply last year from 2.3 per cent in October 2018 to 0.7 per cent in October 2019. Inflation has since risen to 1.3 per cent in December but remains below target⁸ and, at 1.3 per cent, is also below the 1.7 per cent average since 1999. We expect inflation to increase a

Figure 17. Euro Area: Inflation



Source: NiGEM database and NIESR forecast.

little this year, to 1½ per cent, and again in 2021, to 1¾ per cent, but remain below 2 per cent. A small part of this rise comes from the effect of oil prices at a higher level, with the main reason underlying the increase being the increased domestic pressures in the Euro Area economy from higher capacity utilisation as economic growth picks up.

While the ECB has cut its policy rate and re-started quantitative easing, the scope for it to provide further policy actions to support the economy and raise inflation towards its target have become more limited. The former ECB President, Mario Draghi, raised the issue of the use of fiscal policy in the September ECB press conference.⁹ Since then, the new President has maintained the position.¹⁰ The issue of whether there will be a fiscal policy response that is coordinated in some way is yet to be resolved.

Germany

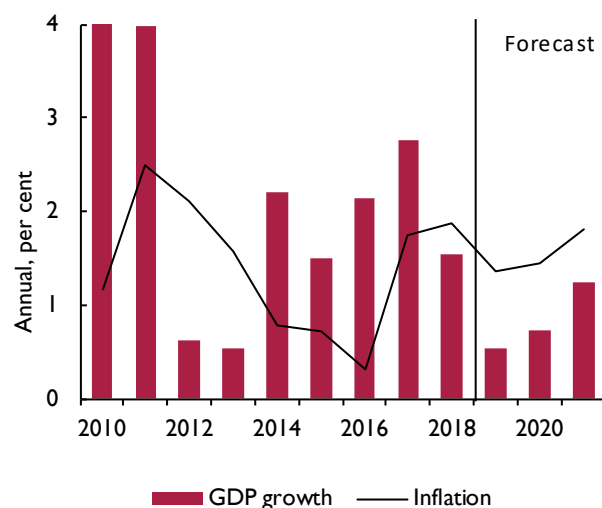
Since the middle of 2018 the German economy has experienced very sluggish growth, with two of the past five quarters recording contractions in GDP. We expect that the economy grew by only 0.5 per cent last year, with manufacturing output in the third quarter 1.2 per cent lower than a year earlier but service sector output up by 4.4 per cent. The significant decline in industrial production has been responsible for the near-stagnation in GDP and was caused mainly by high levels of economic uncertainty weighing on global investment, with a negative impact on the German economy because of its relative specialisation in the production of capital goods, and a downturn in the automotive sector from various factors including tariffs, regulation and possible structural changes (Kara *et al.*,

2019). In the past three months the German manufacturing PMI has shown signs of bottoming out and increasing but it still remains in contractionary territory. In contrast, the services PMI reached a four-month high in December and, if anything, is consistent with a slightly faster pace of growth going forward.

Although employment growth has slowed considerably, disposable income of private households continues to rise, with relatively strong wage increases and supportive fiscal policy measures. The unemployment rate, which held at 3.1 per cent from April to November, and was 3.2 per cent in December, also remains supportive for domestic demand growth. With the pressures on industrial production still not over, especially if the pace of wage increases threatens export competitiveness, we forecast only a slight pick-up in growth this year, to ¾ per cent, with a more substantive strengthening next year, to 1¼ per cent.

The annual rate of consumer price inflation (HICP) rose from 1.2 per cent in November to 1.5 per cent in December, the fastest rate since July and reflected higher food prices and a lower fall in energy prices. For 2019 as a whole, inflation averaged 1.4 per cent and we expect that inflation is most likely to remain around that rate rather than rise to the 2 per cent ECB target in 2020 and 2021. With a seemingly continued fragile GDP growth profile and inflation below 2 per cent, the government has fiscal space to provide a stimulus should it choose to, although it will continue to be mindful of the fiscal constraints that it has.

Figure 18. Germany: GDP growth and inflation



Source: NiGEM database and NIESR forecast.

France

The French economy is expanding at a steady and moderate pace. We forecast GDP to grow by around 1¼ per cent in 2020, similar to last year yet below its potential, and to increase to 1¾ per cent in 2021. Household consumption and business investment are holding up while manufacturing activity is slowing down. Recent surveys point to a mixed short-term outlook. INSEE's Business Climate index was above its long-term average in December 2019 but Banque de France surveys point to negative sentiments in both manufacturing and services sectors. One of the main reasons for the decline in sentiment is that strikes against a proposed pension reform have created large disruptions in transport in December 2019 and January 2020.

Households' income benefitted in 2019 from a fiscal stimulus amounting to about 0.4 per cent of GDP. In particular, the council tax decreased in the fourth quarter of last year. We forecast real personal disposable income to increase by about 2 per cent in 2019 and 1½ per cent in 2020, up from 1.2 per cent in 2018, as wage growth remains robust.

The French economy benefits from a very accommodative monetary policy that is spurring investment. With low ECB rates and quantitative easing, French 10-year Treasury bonds traded in the fourth quarter of 2019 at an average yield of about -0.1 per cent. In the third quarter, fixed investment by businesses and government

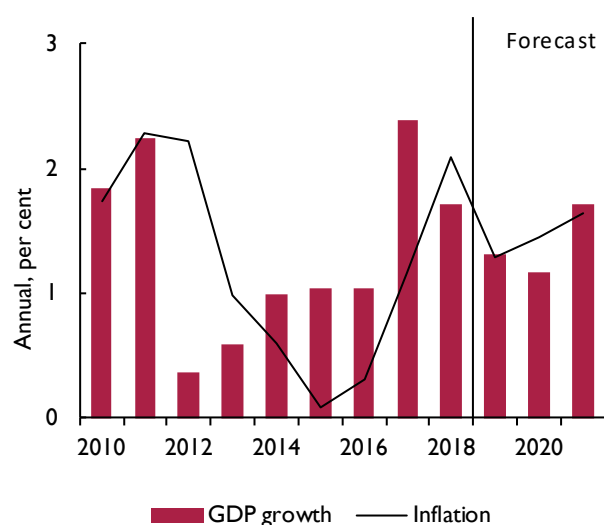
entities increased by 4.2 and 4.5 per cent respectively compared to a year before. The housing market was a bit less buoyant but still growing, as housing investment increased by 2.3 per cent over the same period.

Consumer price inflation was moderate in December 2019 at 1.6 per cent, slightly up from a trough of 0.9 per cent in October 2019. New regulations and tax levies are expected to raise prices in 2020 in the electricity, retail, automobile and air transport sectors. In February, regulated electricity prices will increase by 3 to 4 per cent. The winter sales period will be reduced from 6 to 4 weeks, which is expected to increase the prices of clothing and footwear by 0.3 percentage points in the first quarter.¹¹ Car sales and airplane ticket prices will also suffer from higher tax levies. We forecast inflation to average 1½ per cent in both 2020 and 2021.

Italy

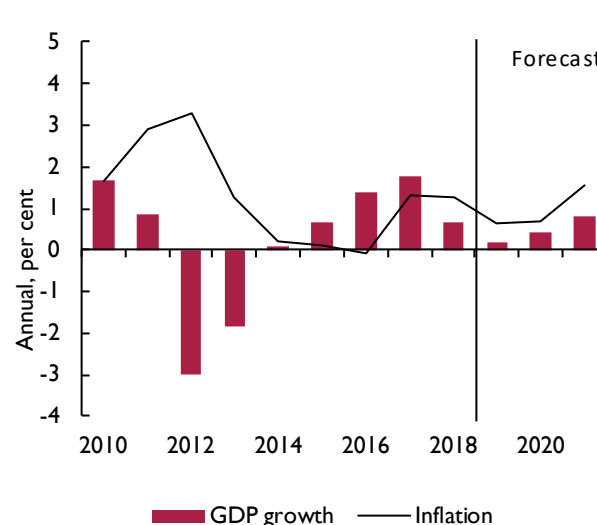
After dropping into a technical recession in the middle of 2018 when GDP fell by 0.1 per cent in consecutive quarters, the Italian economy has expanded by 0.1 per cent in each of the four quarters up to the third quarter of last year, with annual GDP of 0.3 per cent in that quarter. As a consequence, financial markets remain watchful of a possible slip in GDP growth, especially as the manufacturing PMI output index continued its long decline in December and showed the sharpest deterioration in the health of the Italian manufacturing

Figure 19. France: GDP growth and inflation



Source: NiGEM database and NIESR forecast.

Figure 20. Italy: GDP growth and inflation



Source: NiGEM database and NIESR forecast.

sector for over five years. Output in the service sector has held up better, with the December index continuing to signal expansion and workforce jobs expanding.

Consumer confidence readings have trended down since the start of 2018, although December saw an increase from a very low November reading. The unemployment rate at 9.8 per cent in November is still at a higher rate than before the financial crisis, although it has fallen steadily since early 2015. Against this background, and with the ECB having already extended its policy accommodation, our expectation is that GDP will continue to grow in Italy this year and next, but that annual growth will remain very subdued, at $\frac{1}{2}$ per cent in 2020 and $\frac{3}{4}$ per cent in 2021, after 0.2 per cent in 2019.

Annual consumer price inflation (HICP) at 0.5 per cent in December was the highest since June and was boosted by higher transport and food and non-alcoholic drink prices. Even with the pick-up to the 0.5 per cent rate it is below the inflation rates of the previous two years, with Italy remaining a Euro Area economy with inflation substantially below the ECB's target rate. We expect inflation to edge up further, to $\frac{3}{4}$ per cent in 2020 and $1\frac{1}{2}$ per cent in 2021, but to remain below the ECB's target.

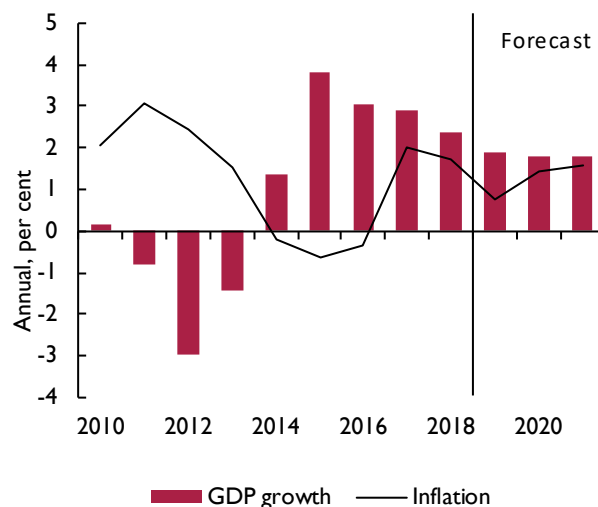
In terms of additional risk factors, with two regional elections early this year, the risk of political instability recurring, leading to the possibility of another break-up of the coalition and of subsequent general election, mean that political uncertainties remain, including the discussions on electoral reform. These are more likely to lead to downside than upside risks to the economic projections for growth.

Spain

Growth momentum in the Spanish economy stabilised in the second half of last year. Increased uncertainty and a slowdown in global demand have particularly affected the manufacturing sectors, contributing to the slowdown in output. The easing of growth in Spain in 2019 also largely reflected a loss of momentum in domestic demand. As a result, the increase in GDP in each of the second and third quarters of 2019 was 0.4 per cent, which represents two of the lowest post-crisis figures. Our forecast suggests growth for the final quarter of 2019 will remain at 0.4 per cent.

Looking ahead, we expect that GDP growth will slow from 2 per cent in 2019 to $1\frac{3}{4}$ per cent in 2020 and 2021. Harmonised consumer price inflation (HICP) is

Figure 21. Spain: GDP growth and inflation



Source: NiGEM database and NIESR forecast.

anticipated to rise from $\frac{3}{4}$ per cent in 2019 to $1\frac{1}{2}$ per cent in both 2020 and 2021.

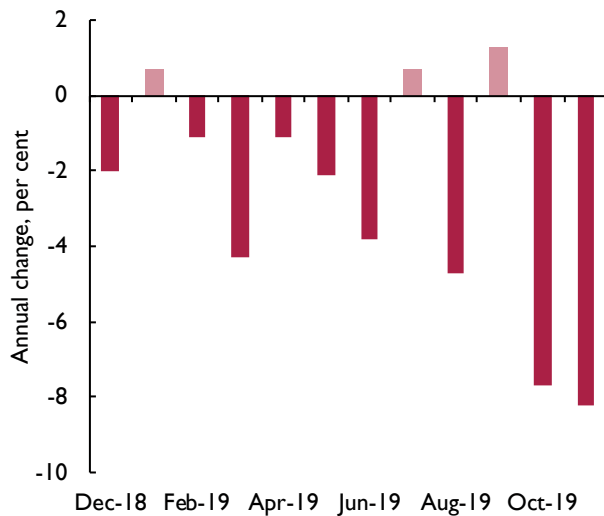
Some of the risks that the economy faces stem from the external environment. For instance, if trade tensions should persist to a greater extent than predicted in our baseline scenario or expansionary policies in China fail to mitigate the slowdown in the Chinese economy, this would provide a downside risk to economic growth in Spain.

Japan

In the third quarter of 2019 Japan's economy had higher than expected GDP growth. The 0.4 per cent quarterly GDP growth rate was largely attributable to strong growth in private consumption and capital expenditure. Meanwhile, Japan's year-on-year monthly inflation rose to 0.5 per cent in November 2019. This was the highest inflation rate since July 2019 and came from faster increases in food and house prices.

Japan is facing various economic risks and uncertainties. The trade tensions with Korea and twists and turns in the China-US trade negotiations still affect Japan's exporting industries. As of November 2019, exports from Japan had declined for twelve consecutive months. The 2 per cent consumption tax hike and the effects of Typhoon Hagibis in October contributed to the negative year-on-year industrial production growth in both October

Figure 22. Japan: Industrial production



Source: METI, Japan.

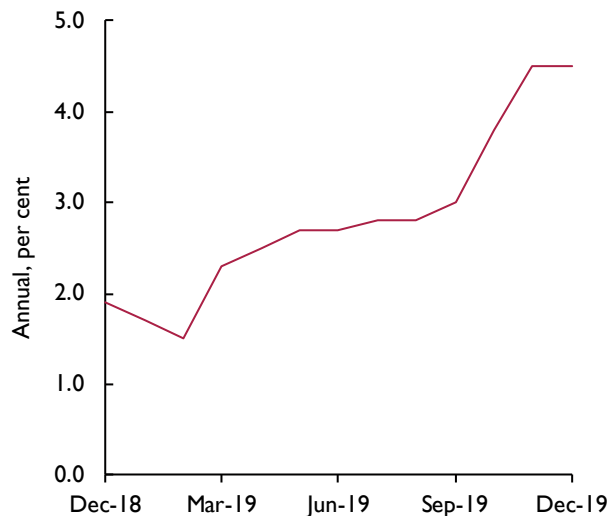
and November (figure 22). With the Jibun Bank Japan Manufacturing PMI drifting down at 48.4 in December 2019, the output index has been stuck in contractionary territory since May 2019.

Taking the downside risks into consideration, we forecast the Japanese economy grew by 1.1 per cent in 2019 and, with the consumption tax increase having a negative effect, expect growth of $\frac{1}{2}$ per cent in 2020. Low interest rates and unemployment, together with positive spillovers from the 2020 Olympics mean that the negative impact of the tax increase should be modest. In addition, Japan is in the process of delivering a US\$120 billion spending package, around 20 per cent of which will be spent by March 2020, and the rest from April 2020 to March 2021. Combined with accommodative monetary policies, we expect Japan's inflation rate to have been 0.5 per cent in 2019 but, with the effect of the consumption tax, to increase to $1\frac{3}{4}$ per cent in 2020, before falling to 1 per cent in 2021.

China

China's GDP grew annually by 6 per cent in the fourth quarter of 2019, the weakest growth rate since the first quarter of 1992. Although the annual growth rate of 6.1 per cent for 2019 as a whole was the slowest in 29 years, it was still within the government's target of 6–6.5 per cent and it also meant that the per capita Gross Domestic Product in 2019 reached US\$10,276 at the average

Figure 23. China: Inflation



Source: NBS, China.

exchange rate, exceeding the US\$10,000 level. There have been signs of consolidation in economic activity emerging in recent months. The 6.9 per cent year-on-year increase in industrial production in December 2019 was the fastest yearly growth since March 2019. While the monthly official non-manufacturing PMI held above 52 in 2019, the official manufacturing PMI in the last two months of 2019 was 50.2, marking a pick-up after the below par readings seen since April. The expansion in factory activities was supported by not only domestic fiscal and monetary stimulus measures but also improving factors in the external environment. The renminbi has steadily appreciated against the US dollar since last August and now stands around seven to the US dollar mark. Business confidence has been significantly boosted by the removal of China by the US Treasury Department from the list of currency manipulators and the trade war has eased with the Phase One trade deal signed this January.

China's annual inflation rate rose to 4.5 per cent in November 2019 and remained at the same rate in December. Surging pork prices caused by a prolonged African swine fever epidemic were a major contributor to the highest annual inflation rate since January 2012.

Looking ahead, we still expect the Chinese economy to continue to show rapid growth, by international comparisons, in 2020 and 2021. We forecast China's annual GDP growth rate in 2020 to be just below 6 per

cent, supported by government stimulus measures and a trade war truce with the US. With recent small upward revisions to GDP growth between 2014 and 2018 made by the National Bureau of Statistics, GDP growth of 5¼ per cent or more this year would mean that Beijing could fulfil its target of doubling GDP in the decade to 2020. We expect the inflation target to remain unchanged at around 3 per cent and that inflation will drop once the effect of the pork supply shortage rolls out of the annual inflation figures in 2020, with inflation falling below 3 per cent in 2021.

India

India’s economy has been on a weak growth path despite the monetary and fiscal stimulus it received in 2019. GDP growth dropped to more than a six-year low of 4½ per cent year-on-year in the third quarter of last year. Weak domestic demand continues to be one of the main factors affecting output growth. From the supply side, the weakness was seen across all the main goods sectors – manufacturing, mining, and construction. Against this background, we have revised down our GDP growth forecast for the Indian economy. We now expect that the economy grew by 5¼ per cent last year, but building momentum in 2020 is forecast to give GDP growth of 6¼ per cent, with a further increase to 6½ per cent in 2021. The easing of income and corporate tax rates are positive steps in reviving demand, with the benefits from these measures likely to be realised in the longer run.

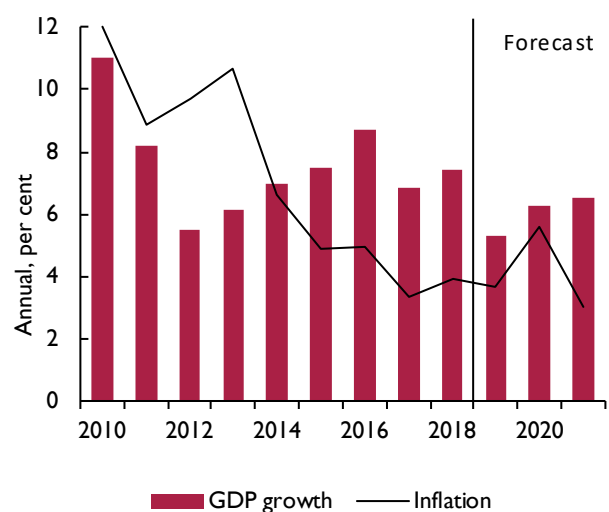
The Reserve Bank of India (RBI) cut the policy rate by a total of 135 basis points in 2019 to stop the sharp weakening of growth. Nonetheless, impediments to policy transmission and weak investor sentiment meant that bank lending has not yet revived. With inflation jumping to 7½ per cent in December, a shift in policy stance from accommodative to neutral is anticipated going forward. Accordingly, our expectation is that the inflation rate will fluctuate around the RBI’s target of 4 per cent over the next two years, with higher inflation this year followed by lower inflation in 2021.

Brazil

2020 could prove to be a critical year for the Brazilian economy. GDP growth following the 2015–16 recession has been desultory so far, failing to record quarter-on-quarter growth exceeding 1 per cent since 2017Q1. Following the successful passing of the pension reform bill in October, the Bolsonaro government is now turning to the much-needed tax reform that will continue their stated reform and liberalisation initiative. Encouragingly for the government, S&P changed its outlook on the Brazilian economy to “positive” in December, stating that the sovereign credit rating could achieve investment grade provided the government continues to reduce debt, generate growth and initiate necessary reforms.

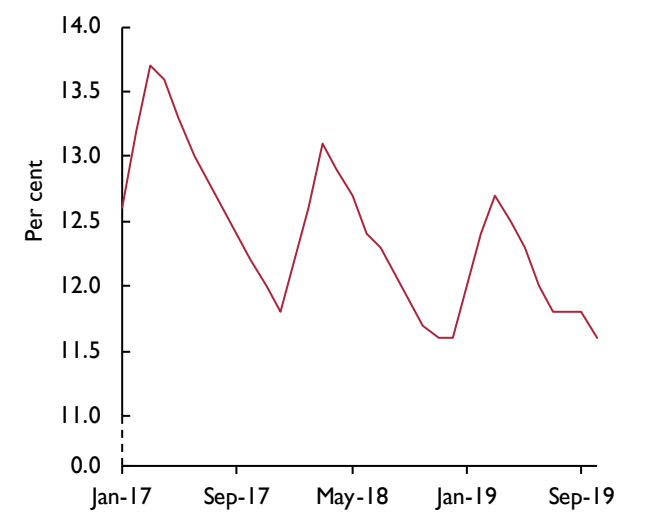
At its December 2019 meeting, the monetary policy committee (Copom) once again unanimously voted to

Figure 24. India: GDP growth and inflation



Source: NiGEM database and NIESR forecast.

Figure 25. Brazil: Unemployment rate



Source: Brazilian Institute of Geography and Statistics (IBGE).

lower the policy rate, by 50 basis points to 4.50 per cent. High levels of economic slack, as reflected in the levels of the unemployment rate and industrial capacity utilisation, and the gradual nature of the economic recovery were cited as the reasons for the fourth consecutive cut in the Selic, which is 250 basis points lower than at the end of 2018.

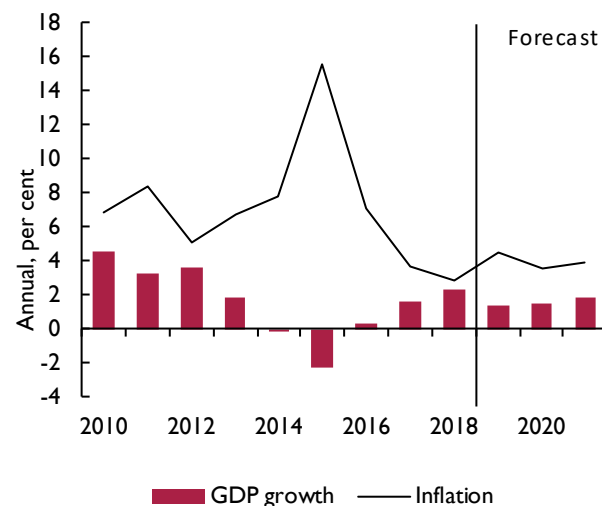
The government has released the calendar for the withdrawal of social insurance funds related to minimum wages, unemployment and child benefit payments. The funds, which can be withdrawn between September 2019 and March 2020, are expected to inject US\$10.8 billion into the economy and could contribute 0.4 percentage points to boosting GDP growth. Driven by this positive contribution to domestic demand in an expansionary monetary policy environment, and following estimated growth of 1 per cent in 2019, we have slightly revised up our projection for GDP growth in Brazil in 2020 to 1¾ per cent and 2¼ per cent in 2021. In the event of further successful reforms, it is likely that the economy could post growth above 2 per cent in 2020, improving to 2½ per cent in 2021.

Russia

In a surprise move, Prime Minister Medvedev and his government resigned on 15 January 2020 with the former head of Federal Tax, Mikhail Mishustin, put forward by President Putin as the Prime Minister's successor. This came after President Putin's speech in which he proposed constitutional changes that would give more power to Parliament before the end of his term in office in 2024. This, if passed by referendum, is intended to shift the balance of power towards Parliament.

After returning to growth of 1.6 per cent in 2017, the economy grew by 2.3 per cent in 2018 – the fastest rate since 2012. The first half of 2019 showed a deceleration in growth to 0.8 per cent year-on-year, as the high base effect from the 2018 World Cup that boosted activity in 2018 and the contractionary VAT rise took hold. However, in the third quarter annual growth recovered to 1.7 per cent year-on-year, with support from accelerating consumer and government spending. Our expectation is that growth will have reached 1.3 per cent in 2019 before recovering further in 2020 to 1½ per cent as the negative effects wash out. The small increase from our previous forecast is supported by the uptick in oil prices. Due to delays in starting some National Projects, the budget surplus was above that forecast in November at 1.7 per cent. This over-achievement, together with the National Wealth Fund

Figure 26. Russia: GDP growth and inflation



Source: NiGEM database and NIESR forecast.

pushing its 7 per cent of GDP target, should feed into strong investment spending through 2020 and beyond, driving the recovery into 2021 for which we forecast 1¾ per cent GDP growth.

Consumer price inflation has been below the 4 per cent target level during 2018 but increased to above 5 per cent in the first quarter of 2019 as the effect of the VAT increase passed through. A good harvest and the appreciation of the Rouble put downward pressure on inflation in the latter half of 2019, with inflation weakening from 5.1 per cent in May to 3.0 per cent in December. Food price inflation saw a decrease to 2.6 per cent in December 2019. The Central Bank continued to cut rates from 7.75 per cent at the turn of 2019 to 7.0 per cent in September before two further expected rate cuts were made in October and December, taking the policy rate to 6.25 per cent. As the VAT increase falls out of the inflation data in early 2020, continued below target inflation is likely to support a further rate cut in the first half of this year, which will also help to support growth. We forecast inflation of 3½ per cent this year and 4 per cent next.

Australia

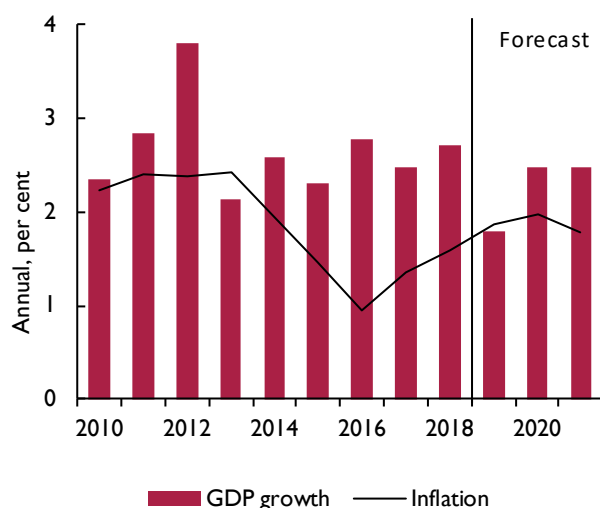
After growing by 0.6 per cent in the second quarter of 2019, the Australian economy recorded slightly slower growth, of 0.4 per cent, in the third quarter. During 2019 the economy showed a rebound from the weakness in the second half of the previous year, with annual GDP

growth at 1.7 per cent in the third quarter picking up a touch from the 1.6 per cent growth in the second quarter, which had been the slowest annual growth rate since 2009. The unemployment rate edged down further in November, to 5.1 per cent, the lowest since March.

Despite the more positive tone of the GDP growth and unemployment rate figures, the most recent PMI activity readings suggest that the pick-up earlier last year is not being sustained, with the composite output index falling below the 50 mark in both November and December, with declines in both manufacturing and services. With annual consumer price inflation at 1.7 per cent in September 2019, higher than in the first quarter (1.3 per cent) but lower than during 2018, and the core inflation rate at 1.6 per cent, price inflation in Australia was under its target last year. Australia's inflation target is to keep consumer price inflation between 2–3 per cent, on average, over time.

The monetary policy interest rate, the cash rate, was reduced three times last year in the face of weak growth and below target inflation, from 1.50 per cent to 0.75 per cent, with the last reduction being in October. A further rate cut is possible this year if inflation stays below the target and the recent PMI weakness passes through into slower GDP growth and labour market weakness. But we expect that last year's policy rate cuts will provide a boost to the economy and that some reduction in uncertainty from the latest news on the trade war will contribute.

Figure 27. Australia: GDP growth and inflation



Source: NiGEM database and NIESR forecast.

There are, however, uncertainties facing the economy, not least from the effects of the bushfires. It is too early to know their full effects but the appropriate policy response is from increased fiscal spending. Abstracting from any such effect, our expectation is that the Australian economy will continue its long period of growth, with GDP growth of 2½ per cent this year and next and inflation staying close to the policy target range in that period.

NOTES

- 1 On a PPP basis.
- 2 IMF, <https://blogs.imf.org/2019/12/30/top-10-charts-of-the-week-for-2019/> (chart 8, Europe's wage price puzzle).
- 3 The Vix index is seen as a barometer of investor sentiment and market volatility and is a measure of market expectations of uncertain volatility implied by S&P 500 index option prices.
- 4 US Department of the Treasury, Office of International Affairs, Macroeconomic and Foreign Exchange Policies of Major Trading Partners of the United States, January 2020.
- 5 Bloomberg reported on 3 July 2019 that "[President] Trump tweeted that Europe and China are playing a 'big currency manipulation game'", <https://www.bloomberg.com/news/articles/2019-07-03/be-prepared-for-anything-as-trump-slams-europe-china-on-tax>.
- 6 The forecast does not incorporate any possible effects of the expanding trade provision of the agreement signed on 15 January 2020.
- 7 <https://www.bankofcanada.ca/2020/01/canadian-survey-of-consumer-expectations-fourth-quarter-of-2019/>.
- 8 "The ECB aims at inflation rates of below, but close to, 2% over the medium term." <https://www.ecb.europa.eu/mopo/html/index.en.html>
- 9 "Regarding fiscal policies, the mildly expansionary euro area fiscal stance is currently providing some support to economic activity. In view of the weakening economic outlook and the continued prominence of downside risks, governments with fiscal space should act in an effective and timely manner. In countries where public debt is high, governments need to pursue prudent policies that will create the conditions for automatic stabilisers to operate freely. All countries should reinforce their efforts to achieve a more growth-friendly composition of public finances." (See Draghi, 2019.)
- 10 "In view of the weakened economic outlook, the Governing Council welcomes the Eurogroup's call for differentiated fiscal responses and its readiness to coordinate." (See Lagarde, 2019.)
- 11 Note de Conjoncture, Décembre 2019, INSEE.

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Appendix A: Summary of key forecast assumptions by Iana Liadze

The forecasts for the world economy and the UK economy reported in this *Review* are produced using the National Institute's global econometric model, NiGEM. NiGEM has been in use at NIESR for forecasting and policy analysis since 1987, and is also used by a group of more than 40 model subscribers, mainly in the policy community. Further details, including articles by model users, are provided in the May 2018 edition of the *Review*. Most countries in the OECD are modelled separately,¹ and there are also separate models for Argentina, Brazil, Bulgaria, China, Hong Kong, India, Indonesia, Romania, Russia, Singapore, South Africa, Taiwan and Vietnam. The rest of the world is modelled through regional blocks so that the model is global in scope. All models contain the determinants of domestic

demand, export and import volumes, prices, current accounts and net assets. Output is determined in the long run by factor inputs and technical progress interacting through production functions, but is also affected by demand in the short to medium term. Economies are linked through trade, competitiveness and financial markets and are fully simultaneous. Further details on NiGEM are available at <http://nimodel.niesr.ac.uk/>.

The key interest rate and exchange rate assumptions underlying our current forecast are shown in tables A1–A2. Our short-term interest rate assumptions are generally based on current financial market expectations, as implied by the rates of return on treasury bills and government bonds of different maturities. Long-term

Table A1. Interest rates

Per cent per annum

	Central bank intervention rates					10-year government bond yields				
	US	Canada	Japan	Euro Area	UK	US	Canada	Japan	Euro Area	UK
2016	0.51	0.50	-0.08	0.01	0.40	1.8	1.3	0.0	0.7	1.3
2017	1.10	0.70	-0.10	0.00	0.29	2.3	1.8	0.1	1.0	1.2
2018	1.90	1.40	-0.10	0.00	0.60	2.9	2.3	0.1	1.1	1.4
2019	2.28	1.75	-0.10	0.00	0.75	2.1	1.6	-0.1	0.4	0.9
2020	1.75	1.75	-0.10	0.00	0.52	2.0	1.7	0.2	0.4	0.9
2021	1.75	1.75	-0.06	0.00	0.50	2.3	2.1	0.5	0.7	1.3
2022–26	2.38	2.19	0.52	0.40	1.14	3.0	2.8	1.4	1.7	2.1
2018 Q1	1.53	1.20	-0.10	0.00	0.50	2.8	2.2	0.1	1.0	1.5
2018 Q2	1.80	1.25	-0.10	0.00	0.50	2.9	2.3	0.0	1.0	1.4
2018 Q3	2.01	1.47	-0.10	0.00	0.66	2.9	2.3	0.1	1.1	1.4
2018 Q4	2.28	1.69	-0.10	0.00	0.75	3.0	2.3	0.1	1.2	1.4
2019 Q1	2.50	1.75	-0.10	0.00	0.75	2.7	1.9	0.0	0.9	1.2
2019 Q2	2.50	1.75	-0.10	0.00	0.75	2.3	1.6	-0.1	0.6	1.0
2019 Q3	2.31	1.75	-0.10	0.00	0.75	1.8	1.4	-0.2	0.0	0.6
2019 Q4	1.83	1.75	-0.10	0.00	0.75	1.8	1.5	-0.1	0.1	0.7
2020 Q1	1.75	1.75	-0.10	0.00	0.60	1.8	1.6	0.0	0.2	0.8
2020 Q2	1.75	1.75	-0.10	0.00	0.50	1.9	1.7	0.1	0.3	0.9
2020 Q3	1.75	1.75	-0.10	0.00	0.50	2.0	1.8	0.2	0.4	1.0
2020 Q4	1.75	1.75	-0.10	0.00	0.50	2.1	1.9	0.3	0.5	1.0
2021 Q1	1.75	1.75	-0.10	0.00	0.50	2.2	2.0	0.4	0.6	1.1
2021 Q2	1.75	1.75	-0.10	0.00	0.50	2.3	2.0	0.5	0.7	1.2
2021 Q3	1.75	1.75	-0.05	0.00	0.50	2.3	2.1	0.6	0.8	1.3
2021 Q4	1.75	1.75	0.00	0.00	0.50	2.4	2.2	0.7	0.8	1.4

Table A2. Nominal exchange rates

	Percentage change in effective rate								Bilateral rate per US \$			
	US	Canada	Japan	Euro Area	Germany	France	Italy	UK	Canadian \$	Yen	Euro	Sterling
2016	5.1	0.2	15.1	4.8	2.5	2.5	2.7	-9.9	1.314	108.8	0.904	0.741
2017	0.1	1.9	-3.0	2.5	1.2	1.7	1.7	-5.5	1.294	112.2	0.887	0.776
2018	-0.1	-1.8	1.2	4.7	2.5	2.5	3.1	1.9	1.314	110.4	0.847	0.749
2019	3.5	0.3	4.6	-1.2	-0.7	-0.9	-0.7	-0.4	1.327	109.0	0.893	0.783
2020	-0.4	1.8	-0.9	-0.8	-0.5	-0.4	-0.4	2.3	1.304	109.6	0.896	0.766
2021	-0.3	-0.2	1.1	1.2	0.7	0.6	0.7	0.2	1.304	108.1	0.883	0.759
2018 Q1	-2.1	-2.2	2.2	1.8	0.8	1.0	1.2	1.9	1.294	108.3	0.813	0.718
2018 Q2	2.2	-0.7	0.4	-0.7	-0.3	-0.5	-0.4	0.2	1.313	109.2	0.839	0.735
2018 Q3	2.6	1.8	1.0	1.2	0.7	0.4	0.7	-1.7	1.304	111.5	0.860	0.767
2018 Q4	2.1	-2.4	0.0	-0.5	-0.3	-0.3	-0.3	0.1	1.343	112.8	0.876	0.778
2019 Q1	-1.0	0.2	1.6	-0.8	-0.5	-0.5	-0.4	1.4	1.337	110.2	0.881	0.768
2019 Q2	0.7	0.9	1.2	-0.3	-0.1	-0.1	-0.2	-0.5	1.329	109.9	0.890	0.778
2019 Q3	1.1	0.7	3.4	-0.2	-0.1	-0.1	-0.3	-3.5	1.324	107.3	0.900	0.811
2019 Q4	0.0	0.4	-1.4	-0.6	-0.3	-0.4	-0.2	4.8	1.320	108.7	0.903	0.777
2020 Q1	-1.1	1.0	-1.2	-0.3	-0.3	-0.1	-0.1	1.0	1.302	109.1	0.897	0.764
2020 Q2	0.0	-0.2	-0.9	0.0	0.0	0.0	0.0	-0.5	1.304	109.9	0.897	0.767
2020 Q3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.304	109.9	0.897	0.767
2020 Q4	-0.1	0.0	0.4	0.3	0.2	0.2	0.2	0.1	1.304	109.4	0.893	0.765
2021 Q1	-0.1	0.0	0.4	0.4	0.2	0.2	0.2	0.1	1.304	108.9	0.889	0.762
2021 Q2	-0.1	0.0	0.4	0.4	0.2	0.2	0.2	0.1	1.304	108.4	0.885	0.760
2021 Q3	-0.1	0.0	0.4	0.4	0.2	0.2	0.2	0.1	1.304	107.9	0.881	0.758
2021 Q4	-0.1	0.0	0.4	0.4	0.2	0.2	0.2	0.1	1.304	107.4	0.878	0.755

interest rate assumptions are consistent with forward estimates from short-term interest rates, allowing for a country-specific term premium. Where term premia do exist, we assume they gradually diminish over time, such that long-term interest rates in the long run are simply the forward convolution of short-term interest rates.

Short-term interest rates are expected to remain unchanged until the end of this year in the US, Euro Area, and Japan. As discussed in the UK chapter in this *Review*, we expect UK economic growth to return to a rate that is close to its potential within two years. Our central forecast is conditioned on Bank Rate being cut by 25 basis points in the first quarter of 2020. Bank Rate is expected to reach 1.5 per cent in 2025, this being the point at which the MPC is assumed to stop reinvesting the proceeds from maturing gilts it currently holds, allowing the Bank of England's balance sheet to shrink 'naturally'.²

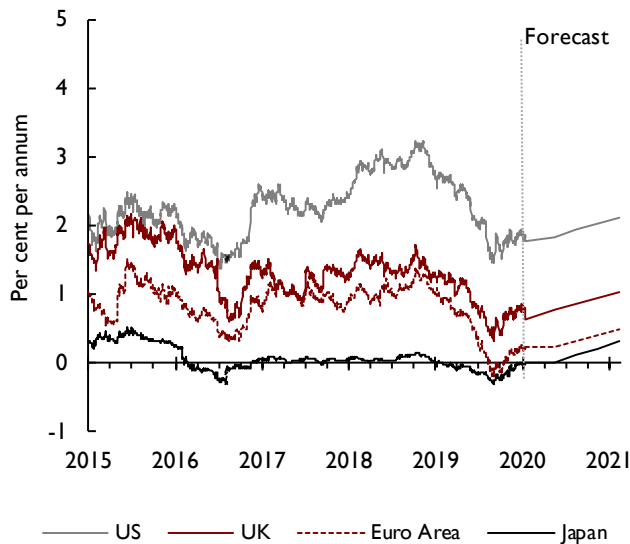
Figure A1 illustrates the recent movement in, and our projections for, 10-year government bond yields in the US, Euro Area, the UK and Japan. The average levels of 10-year sovereign bond yields in the US, Euro Area and the UK increased slightly in the fourth quarter of

2019 relative to the previous quarter, by about 10 basis points, but remained unchanged in Japan. Expectations currently for bond yields for the end of 2020 compared to expectations formed three months ago are higher for the US, Euro Area and the UK by about 20 basis points, but are lower for Japan, by around 10 basis points.

Sovereign risks in the Euro Area were a major macroeconomic issue for the global economy and financial markets over several years after the financial crisis. Figure A2 depicts the spread of 10-year government bond yields of Spain, Italy, Portugal and Ireland over Germany's. Political and budgetary issues led to Italy experiencing the largest increase in spreads in 2018 since 2013. Spreads in Italy remain elevated, leaving it as the worst performer, after Greece. We have assumed that spreads over German bond yields narrow in all Euro Area countries over the course of the forecast horizon.

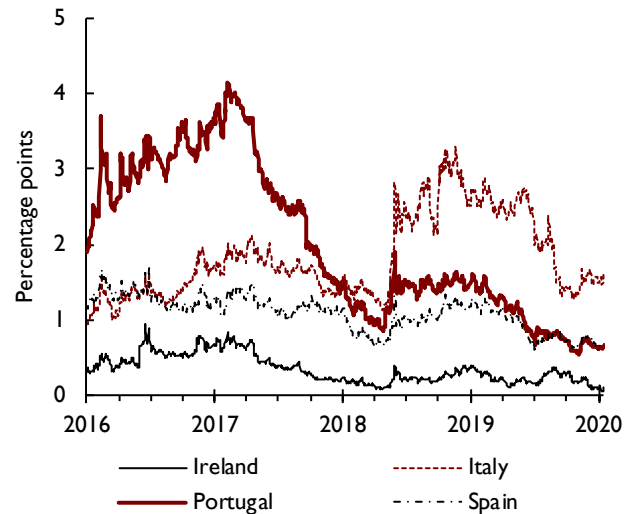
Figure A3 shows the spreads of corporate bond yields over government bond yields in the US, UK and Euro Area. This acts as a proxy for the margin between private sector and 'risk-free' borrowing costs. Corporate bond spreads in the US, UK and Euro Area have come down and remained low since the most recent peak at

Figure A1. 10-year government bond yields



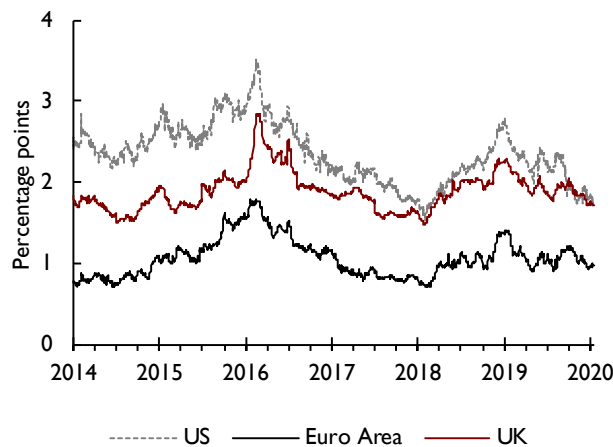
Source: Datastream and NIESR projections.

Figure A2. Spreads over 10-year German government bond yields



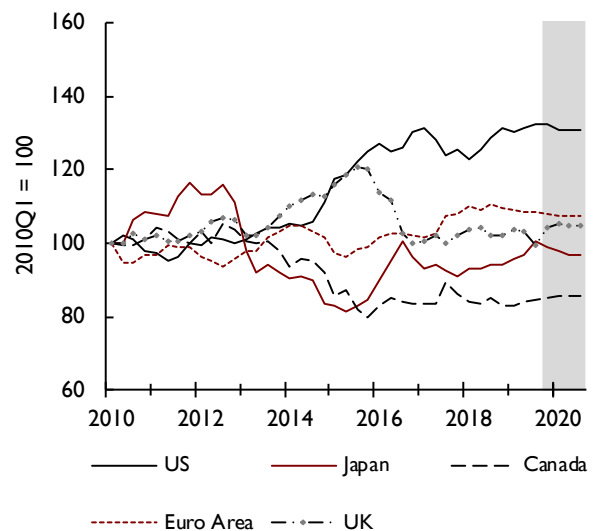
Source: Derived from Datastream series.

Figure A3. Corporate bond spreads. Spread between BAA corporate and 10-year government bond yields



Source: Derived from Datastream series.

Figure A4. Effective exchange rates



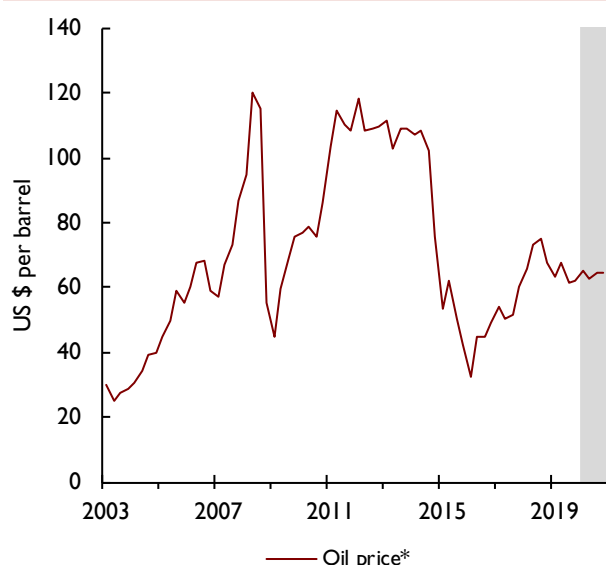
Source: NiGEM database and NIESR forecasts. Weights based on 2017 goods and services trade shares.

the turn of 2019, when private sector borrowing costs reduced less than the observed decrease in risk-free rates. Our forecast assumption for corporate spreads is that they gradually converge towards their long-term average level.

Nominal exchange rates against the US dollar are generally assumed to remain constant at the rate prevailing on 16

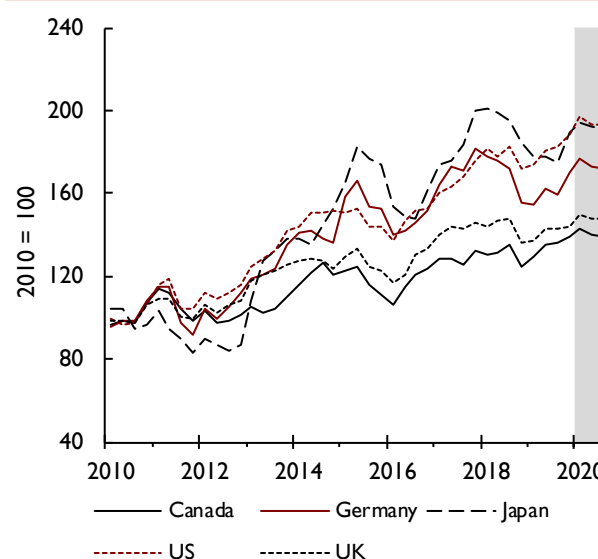
January 2020 until the end of September 2020. After that, they follow a backward-looking uncovered-interest parity condition, based on interest rate differentials relative to the US. Figure A4 plots the recent history as well as our short-term forecast of the effective exchange rate indices for Canada, the Euro Area, Japan, UK, and the US. After appreciating by about 2 per cent, in trade-weighted terms, over the course of last year, the US dollar

Figure A5. Oil prices



Source: NiGEM database and NIESR forecast.
 Note: *Average of Dubai and Brent spot prices.

Figure A6. Share prices



Source: NiGEM database and NIESR forecast.

has depreciated, by about 1 per cent, since the beginning of 2020. After having strengthened by about 8 per cent over 2017 and 2018, the euro has lost slightly (about 2 per cent) in value in effective terms since the beginning of 2019. Among the developing economies' currencies in our model, the largest movement in trade-weighted terms between the fourth and the third quarters of 2019 has been the depreciation of Argentinian peso and Chilean peso by about 14 and 6 per cent, respectively.

Our oil price assumptions for the short term generally follow those of the US Energy Information Administration (EIA), published in January 2020, and updated with daily spot price data available up to 16 January 2020. The EIA uses information from forward markets as well as an evaluation of supply conditions. As illustrated in figure A5, oil prices, in US dollar terms, have fallen since the recent peak in October 2018, by about 13 per cent. Expectations for oil prices by the end of 2020 are higher compared to expectations three

months ago, which leaves oil prices about 40 per cent lower than their nominal level in mid-2014.

Our equity price assumptions for the US reflect the expected return on capital. Other equity markets are assumed to move in line with the US market, but are adjusted for different exchange rate movements and shifts in country-specific equity risk premia. Stock market performance since the fourth quarter of 2019 compared to the previous quarter was strong, with equity prices increasing in most of the developed as well as developing economies. This sentiment continued into the beginning of this year with equity prices rising in the majority of the economies. Figure A6 illustrates the key short-term equity price assumptions underlying our current forecast.

NOTES

- 1 With the exception of Iceland and Israel.
- 2 Interest rate assumptions are based on information available for the period to 16 January 2020.

Appendix B: Forecast detail

Table B1. Real GDP growth and inflation

	Real GDP growth (per cent)						Annual inflation ^(a) (per cent)					
	2017	2018	2019	2020	2021	2022–26	2017	2018	2019	2020	2021	2022–26
Argentina	2.7	-2.5	-2.6	-0.9	0.8	2.7	26.3	34.2	52.6	44.6	31.0	14.5
Australia ^(a)	2.5	2.7	1.8	2.5	2.5	2.8	1.4	1.6	1.9	2.0	1.8	1.9
Austria ^(a)	2.6	2.3	1.6	1.5	1.6	1.2	2.2	2.1	1.4	1.7	1.8	1.5
Belgium ^(a)	2.0	1.5	1.3	1.5	1.6	1.4	2.2	2.3	1.3	1.3	1.5	1.3
Bulgaria ^(a)	3.5	3.2	3.6	3.3	3.5	2.4	1.2	2.6	2.4	2.2	2.1	1.4
Brazil	1.3	1.3	0.9	1.8	2.3	2.5	3.4	3.7	3.7	3.6	3.8	3.9
Chile	1.5	4.0	2.0	1.5	2.1	1.4	2.2	2.7	2.1	2.6	2.1	1.8
China	6.8	6.6	6.1	5.9	5.7	5.2	1.5	2.1	2.9	3.3	2.2	2.2
Canada	3.2	2.0	1.7	1.8	2.1	1.8	1.0	1.7	1.6	2.1	1.9	2.1
Czechia ^(a)	4.5	2.8	2.6	2.5	2.2	2.2	2.4	2.0	2.5	1.9	2.2	2.3
Denmark ^(a)	2.0	2.4	2.1	1.7	1.8	1.3	1.1	0.7	0.7	1.5	1.9	1.5
Estonia ^(a)	5.6	4.8	4.0	2.7	3.3	2.0	3.7	3.4	2.2	2.5	2.9	1.4
Finland ^(a)	3.1	1.7	1.4	1.5	1.4	1.1	0.8	1.2	1.1	1.5	1.5	1.4
France ^(a)	2.4	1.7	1.3	1.2	1.7	1.4	1.2	2.1	1.3	1.4	1.6	1.3
Germany ^(a)	2.8	1.5	0.5	0.7	1.2	1.1	1.7	1.9	1.4	1.5	1.8	1.6
Greece ^(a)	1.4	1.9	2.3	2.1	1.9	1.8	1.1	0.8	0.5	1.2	1.5	1.5
Hong Kong	3.8	3.0	-1.1	0.1	2.5	2.5	2.5	3.2	2.8	1.2	2.0	1.9
Hungary ^(a)	4.5	5.1	4.9	3.6	3.3	1.6	2.4	2.9	3.3	3.5	3.7	3.5
India	6.9	7.4	5.3	6.3	6.5	6.7	3.3	3.9	3.7	5.6	3.0	3.5
Indonesia	5.1	5.2	4.9	4.7	4.4	3.9	3.8	3.2	3.1	3.2	3.4	2.9
Ireland	8.2	8.3	5.7	2.4	3.0	3.2	0.2	0.7	0.9	1.4	1.8	2.0
Italy ^(a)	1.8	0.7	0.2	0.4	0.8	0.8	1.3	1.3	0.6	0.7	1.5	1.5
Japan	2.2	0.3	1.1	0.4	0.5	0.9	0.2	0.6	0.5	1.8	1.1	1.3
Lithuania ^(a)	4.4	3.7	3.6	2.8	3.1	1.4	3.7	2.5	2.2	2.1	1.9	1.2
Latvia ^(a)	3.8	4.8	2.2	2.6	3.2	1.9	2.9	2.6	2.7	2.4	1.9	1.3
Mexico	2.4	2.1	0.2	1.5	2.0	2.7	6.0	4.9	3.5	3.1	3.1	2.4
Netherlands ^(a)	3.0	2.5	1.7	1.8	1.8	1.2	1.3	1.6	2.7	1.9	1.8	1.5
New Zealand	3.8	3.2	2.3	2.2	2.6	2.1	1.5	1.3	1.4	2.1	2.0	1.9
Norway	2.7	1.5	1.0	2.6	2.1	1.8	1.9	2.2	1.9	1.8	2.0	2.4
Poland ^(a)	4.9	5.2	4.4	3.3	3.4	2.3	1.6	1.2	2.1	2.4	2.4	2.0
Portugal ^(a)	3.5	2.4	2.0	1.8	1.7	1.4	1.6	1.2	0.3	0.7	1.3	1.1
Romania ^(a)	6.9	4.6	3.9	3.1	3.2	2.6	1.1	4.1	3.9	2.4	2.4	1.6
Russia	1.6	2.3	1.3	1.5	1.8	1.6	3.7	2.9	4.5	3.6	3.9	3.2
Singapore	3.7	3.2	0.7	0.9	3.1	3.0	0.6	0.4	0.7	1.3	2.0	2.3
South Africa	1.4	0.7	0.3	1.6	1.5	1.6	4.5	4.1	3.6	5.0	4.9	3.0
S. Korea	3.2	2.7	1.9	2.3	2.0	2.9	1.9	1.5	0.3	1.2	1.4	1.6
Slovakia ^(a)	3.0	4.0	2.3	2.0	2.4	1.0	1.4	2.5	2.8	2.3	2.1	1.4
Slovenia ^(a)	5.1	4.2	2.5	2.6	2.6	1.8	1.6	1.9	1.7	2.1	2.1	1.4
Spain ^(a)	2.9	2.4	1.9	1.8	1.8	1.6	2.0	1.7	0.8	1.4	1.6	1.4
Sweden ^(a)	2.7	2.3	1.4	1.8	1.6	1.2	1.9	2.0	1.7	1.6	1.9	1.9
Switzerland	1.9	2.8	0.9	1.4	1.7	2.0	0.6	1.1	0.1	0.5	1.2	1.0
Taiwan	3.3	2.7	2.6	2.1	1.8	2.8	0.0	1.0	0.6	0.2	0.5	0.7
Turkey	7.4	2.9	0.1	3.2	3.5	3.8	11.1	16.3	15.3	11.0	7.7	5.0
UK ^(a)	1.9	1.3	1.3	1.3	1.6	1.7	2.7	2.4	1.8	1.8	2.1	2.0
US	2.4	2.9	2.3	2.0	2.0	1.6	1.8	2.1	1.4	1.9	2.1	2.1
Vietnam	6.7	7.1	7.0	6.7	6.6	5.7	3.5	3.6	2.8	4.4	3.2	2.0
Euro Area ^(a)	2.7	1.9	1.2	1.1	1.5	1.3	1.5	1.8	1.2	1.4	1.7	1.5
EU-28 ^(a)	2.7	2.0	1.4	1.1	1.7	1.4	1.7	1.9	1.4	1.4	1.9	1.6
OECD	2.7	2.3	1.7	1.7	1.8	1.7	2.1	2.5	2.1	2.4	2.3	2.0
World	3.8	3.6	3.0	3.1	3.3	3.4	3.8	3.9	4.2	4.4	3.7	3.3

Note: (a) Harmonised consumer price inflation in the EU economies and inflation measured by the consumer expenditure deflator in the rest of the world.

Table B2. Fiscal balance and government debt

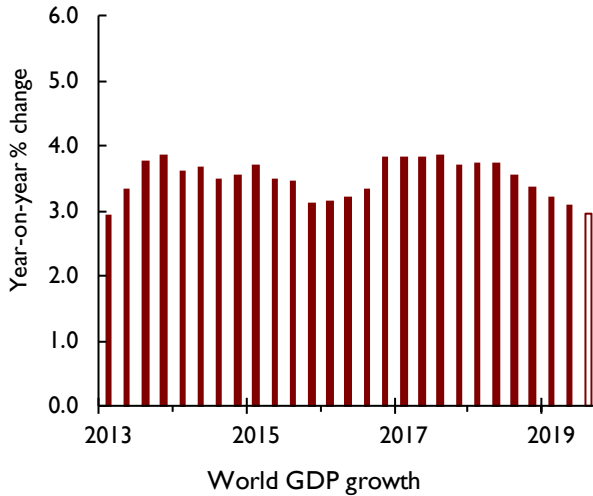
	Fiscal balance (per cent of GDP) ^(a)						Government debt (per cent of GDP, end year) ^(b)					
	2017	2018	2019	2020	2021	2026	2017	2018	2019	2020	2021	2026
Australia	-0.8	0.0	0.2	-0.2	-0.3	-1.2	43.1	42.8	41.5	40.5	39.6	35.3
Austria	-0.7	0.2	1.1	0.9	0.5	-1.0	78.1	73.9	69.7	66.5	63.2	56.0
Belgium	-0.7	-0.7	-0.2	0.2	0.2	-1.2	101.8	100.0	98.6	96.0	91.8	82.5
Bulgaria	1.1	1.8	1.9	1.5	1.0	-0.5	-	-	-	-	-	-
Canada	-0.1	-0.4	-0.4	-0.7	-0.8	-1.3	92.5	93.2	93.6	90.3	87.4	76.3
Czechia	1.6	1.1	0.7	-0.1	-0.4	-1.2	33.7	31.7	30.6	28.9	27.7	26.0
Denmark	1.7	0.8	1.2	0.8	0.8	-0.5	35.5	33.8	33.0	30.9	29.0	25.5
Estonia	-0.8	-0.6	-0.6	-0.8	-0.9	-1.4	-	-	-	-	-	-
Finland	-0.7	-0.8	-0.4	0.0	-0.5	-1.8	60.9	59.0	60.3	58.8	57.6	57.2
France	-2.8	-2.5	-2.4	-2.1	-1.9	-2.6	98.4	98.3	97.4	96.9	95.6	93.1
Germany	1.2	1.9	1.1	0.8	0.3	-1.4	65.3	61.9	60.5	58.2	55.6	48.0
Greece	0.7	1.0	1.1	1.7	1.4	0.6	176.6	181.9	178.4	172.5	162.1	127.6
Hungary	-2.4	-2.3	-2.5	-2.5	-2.5	-2.4	71.7	69.0	63.8	61.6	60.1	56.5
Ireland	-0.3	0.1	0.1	0.3	-0.2	-1.4	67.8	63.6	59.2	56.1	53.4	45.4
Italy	-2.4	-2.2	-1.9	-1.7	-1.9	-2.4	134.0	134.9	135.1	134.6	133.3	128.2
Japan	-3.0	-2.4	-2.3	-1.2	-1.6	-3.3	220.3	225.3	221.6	219.7	217.5	203.9
Lithuania	0.5	0.6	0.6	0.3	0.0	-1.1	-	-	-	-	-	-
Latvia	-0.5	-0.7	-0.9	-0.9	-1.0	-1.0	-	-	-	-	-	-
Netherlands	1.3	1.5	1.3	0.5	0.1	-1.4	56.9	52.4	49.5	47.5	45.6	44.6
Poland	-1.5	-0.2	0.3	-0.2	-0.7	-2.0	49.5	47.3	45.1	43.5	41.8	40.8
Portugal	-3.0	-0.5	0.5	0.5	0.2	-1.4	126.0	122.2	116.3	111.7	108.0	98.9
Romania	-2.6	-3.0	-2.9	-2.8	-2.5	-1.7	-	-	-	-	-	-
Slovakia	-1.0	-1.1	-0.4	-0.4	-0.5	-0.8	-	-	-	-	-	-
Slovenia	0.0	0.8	1.0	0.5	0.0	-1.5	-	-	-	-	-	-
Spain	-3.0	-2.5	-1.7	-1.0	-0.9	-1.9	98.6	97.6	97.0	93.3	89.8	81.2
Sweden	1.4	0.8	0.2	-0.6	-0.8	-1.2	40.7	38.7	35.6	35.0	34.4	33.4
UK	-2.4	-2.2	-2.2	-2.2	-2.7	-2.6	85.6	85.1	84.2	83.2	82.4	79.8
US	-4.3	-6.6	-7.1	-7.0	-6.6	-4.0	103.8	105.3	106.7	109.2	110.9	114.6

Notes: (a) General government financial balance; Maastricht definition for EU countries. (b) Maastricht definition for EU countries.

Table B3. Unemployment and current account balance

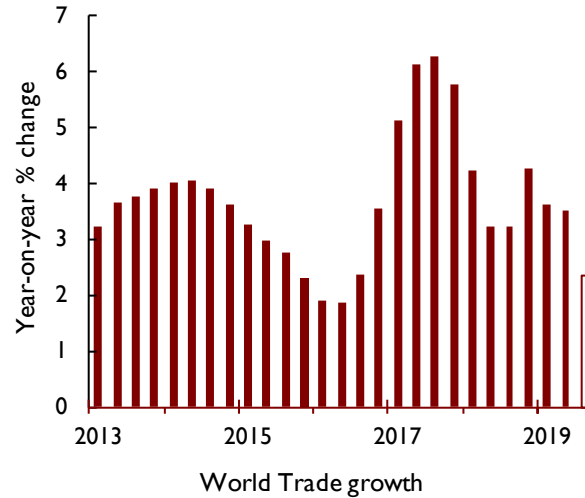
	Standardised unemployment rate						Current account balance (per cent of GDP)					
	2017	2018	2019	2020	2021	2022–26	2017	2018	2019	2020	2021	2022–26
Australia	5.6	5.3	5.2	5.2	5.1	5.1	-2.6	-2.1	1.1	1.8	0.7	0.1
Austria	5.5	4.9	4.5	4.2	4.1	4.2	1.5	2.4	1.8	0.9	1.4	1.7
Belgium	7.1	5.9	5.3	5.5	4.5	4.6	1.2	-1.0	-1.0	1.3	1.7	1.3
Bulgaria	6.2	5.2	4.1	3.8	3.9	4.3	3.6	5.3	8.9	6.5	5.0	2.9
Canada	6.3	5.8	5.7	5.6	5.4	5.6	-2.8	-2.5	-1.9	-2.1	-2.0	-0.9
China	–	–	–	–	–	–	1.4	0.4	1.3	1.1	0.7	0.0
Czechia	2.9	2.3	2.1	2.2	2.2	2.4	1.5	0.4	0.4	0.3	0.8	-0.1
Denmark	5.8	5.1	5.1	5.2	5.2	5.3	7.8	7.0	9.0	9.7	9.9	9.9
Estonia	5.8	5.4	4.3	5.0	5.5	6.4	2.7	2.0	1.8	0.0	-0.4	-0.6
Finland	8.6	7.4	6.7	6.6	6.5	6.5	-0.7	-1.4	-1.1	-1.0	0.3	1.5
France	9.4	9.1	8.6	8.2	7.8	7.9	-0.8	-0.7	-0.8	-1.1	-0.8	-0.2
Germany	3.8	3.4	3.1	3.1	3.0	3.0	8.1	7.5	7.5	5.7	4.7	3.5
Greece	21.5	19.3	17.3	16.0	15.5	14.5	-1.7	-2.9	-1.5	-1.6	-0.5	0.1
Hungary	4.2	3.7	3.5	3.5	3.7	4.0	2.2	-0.5	-0.4	1.1	0.7	-0.9
Ireland	6.8	5.8	5.0	5.2	5.4	5.2	0.0	10.7	1.4	10.8	11.3	13.3
Italy	11.3	10.6	9.9	9.7	9.7	9.5	2.7	2.6	3.0	3.0	3.3	4.7
Japan	2.8	2.4	2.4	2.3	2.6	2.8	4.2	3.5	3.5	3.0	2.7	3.1
Lithuania	7.1	6.2	6.3	6.6	6.9	7.3	0.6	0.2	2.7	2.3	3.0	2.4
Latvia	8.7	7.4	6.3	6.6	6.2	6.1	0.6	-0.8	-0.9	-2.1	-0.8	0.0
Netherlands	4.8	3.8	3.4	3.8	3.7	3.9	10.8	10.8	8.8	8.1	8.7	10.7
Poland	4.9	3.8	3.3	3.4	3.4	3.3	0.0	-1.0	0.6	0.1	0.6	0.7
Portugal	9.0	7.0	6.6	6.3	6.3	6.9	1.2	0.4	-0.9	-1.5	-0.5	0.4
Romania	4.9	4.2	4.0	3.9	3.8	4.2	-3.2	-4.5	-4.6	-4.2	-3.2	-2.4
Slovakia	8.1	6.6	5.8	5.8	5.8	6.4	-2.0	-2.5	-4.2	-3.8	-1.3	-0.6
Slovenia	6.6	5.2	4.6	4.8	5.1	5.8	6.1	5.7	5.4	3.8	3.7	2.4
Spain	17.3	15.3	14.2	13.3	12.0	11.9	2.7	1.9	1.6	1.9	3.1	2.7
Sweden	6.6	6.3	6.8	7.1	7.0	6.9	3.1	1.9	4.0	3.7	4.8	7.0
UK	4.4	4.1	3.8	3.8	4.0	4.2	-3.5	-3.9	-4.1	-3.2	-3.4	-2.1
US	4.4	3.9	3.7	3.9	4.0	4.5	-2.3	-2.4	-2.5	-2.9	-2.9	-2.0

Figure B1. World GDP is estimated to have expanded by just under 3 per cent in the third quarter of 2019



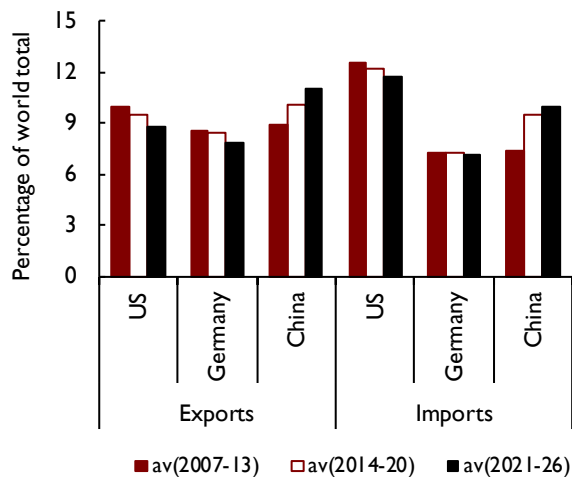
Source: NiGEM database and NIESR forecasts.

Figure B2. NIESR estimates that world trade grew by 2.4 per cent (year-on-year) in 2019Q3



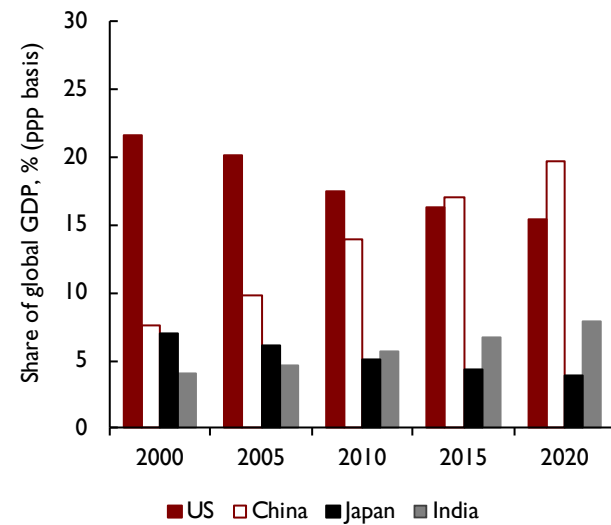
Source: NiGEM database and NIESR forecasts.

Figure B3. US is expected to remain the world's largest importer of goods and services until the end of our forecast horizon



Source: NiGEM database and NIESR forecasts.

Figure B4. Changing composition of world GDP



Source: NiGEM database and NIESR forecasts.

	Percentage change						
	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	1.6	2.4	2.9	2.3	2.0	2.0	1.6
Consumption	2.7	2.6	3.0	2.6	2.7	2.3	1.5
Investment : housing	6.5	3.5	-1.5	-2.0	1.2	2.2	2.0
: business	0.7	4.4	6.4	2.4	1.7	2.2	1.0
Government: consumption	1.8	0.6	1.7	1.7	1.8	1.8	1.5
: investment	1.8	1.2	1.9	3.8	1.0	1.5	1.5
Stockbuilding ^(a)	-0.6	0.0	0.1	0.2	-0.1	0.0	0.0
Total domestic demand	1.8	2.6	3.2	2.5	2.3	2.1	1.5
Export volumes	0.0	3.5	3.0	-0.1	1.0	2.9	3.5
Import volumes	2.0	4.7	4.4	1.5	2.6	3.2	2.1
Average earnings	1.1	2.8	2.9	3.6	3.1	2.9	3.1
Private consumption deflator	1.0	1.8	2.1	1.4	1.9	2.1	2.1
RPDI	1.8	2.8	3.9	3.0	2.4	1.7	1.1
Unemployment, %	4.9	4.4	3.9	3.7	3.9	4.0	4.5
General Govt. balance as % of GDP	-5.4	-4.3	-6.6	-7.1	-7.0	-6.6	-5.0
General Govt. debt as % of GDP ^(b)	105.1	103.8	105.3	106.7	109.2	110.9	113.7
Current account as % of GDP	-2.3	-2.3	-2.4	-2.5	-2.9	-2.9	-2.0

Note: (a) Change as a percentage of GDP. (b) End-of-year basis.

	Percentage change						
	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	1.0	3.2	2.0	1.7	1.8	2.1	1.8
Consumption	2.1	3.6	2.1	1.6	2.0	2.0	1.6
Investment : housing	3.9	2.2	-1.6	-0.9	0.8	0.3	0.2
: business	-10.9	3.5	1.8	0.5	4.0	3.3	1.4
Government: consumption	1.8	2.3	3.0	2.3	2.4	2.3	1.8
: investment	-0.1	6.3	5.2	-0.4	2.3	2.0	1.7
Stockbuilding ^(a)	0.0	0.9	-0.2	-0.1	-0.3	0.0	0.0
Total domestic demand	0.5	4.2	1.9	1.3	1.9	2.1	1.5
Export volumes	1.4	1.4	3.1	1.8	0.7	2.9	2.8
Import volumes	0.1	4.2	2.6	0.5	1.0	2.7	2.0
Average earnings	-0.5	3.0	2.6	2.2	3.5	3.5	3.8
Private consumption deflator	0.9	1.0	1.7	1.6	2.1	1.9	2.1
RPDI	0.0	3.7	2.4	3.1	1.7	2.2	1.8
Unemployment, %	7.0	6.3	5.8	5.7	5.6	5.4	5.6
General Govt. balance as % of GDP	-0.5	-0.1	-0.4	-0.4	-0.7	-0.8	-1.1
General Govt. debt as % of GDP ^(b)	96.4	92.5	93.2	93.6	90.3	87.4	80.4
Current account as % of GDP	-3.1	-2.8	-2.5	-1.9	-2.1	-2.0	-0.9

Note: (a) Change as a percentage of GDP. (b) End-of-year basis.

Table B6. Japan

Percentage change

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	0.5	2.2	0.3	1.1	0.4	0.5	0.9
Consumption	-0.3	1.3	0.0	0.7	0.3	0.5	1.1
Investment : housing	5.9	1.7	-6.7	2.7	1.4	1.1	2.4
: business	-1.5	4.1	2.2	2.7	3.6	0.6	0.8
Government: consumption	1.4	0.1	0.9	1.7	0.3	0.0	0.5
: investment	-0.2	0.5	0.3	2.0	-0.8	0.2	0.6
Stockbuilding ^(a)	-0.1	0.1	0.0	0.1	-0.1	0.0	0.0
Total domestic demand	-0.1	1.6	0.3	1.4	0.7	0.4	0.9
Export volumes	1.7	6.8	3.4	-1.8	1.1	2.1	3.0
Import volumes	-1.6	3.4	3.3	-0.1	2.7	1.7	3.1
Average earnings	1.7	0.7	2.0	3.0	2.3	1.7	1.8
Private consumption deflator	-0.5	0.2	0.6	0.5	1.8	1.1	1.3
RPDI	1.5	0.7	2.1	0.6	0.0	1.3	1.5
Unemployment, %	3.1	2.8	2.4	2.4	2.3	2.6	2.8
Govt. balance as % of GDP	-3.5	-3.0	-2.4	-2.3	-1.2	-1.6	-2.6
Govt. debt as % of GDP ^(b)	222.5	220.3	225.3	221.6	219.7	217.5	208.7
Current account as % of GDP	3.9	4.2	3.5	3.5	3.0	2.7	3.1

Note: (a) Change as a percentage of GDP. (b) End-of-year basis.

Table B7. Euro Area

Percentage change

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	1.9	2.7	1.9	1.2	1.1	1.5	1.3
Consumption	1.9	1.8	1.4	1.3	1.5	1.3	1.1
Private investment	4.7	3.9	2.6	4.5	0.6	1.6	1.2
Government : consumption	1.9	1.3	1.1	1.6	1.7	1.3	1.2
: investment	-0.9	2.3	2.8	2.5	2.0	1.9	1.3
Stockbuilding ^(a)	0.1	0.1	0.0	-0.3	-0.1	0.0	0.0
Total domestic demand	2.4	2.2	1.6	1.6	1.3	1.3	1.1
Export volumes	2.9	5.8	3.3	2.5	2.6	3.5	2.8
Import volumes	4.2	5.2	2.7	4.2	2.5	3.3	2.6
Average earnings	1.2	1.8	2.0	2.4	2.9	2.9	2.9
Harmonised consumer prices	0.2	1.5	1.8	1.2	1.4	1.7	1.5
RPDI	2.0	1.4	1.6	1.3	1.7	2.1	1.5
Unemployment, %	10.0	9.1	8.2	7.6	7.3	7.0	7.0
Govt. balance as % of GDP	-1.4	-0.9	-0.5	-0.6	-0.5	-0.6	-1.4
Govt. debt as % of GDP ^(b)	90.8	88.6	86.7	85.1	82.9	80.5	76.1
Current account as % of GDP	3.2	3.2	3.1	2.8	2.4	2.6	2.8

Note: (a) Change as a percentage of GDP. (b) End-of-year basis; Maastricht definition.

	Percentage change						
	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	2.1	2.8	1.5	0.5	0.7	1.2	1.1
Consumption	2.0	1.6	1.2	1.6	2.0	1.6	0.6
Investment : housing	4.7	1.4	3.1	4.1	1.1	1.6	2.3
: business	3.0	3.8	3.5	1.7	-0.1	0.7	0.4
Government: consumption	4.1	2.4	1.4	2.2	2.7	1.5	0.9
: investment	4.5	4.3	4.8	4.5	2.6	2.5	1.1
Stockbuilding ^(a)	0.2	0.4	0.3	-0.8	-0.3	0.0	0.0
Total domestic demand	3.0	2.6	2.1	1.1	1.5	1.5	0.8
Export volumes	2.2	5.5	2.3	1.0	1.1	2.9	2.5
Import volumes	4.2	5.7	3.7	2.3	2.8	3.6	2.1
Average earnings	2.7	2.4	2.9	3.7	4.4	3.4	3.5
Harmonised consumer prices	0.3	1.7	1.9	1.4	1.5	1.8	1.6
RPDI	2.4	1.7	1.9	1.2	1.2	1.4	0.9
Unemployment, %	4.2	3.8	3.4	3.1	3.1	3.0	3.0
Govt. balance as % of GDP	1.2	1.2	1.9	1.1	0.8	0.3	-0.8
Govt. debt as % of GDP ^(b)	69.2	65.3	61.9	60.5	58.2	55.6	50.2
Current account as % of GDP	8.4	8.1	7.5	7.5	5.7	4.7	3.5

Note: (a) Change as a percentage of GDP. (b) End-of-year basis; Maastricht definition.

	Percentage change						
	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	1.0	2.4	1.7	1.3	1.2	1.7	1.4
Consumption	1.6	1.6	0.9	1.2	1.2	1.4	1.2
Investment : housing	2.8	6.6	2.0	2.0	2.0	2.0	3.2
: business	3.1	5.5	3.2	4.0	2.6	2.3	1.0
Government: consumption	1.4	1.5	0.8	1.3	1.2	1.1	1.5
: investment	0.0	0.5	2.4	4.0	2.2	1.5	1.7
Stockbuilding ^(a)	-0.4	0.2	-0.2	-0.3	-0.1	0.0	0.0
Total domestic demand	1.4	2.4	1.0	1.4	1.4	1.5	1.4
Export volumes	1.8	4.0	3.5	2.1	2.0	4.8	2.7
Import volumes	3.0	4.1	1.2	2.5	2.5	4.0	2.7
Average earnings	0.7	2.1	1.8	1.7	2.7	2.9	3.1
Harmonised consumer prices	0.3	1.2	2.1	1.3	1.4	1.6	1.3
RPDI	1.6	1.4	1.2	2.0	1.4	2.3	2.0
Unemployment, %	10.1	9.4	9.1	8.6	8.2	7.8	7.9
Govt. balance as % of GDP	-3.5	-2.8	-2.5	-2.4	-2.1	-1.9	-2.3
Govt. debt as % of GDP ^(b)	98.0	98.4	98.3	97.4	96.9	95.6	93.5
Current account as % of GDP	-0.6	-0.8	-0.7	-0.8	-1.1	-0.8	-0.2

Note: (a) Change as a percentage of GDP. (b) End-of-year basis; Maastricht definition.

Table B10. Italy

Percentage change

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	1.4	1.8	0.7	0.2	0.4	0.8	0.8
Consumption	1.2	1.5	0.8	0.6	0.7	0.4	0.2
Investment : housing	0.5	3.2	3.7	3.8	-0.2	-0.6	-0.6
: business	6.6	4.6	4.8	0.8	1.2	1.0	0.2
Government : consumption	0.7	-0.2	0.4	0.5	0.5	0.5	0.6
: investment	-1.0	-2.5	3.0	1.1	1.1	0.8	0.7
Stockbuilding ^(a)	0.4	0.2	-0.2	-0.9	0.4	0.0	0.0
Total domestic demand	2.0	1.7	1.0	0.0	1.2	0.4	0.2
Export volumes	2.0	6.5	1.3	1.7	1.9	2.7	2.8
Import volumes	4.2	6.7	2.4	1.4	4.2	1.6	1.4
Average earnings	0.2	0.8	1.9	1.5	1.9	2.1	1.6
Harmonised consumer prices	-0.1	1.3	1.3	0.6	0.7	1.5	1.5
RPDI	1.4	0.9	0.7	0.8	1.9	1.2	0.4
Unemployment, %	11.7	11.3	10.6	9.9	9.7	9.7	9.5
Govt. balance as % of GDP	-2.4	-2.4	-2.2	-1.9	-1.7	-1.9	-2.2
Govt. debt as % of GDP ^(b)	134.7	134.0	134.9	135.1	134.6	133.3	130.2
Current account as % of GDP	2.6	2.7	2.6	3.0	3.0	3.3	4.7

Note: (a) Change as a percentage of GDP. (b) End-of-year basis; Maastricht definition.

Table B11. Spain

Percentage change

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	3.0	2.9	2.4	1.9	1.8	1.8	1.6
Consumption	2.7	3.0	1.8	1.2	1.4	1.6	1.9
Investment : housing	8.9	11.5	7.7	2.7	2.1	2.4	2.8
: business	4.4	3.1	2.9	3.2	0.7	1.8	1.8
Government: consumption	1.0	1.0	1.9	2.3	1.7	1.3	1.5
: investment	-19.9	4.4	9.7	-2.3	1.7	1.8	1.6
Stockbuilding ^(a)	-0.2	0.0	0.2	0.1	0.0	0.0	0.0
Total domestic demand	2.1	3.1	2.7	1.7	1.4	1.6	1.9
Export volumes	5.4	5.6	2.2	2.1	3.0	1.6	2.3
Import volumes	2.6	6.6	3.3	1.5	1.8	1.0	3.2
Average earnings	-0.2	1.4	0.7	1.6	2.7	3.2	3.1
Harmonised consumer prices	-0.3	2.0	1.7	0.8	1.4	1.6	1.4
RPDI	2.5	1.2	2.2	-1.7	2.2	3.9	2.4
Unemployment, %	19.6	17.3	15.3	14.2	13.3	12.0	11.9
Govt. balance as % of GDP	-4.3	-3.0	-2.5	-1.7	-1.0	-0.9	-1.6
Govt. debt as % of GDP ^(b)	99.2	98.6	97.6	97.0	93.3	89.8	84.1
Current account as % of GDP	3.2	2.7	1.9	1.6	1.9	3.1	2.7

Note: (a) Change as a percentage of GDP. (b) End-of-year basis; Maastricht definition.