

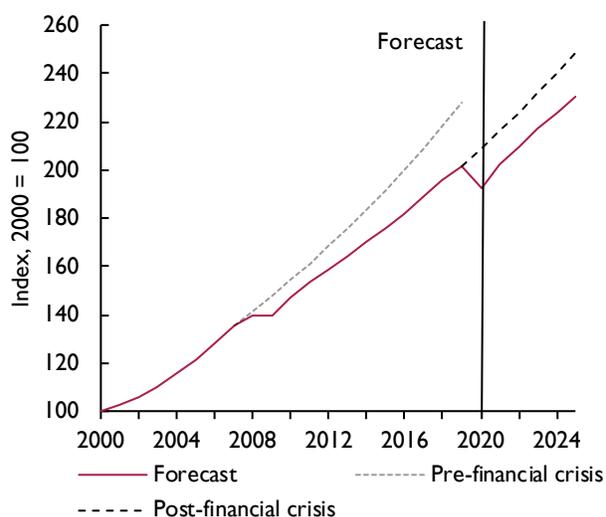
THE WORLD ECONOMY

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Global outlook overview

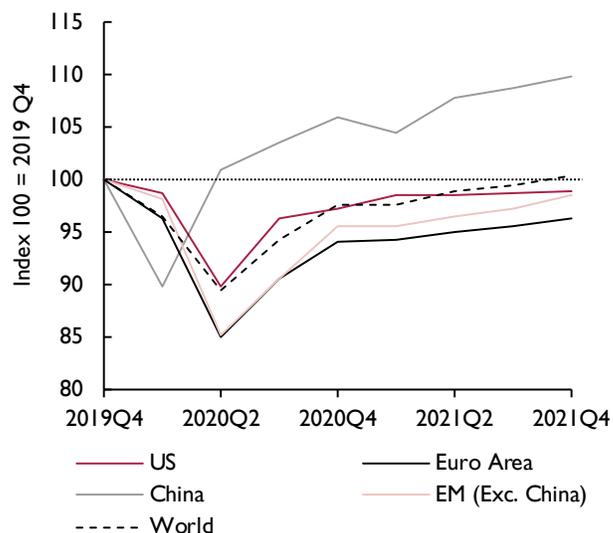
- Responding to the threat to public health, lockdowns have led to the deepest contraction in global economic activity since the Second World War, with global GDP in the second quarter 10½ per cent lower than six months earlier.
- Activity indicators show a rise in global economic activity in the third quarter, supported by strong monetary and fiscal policy actions and some unlocking of restrictions. Despite this, our main-case scenario is for global GDP to fall by 4½ per cent this year.
- With the virus still spreading, a strong and sustained global recovery depends on its control. Our main-case scenario does not anticipate global lockdowns of the scale seen earlier this year recurring, so that world GDP increases next year, by 5 per cent. However, the global economic outlook remains highly uncertain.
- Even with this rise in output, GDP in advanced economies is forecast to remain below its pre-pandemic level until 2022 or later, with unemployment rising in many economies when pandemic-related employment support measures are lifted. Control of the spread of the virus and its effects remains critical for economic recovery.
- Policy interest rates have been reduced to almost zero in many advanced economies and public debt has risen sharply in both cash terms and as a share of GDP. The prospect is for this pattern to remain at least until the threat to public health had receded and economies have returned to sustained growth.

Figure 1. World GDP (index 2000=100)



Source: NiGEM database and NIESR forecast.

Figure 2. GDP (index 2019Q4=100)



Source: NiGEM database and NIESR forecast.

The persistence of the Covid-19 crisis

After the deep falls in GDP in many economies in the second quarter of this year, the general trend of indicators of economic activity in the past three months has been more positive, but considerable uncertainty still remains. The rebound in overall economic activity has reflected the gradual removal of measures that have been targeted at reducing the health threat to individuals from the pandemic. These measures had the effect, by social distancing and restriction of travel and social interaction, of reducing economic activity, especially in service industries such as air travel, accommodation, restaurants and cultural pursuits. Indicators of industrial production in advanced economies and international trade have shown increases in recent months, although the level of such activity remains substantially below that before the pandemic struck. However, recent increases in virus cases, especially in Europe, and impositions of local lockdowns clearly demonstrate that the health and economic outlooks are highly uncertain.

Hopes for such increases in economic activity to continue or to gather pace are, however, to a great extent dependent on the pandemic reducing in virulence. Many countries have used considerable 'firepower' in terms of monetary and fiscal policy to support their economies in the first half of the year as the pandemic raged and the scope for much further monetary impetus has reduced. So, policymakers are continuing to watch keenly for signs that the Covid-19 virus is abating. However, the spread of the number of cases of individuals reporting infection with Covid-19 has continued over the past three months. Globally, the number of cases reported by the World Health Authority (WHO) has increased from 13.6 million cases reported in mid-July to 40 million in mid-October.¹ The increase over the past three months has been particularly marked in India and Europe (notably in Spain, France and the UK).

While many countries have eased their lockdown restrictions, allowing suspended economic activities to restart, risks surround the effects of such unlocking on economic activity, on the spread of the pandemic, and on the possibility and duration of repeated lockdowns. Against this background, and especially the recent resurgence of the virus in Europe, we have revised up our forecast for global GDP growth this year slightly from -5 per cent to -4½ per cent and slightly down for 2021 from 6¼ per cent to 5 per cent. Our central case outlook

of a pick-up in economic growth without a substantial accompanying rise in inflation reflects the fact that even by the end of 2021 GDP is expected to be lower in many economies than at the end of 2019. The fall in GDP this year will far outweigh the fall seen in the Great Financial Crisis, with a fall in global GDP of 4½ per cent this year (a loss in excess of \$9 trillion of GDP relative to the projection we made a year ago), compared with a 0.1 per cent fall in 2009. The shortfall in GDP is illustrated in figure 1.

The focus on GDP does not convey the human suffering from illness, death, deprivation and unemployment that has resulted from the virus. Unemployment rates which had fallen gradually over a number of years have risen sharply, especially in the US (from 3.8 per cent in February to a peak of 14.7 per cent in April, although the rate has fallen to 7.9 per cent in September). One concern is that unemployment is yet to rise significantly in some other, particularly European, countries where job protection measures have been promoted by governments. Another is that when it does rise, it will be slow to fall back, as it was after the financial crisis, creating a scarring effect on jobs from the pandemic.

Employment fell very sharply in the US in the second quarter (by 12.8 per cent) as the pandemic hit economic activity, but has increased in recent months. Euro Area countries showed smaller falls in the second quarter of the year (France -1.8 per cent, Italy -3.6 per cent and Spain -6.7 per cent) as support measures have supported continued employment relationships. The falls in employment, especially in the Euro Area, are likely to continue as the level of economic activity remains below the pre-pandemic level and the support measures are likely to be reduced in strength. Total employment in the Euro Area could fall by about 2 per cent between the end of 2019 and the beginning of 2021, and US total civilian employment by up to 6 per cent over the same period. The fall in economic activity has also been reflected in reduced labour market participation. In the US, the long downward trend of the participation rate from 2000 ended in 2015 when the participation rate stabilised at around 63 per cent. However, there was an abrupt fall between February and April to 60.2 per cent but, as with employment, there has been a small increase since, to 61.4 per cent in September. The extent of the fall in the size of the US labour force in the second quarter (of

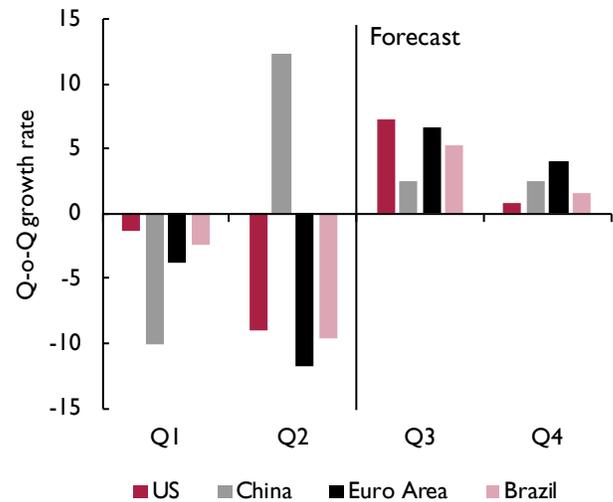
3.5 per cent) was similar to the falls of 2.6 per cent in France, 4.5 per cent in Italy and 5 per cent in Spain as new job openings reduced substantially in the advanced economies.

The possible duration of the current global economic disruption is extraordinarily difficult to forecast because it depends primarily on epidemiological policy responses and behaviours rather than economic policy choices. The different timing and effects of the pandemic across countries and the issue about whether a vaccine will be found and then made widely available relatively soon are additional factors that make the economic outlook particularly uncertain. Our main-case scenario continues to be that strict national lockdowns are gradually phased out, but, as recent experience in Europe shows, local lockdowns of varying severity are possible and these will limit the scope for consistent, rapid rises in GDP. The outlook globally will continue to be one of heterogenous performance if Covid-19 has local outbreaks. Perhaps most importantly, we condition our forecast on the assumption that a global second wave of the virus that has a similar effect to the first wave does not occur. There are likely to be local lockdowns in some countries, as we are currently seeing in Spain, France and the UK, and some of these may become quite widespread but our assumption is that these slow the progress of economies recovering rather than reversing recoveries. As a consequence, the worst economic effects are generally in the first half of this year, with a recovery thereafter, as illustrated in figure 2.

We examine the possibility of a ‘second spike’ of the virus as a risk consideration for early next year – the typical influenza season in the northern hemisphere – but recognise that we have no special epidemiological insight as to the likelihood or timing of such an adverse outcome and that more spikes could occur. There is hope that learning from the first wave (both in medical treatment and lockdowns) will reduce the impacts of further spikes and our risk scenario embodies that assumption. But at this stage no-one can be certain of this. There are clearly significant uncertainties around the assumptions and the economic projections based on them, especially as we are only just starting to observe what happens to both the spread of the virus and economic activity when lockdown measures start to be lifted.

The geographical timing of the pandemic outbreak has meant that medical and control measures to contain and control the outbreak have been applied earliest in China and other East Asian countries. The adverse effect on the Chinese economy was concentrated in the first quarter of

Figure 3. Quarterly changes in GDP in 2020 (per cent)



Source: NiGEM database and NIESR forecast.

this year, when GDP fell by 6.8 per cent year-on-year, but output increased by 3.2 per cent in the second quarter. With this increase and a further annual rise of 4.9 per cent in the third quarter, for the year as a whole GDP in China is expected to rise by 2 per cent. The differing timings of the outbreaks of the pandemic have restricted the global scope for coordinated health and fiscal and monetary policy measures to support economic activity and meant that spillover effects between economies have exacerbated the scale of the fall in global activity.

While fiscal policy responses have been less synchronised than monetary policy, most of the actions have also been substantial. With the virus hitting countries at different times, policymakers have, to some extent, had the opportunity to learn from other countries' health policy responses. This is also the case for the unlocking of economies, which is another unprecedented problem, with issues about how individuals and companies will react. Unlockings so far have been gradual and the recent evidence of Covid-19 cases increasing in Europe after a period during which numbers of new cases fell substantially make it difficult to judge how successful policymakers will be in reversing the unprecedented economic disruption.

Our estimate is that in our main case scenario the economic policy measures taken have reduced the extent of the potential fall in global GDP by about 30 per cent. But this has not been sufficient to prevent substantial

falls in economic activity, widespread job losses and company failures. A recovery of the level of economic activity to that before the pandemic struck is not expected until after 2021 in the Euro Area and the US, although the recovery in GDP already evident in China shows a stronger picture for the global economy.

While the effects of the pandemic were initially evident in China, Europe (particularly Italy, Spain and the UK) and the US, they became more widespread in the second quarter, and the focus globally has shifted to Brazil and India. Emerging market economies (EMs) are being affected directly by the pandemic and their own responses to it but also indirectly through spillover effects from lower trade, investment outflows (especially in the first quarter of this year), and adverse exchange rate movements. One of the worst affected countries, Brazil, has seen its currency depreciate by 40 per cent against the US dollar since the start of the year and the Turkish lira has depreciated by over 18 per cent since the end of July.

Before the Covid-19 outbreak hit, annual world trade growth had already slowed to 1.2 per cent last year, the slowest since 2009, due partly to the imposition of new

tariffs by the US (and subsequent tariff retaliations) and concerns over future tariffs. The pandemic has disrupted global supply chains and reduced world trade. Our projection is for a fall of 9½ per cent in world trade this year, and there is uncertainty about how quickly global supply chains will be re-established, especially if companies decide to diversify their sources and increase the onshore component of supply chains as a business contingency response to the experience of the pandemic.

Against a global background of a sustained period of low inflation, the demand shock is likely to dominate the short-term effect on inflation, which (after allowing for any difficulties in measuring inflation when lockdowns are operating) is generally expected to continue to undershoot targets. In the medium term, the risks on the inflation outlook appear to have increased. There appears to be a greater risk of inflation overshooting targets than previously because the effects of the rapid loosening of monetary policy, substantial fiscal stimulus policies and a period of increased 'forced' savings balances could, at a time of restricted supply, eventually boost demand which, in turn, could lead to higher inflation. At the same time, below target inflation expectations could become ingrained, especially if deflation becomes a short-term feature. Increased risks at

Table I. Forecast summary

Percentage change

	Real GDP ^(a)											World trade ^(b)	
	World	OECD	China	BRICS+	Euro Area	USA	Japan	Germany	France	Italy	UK		Canada
2011–16	3.6	2.0	7.7	5.7	1.0	2.2	0.9	1.8	1.0	-0.3	2.0	2.0	3.9
2017	3.9	2.7	6.9	5.6	2.7	2.3	2.2	2.9	2.4	1.7	1.7	3.2	5.8
2018	3.6	2.3	6.8	5.4	1.9	3.0	0.3	1.3	1.8	0.8	1.3	2.0	3.7
2019	2.9	1.6	6.2	4.5	1.3	2.2	0.7	0.6	1.5	0.3	1.3	1.7	1.2
2020	-4.5	-5.9	1.9	-2.7	-8.3	-3.6	-5.9	-5.7	-10.0	-11.0	-10.5	-6.9	-9.6
2021	4.9	3.5	7.6	6.2	4.2	3.3	1.8	3.6	5.6	4.4	5.9	4.0	9.1
2022	3.7	2.4	5.4	4.7	2.5	2.2	1.2	1.7	2.5	2.1	3.7	2.5	6.2
2023–27	3.0	1.8	4.2	3.9	1.6	1.7	1.1	1.2	1.8	1.4	1.9	2.2	4.1

	Private consumption deflator									Interest rates ^(c)			Oil (\$ per barrel) ^(d)
	OECD	BRICS+	Euro Area	USA	Japan	Germany	France	Italy	UK	USA per cent	Japan per cent	Euro Area per cent	
2011–16	1.5	5.1	1.1	1.4	0.1	1.1	0.7	1.2	1.7	0.3	0.1	0.5	86.9
2017	2.1	3.3	1.3	1.8	0.2	1.5	0.8	1.0	2.1	1.1	-0.1	0.0	54.0
2018	2.6	3.8	1.5	2.1	0.6	1.5	1.7	1.0	2.4	1.9	-0.1	0.0	70.4
2019	2.1	4.2	1.1	1.5	0.3	1.3	0.9	0.5	1.4	2.3	-0.1	0.0	63.7
2020	1.6	4.3	0.6	1.0	0.2	1.0	0.5	-0.1	1.3	0.5	-0.1	0.0	41.9
2021	1.7	3.7	0.9	1.4	0.0	1.1	1.2	-0.1	1.1	0.3	-0.1	0.0	44.9
2022	2.0	3.4	1.3	2.0	0.2	1.2	1.3	1.5	2.4	0.3	-0.1	0.0	47.0
2023–27	2.2	3.3	1.8	2.2	1.0	1.9	1.7	1.5	2.3	0.7	0.4	0.4	49.6

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.

the tails of our forecast distribution leave our central view that OECD inflation in the medium term is likely to run at around 2¼ per cent. A key factor to monitor will be inflation expectations that could become unanchored in either lower or higher inflation directions.

For the medium-term outlook, under the assumption that the pandemic is controlled, our expectation is that global GDP growth will be around 3 per cent a year, slower than the 4.2 per cent annual average in the ten years before the financial crisis.² The world's two largest economies, the US and China, which comprise around one third of global GDP, will show slower potential growth than in the past two decades. Slower growth is anticipated for the Euro Area, Japan and India, meaning that a further quarter of the global economy will contribute to the slower global growth picture. For world trade growth, one medium-term issue that adds to uncertainty is whether there might be a move to increased domestic sourcing within supply chains and greater self-sustainability policies, particularly on food supply. The forecast is summarised in table 1.

Recent economic developments

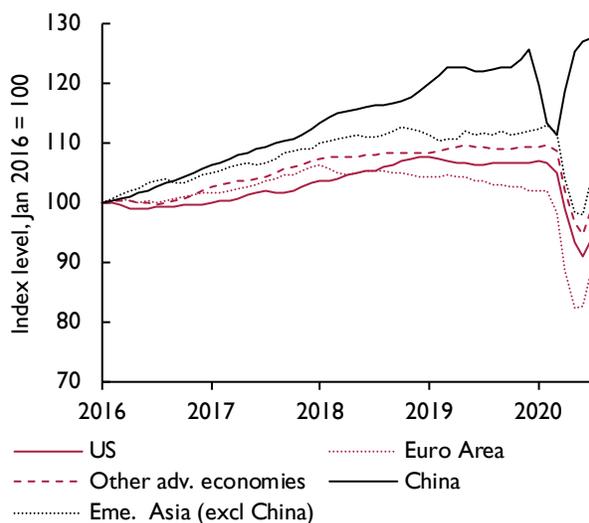
The sharp fall in global economic activity as the pandemic and the measures to protect public health dominated the second quarter of this year. Box A discusses how lockdowns have affected service sector activity. In many countries GDP fell by around 10 per cent, an almost unprecedented drop, in the quarter. The big exception

to this was China, as shown in figure 3, where the pandemic hit first and where GDP had already fallen by 6.8 per cent in annual terms in the first quarter of the year. China had an increase of 3.2 per cent in GDP in the second quarter and a further increase of 4.9 per cent in the third quarter.

The evidence from monthly GDP figures (primarily from advanced economies) and surveys of economic activity shows that the effect of the lockdowns was most widely felt in March, April and May. Since May there have been increased signs of higher levels of economic activity in a wide range of economies. As a consequence, widespread increases in GDP are forecast for the third quarter of the year. Just as many of the falls in GDP in the second quarter were enormous, so many of the rises in GDP in the third quarter will be large. They will not, however, be sufficient to compensate for the previous falls.

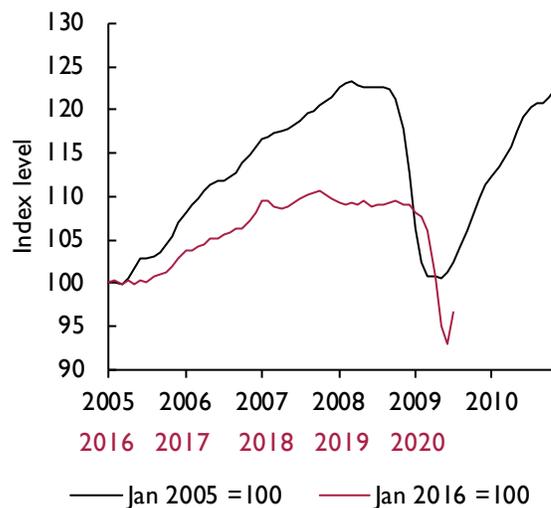
Activity in both industrial and service sectors and world trade has also increased, with world trade increasing by 7.9 per cent in June and 4.8 per cent in July, to accompany increases in industrial production of 4.7 per cent in June and 3.1 per cent in July, as shown in figure 4. Despite these monthly increases, world trade in July was estimated to be 6.6 per cent lower than a year earlier and industrial production down 4.4 per cent. The reduction and bounce-back in industrial production and world trade is a feature of both advanced and emerging economies.

Figure 4. Recent trends in industrial production (level, index Jan 2016=100, data to July)



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

Figure 5. Recent trends in world trade (level, index Jan 2005=100 and Jan 2016=100, data to July 2020)



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

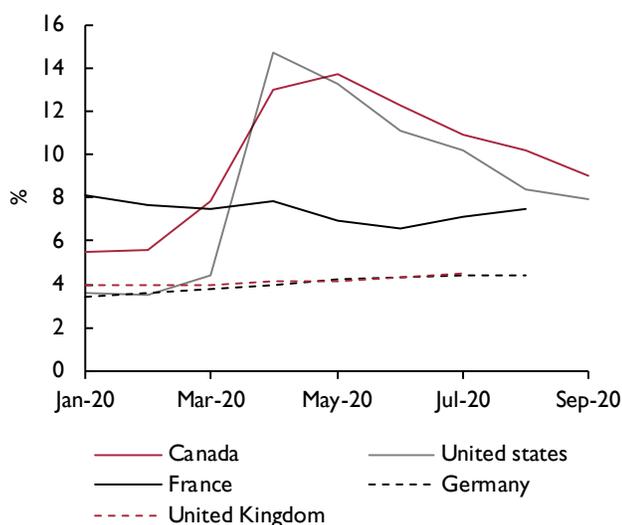
Although the recent monthly activity readings for a wide range of economies have been more positive, in terms of the global outlook this is tempered by the continued spread of the pandemic, particularly in Latin America and the Indian sub-continent. There is uncertainty about the success of unlocking as rates of infection have risen again in Europe, and concerns that although output may increase further, the rate of increase may not be rapid and certainly not rapid enough to prevent substantial increases in unemployment. At the time of writing, the issue of rising infection rates is a particular concern in France, Spain, Ireland and the UK, and countries are imposing local lockdowns. There can be no guarantee that these will not become more widespread and severe if required. The uncertainties about such lockdowns and the extent of economic activity that will be affected, either as the result of health protection rules or behavioural choices by individuals and companies, creates considerable uncertainty for the global economic outlook.

At the time of preparing our August forecast (17 July), the World Health Organisation (WHO) reported 13.6 million Covid-19 cases worldwide, with almost 600,000 deaths.³ As at 17 October, WHO reported 40 million cases worldwide, with over 1.1 million deaths. The US had reported 8.1 million cases (up from 3.5 million cases three months earlier), Brazil 5.2 million (2 million), and India 7.6 million (1.1 million). The continued expansion of the virus has meant that health policies have been

widely adopted to reduce human contact and movement in order to substantially reduce the transmission of the virus. As a consequence, many companies have been unable to operate, especially in service sector industries such as airlines, hotels, restaurants, transport and other related industries, and many of those operating have seen severe reductions in customer business as a result of travel restrictions and business lockdowns. Some other service industries, such as accountancy and banking, have had to change working practices with, as far as is possible, staff members using IT to work from home. The opportunity for home working is generally lower in manufacturing and construction industries than personal service industries. The US Bureau of Labor Statistics estimates that around 30 per cent of employees might be able to work from home (also see Dingel and Neiman, 2020).⁴

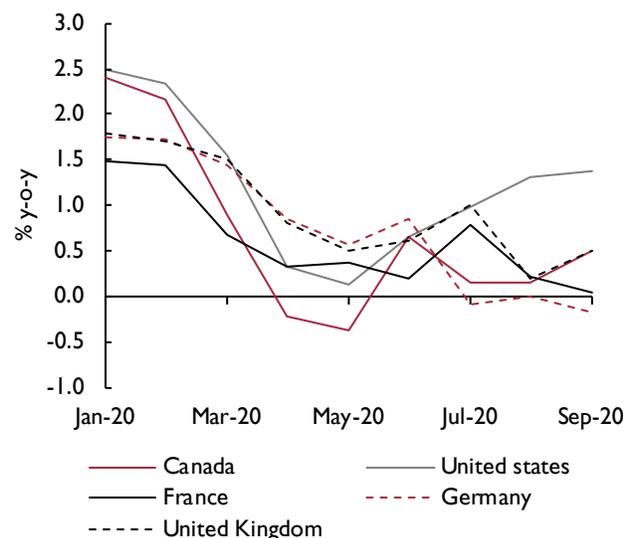
Many companies have seen sharp reductions in customer demand as those unable to work in other parts of an economy have seen their incomes fall and the concern of many governments has been about the potential for unemployment to rise. As a result, many governments have introduced payments schemes to retain employees on company payrolls (furloughs) but, even where these are operating, employees will face considerable uncertainty about their future incomes and so reduce spending, leading to increases in saving rates. The combination of the supply and demand shocks from Covid-19 and

Figure 6. Unemployment rates in 2020 (per cent)



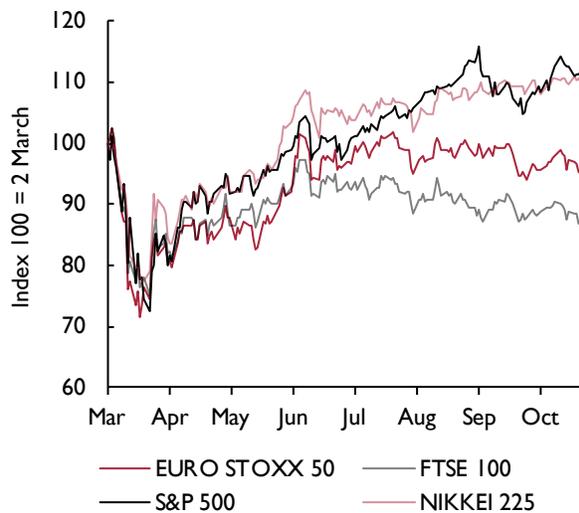
Source: National accounts, Datastream.

Figure 7. Inflation rates in 2020 (annual, per cent)



Source: National accounts, Datastream.

Figure 8. Equity price indices (2 March=100)



Source: Datastream.

the control measures has resulted in lower incomes, reflecting increases in unemployment and reduced hours of work. Even where rising unemployment has so far been limited by furlough schemes, a concern is that such schemes will not last forever and that unemployment will increase at a later date. In the US the number of people employed fell by 20.8 million in April. Employment has increased since, by 11.4 million to September. Figure 6 shows that the US and Canada saw large initial jumps in unemployment rates after February but that unemployment rates have been falling in recent months. In contrast, the European countries have protected employment but are now seeing gradual increases in unemployment rates.

The demand shock appears to have dominated the supply shock in the near-term, with annual inflation rates falling, and deflation emerging in some economies. As figure 7 illustrates, annual consumer price inflation rates have fallen further below formal target rates. The sharp falls in activity and in some cases the severe restriction of some types of economic activity have created challenges for official statisticians measuring inflation (see Dixon, 2020a, b). With continued low inflation in many countries, monetary authorities have been able to cut interest rates and engage in quantitative easing policies. However, in some economies, such as India, where inflation has remained above target, policy interest rates have not been reduced as aggressively as elsewhere and the use of central bank asset purchases has been more limited.

Figure 9. CBOE volatility index – Vix index



Source: Chicago Board Options Exchange (CBOE).

In addition to the supply and demand shocks, the virus and the lockdown measures adopted to control its spread created considerable volatility in financial markets, with the S&P 500 equity price index seeing its largest one-day fall since October 1987 on 16 March. The Nikkei index fell by 18 per cent in the second quarter of this year, and the FTSE 100 and the Eurostoxx fell by 24 and 12 per cent respectively, as illustrated in figure 8. Equity market indices have subsequently rebounded, particularly in the US, with some hi-tech stocks showing substantial gains, in some cases reflecting the increase in working from home and video conferencing, but appear to be susceptible to volatility around risk events such as new lockdowns being implemented or, in the US case, significant developments in the Presidential election or possible fiscal policy changes after it. The earlier return to signs of output recovering and limited virus incidence in some East Asian economies have supported equity markets there.

The Vix index,⁵ an indicator of financial market volatility or uncertainty, had a spike on 12 March which was similar to those in the financial crisis, but, as shown in figure 9, volatility has since eased, as the central banks met the demand for increased liquidity and restored confidence in financial markets. However, volatility remains higher than before the pandemic hit.

All economies have been directly affected by the coronavirus outbreak, with differing timings, but there

Table 2. Recent directions in monetary policy interest rates (per cent)^(a)

	End 2009	Jan. 2020	Oct. 2020	Change
USA	0.25	1.75	0.25	↓
Euro Area	0.25	-0.50	-0.50	-
Japan	0.10	-0.10	-0.10	-
Canada	0.25	1.75	0.25	↓
UK	0.50	0.75	0.10	↓
China	5.25	4.15	3.85	↓
India	4.75	5.15	4.00	↓
Brazil	8.75	4.50	2.00	↓
Russia	6.00	6.25	4.25	↓
Australia	3.75	0.75	0.25	↓
Turkey	6.50	11.25	10.25	↓

Source: Central Banks.

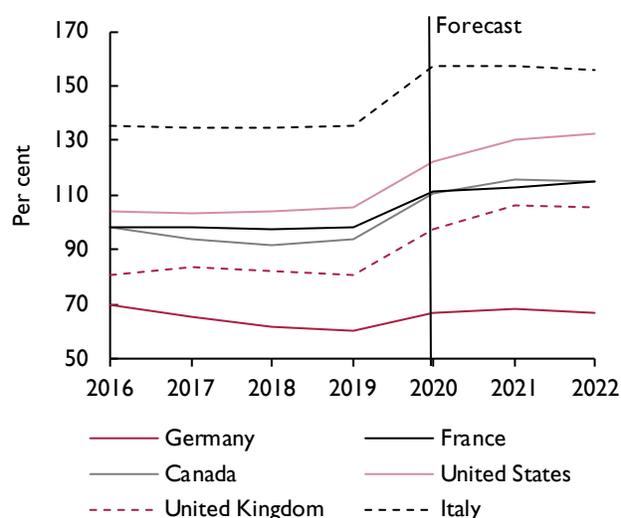
Note: (a) For reference, policy rates at the end of the Financial Crisis in 2009 are shown.

have also been indirect spillover effects from trade and from financial market movements. For emerging market economies, the US dollar appreciations of 12 per cent since the end of January against the Mexican peso and of 31 per cent against the Brazilian real illustrate the extent of such changes. Emerging market economies also saw record capital outflows in the first quarter of the year, of around \$100 billion in two months, about three times the size seen a decade ago in the financial crisis, as funds moved into safe rather than risk assets. This outflow reversed in the second quarter, with inflows of over \$90 billion into emerging economies, but they have remained vulnerable to adverse exchange rate and inflow movements.

Recent economic policy developments

Monetary policies

In the early response to the crisis central banks slashed policy interest rates, as in the financial crisis, to reduce the burden of debt interest repayments for borrowers as shown in table 2. However, because in many advanced economies policy interest rates had barely risen over the past decade from (close to) the zero lower bound that was reached in the financial crisis, the economic boost from these actions will have been relatively limited. Although in many cases policy interest rates have not changed over the past three months, the debate about monetary policy has continued, with some central banks still considering whether to introduce negative rates and the US Federal Reserve effectively changing its operating policy. The change in US Federal Reserve policy may come to influence other central banks (such as the ECB which is currently undertaking a strategy review), especially as low inflation has become widespread in advanced

Figure 10. Government debt as a share of GDP (per cent)

Source: NiGEM database and NIESR forecast.

economies and the pandemic has led to reductions in employment.

Central banks also re-activated their asset purchase programmes and, as a consequence, have expanded their balance sheets again with the consequence that the share of government bonds held by central banks has reached over 25 per cent in the US and the Euro Area and almost 50 per cent in Japan (BIS, 2020). In addition, some emerging market central banks also engaged in asset purchases to strengthen the policy response.

Fiscal policies

Fiscal policy actions were also swiftly taken to support economies and have been widespread and wide-ranging. As with monetary policy, support actions are still occurring, but the main support packages announced earlier are still in force. In the US there have been discussions on a new support package, but these appear to have ground to a halt as the Presidential election takes centre stage. There is a possibility of a new fiscal boost after the election. Government funds have typically been provided rapidly, and while the composition and sizes of the fiscal support packages have differed across countries, as in the financial crisis, governments have increased borrowing and debt substantially relative to their previous plans. In addition, some have guaranteed loans to companies to maintain businesses so that the economy can be restarted once the need for lockdowns ends. If some of these businesses subsequently fail, then

the fiscal costs would increase, and there would also be a further rise in unemployment and claims for social welfare benefits.

The scale of recent borrowing has been such that government debt as share of GDP has risen appreciably in many economies, as shown in figure 10. A greater role for public investment to aid economic recovery from this recession is evident at the same time as government debt to GDP ratios look set to increase by around 20 percentage points this year in many advanced economies. As a consequence, both public debt and the provision of public sector activities, including investment, have come to the fore as important areas of policy debate (Chadha, 2020). In the medium term, how governments respond to higher debt levels once economic growth resumes and the extent to which they decide to follow some of the austerity approaches seen over the past decade will be important factors in determining medium-term economic prospects. In addition, higher debt in some emerging market economies may create funding risks, leading to widening risk premia and possibly exchange rate volatility.

Until mid-February international bond yields were little affected by the nascent crisis. But, as it developed, US 10-year government bond yields slumped from 1.55 per cent in mid-February to a low of 0.54 per cent on 9 March. At 16 October, US 10-year bond yields were 0.76 per cent, still close to record lows as are Euro Area bond yields, at -0.6 per cent in mid-October. Box B discusses the behaviour of term premia for longer-term bonds in the context of the pandemic and the increase in quantitative easing seen in monetary policy responses.

Key assumptions about the Covid-19 shock for the forecast

We have used the National Institute's multicountry macroeconomic model, NiGEM, to estimate the impact of the coronavirus shock through a range of channels (Hurst *et al.*, 2020). Similar to the analysis conducted in our May and August *Reviews*, we continue to model the impact of the coronavirus shock on economic activity through a range of channels, broadly split into supply and demand.

The direct supply shock from the pandemic is assumed to have operated through reduced hours worked and productivity, with people being physically unable to work (due to illness, factory closures or people choosing or being forced to 'self-isolate' in order to contain the spread of the virus). Some of these effects were visible

in employment data, especially in the first quarter for those countries that went into lockdown earliest. But the different types of employment support schemes will mean that not all of the employment effects will appear in measured employment totals or in unemployment figures. The impact on productivity in all economies is assumed to be a combination of a short-term severe impact due to a lockdown and more longer-term effect due to a shift in working environments.

The main channels of the direct domestic demand shock in economies have been through reduced consumer spending, private investment and destocking. Lower consumer spending has been seen particularly in reduced transport activity (including domestic and international air traffic and tourism), leisure activity such as hotel stays, meals out and cinema visits, and retail shopping activity, evidenced by the sharp falls in retail spending that have been widely seen, with some commentators claiming that the pandemic has accelerated an existing trend towards on-line consumer purchasing activity.

Similar to the impact on the supply side of economies, the effect on demand is considered to be a combination of a short-term severe impact due to a lockdown and more longer-term effect, as companies with reduced cashflow (and lower cashflow expectations) are likely to reduce their spending and also have a permanent loss of some foregone expenditure on investment and employment, with job losses leading to lower incomes and spending.

We assume that the short-term impact on private consumption will dissipate towards the end of 2021/2022, on the assumption that there is either some vaccine found early next year, which becomes widely available during the course of the next year, or that the virus loses its potency through so-called 'herd immunity'.

In addition to the direct shocks from the pandemic and domestic policies to combat the virus, economies will suffer from indirect or spillover economic effects as changes in demand for exports and imports, including tourism, and movements in global financial markets affect economies. At the global level, we estimate that spillovers amplify the magnitude of domestic shocks by roughly 60 per cent – if all countries around the world suffered a 1 per cent domestic shock, the global economy would be expected to contract by 1.6 per cent after accounting for spillovers, although spillover effects are not uniform across countries (see Holland and Liadze, 2020). While the coordination and synchronisation of further policy responses would help to offset some of these negative effects, the progress of the pandemic

through countries has not brought this about. On the positive side, central bank and government support measures, which vary across countries in their magnitude, have acted to mitigate the negative effects on economies. Incorporating the various fiscal support measures reduces the fall in global GDP by around one third (Holland and Liadze, 2020).

Our assumption of gradually reducing stringency is not inconsistent with there being short periods of local (sub-national) lockdowns. It would, however, be inconsistent with a widespread influenza episode in the northern hemisphere winter and a resurgence of Covid-19 leading to a repeat of prolonged and widespread lockdowns. Instead, we discuss this possibility as a risk scenario. The key short-term uncertainties, especially for advanced economies, concern how the lifting of lockdowns will progress, how people will react to this process and whether the unlocking can be achieved without a significant increase in coronavirus cases which might necessitate a re-imposition of national lockdowns. Some epidemiologists have argued that the national lockdowns might need to be re-imposed and that, without a vaccine to provide immunity, the coronavirus outbreak could recur periodically, with lockdowns being imposed quite frequently either on a local or a national basis. Some implications of these issues and others for the short-term economic outlook are examined in the risks section of this chapter.

Main-case forecast scenario

The Covid-19 pandemic hit when the world economy was experiencing its slowest annual GDP growth for a decade. In 2019, GDP fell in Argentina, Mexico and Hong Kong. Other economies, such as Germany, Italy, Japan and South Africa, recorded annual growth rates below 1 per cent. In many advanced economies the sharp reductions in policy interest rates following the financial crisis a decade earlier had only tentatively started to be reversed and governments had been trying to reduce borrowing in order to control the growth in public debt that had built up in the financial crisis.

The supply and demand shocks from the pandemic did not hit countries at the same time and so economic policy responses were not coordinated or synchronised. In addition, the pandemic posed new challenges to governments that added to the difficulty – no government had a ‘pandemic playbook’. Severe pandemic shocks in Europe were generally met with strict and sustained lockdown measures (Sweden stands out as a counter-example) and the US response varied by state. The unlocking too has not been to a general timetable but

Table 3. Projected dates of GDP returning to 2019Q4 levels for selected countries

Date of GDP return to 2019Q4	Country	Fall in GDP to trough
2020 Q2	China	-10%
...
...
2022 Q2	Australia, US	-8%, -10%
2022 Q3	Russia	-11%
2022 Q4	Germany, India	-12%, -26%
2023 Q1	Canada	-13%
2023 Q2	Brazil, UK	-12%, -22%
2023 Q3	Euro Area, France	-15%, -19%
2023 Q4		
Later	Japan, Italy, Spain	-8%, -18%, -22%

Source: NiGEM database and NIESR forecast.

there are now signs from indicators such as monthly GDP estimates, survey measures of economic activity (such as the PMIs) and other activity indicators that the widespread falls in GDP have stopped and that GDP is growing again, although the pace of such growth has slowed after an initial rebound in several economies. The positive direction of such indicators for western industrial countries are widely repeated across the world but are not universal. Neither is the pace of the new growth in activity uniform across countries.

Our central projection is based on the assumption that there is not a widespread second wave of infection and a subsequent general international re-imposition of national control measures. There are likely to be periods of re-awakenings of the virus and probably local lockdowns in response. But our forecast does not assume widespread national lockdowns. Consequently, economic activity levels gradually, and somewhat haltingly, increase as companies and individuals cautiously start to adapt to a still worrying health environment during this year and next. As one indication of the extent of the economic cost of the pandemic, table 3 shows the timing of when levels of GDP are projected to return to their pre-pandemic levels of 2019Q4 in major economies.

Forecast for economic activity

While uncertainty about both the progress in combatting the virus and the near-term sustainability of the recovery in output seen so far remains, we have reduced our projected fall in global GDP this year slightly, from 5 per cent to 4½ per cent. We continue to expect that, in terms of global GDP, the worst part of the fall will have been in the second quarter, when global GDP is estimated to have fallen by 7¼ per cent.

However, the timing of the process of output growth resuming is still likely to lead to what will appear to be a sharp rebound in global GDP growth in 2021. From the lower level of activity this year, based on our assumption of there not being a virulent second wave next year, global output growth is projected to be 5 per cent in 2021 (slightly weaker than our previous forecast of 6¼ per cent). While such a growth rate sounds rapid, it needs to be considered in the context of the scale of the fall in economic activity in the first half of this year. As table 3 shows, many of the major economies are not expected to regain their output levels of the final quarter of 2019 by the end of 2021. Indeed, our main-case scenario does not anticipate Spain and Italy recovering their pre-pandemic GDP levels until 2023 or later.

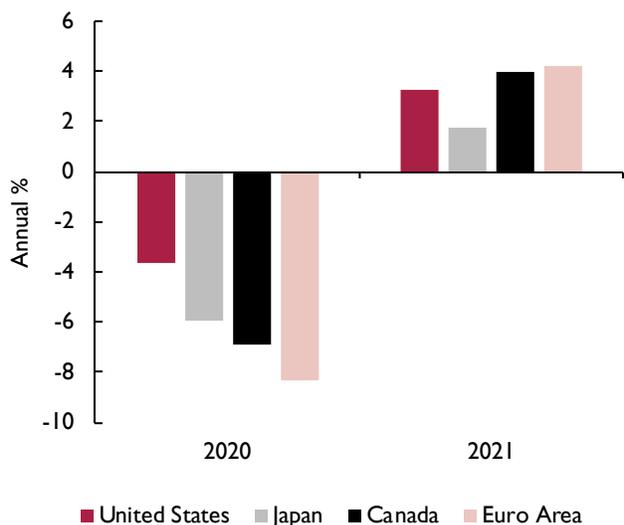
In terms of timing, China appears to be an outlier relative to the other major economies. After a 6.8 per cent annual fall in GDP in the first quarter, economic activity increased in the second quarter, with annual growth at 3.2 per cent, as the lockdown was lifted. After a stronger annual growth performance in the third quarter, at 4.9 per cent, we anticipate that over the year as a whole China will record a 2 per cent rise in GDP this year, but that GDP will grow by around 7½ per cent next year due to the rebound effect from the low base level.

Other major economies, especially the US and Euro Area, saw the effects of the pandemic and lockdown measures

affect monthly economic activity most sharply starting in March. As a result, many economies saw relatively small falls in GDP in the first quarter, with the largest part of the hit to economic activity in the second quarter of this year. With GDP anticipated to be rising in the third and fourth quarters, US GDP is forecast to fall by 3½ per cent this year before rising by 3¼ per cent in 2021, as illustrated in figure 11. Even though we project US GDP falling this year by 3½ per cent, the other major advanced economies are forecast to see more substantial output falls. Because of the earlier ‘normalisation’ of policy interest rates, the US has been able to respond to the economic damage of the health crisis more strongly in monetary policy. Euro Area GDP is projected to fall by a more substantial 8¼ per cent this year, and experience an increase of 4¼ per cent next year. Within the Euro Area, the largest GDP falls this year are projected for Italy –11 per cent, France –10 per cent and Spain –12¾ per cent, with Germany seeing a markedly smaller fall in GDP of 5¾ per cent, reflecting the timing and severity of the pandemic in different economies and the relative success of the measures taken to both control the virus and shield the economies from substantial damage.

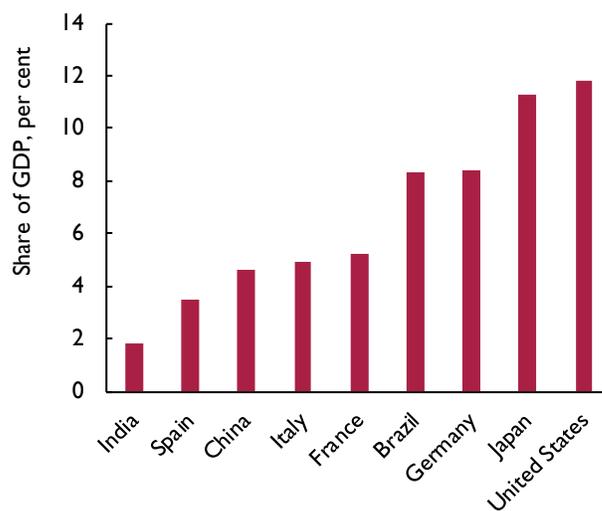
Within emerging economies there has been a developing split in economic growth performance between China and India and the other emerging economies over the past two decades. Figure 13 illustrates this in terms of annual GDP growth, with GDP of the emerging economies, excluding

Figure 11. GDP growth in advanced economies (per cent)



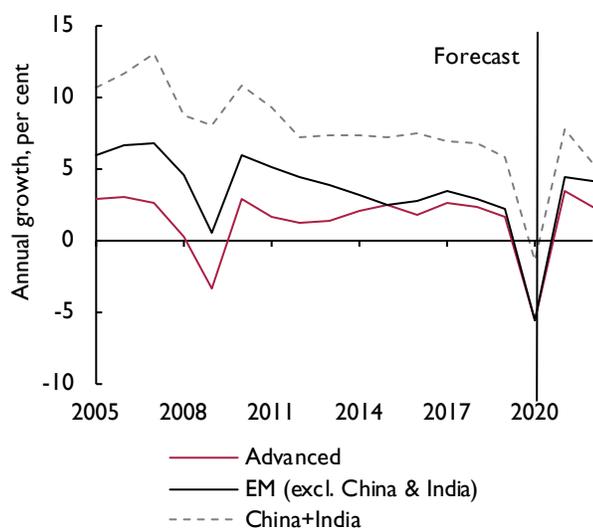
Source: NiGEM database and NIESR forecast

Figure 12. Fiscal support measures (as a share of GDP, per cent)



Source: IMF Fiscal Monitor (14 October 2020), additional spending and foregone revenue as % GDP

Figure 13. GDP growth in advanced and emerging economies (per cent)



Source: NiGEM database and NIESR forecast.

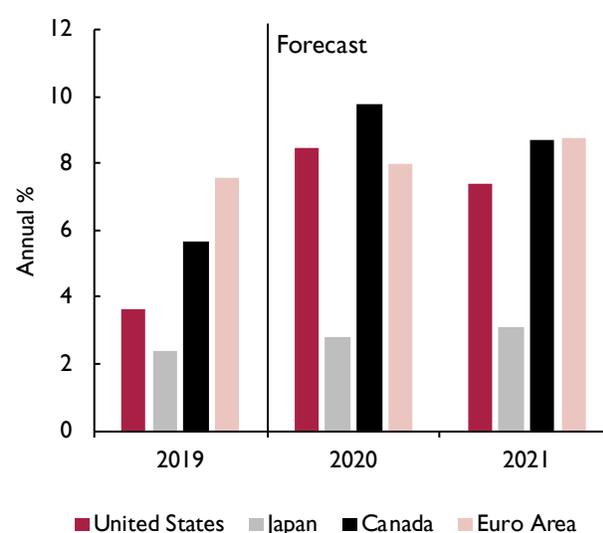
China and India, in the pandemic projected to fall this year by -5.6 per cent, a similar percentage to that for advanced economies, and to rise slightly faster in 2021, by 4.4 per cent. Looking back over the past five years, the group of emerging economies excluding China and India has grown only marginally faster than the advanced economies. The size of the previous growth differential has narrowed markedly.

Part of the slowdown in annual GDP growth experienced by the other emerging economies as a group in the past decade has been due to periods of recession in economies, including Argentina, Brazil, Russia, South Africa and Turkey. In the pandemic these emerging economies will be adversely affected by spillover effects from the falls in activity in the advanced economies as well as the effects of the pandemic in their own countries (Holland and Liadze, 2020, Küçük, 2020).

At the same time, the pace of annual economic growth in China and India has been falling over the past decade, reflecting the change in economic development phase in China and challenges within India. Our forecast is that China and India combined, which account for around 25 per cent of global GDP, will experience an output fall of -1.4 per cent this year before seeing a rebound of 7.7 per cent next year.

The sudden, unprecedentedly sharp fall in economic activity has resulted in increases in unemployment

Figure 14. Unemployment rates (per cent)

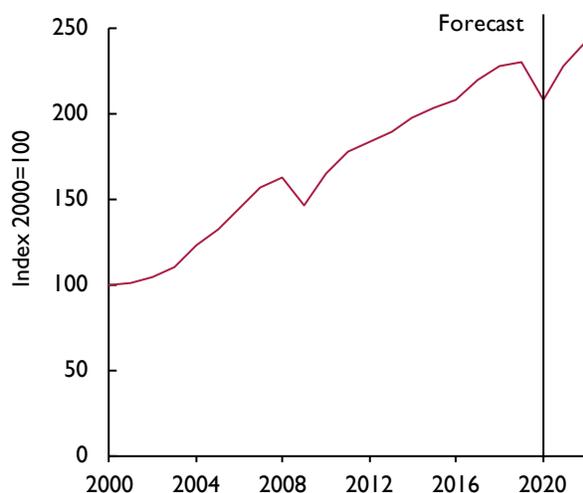


Source: NiGEM database and NIESR forecast.

and expectations of increases in unemployment in those economies where there has been a policy of fiscal support for existing jobs. The unemployment rate in the US is forecast to rise from 3.7 per cent last year to $8\frac{1}{2}$ per cent this year, but to fall to $7\frac{1}{2}$ per cent next year. In the Euro Area it is forecast to rise from 7.6 per cent in 2019 to 8 per cent this year and to rise further to $8\frac{1}{2}$ per cent in 2021, as shown in figure 14. Although we assume that the deep economic dislocation will be temporary, in previous episodes when economic activity has recovered from recession, the subsequent reduction in unemployment rates has been generally slower than the initial increase. There are, therefore, likely to be concerns about labour market scarring for certain individuals who find it difficult to find employment as output expands. Factors such as changes in working environments, increased working from home, wider adoption of IT skills, and potentially lower retail 'High Street' operations could all contribute to difficult labour market conditions for some groups of workers. As a consequence, the recovery in GDP is generally projected to run ahead of the improvement in labour market outcomes.

Last year saw the slowest pace of world trade growth since the financial crisis as global GDP growth slowed and trade tensions mounted, with tariffs rising. One result of the effects of the pandemic virus and the lockdown measures has been to intensify that slowdown into a fall in global trade this year, the first fall since

Figure 15. World trade index (2000=100)



Source: NiGEM database and NIESR forecast.

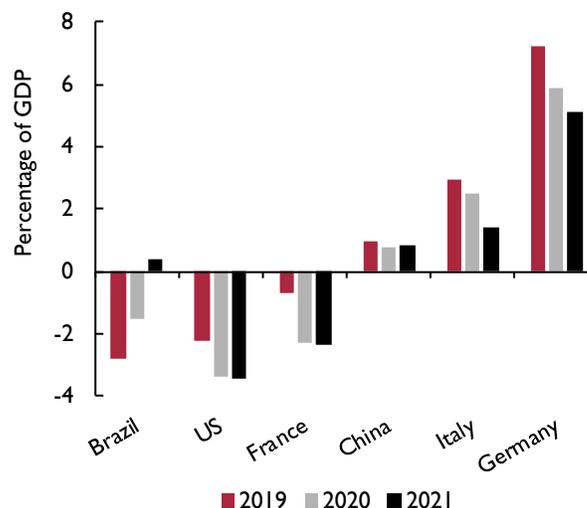
2009. The size of the fall is projected to be larger than during the financial crisis, at $-9\frac{1}{2}$ per cent, but with an anticipated rebound next year, as shown in figure 15. The pandemic has led some companies to revisit their plans about supply chains and global sourcing and, although we forecast a rebound in world trade growth of 9 per cent for 2021, the issue of deglobalisation has become a much-discussed topic (see Kara and Macchiarelli, 2020).

With the fall in world trade, current account surpluses (as shares of GDP) have fallen this year in Germany and Italy, as shown in figure 16. However, both the US and France have seen their current account deficits increase, with the effects of the contraction in trade not being uniform across countries. Countries such as Brazil that have experienced sizeable exchange rate depreciations have seen reduced deficits (or increased surpluses), but reduced trade purchases of motor vehicles and airplanes and reduced trade flows of intermediate goods have been an important factor, as has reduced travel and holiday tourism. This may be a temporary adjustment, with current account balances generally returning towards pre-pandemic levels (as shares of GDP) in the medium term.

Forecast for inflation

In the advanced economies since the financial crisis, consumer price inflation has generally been low relative to inflation targets despite the continued economic expansion which has reduced estimated output gaps and led to multi-decade lows in unemployment rates in some

Figure 16. Current account balance as a share of GDP (per cent)



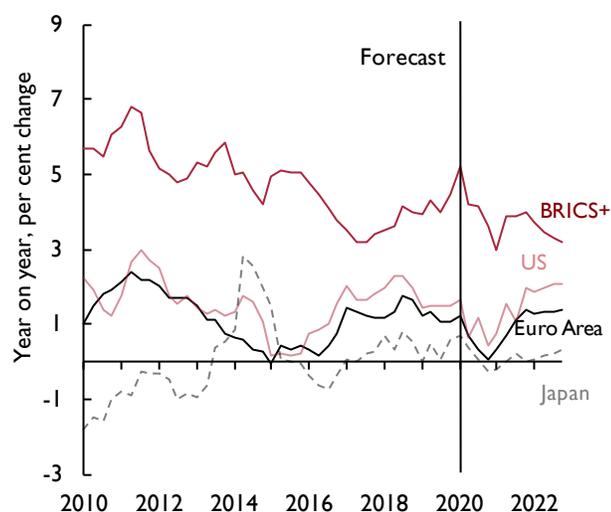
Source: NiGEM database and NIESR forecast.

countries. Despite relatively slow productivity growth contributing to increases in unit labour costs and the imposition of tariffs potentially putting upward pressure on inflation (Naisbitt and Whyte, 2020), inflation expectations appear to have remained well anchored in recent years (Lenoël and Macchiarelli, 2020).

The short-term outcome of the shock to demand from the pandemic and the control measures has been generally lower inflation, although there are increased difficulties in measuring inflation at a time when retail shopping patterns have changed because of lockdowns (Dixon, 2020a). While short-term consumer price inflation expectations have shown some volatility, reflecting the falls in inflation and the changed economic circumstances, longer-term market-based inflation expectations have not responded substantially (Lenoël and Macchiarelli, 2020). With substantial uncertainty about the future path of the pandemic, the risks of either sustained very low inflation (as the deflationary effects of the shock work through) or a return to above target inflation (as the effects of the substantial monetary and financial stimulus and the build-up of money supply balances boost expectations) are likely to be considerably greater than before the crisis.

Our main-case scenario portrays a situation in which the reduction in demand is expected to lead to lower OECD price inflation in the near term, with annual inflation forecast to fall from 2.1 per cent last year to $1\frac{1}{2}$ per cent this year. The fall in the price of oil that resulted from

Figure 17. Inflation in advanced and emerging economies (annual, per cent)



Source: NiGEM database and NIESR forecast.

a combination of sharply lower demand and a political disagreement between OPEC and Russia about restricting oil supply and led to a near 20-year low in the price of oil in mid-April (falling to \$15 per barrel in the week of 20 April) is contributing to the overall fall in inflation.⁸ However, the lockdown greatly reduced vehicle traffic in the major advanced economies, so that much of the potential cost savings to consumers from substantially lower oil prices were not realised. With oil prices at close to \$40 per barrel in early October, oil prices still remain 30 per cent lower than a year ago and will be contributing to downward pressure on annual consumer price inflation. As the pace of economic activity recovers in 2021, albeit with the level of GDP still lower than before the crisis, this is likely to reduce the downward pressure on inflation, and OECD price inflation is projected to average 2¼ per cent a year in the medium term.

For emerging economies as a whole, the gradual, prolonged decline in annual inflation over the past decade ended in 2017 but inflation overall remains subdued (Mao *et al.*, 2019). Argentina and Turkey have seen very high rates of annual inflation in recent years, but these have reflected specific domestic economic circumstances rather than a wider trend. Annual price inflation in the major emerging market economies as a group, as shown in figure 17, is projected to remain subdued, as it is for advanced economies, with short-term reductions but gradually reverting to around 2¼ per cent in the medium-term.

Medium-term outlook

The effects of the coronavirus outbreak, and the measures taken to combat it, have resulted in a sharp fall in the level of global GDP in the short term. As with the financial crisis, the length of time taken for economies to regain their pre-recession GDP levels will vary. China has already done so but some economies might not return to the pre-pandemic level of GDP until 2024. As a consequence, average global GDP growth over the period 2019 to 2024 is projected to be lower than expected before the crisis.

Thereafter, in the medium term, GDP growth is expected to be slightly slower than in the period before the pandemic due to two factors. The continued slower growth in China than in the past two decades, a factor anticipated before the pandemic, will contribute. After two decades of rapid growth, China's economy has entered a new stage of development and its share of global GDP has increased from 7 per cent in 2000 to 17 per cent in 2019.⁹ Box C discusses some issues relating to the prospective development of the Chinese economy. Another factor is the likelihood of some scarring effects on growth and productivity from the changes wrought by the pandemic. For example, unemployment rates are expected to rise but then decline only gradually, and it is likely that, given the new risk realised by the virus, additional resources will be devoted to healthcare provision, which has traditionally had a relatively slow measured productivity growth rate.

To some extent, such an outlook appears to be a continuation of existing trends. Over the decade since the financial crisis, average annual GDP growth in the G7 economies has grown at a slower pace than in the decade prior to the crisis, despite policy interest rates being held at ultra-low levels for an extended period in most major economies. Emerging market economies, excluding China and India, have seen a reduction in the average annual pace of growth from 5.6 per cent between 2000 and 2007 to 3.3 per cent between 2011 and 2019.

Our medium-term outlook projects global GDP growth running at around 3 per cent a year, with annual GDP growth in the advanced economies at around 2 per cent a year, and emerging economies (including China and India) at around 4 per cent a year. A relatively subdued pace of growth is expected to lead to annual price inflation remaining subdued. This inflation performance would be helped by some reductions in the very high inflation rates in countries such as Argentina and Turkey in recent years. However, the build-up of both debt and private

sector cash savings balances in advanced economies lead us to view the more substantial risks of either markedly higher or substantially lower medium-term inflation as a result of the pandemic and the responses to it. These risks are now greater than before the pandemic, reflecting the size of the monetary and fiscal boosts, the scale and severity of the short-term negative demand shock, the shock to supply potential, and the possibility of inflation expectations becoming unanchored.

Risk issues for the global forecast

Many major economies appeared to have passed the peak point of the infection threat during the summer and the process of unlocking the unprecedented restrictions that were placed on social interaction, business operations and travel by governments to fight the disease started. However, the health threat of the pandemic is still present. As a consequence, unlocking carries considerable risks. One is that the virus will spread again, as a second wave, requiring governments to re-impose lockdowns. This process is happening in several European countries in October, although the lockdowns are, to date, local rather than national levels (although in some cases covering significant populations) and are not as severe economically as those in the first half of this year. The greater risk would appear to come from the northern hemisphere winter and the threat of a seasonal flu episode being accompanied by a resurgence of Covid-19, which would likely result in national lockdowns. Another risk is that some of the economic and social changes that have come about because of the pandemic, such as business closures and changes in people's attitudes to working from home and internet purchasing, may be such that unlocking, of itself, will be inadequate to restore economic activity sufficiently to return output growth to pre-pandemic rates.

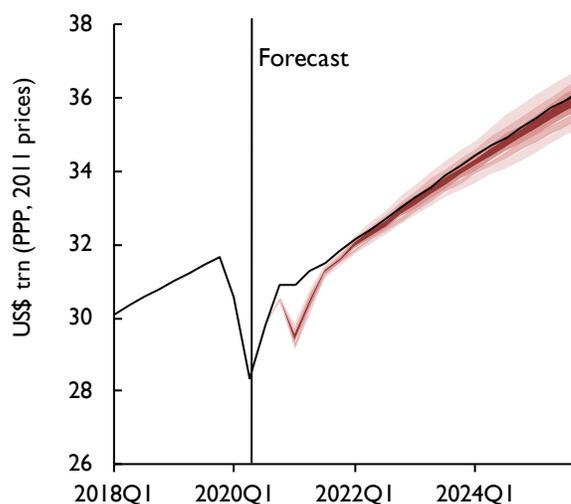
Consequently, the uncertainty concerning the extent and the pace of economic activity recovering is enormous. Our forecast is conditioned on the assumption that the economic lockdown restrictions are gradually lifted, and that widespread re-imposition is not required. It does not assume that all restrictions are lifted in one timing. Some of the countries that started to unlock have reimposed restrictions on either local areas of their economies or types of economic activity, particularly on travel and people congregating for entertainment events.

If lifting restrictions results in the factors that have suppressed the virus disappearing and the virus taking hold again, then reimposing control restrictions would risk sending economies into a new downturn. Were that that to be the case, there would be less scope

for additional monetary and fiscal measures to shield households and companies from the adverse economic effects than there was earlier this year, as government debt has already risen substantially and many economies are operating with policy interest rates close to zero. Figure 18 illustrates our estimates around the risk of a second (but less severe) wave of infection hitting ranges of countries in the global economy at the start of next year, assuming that our central GDP projection holds for the rest of this year. This GDP fan chart uses stochastic simulations on our NiGEM model of the possibility of a recurrence of the pandemic early next year, in which the adverse economic effects of the virus on the economy are assumed to be around half of those already seen this year.

Given the lack of a vaccine and the devastating health effects of the pandemic, the health and economic effects of a possible second wave of the virus provide a clear downside risk. It is, however, possible that the short-term economic outcome could be better than the central case forecast. Lockdown measures have particularly hit service sector activities that usually involve face-to-face interactions but many service sector employees have

Figure 18. Global GDP projection and scenario with additional downside risks associated with Covid-19 recurrence from 2020Q4 (level, US\$ trillion at PPP)



Source: NiGEM database, NIESR forecast and NiGEM stochastic simulations. Note: The fan chart incorporates a 50 per cent chance in the first half of 2021 of a second wave of Covid-19 across a range of countries, with assumed 60% of the intensity of the first wave effects. The fan chart is intended to represent the uncertainty around the scenario as in the assumptions described above. Each successive lighter shade represents a 10% chance that GDP will lie within the boundary of that shade. There is a 20% chance that GDP will lie outside the shaded area of the fan.

been able to work from home, and companies have now had some time to explore processes by which activities that previously involved personal contact might be done remotely. With signs from recent surveys of economic activity in both industrial and service sectors rising in many economies, it is possible that output in the worst-affected sectors might recover more quickly than in our main-case scenario, especially if the spread and intensity of the pandemic were to abate. This might be particularly the case if high saving ratios reflect ‘pent-up’ consumer demand, especially if changes in business procedures can reassure consumers and so enable activity to return safely and quickly. The real key to a more positive health outcome globally is the speedy development and distribution of an effective vaccine. There can be no guarantee of this, but the extent of the worldwide research effort over the past six months and the co-operation between researchers internationally provides some hope for considering upside economic risks.

The economic policy measures taken in the crisis (both to lockdown and support economies) could change the future development of economies. Higher levels of unemployment may not reduce quickly, especially if companies with financial losses from the loss of business in the pandemic reconsider the scale of their operations or if the higher level of corporate debt leads to increased company failures (despite the lower level of interest rates), and so lead to economic scarring. Companies may change their policies on sourcing of supply, looking to re-arrange supply chains, or may hold more stocks (‘just in case’ replacing ‘just in time’) as a result of problems they have experienced in the pandemic. The experience of the lockdown and social distancing may change individuals’ attitudes to living, working and spending, particularly on commuting, visiting retail centres and international travel.

Governments have increased debt (and debt to GDP ratios) above previous plans, with advanced economy debt to GDP ratios increasing by around 20 percentage points in the past year. While low interest rates facilitate the financing of these increases in debt, in the medium term governments will need to decide on whether to reduce debt or to remain at higher debt levels. If the former is chosen, then the policy choice concerning a return to austerity could return. Higher debt also creates a vulnerability to higher interest rates. This may be a particular problem for emerging economies if their exchange rates were to depreciate suddenly and higher interest rates were required to stabilise a currency. A feasible medium-term outlook might be a prolonged period of ultra-low interest rates with a tendency to

slightly higher inflation than over the past decade so that the real debt burdens reduce gradually.

Those economies in East Asia that have coped well with the pandemic (such as China, South Korea, Singapore, and Vietnam) will have a different degree of economic exposure to countries such as Peru, Ecuador and Mexico in Latin America. Some emerging market economies have additional vulnerabilities, requiring not just domestic policy intervention but also action from international agencies (Djankov and Panizza, 2020, Kara *et al.*, 2020). The support of the IMF and World Bank will be important here, with the IMF currently making about \$250 billion, a quarter of its \$1 trillion lending capacity, available to member countries, with \$11 billion of emergency financing provided to Peru, \$24 billion to Chile, and \$6.5 billion to Ecuador.

Before the pandemic hit, a major topic of international economic concern was the impact of tariffs and trade wars. The slowdown in international trade last year in part reflected the increase in trade policy, particularly between the US and China. The issue of de-globalisation has been raised (Kara and Macchiarelli, 2020) and how US tariff policy will develop may depend critically on the result of the US Presidential election. The issue of increased trade barriers remains an important one for both world trade growth and regional growth (Dullien *et al.* (2020), Liadze (2018b), Hantzsche and Liadze (2018) and Verikios *et al.* (2020) as well as for the regions within the US economy and overall economic performance.

There remains a risk that trade tensions could re-surface as the global economy recovers, leading to higher tariffs and restricting world trade growth. To the extent that global production value chains may have been adversely impacted by the uncertainty over future tariffs, new risks realised from the pandemic, such as security of medical and food supplies, may place increased pressures on companies to re-shore production. Our previous research on the effects of increased US tariffs on global GDP growth, using our NiGEM model (Liadze, 2018a and b, Hantzsche and Liadze, 2018, and Liadze and Haache, 2017a), illustrate the downside risk for the medium-term global outlook should the trade war of the past two years escalate.

Policy responses to risks

The economic policy response to the Covid-19 pandemic by advanced economies has been uncoordinated (with the major exception of the provision of access to US dollars to a group of central banks through swap lines

with the Federal Reserve). If downside risks crystallise, further monetary and fiscal policy actions are likely, with the possibility of a US fiscal support package after the election. The somewhat later spread of the pandemic to Latin America, Africa and parts of Asia has meant that the policy responses there have appeared less synchronised. Collectively the health and economic measures taken will deliver positive spillovers by saving lives everywhere and supporting economic activity; the economic spillover effects from the early lockdowns in advanced economies have been negative (Holland and Liadze, 2020).

With the number of infections still rising – it is globally over 25 million higher than three months ago – and with over 1.1 million people having died, the immediate health policy priority remains to save lives locally by fighting the spread of the infection and supporting households through medical care. At the same time, economic measures can support individuals and businesses and ensure that goods and financial markets continue to function effectively. The global scale of the shock and the evidence of spread across countries provides a case for heightened international policy coordination to support public health and the health of the global economy.

The international agencies, such as the IMF and World Bank, can act to help to support those countries that are unable to provide the necessary level of domestic support because of constraints. For emerging market economies the outflow of capital in the first quarter of 2020 was the largest ever (Lanau and Fortun, 2020) but that has now stabilised, with net inflows in each month of the second quarter of the year. At mid-October the IMF had provided support to 81 countries, with assistance of \$101 billion and a potential support level of \$250

billion.¹⁰ The World Bank, IMF and G20 have acted to allow the world's poorest countries to suspend payment of official bilateral credit and the World Bank is making available up to \$160 billion in financing capacity up to June 2021 and has provided over \$50 billion of International Development Association (IDA) resources on grants and highly concessional terms.¹¹

While sovereign debt levels have risen globally, with global interest rates at low levels there is likely to be fiscal space for countries to borrow more to finance both the health response and the promotion of economic growth afterwards. Such actions will, however, present differing challenges for countries in terms of debt servicing and the ability to issue new debt, especially if economic recovery proves to be fragile. There have been arguments made for providing debt relief for some emerging market economies, especially in cases where sovereign risk premiums might rise to reduce significantly any benefits from lower long-term interest rates in global financial markets.

One potential issue that international cooperation could assist is that of reducing measures to restrict the cross-border licensing and sale of medicines. With the US having announced its intention to withdraw from the World Health Organisation, at a time of a global health crisis, it will be important for the best use of resources to promote a global recovery both in health and in economies, and to avoid excessive costs for testing and medicines which could delay attempts to fight the virus. Continuing to aim to remove barriers to international trade, especially in services and trade concerning healthcare and the exchange of scientific information, will be important in combatting the virus and potential future such episodes.

Box A. A new kind of economic downturn – a lockdown recession affecting services by Barry Naisbitt and Kemar Whyte*

The recessions caused by the Covid-19 pandemic and the governmental responses to the health emergency have two important characteristics – the exceptionally deep quarterly falls in GDP in the second quarter of this year that have occurred as lockdowns have been imposed and, within these falls, the unprecedented falls in service sector output. This box focuses on the latter phenomenon and discusses the contribution of the fall in service sector output to the fall in GDP in the major advanced economies in the pandemic.

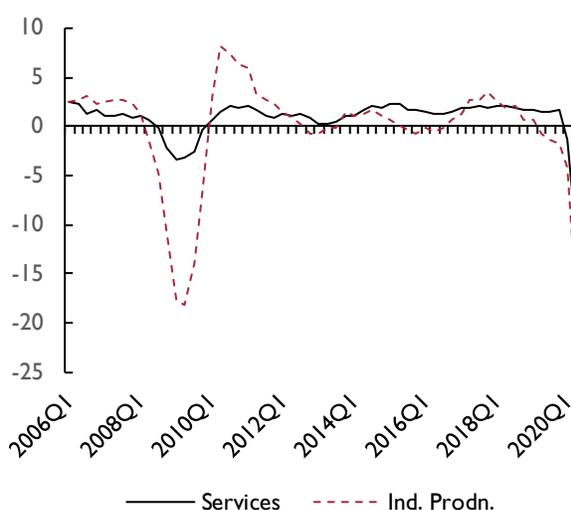
The economic cycle in industrial production has long been a key feature of economic analysis of the overall business cycle. In the past half century, industrial production activity has been considerably more volatile than that of GDP. As services have grown in importance in economic activity, their lower cyclical volatility has acted to mitigate the effect of industrial volatility on GDP. In previous recessions such as the Great Financial Crisis, industrial production showed a substantially greater fall in output than GDP, with the relative lack of cyclical volatility of the service sector helping to reduce the overall fall in economic output. This has changed in the recession resulting from the pandemic, as figure A1 illustrates.

In a ‘usual’ recession, households and firms concerned about current and future income and revenue typically reduce spending and investment, respectively, with the effects showing significantly on the industrial sector. But service sector activities have tended not to exhibit the same scale of fall in output. As figure A1 shows, the recent recession has had a very different pattern. Industrial production in advanced economies has fallen by a similar percentage to that in the recession caused by the financial crisis. But the service sector has not provided a buffer because the service sector has experienced an unprecedented downturn in activity, reflecting the effects of both Covid-19 and the lockdown restrictions that have been adopted to protect public health. These have concentrated on restricting personal mobility and interpersonal contact, which are two key features of many service sector activities. Table A1 documents the extent of the falls in industrial and services activity in selected advanced economies.

The falls in service sector activity have not been uniform across countries, with the UK and France experiencing the largest falls in service sector output between the final quarter of last year and the second quarter of this year. Part of this may represent ongoing trends in the sectors across countries. But the major explanation is due to the extraordinary restrictions placed on citizens in lockdowns in the first half of this year which, by limiting social distance, public gatherings and movement, have had a particularly adverse impact on activities that involved social gatherings and interactions such as restaurants, theatres, sporting activities, and travel. These actions have had different timings, coverage and severity in terms of the dislocation of normal business activity across countries. Comparing output levels in the second quarter of this year with the final quarter of last year (before the pandemic struck these economies), the UK and France have seen the largest falls in service sector output, with the US and Germany the least. But all of these falls have been substantially larger than seen in the past half century.

Not all parts of the large service sectors have been affected equally. Table A2 presents details of the output changes in seven broad service sectors across selected advanced economies. While there are some differences in precise definitions, it shows that

Figure A1. Services and industrial production output (annual change, per cent)



Source: NIESR calculations for G7 excluding Japan.

Table A1. Change in output between 2019Q4 and 2020Q2 (per cent)

Country	GDP	Industrial production	Services
USA	-10.1	-14.7	-10.1
Germany	-11.5	-20.8	-10.2
UK	-21.8	-18.1	-21.4
France	-18.9	-21.6	-17.3
Italy	-17.9	-24.3	-15.4
Canada	-13.4	-15.2	-12.8

Source: NiGEM database, OECD and NIESR calculations.

Box A. (continued)**Table A2. Service sector output change (2020Q2 compared with 2019Q4, per cent)**

	Trade, transport, accommodation and food services	Information and communication	Financial and insurance services	Real estate activities	Business services	Public services education, health	Other services
USA	-18.6	-2.5	-0.6	-2.8	-8.9	-9.8	-36.2
Germany	-13.6	-4.9	-0.4	-1.2	-16.2	-9.9	-19.9
UK	-36.3	-12.1	-4.6	-2.2	-24.4	-22.9	-47.5
France	-27.3	-9.3	-8.3	-3.0	-20.4	-16.9	-36.2
Italy	-29.0	-5.0	-5.6	-6.1	-21.8	-7.1	-14.7
Canada	-25.0	-5.4	-0.5	-1.4	-17.8	-10.2	-42.3

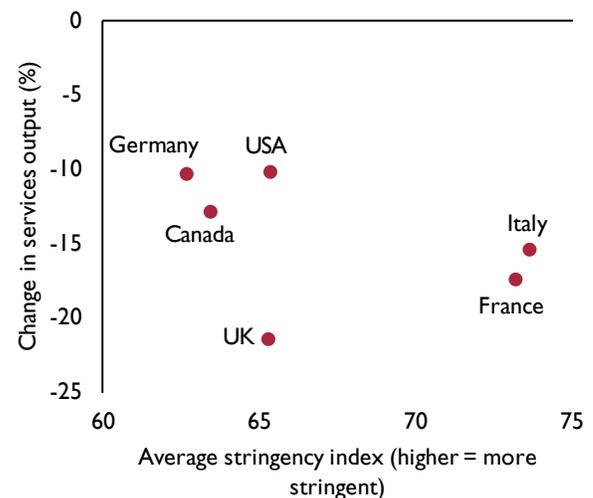
Source: National statistical offices and NIESR calculations.

other services (which includes arts, entertainment and recreation), and the trade, transport and accommodation sectors have generally experienced the deepest falls in output in these advanced economies as the effects of reductions in social interactions, public gatherings and mobility have hit. It is also notable that those service sectors not as directly affected by such restrictions to business have seen only limited falls in output.

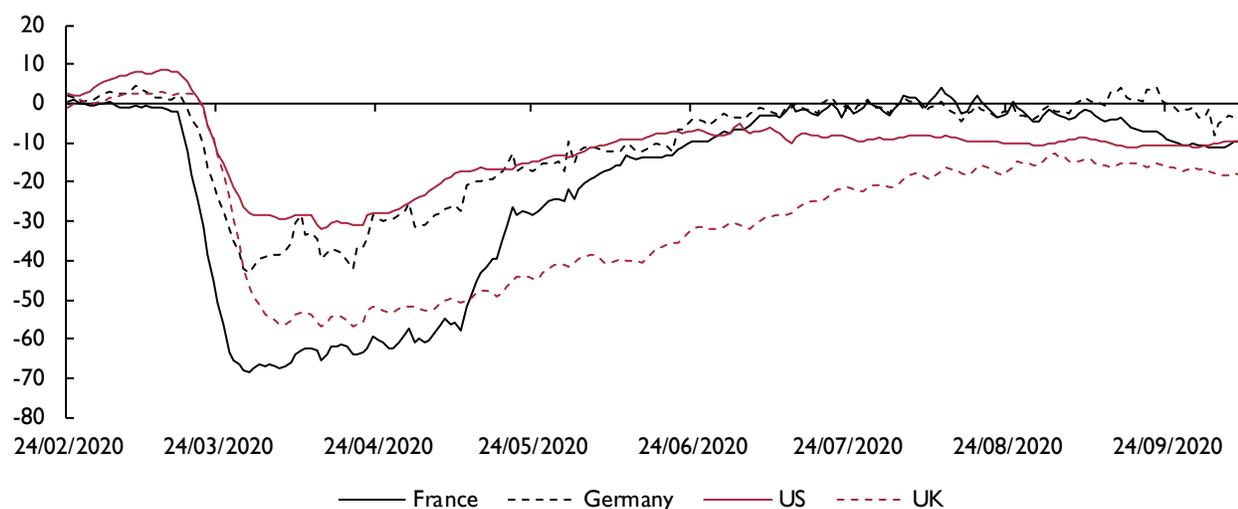
The differences in the extent of the falls in service sector output across countries in the first half of this year reflects the fact that the incidence of the pandemic has not been uniform across countries and that the timing and extent of lockdowns, and the support for citizens and businesses affected by lockdowns, have also not been uniform across countries. However, the unprecedented reduction in service sector activity has been severe in all six countries.

Figure A2 provides an examination of the association between the scale of restrictions and the change in output of service sectors. This shows the average level of the stringency index (developed by Oxford University as a measure of the extent of lockdown restrictions) between March and June for each country and the percentage change in service sector output between the final quarter of 2019 and the second quarter of 2020. The figure shows a general pattern of larger service sector output falls in countries where lockdown restrictions have been estimated to be more stringent, but the relationship is not a straightforward one as it depends on both the types of measures and the relative importance of the sub-sectors most affected.

In all the advanced economies examined the extent of the restriction on movement and interpersonal association has had important effects, with activity in the broad sector including travel falling by over 10 per cent in the period. This scale of reduction in activity has been more typically associated with production industries in a recession. Monthly information on the production industries has shown that as lockdowns relaxed late in the second quarter (and at varying times in different countries), output increased. Figure A3 shows Google mobility indices for selected economies, which clearly point to increased travel and transport activity as the lockdowns have eased into the third quarter of the year. These would appear to be consistent with the services PMI output indices which have generally shown a pattern of services output increasing in advanced economies late in the second quarter and into the third quarter of this year. But for some industries in the service sector (such as spectator sports, theatres, music concerts, restaurants and bars) many restrictions on social activity have continued, either nationally or at a local level, and so they will not have been able to increase their output to the same extent as those industries that do not have such restrictions.

Figure A2. Stringency and change in services output

Source: National Accounts, Oxford Covid-19 Government Response Tracker, NIESR calculations.

Box A. (continued)**Figure A3. Mobility index (selected countries, 10-day averages)**

Source: Google LLC 'Google COVID-19 Community Mobility Reports'.

The nature of restrictions on social interactions introduced as a means of combatting the public health threat of the pandemic has meant that parts of the service sector have been extremely vulnerable to lockdown measures. This feature has been common across the major advanced economies, although the extent of contractions in service sector industries has differed across countries. As a result, this recession has been very different from previous ones. To the extent that severe lockdowns can be eased, this should result in service sector activity increasing, although with Covid-19 still present there may be a lack of willingness and confidence by some individuals to partake in social activities until an effective vaccine has been widely adopted. This suggests that a rapid recovery in many types of service sector activity may well be a long time off. This is especially the case where reported numbers of Covid-19 cases are rising again in some advanced countries and restrictions on movement and contact are being re-imposed (typically on a localised basis). Service industries remain in the economic front line in the battle against Covid-19 and it is possible that their output could fall again if the pandemic has a 'second wave'.

NOTE

The authors would like to thank Jagjit Chadha for helpful comments.

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Box B. Government bond term premia during the pandemic

by Corrado Macchiarelli

With monetary policy interest rates at the effective lower bound (ELB) in developed economies, the conventional view is that countries should deploy their fiscal stimulus (Chadha, 2020).¹ Since the start of the Covid-19 pandemic, such fiscal support came in conjunction with the continuation of the central banks' asset purchase programmes so as to provide fiscal space, allowing governments to support the provision of services and transfers to mitigate the health and welfare impact of the shock across the society.

Central bank bond purchase programmes of the type announced before and during Covid-19, such as quantitative easing (QE), have a direct effect on the liquidity of the bond market. Long-term Treasury yields can be decomposed into two components: expectations of the future path of short-term Treasury yields and a term premium. These are, respectively, the average current and expected future short-term interest rates, and the compensation investors require for bearing the risk that short-term Treasury yields will not evolve as expected (risk premium).

Studying the term premia over the recent pandemic allows us to investigate what has driven changes in Treasury yields since Covid-19. In this box, we discuss the Treasury term premia for the US and the UK and some selected European countries, i.e. Italy and Germany, with particular attention to the period after March 2020.

Since the term premium is not a variable which is observable, it must be estimated. To do so, we use a five-factor, no-arbitrage term structure model following Adrian *et al.* (2013a). The model uses zero-coupon yield data which are available at a daily frequency.

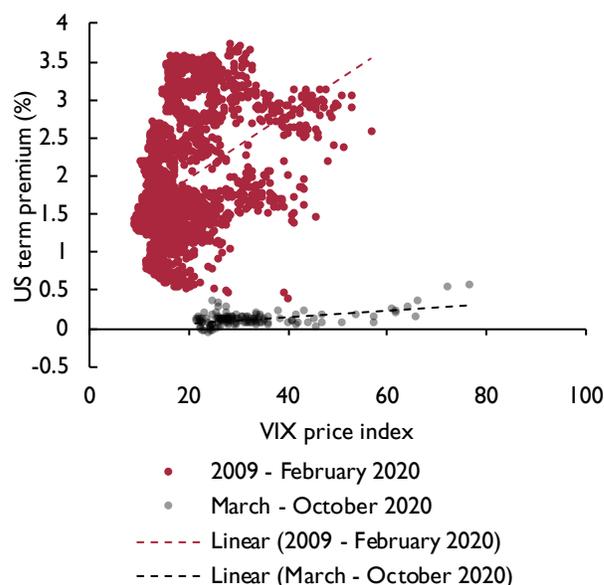
The term premium which we obtain is typically a countercyclical variable that rises during recessions and falls during recoveries (see Adrian *et al.*, 2013a, b). Since early 2020, however, there is no clear-cut relationship between the increase in term premia and the individual country output losses, particularly in some countries where a two-digit economic contraction has not been accompanied by a corresponding increase in the term premium.

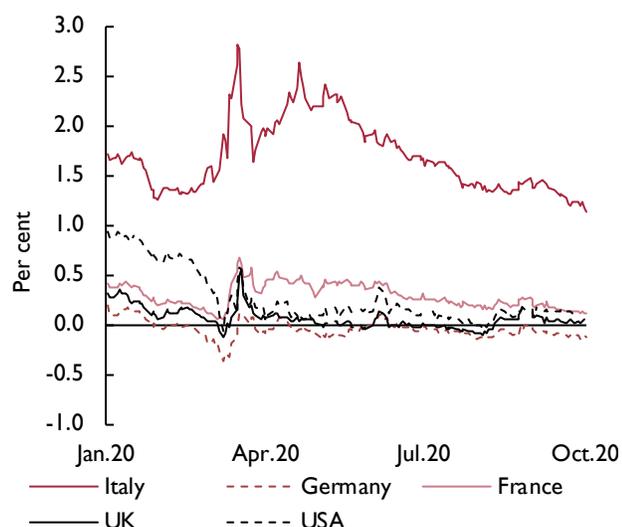
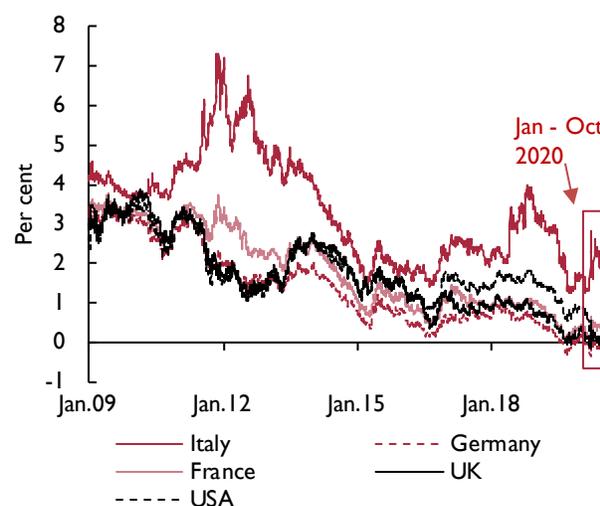
It is also useful to compare the term premium we obtain with standard measures of uncertainty or volatility (VIX), for the US for example. The evidence suggests that financial market volatility appears to be normally associated with high levels of term premia, as evidenced by the linear fitted line (2009 – February 2020) in figure B1. This relationship tends to be stable over time, but this year seems to have shifted with Covid-19. After March 2020, as volatility has increased as the result of the pandemic, the corresponding risk premium for the US, as well as for the UK and most European countries, has remained low – suggesting a different regime. Why has that been so?

Treasury bond yields can change in response to the monetary policy stance, both conventional and unconventional, to the extent that they reflect changes in the expected path of future short-term interest rates or changes in the term premium. Unconventional monetary policy – including asset purchase programmes and forward guidance – is particularly instructive in this case, as it represents the central bank's commitment that policy is going to be lower for longer, but also that the market will not have to absorb large quantities of bonds onto its portfolios.

Ten-year government bond yields have been close to zero as the result of the European Central Bank, the Bank of England, and the Federal Reserve having adopted large-scale asset buying programmes and the commitment to keeping near-zero repo rates.² This commitment was restarted in March 2020. At the same time, the corresponding term-premia estimates show that the premia in many countries have been compressed and, in some cases, have turned negative.

Figure B1. The relationship between the US term premium and CBOE SPX volatility VIX



Box B (continued)**Figure B2. 10-year Treasury bond risk premium component Jan–Oct 2020****Figure B3. 10-year Treasury bond risk premium component Jan–Oct 2020**

The evolution of term premia has been of particular interest in the Covid-19 pandemic. Figure B2 looks at the experience of this year. The modelled term premia rose sharply in most countries at the onset of the crisis in March but then recovered after that. In particular, Italy recorded the highest increases in March, standing at 2.8%, whereas Germany recorded the lowest peak, 0.1%, followed by the US and the UK at 0.5%. The term premia compression observed after the peak in March was the case even though uncertainty remained high. Those dynamics can be ascribed to expansionary monetary policies of the type of QE. Evidence for the UK suggests, for instance, that much of the persistent compression in term premia was due because bond market participants correctly inferred that the central bank would pursue an accommodative monetary policy that would keep longer-term yields low (Chadha *et al.*, 2020; Mellina and Macchiarelli, 2020). Given financial markets' integration, a significant amount of the movements observed at the longer end of the yield curve also depends on changes in international risk and uncertainty, as well as monetary policy developments abroad and interest rate spillovers (Kaminska *et al.*, 2015; Kearns *et al.*, 2018). The co-movements in the UK, US and German term premia since 2009 are particularly suggestive of the role of such channels (figure B3).

With the current observed inflation rates, episodes where policy rates are constrained by their ELB are thus likely to become more frequent and prolonged (i.e. so much so that some countries have become at risk of losing the anchor of inflation expectations; see Lenoël *et al.*, 2020). Policy rates at the effective bound – be it zero or less – require the continuation of unconventional monetary policies but those have been shown to have diminishing returns (Bean, 2016). This means that the likelihood of nominal interest rates hitting the zero lower bound has increased compared to the period prior to the Great Financial Crisis. The observed slack in the economy, together with uncertainty on the shape and length of the recovery, means that monetary policy will have to stay looser for longer. The change in the US monetary policy in August supports this view, yet there is a lot of uncertainty on whether the current policy mix will be able to generate inflation over the medium run (Lenoël and Macchiarelli, 2020).

A world of persistently low interest rates and productivity growth may be more prone to generating a leveraged 'reach for yield' by which speculative asset-price cycles have become detached from fundamentals. In fact, while the real return on indexed sovereign debt has been shown to trend mostly downwards since 1985, returns on equities have remained consistently flat since the late 1990s, in line with an increasing preference for safe assets (Bean, 2016). This has also been the case after the March 2020 shock, where greater expected income gains, compared to government bonds, have swiftly driven stock prices back to their pre-Covid-19 levels – particularly in some sectors (Delle Monache *et al.*, 2020).

Looking at the data since the pandemic flared, there is thus no evidence that term premia have recorded sustained increases following an upsurge in volatility and uncertainty after the 2020 shock. This is consistent with the observed behaviour of the Treasury bond rates in the US, the UK and Europe, which reflect both low expected future short-term interest rates for now, and compressed risk premia.

Box B (continued)

While our term premium measure is estimated and is naturally subject to some uncertainty, our conclusions are consistent with both short-term and long-term factors. Not only have bond yields been on a long-term declining path, but also shifts in safe assets and bond scarcity, as the result of the central banks' purchases, have played a role particularly in countries where bond demand increased as the result of 'flight to safety'. The risk premia observed since March 2020 therefore do not compare in scale with what was observed at the height of the Global Financial Crisis; since then, asset purchase programmes such as QE have been quantified to compress 10-year sovereign term premia by about 75–95 bps, with these effects changing depending on the country and period considered (see, e.g., Eser *et al.*, 2019). Recent evidence also suggests that the long-term borrowing costs are likely to decrease further in developed economies due to the increase in (precautionary) savings and lower investment demand because of Covid-19 (see Chudik *et al.*, 2020).

Expectations about changes in the future stance of monetary policy and the composition and riskiness of the central banks' balance sheets will influence term premia going forward. Therefore, the link between Treasury term premia and monetary policy is something to watch for, particularly as the boundary between non-conventional monetary policy and deficit-financed government support might change in the future.

NOTES

- 1 For a discussion on developing economies, see Benigno *et al.* (2020).
- 2 To a lesser extent in the US, where government bond yields were above zero as 10-year short-term expected interest rates have remained higher, at around 1 per cent.

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Box C. Growth, productivity and digitalisation in China

by David Nguyen¹

Since a peak in 2007 China's real GDP growth rate has been declining steadily to around 6 per cent per year in 2019 (see figure C1). In addition, the country is facing the twin challenge from a global demand and supply shock in the wake of the COVID-19 crisis, and a rapidly ageing society. This box turns the focus onto China's digital economy and argues that a widespread adoption of digital technologies is key for raising the country's productivity levels and sustaining economic growth.

In early 2020, the pandemic led to China recording its first drop in quarterly GDP in almost 30 years. Nevertheless, the country is still expected to grow on an annual basis this year, in contrast to most other large economies. The August forecasts by NIESR projected global GDP to decrease by around 5 per cent this year, which dwarfs the financial crisis recessions (Naisbitt *et al.*, 2020). While China seems to have weathered the initial shock relatively well, this large global economic contraction will be challenging for a country that is so deeply integrated into global trade and production networks (Allen *et al.*, 2020). A sizeable drop in foreign demand for Chinese goods and services, and potential drying up of foreign direct investment could turn the focus towards raising domestic consumption as well as productivity to foster economic growth.

Digital technologies as saviours of labour productivity?

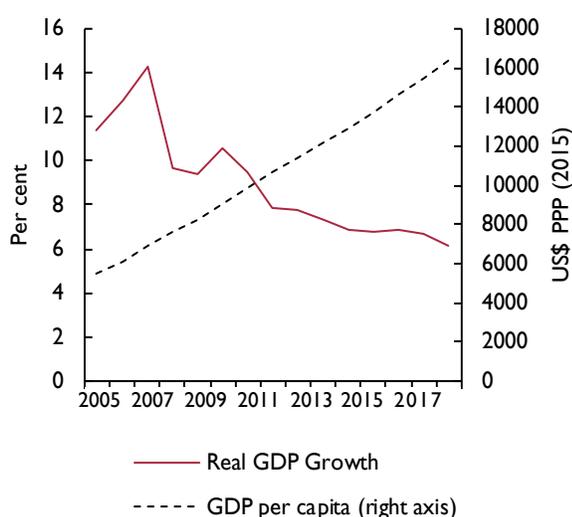
China performs well at developing and adopting digital technology and is home to some significant ICT technology companies. For example, in October 2020 the market capitalisation of Alibaba and Tencent (owner of WeChat) exceeded \$800 billion and \$650 billion (around 5.6 and 4.5 per cent of Chinese GDP in 2019), respectively. China also has the ambition to become a global leader in artificial intelligence (AI) and is generally considered to be second to the US but ahead of Europe in this field (Castro *et al.*, 2019).

However, the challenge China faces is to achieve a wide adoption and diffusion of digital technologies across large firms and SMEs. Analysts have estimated that in the first two months of 2020 alone almost 250,000 firms have declared bankruptcy (around 50% more than in a 'typical' two-month period), most of which were young SMEs.² Many were located in Guangdong in the Pearl River Delta, which is China's most dynamic economic region and manufacturing heartland.

As firms need to raise their levels of productivity, i.e. the amount of output they produce for a given set of inputs, they will have to embrace the use of cloud computing services, robotic process automation, artificial intelligence, 3D-printing and smart sensors connected via the 'internet of things'. There is some evidence that at least when it comes to industrial automation, China is lagging behind. As shown in figure C2, there are on average 187 industrial robots per 10,000 employees in China, which compares to 228 in the US, 346 in Germany, 364 in Japan and 855 in Korea. Nevertheless, in absolute terms China has been the largest market for industrial robots for a few years.

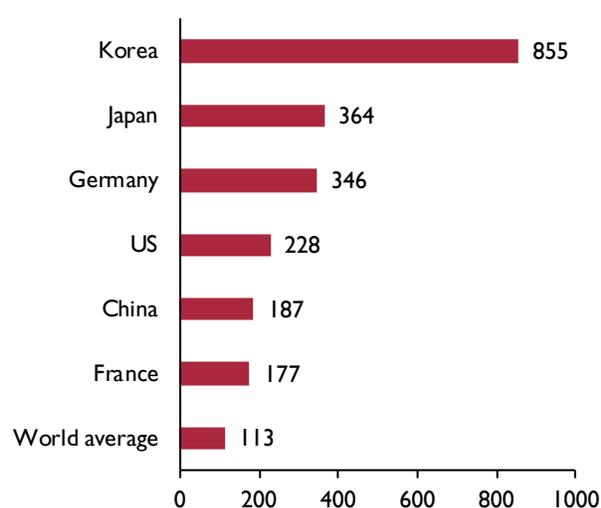
The Chinese e-commerce market is among the largest in the world, but online sales only account for around 16 per cent of its GDP as compared to 46 per cent in the US and 61 per cent in Japan (UNCTAD, 2019). More importantly, it is much more focussed on consumers rather than business-to-business (B2B) activity. For instance, in the US, Japan and Germany more than 90 per cent of e-commerce activity is B2B, but only around 50 per cent in China. This also hints at lower levels of digitalisation in the

Figure C1. Real GDP growth (per cent) and GDP per capita (US\$, 2015 PPP) in China, 2005–19



Source: IMF and OECD data.

Figure C2. Number of industrial robots per 10,000 employees, 2019



Source: International Federation of Robotics, 2020.

Box C. (continued)

Chinese business sector but also lower levels of household consumption.

Growing old before getting rich?

The longer-term challenge stems from the fact that Chinese society is ageing rapidly and is expected to join the club of countries with declining populations in the coming years (see figure C3). Its current population of 1.43 billion is projected to decline by 2 per cent by 2050 and drop to just below 1.1 billion by 2100 (United Nations, 2019). Since life expectancy is also increasing generally, a direct consequence of this is an increasing dependency ratio as already experienced by many advanced economies. The crucial difference in the Chinese case is that, despite steady growth in GDP per capita (see figure C1), the country is still considerably poorer on average when compared to the US, Japan and most European countries. For example, its 2019 level of around US\$16,300 (constant, PPP) is 3.7 times lower than in the US, 3 times lower than Germany, and 2.7 times lower than the UK (OECD, 2019).

Furthermore, as a direct consequence of the projected secular decline of the labour force, growth in productivity will become the crucial element to maintain and raise incomes and living standards further. As businesses may increasingly struggle to find workers, they will need to embrace more automation technologies and diversify into higher value-added service sectors. This aspect is very much in line with the Japanese experience, where the absence of large-scale inward migration and effective policies to raise fertility rates has led to similar challenges.

Challenges for a 'Go Out' policy in the digital era?

A slowing global economy will not only affect China by reduced demand for its exports, but also for overseas operations and sales of its multinational enterprises.³ While adopting digital technologies will be important to raise domestic productivity, precisely the same providers of such digital services and ICT equipment have been met with increasing scrutiny and opposition as they are expanding outside of China. Some of the most high-profile cases include banning Huawei (and SMIC, China's largest microchips manufacturer) from selling ICT equipment in the US and UK, as well as the required sale of TikTok and effective ban on WeChat in the US.

Thus, although China has a competitive edge in digital economy, it has to face important challenges in order to achieve higher productivity levels based on wider adoption and diffusion of digital technologies with an ageing population in a post-pandemic world. Moreover, there is a downside risk to growth if China decides to respond to Western protectionism regarding its digital companies with further protectionist measures at home.

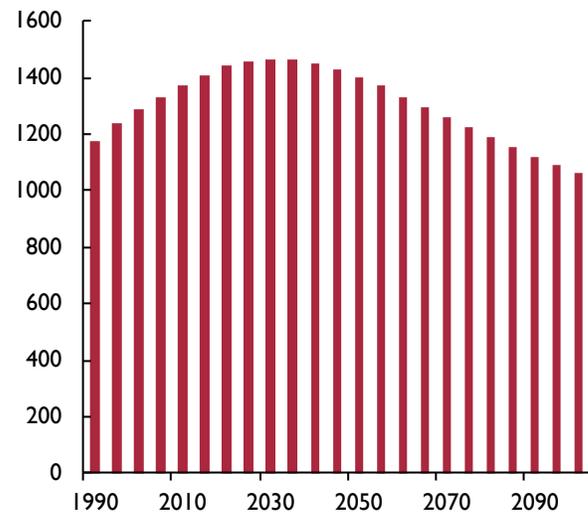
NOTES

- 1 The author would like to thank Jagjit Chadha, Hande Küçük, Xuxin Mao and Barry Naisbitt for helpful comments and discussions.
- 2 Feng, J., 9 April 2020: <https://supchina.com/2020/04/09/more-than-240000-chinese-companies-declare-bankruptcy-in-the-first-two-months-of-2020/>.
- 3 Another side-effect of a shrinking population is that firms need to start selling increasingly to foreign consumers if they are to survive (Castro et al., 2019).

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Figure C3. Total population in China (millions), 1985–2100



Source: United Nations (2019).

Prospects for individual economies

United States

After falling by 5 per cent (annualised) in the first quarter, US GDP fell by a further 31.4 per cent (annualised) in the second quarter as the initial effects of the Covid-19 pandemic and lockdown measures spread from an initial centre in New York. Since June, the monthly survey reports of both industrial production and services activity have shown a rebound and clearly point to economic growth resuming in the third quarter of this year. The US reporting of annualised quarterly GDP growth figures means that after the substantial fall in the second quarter there is likely to be a very large positive reading in the third quarter of about 30 per cent, with the rebound in economic activity supported by active fiscal and monetary policy.

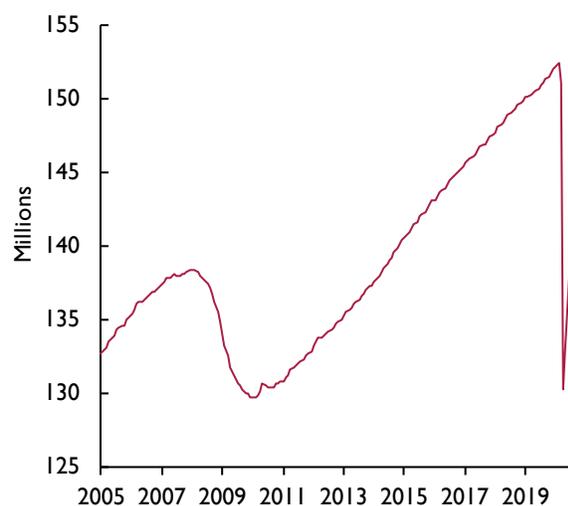
To support the economy as the pandemic has hit, the Federal government passed the CARES Act on 27 March providing support of over \$2 trillion (about 11 per cent of GDP) in a mix of direct payments and loans to individuals and businesses. Having responded to the threat to the economy by reducing policy interest rates from 1.75 per cent at the start of the year by 50 basis points on 3 March and a further 1 percentage point on 13 March (to 0.25 per cent), the Federal Reserve announced another important policy change on 27 August. Federal Reserve Chair Powell announced that it would look at the employment shortfall (the gap between actual and maximum employment) in judging monetary policy, in addition to the prospects for inflation. Given the fall in employment since the pandemic took hold, financial markets imply that an increase in policy interest rates is several years distant. In addition, the Federal Reserve has also undertaken substantial quantitative easing (QE) measures to maintain credit availability, increasing its holdings of Treasury securities (by over \$1.5 trillion) and its holdings of agency mortgage-backed securities by over \$500 billion since the start of March and Federal banking supervisors have encouraged depository institutions to use their capital and liquidity buffers to support credit to borrowers affected by the virus.

Covid-19 has hit the US hard. At mid-October over 220,000 deaths had been reported by the World Health Organisation (WHO)¹² and the US accounts for almost one in five deaths globally officially attributed to Covid-19. The direct task of implementing health measures to control the spread of the virus rests primarily

with state authorities and different states have followed different policies and timings. The initial health shock was worst in New York but the latest data show that the highest death rates are now in small towns and rural areas rather than urban areas.¹³

The changes in the labour market from the pandemic have been dramatic. On 28 March the number of people making initial claims for unemployment support was a record 6.9 million, as employees were laid off and job vacancies fell. It was not until the end of August that weekly initial claims dropped below 1 million. The unemployment rate jumped from 3.5 per cent in February to 14.7 per cent in April. While new weekly claims continued at unusually high levels, the unemployment rate has fallen back to 7.9 per cent in September, still double the rate before the pandemic hit. The number employed (using non-farm payrolls) fell by almost 21 million between March and April but after the initial drop in employment there has been a subsequent rise, with an 11.4 million increase between April and September. This volatility reflects the pandemic and lockdown measures, with businesses closed, if only temporarily, but also the uncertainty around the health and economic situations.

Figure 19. US: Employment (non-farm employment, millions)



Source: St Louis Federal Reserve database.

With the number of virus cases still rising, despite the latest indicators for monthly economic activity showing activity growing, the uncertainty over the economic outlook is compounded by the political outlook, with the Presidential election to be held on 3 November. At mid-October the opinion polls suggest a win for former Vice-President Biden, but the elections for Congress and Senate will also be important (as will the electoral college voting system) for the ability to implement successfully the policies of whichever candidate is elected. With talks having been stalled on a possible further fiscal stimulus and support package, the outcome of the election is likely to be critical for the prospect for further fiscal stimulus in the new year.

Our main-case projection is that the size of the fall in GDP in the second quarter was such that US GDP will fall by 3½ per cent this year, even with increases in the third and fourth quarters. With the most recent indicators showing some flattening in GDP growth, the prospect is that as the economy opens up, GDP will grow by around 3¼ per cent in 2021, leaving the level of GDP still below its pre-pandemic level at the end of 2021, but recovering that level during 2022. As output recovers, our expectation is that the fall in the unemployment rate will continue, but it seems unlikely to regain its pre-crisis level of 3.5 per cent in the foreseeable future. We project it averaging 7½ per cent in 2021.

With the pandemic dominating the news on economic performance, the issue of trade with China and

increasing tariffs has received less attention so far this year. But with the economic recovery in China set to outpace that of the US, and the likelihood that the initial targets under the Phase One agreement with China will not have been achieved, the potential for further trade disputes with China (and possibly with the Euro Area) and the possibility of further tariffs on China remains. Such trade concerns seem likely to remain an issue for businesses and growth prospects.

With lower oil prices and a sharp fall in economic activity, the annual CPI inflation rate fell from 2.5 per cent in January, the highest for over a year, to a low of 0.2 per cent in May. It has since recovered to 1.4 per cent in September. Over the past five years annual CPI inflation has averaged 1.7 per cent and our forecast is for inflation to be around 1 per cent this year, rising to 1½ per cent next year, and being around 2¼ per cent a year in the medium term.

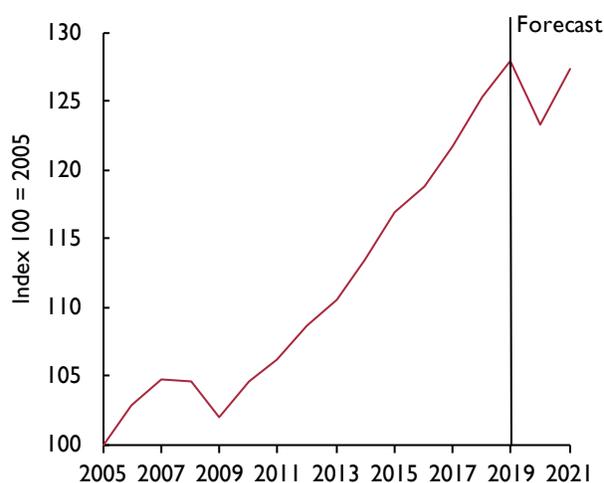
Canada

Similar to other advanced economies, Covid-19 spread widely in Canada in the first five months of this year, with new cases of infections peaking in May and easing subsequently. Again as in some other advanced economies, in the past month there has been an increase in cases, particularly in Ontario and Quebec, that has led to some local re-imposition of lockdown restrictions. At 18 October there had been just under 200,000 infections and almost 10,000 deaths.¹⁴ Compared to its US neighbour, Canada has seen markedly few Covid-19 cases per 1 million population (around 5,000 compared with 24,000) and also fewer deaths per 1 million population (259 compared with 659). Although the adverse health impacts have been lower than in the US, they have still been substantial. Part of the explanation for the lower incidence may be that the Federal and Provincial governments started to enforce lockdown measures in the second half of March.

The Canadian government has provided fiscal support to the health system to support increased treatment and testing and vaccine development amounting to 16.4 per cent of GDP (\$354 billion CAD) according to the IMF policy tracker and also around \$249 billion CAD (11.6 per cent of GDP) in direct aid to households and firms and various tax deferrals.

The Bank of Canada has also responded aggressively with a set of measures that are similar to those introduced by other central banks, including a 150 basis point reduction in the overnight deposit rate in March

Figure 20. US: level of GDP (index)

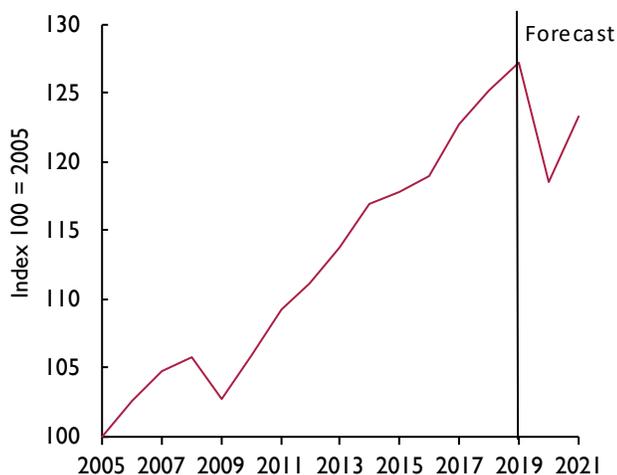


Source: NiGEM database and NIESR forecast.

to 0.25 per cent, which is the effective lower bound, an asset purchase plan for government bonds, commercial paper, mortgage bonds and providing liquidity through the repo market.

With the lockdown measures, Canadian GDP shrank by 13.4 per cent in the first half of this year, with the fall concentrated in the second quarter (–11.5 per cent). When many lockdown measures were lifted, economic activity increased in the summer months, and the Bank of Canada's October *Business Outlook Survey* noted that firms expected sales to increase from low levels. However, around one-third of companies did not expect their sales to return to pre-crisis levels within the next year. The *Business Outlook Survey* indicator remains substantially below its historical average, signalling continued weak business sentiment. While there are still considerable uncertainties, the reduction in the incidence of the virus and the substantial fiscal stimulus from the Canadian government suggest that economic growth is likely to re-establish in both the third and fourth quarters provided that the virus remains contained and that any lockdown measures remain localised. The scale of the fall in the first half of the year has been such that, even with growth in the second half of the year, for 2020 as a whole GDP is forecast to contract by 7 per cent. GDP growth of 4 per cent is forecast for 2021, with the pace of growth reverting to a more underlying pace of 2½ per cent in 2022.

Figure 21. Canada: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

As an important commodity producer, to the extent that the relatively low oil price is partly due to the effects of the pandemic shock, a rise in global economic activity should lift oil prices, boosting revenues and supporting investment in the Canadian oil and gas sector. With the unemployment rate having fallen from 13.7 per cent in May to 10.2 per cent in August, if economic growth is maintained the rate could fall below 9 per cent during next year, still some way above the 5.7 per cent rate in 2019.

Euro Area

After Italy and Spain became the initial centres of the Covid-19 infection in the Euro Area in March, strict lockdown measures were taken in both countries and, as the virus spread, in other countries as well. Gradual unlocking in Italy and other countries started in early May and during the summer data reports showed that new cases of infections had fallen markedly. The combination of increased social mobility and reduced restrictions helped to lift economic activity, particularly in the badly-hit service sectors. As a consequence, economic activity strengthened from May as evidenced by PMI survey indicators of manufacturing and service sector activity. The PMI reading for manufacturing in September, at 53.7, marked the strongest growth for two years. However, having increased to 50.5, showing expansion, in August, services PMI fell in September to its lowest level since May. Retail trade in the Euro Area surged in May, up 20.5 per cent month-on-month, as lockdowns eased. After a 1.8 per cent contraction in July, retail trade increased by 4.4 per cent in August, to be 3.7 per cent above a year earlier. A key issue is the extent to which this growth can continue as selective lockdowns are now starting to be re-applied as increases in outbreaks of the virus are being seen.

Monetary and fiscal policies have supported economic activity during the period of health measures that have locked down parts of the economy in order to combat the virus. The shock to demand from the lockdown measures has reduced inflationary pressures, with the Euro Area moving into annual deflation in August (at –0.2 per cent) and September (–0.3 per cent) after annual inflation had hovered at around ½ per cent earlier in the year, with a peak of 1.4 per cent in January. Our projection is for inflation to remain very subdued, averaging around ¼ per cent this year as output falls, and only show a small pick-up to 1 per cent next year.

The European Central Bank (ECB) has been actively supporting the economy – announcing additional asset

purchases of €120 billion until end-2020 on 12 March under the existing asset purchase programme (APP); on 18 March providing an additional €750 billion asset purchase programme of private and public sector securities (Pandemic Emergency Purchase Programme, PEPP) until end-2020; and extending the range of eligible assets under the corporate sector purchase programme (CSPP). With lockdowns starting to be eased and economic activity exceptionally weak, the ECB increased the potential size of the PEPP by €600 billion (to a total of €1,350 billion) on 4 June to further support funding conditions in the economy.

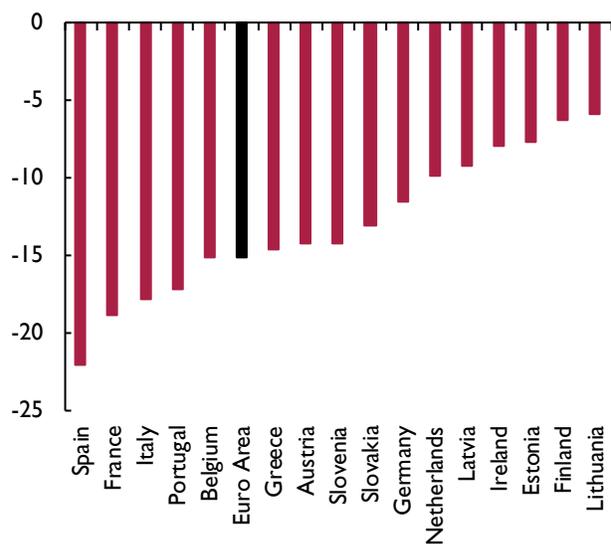
Without a central fiscal authority, the Euro Area has received fiscal support from member countries and the European Union. A major item has been the European Commission's package of around €540 billion (4 per cent of EU GDP) which includes providing Pandemic Crisis Support of up to 2 per cent of 2019 GDP for each Euro Area country (up to €240 billion in total) to finance health-related spending via the European Stability Mechanism (ESM); €25 billion in government guarantees to the European Investment Bank (EIB) to support up to €200 billion finance to companies; and creating a temporary loan-based instrument (SURE) of up to €100 billion to protect workers and jobs, supported by guarantees from EU Member States. The European Council has set up the Next Generation EU (NGEU) recovery fund to €750 billion in total, financed

by borrowing at the EU level. The funds are split between grants (€390 billion) and loans (€360 billion) primarily through a special Recovery and Resilience Facility (RRF). On October 7 it was announced that EU SURE bonds of up to €100 billion will be issued.

After falling by 3.7 per cent in the first quarter of this year, when consumption fell by 4.5 per cent and investment by 5.2 per cent, Euro Area GDP fell by a record 11.8 per cent in the second quarter, with consumer spending and fixed investment down 12.4 and 17 per cent respectively. Employment fell by 0.3 per cent in the first quarter, the first quarterly decline since the second quarter of 2013, but by 2.9 per cent in the second quarter, with falls of 7.5 per cent in Spain and 5.1 per cent in Ireland. The Euro Area unemployment rate rose to 8.1 per cent in August, with a continued wide range of experience with the rate at 16.2 per cent in Spain but 4.4 per cent in Germany.

Even with the recent relatively strong monthly activity figures, we project that Euro Area GDP will fall by 8¼ per cent this year. There is clearly uncertainty about how far the latest increase in Covid-19 cases will continue and whether further national, as opposed to local, lockdowns will prove necessary to combat the threat to public health. Under the assumption that the recent increase in virus cases is effectively dealt with by local lockdowns and that there is not a resurgence of the virus next year, our projection is for Euro Area GDP growth of 4¼ per cent in 2021, with annual growth of around 1½ per cent in the medium term.

Figure 22. Euro Area: GDP, selected economies (change between 2019Q4 and 2020Q2, per cent)



Source: NiGEM database.

Germany

The German economy is expected to emerge from the recession in 2020Q3 following the deep contraction in GDP of -9.7 per cent in the second quarter. However, the progress of the recovery is likely to be fragile as much will depend on external demand. On an annual basis, exports are projected to fall by 11 per cent this year. As everywhere else in Europe, there are downsides risk to Germany's GDP figures in the light of mounting concerns over new Covid-19 cases. This year, GDP is forecast to drop by 5¾ per cent, on a year-on-year basis, reflecting the containment measures which have weighed heavily on domestic and foreign demand.

On 3 June the government announced an additional fiscal stimulus package amounting €130 billion, partly backed through new net sovereign borrowing, bringing the total amount of the stimulus to about €1.2 trillion. The package focused on reducing taxes and providing additional liquidity support through a temporary VAT

reduction, households' income support, grants for small and medium-sized enterprises, financial support for local governments, and green energy and digitisation subsidies. Government debt is expected to climb above 69 per cent of GDP in 2020, compared to just below 60 per cent last year.

Taking into account the comprehensive fiscal stimulus adopted throughout the summer, as well as some positive signs coming from the international economy, e.g. the rebound in Chinese GDP and the US fiscal package, our forecast anticipates that German GDP will return to growth next year, by about 3½ per cent. Nonetheless, the course of the infection rate in Europe, German labour market dynamics, and whether consumer sentiment will firm within the coming months, will be important factors in determining the extent of the drag on growth resulting from the pandemic and the measures to protect health.

Harmonised consumer prices in August were 0.1 per cent lower than a year earlier, after annual inflation had reached 1.7 per cent in February, with low oil prices having added to the negative price pressure. Inflation prospects are expected to remain very subdued until the end of the year. Next year, a pickup in real activity could lead to inflation rising and our forecast is for annual inflation to rise to about ¾ per cent in 2021 and 2 per cent in the medium term.

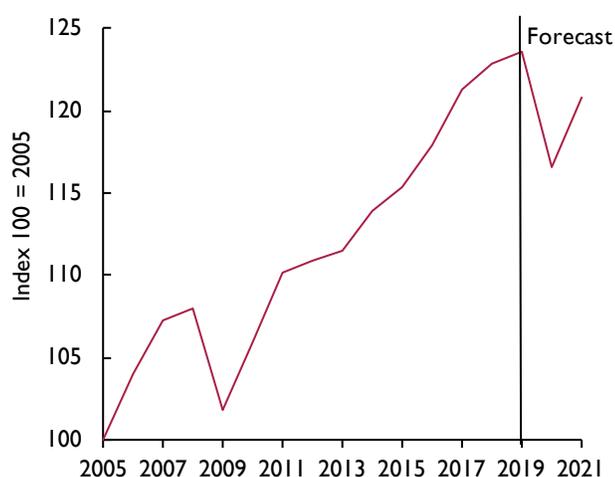
France

The French economy experienced a sharper economic contraction than the Euro Area as whole in the first half of this year, with GDP falling by 19 per cent from its level in the final quarter of 2019, largely because of its decision to implement one of the tightest lockdowns in the region as the pandemic struck. However, the economy is now recovering gradually. After a steep decline in output in the second quarter of this year and sharp rebound in the third quarter, the recovery is now anticipated to become more gradual. Our main-case scenario is that GDP will decline by 10 per cent this year.

Short-term indicators suggest that private consumption will remain resilient for the rest of 2020, and the marked increase in households' saving rate could boost economic recovery by allowing for an increase in consumption once confidence is restored and consumption opportunities return. Against this background, we now expect to see a gradual recovery in 2021 and 2022, with activity now expected to grow by 5½ per cent and then 2½ per cent, respectively.

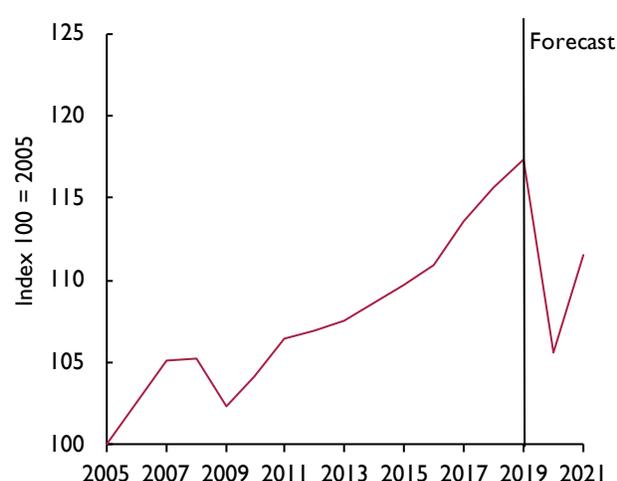
There are, however, still significant risks to the outlook for economic growth, mainly to the downside. Uncertainties around the health crisis continue, both domestically and globally, with recent local lockdowns being announced in response to increased numbers of Covid-19 cases. The major hit to exports and the services sector could also put a significant drag on economic activity.

Figure 23. Germany: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

Figure 24. France: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

The government introduced a short-time work scheme in order to limit households' loss of income and firms' wage costs. The high take-up of this scheme, with firms claiming coverage for roughly 13 million workers as of early June, accounts for a significant part of the wider discretionary fiscal support. In addition, a solidarity fund, valued at €7 billion, is also available to support small firms, including the self-employed. Many businesses have made use of the short-time work scheme and other government support to the labour market, so the adjustment of employment to the pandemic remained relatively contained in the first half of the year. Nevertheless, employment is likely to continue to decline for the remainder of this year and the start of next, as highly affected businesses start to make permanent job cuts.

Inflation is likely to remain relatively weak over the forecast horizon. Despite some recent recovery in oil prices, it is still significantly lower than it was in 2019. In addition, the third quarter of 2020 saw the euro effective exchange rate appreciate and it is now more than 5 per cent higher than a year ago, thus putting further downward pressure on inflation. Against this background, consumer price inflation is expected to fall to about $\frac{1}{2}$ per cent in 2020, before increasing to $1\frac{1}{4}$ per cent in 2021, and $1\frac{3}{4}$ per cent in the medium term.

Italy

With the stringency of the containment measures adopted in March, Italy is set to record one of the largest economic contractions in the Euro Area this year of -11 per cent. Weighing negatively on Italy's growth prospects are evaporating external demand, increased uncertainty, as well as weak fundamentals. GDP is forecast to rise by $4\frac{1}{2}$ per cent in 2021, although soaring public debt (with the debt to GDP ratio expected to be close to 160 per cent of GDP this and next year), the fragility of the banking system, including the likelihood of a rise in non-performing loans, and the possibility of a new pandemic wave pose downside risks to these forecasts. Uncertainty is still restricting internal demand, with low household spending and plunging investment spending.

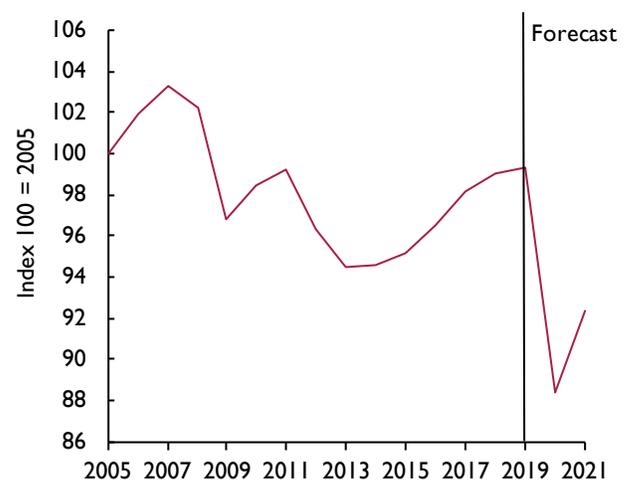
On the positive side, at the Euro Area level, the ECB has provided monetary stimulus through additional asset purchases until end-2020 and the 'Next Generation EU' investment plan will assist the Italian economy, with Italy being one of the main beneficiaries in its grant component. The European Commission has also suspended the fiscal adjustment requirements for countries as part of the Fiscal Compact, allowing them

to run deficits above 3 per cent of GDP. Such support measures seem to have boosted investors' demand for Italian bonds. These instruments will provide important support to the Italian economy – confidence, in particular – where the recovery is likely to be fragile and protracted.

In addition, the government provided a further €55 billion (3.5 per cent of GDP) 'Relaunch' package of fiscal measures on 15 May to give further income support for families, funds for the healthcare system, and measures to support businesses, including grants for SMEs and tax deferrals. After parliamentary approval for a further €25 billion (1.6 per cent of GDP) deficit deviation in August, the government adopted a new support package with additional income support for families, and an extension of short-time work working schemes. These additional measures appear well timed, as virus cases have recently risen in Italy and the government reintroduced some containment measures, particularly aimed at entertainment gatherings, and with various travel quarantine restrictions that are likely to affect tourist and services revenues adversely.

In these circumstances, the data for industrial production in August provided some encouraging signs for Italian goods producers. However, much of the observed rebound could be due to an adjustment in inventories – the stocks of goods held by firms in Italy decreased by €2141 million in the second quarter of the year, so that most of the pickup in demand once the lockdown had been lifted translated into new orders. With unemployment still on

Figure 25. Italy: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

the rise, domestic demand alone will not provide enough impetus to boost the recovery. Given the slowdown in world trade, export orders remain a key drag to the Italian economy, amid disrupted supply chains in both the EU and the rest of the world.

Harmonised consumer prices fell 0.5 per cent year-on-year in August, with year-on-year deflation also recorded in two of the previous three months. Consumer prices are overall expected to fall very slightly on an annual basis this year, with the strong GDP contraction and slumping energy prices being the most important explanatory factors for such downward pressure on prices. For 2021, annual CPI inflation is expected to show a small increase, to around $\frac{1}{2}$ per cent. Over the medium term, demand could add to price pressure as activity picks up.

Spain

Having reduced the number of daily Covid-19 cases over the late Spring and early Summer, Spain is now wrestling with a second Covid-19 outbreak. Infection rates have increased steadily since the beginning of August and daily confirmed cases have surpassed April highs. As a consequence, the government has imposed new local restrictions on people's movements, large group gatherings and capacity limitation at indoor events, which have started to weigh on activity levels again.

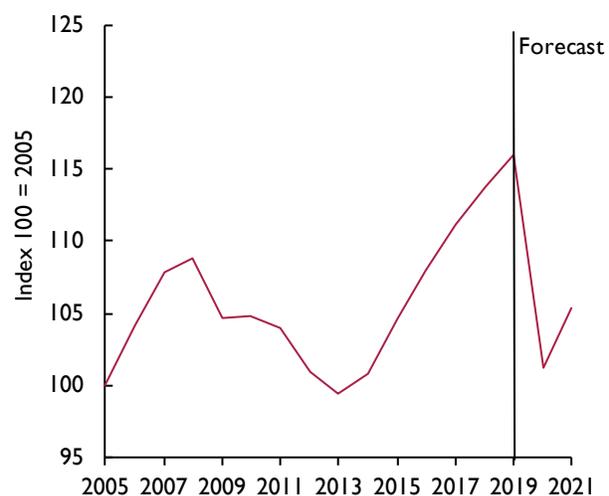
In the second quarter of this year, Spanish GDP fell by 17.8 per cent, a new record fall. The contraction is among the highest in Europe,¹⁵ a factor that is partly attributable to the collapse in the sectors most vulnerable to the restrictions imposed, such as retail, tourism and hospitality sectors, which have larger weight in overall Spanish economic activity. Similarly, Spain's unemployment rate, at 16.2 per cent in August, is, with the exception of Greece, the highest in the EU. However, the rise so far has been less adverse than during the previous recession, when the unemployment rate peaked at 26.1 per cent in 2013, because of the mitigated impact on jobs provided by the furlough scheme.

On 30 September, the government announced the extension of several existing policies, including the temporary employment adjustment schemes (ERTE) to the end of December, and the extra benefit to the self-employed until 2021. Although there are no new fiscal estimates, the deficit reduction and the public debt objectives have been suspended for all levels of government to give them greater financial margins to provide support for households and businesses.

Furthermore, the government raised the limit of non-financial state spending for the financial year 2021.¹⁶

The rise in Covid-19 cases and the reintroduction of restrictions, with a new state of alarm and curfew announced on 25 October, increase the risks around the outlook. GDP is expected to contract by about $12\frac{3}{4}$ per cent in 2020 before growing by 4 per cent in 2021. However, the economy is unlikely to fully recover pre-Covid-19 levels of output before at least 2024. Harmonised annual consumer price inflation (HICP) is likely to show a mid-deflation in 2020, but then rise marginally in 2021, by $\frac{3}{4}$ per cent. An extension of the pandemic crisis is a key downside risk, but the existence of political disparities and disagreements on key economic reforms may contribute to the impact of such a scenario.

Figure 26. Spain: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

Japan

The ongoing Covid-19 pandemic continues to hamper the Japanese economy. Japan suffered three straight quarters of contraction, with the largest on record in the second quarter of 2020 at -7.9 per cent, with falls in private consumption featuring and no marked rebound in government expenditure. While exports and industrial production are showing positive signs of picking up, both are still showing year-on-year falls and a gradual rebound is risked by many other factors. With weak business investment and decreasing corporate profits, business confidence remains low, which is reflected by the fact that both the manufacturing and services PMIs are still below the 50 mark that would show expansion.

Inflation stayed low in August at 0.2 per cent, still far away from the Abenomics 2 per cent target set up eight years ago by the recently resigned longest-serving prime minister.

Amidst the huge economic uncertainty, the new Suga government issued no significant monetary and fiscal stimulus policies in the third quarter. While there is still risk that Japan could be hit by another spike of the virus this year, more economic stimulus is expected if the economy does not pick up quickly. Accordingly, we expect Japanese GDP to decline by 6 per cent for the year as whole. The Japanese economy is expected to grow slightly by 1¾ per cent next year as the negative impact of the virus and the Covid containment measures

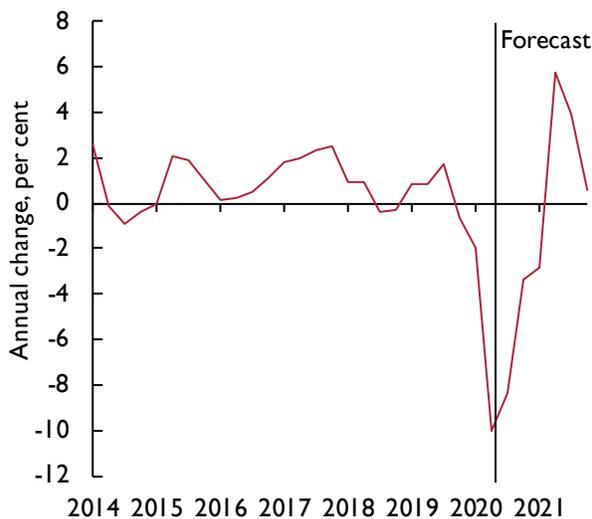
recede. Despite a projected increase in GDP next year, we do not anticipate the economy recovering its end-2019 GDP level until after 2023.

China

With little sign of another Covid wave, the Chinese economy is firmly recovering from the pandemic shock. It started expanding again with 3.2 per cent annual GDP growth in the second quarter, as shown in figure 28. In September 2020, industrial production in China was 6.9 per cent higher than a year earlier, sustaining its positive growth from April. This rise in industrial production contributed strongly to the 4.9 per cent annual growth in GDP reported for the third quarter. Exports from China also continued to increase in the same period, supported by the high demand for medical and electronic products. Meanwhile, both manufacturing and non-manufacturing PMI activity indicators are above 50, pointing to further growth in factory activity and services.

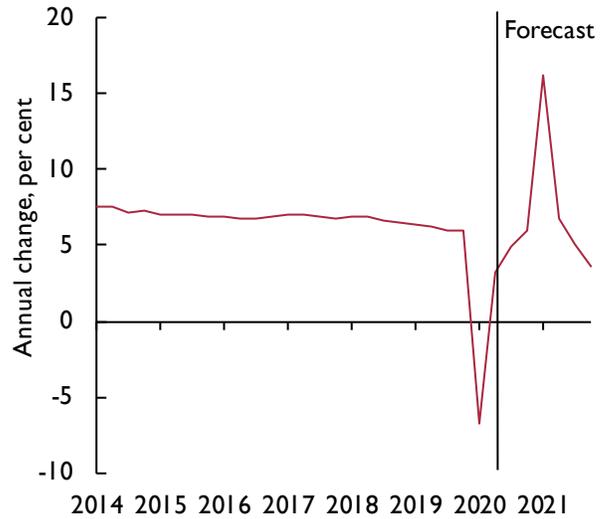
Although the Chinese economy has performed well in the recent months, there are still risk factors lying ahead. The Chinese currency has strengthened continuously and recently hit its strongest level in two years against the US dollar. The 5 per cent appreciation may put increased pressure on the Chinese export sector and on employment in that sector. It may also place downward pressure on price inflation, with annual inflation having stayed below 3 per cent since April 2020, and remaining at its lowest in the past two years.

Figure 27. Japan: GDP (annual change, per cent)



Source: NiGEM database and NIESR forecast.

Figure 28. China: GDP (annual change, per cent)



Source: NiGEM database and NIESR forecast.

Amidst the continuing rift with the US on trade balances and practices, China recently unveiled a ‘dual circulation’ strategy to reduce its heavy dependence on global high-tech products and move up the global value chain while deterring foreign firms from moving away from China. How this new strategy will develop could have important impacts on the Chinese and global economies in the longer term.

Looking ahead, the Chinese economy is forecast to continue to grow, with the historically low figure of 2 per cent this year, heavily influenced by the fall in output due to the pandemic and the control measures in the first quarter, leading to some faster growth, of 7½ per cent, next year before moderating to 5½ per cent in 2022. To maintain the positive growth momentum, the authorities may act to curb further Renminbi appreciation and also provide more targeted fiscal measures to boost employment.

India

Growth in the Indian economy had been slowing down well before the onset of the pandemic. Exports and investment were contracting rapidly, and government spending had stimulated growth to compensate for the decline in private sector demand. The Covid-19 pandemic caused the Indian economy to experience one of its largest ever GDP contractions on record. India’s lockdown at the end of March was one of the most

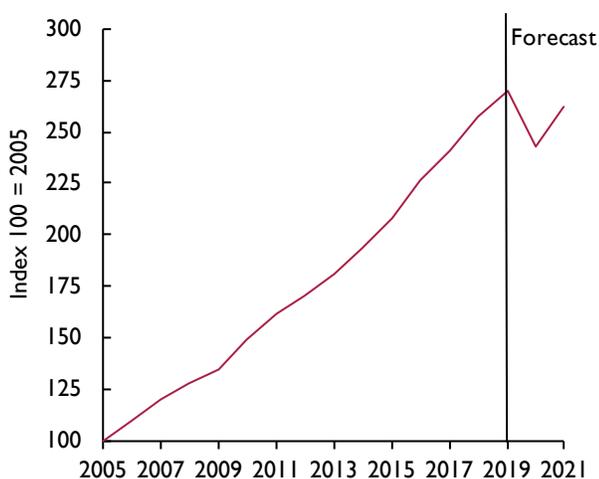
stringent worldwide, causing the economy to contract by about 24 per cent year-on-year in the first quarter of the 2021 financial year as businesses and jobs took major hits. The authorities have failed to contain the spread of the virus properly since then, with the number of coronavirus cases exceeding 7½ million at mid-October, second only to the US.

Despite these difficulties, the economy gained some momentum in the third quarter, albeit subdued because of a soaring number of new Covid-19 cases. The reports of a relaxation of Covid-19 restrictions has led to a broad stabilisation in service sector output during September, according to the latest PMI activity indicators. In line with hopes that a vaccine for the coronavirus will be available in the near future, firms were optimistic about the outlook for business activity in the year ahead. The manufacturing PMI output indicator rebounded in August and gathered further momentum in September, with the PMI reaching its highest mark since January 2012, supported by accelerated increases in new orders and production.

The government has intensified its effort to soften the impact of the pandemic by unveiling a set of measures to lift consumer spending after a previous package amounting to 21 trillion rupees (\$286 billion) failed to give an immediate boost to demand. The authorities have also announced a raft of other initiatives including; micro, small and medium enterprises (MSME) incentives, micro food enterprises, an infrastructure sector boost, and increased public employment outlays. The significant fiscal and other policy responses announced by the federal and state governments are expected to provide some relief, mainly to prevent an even deeper contraction. However, a major source of risk comes from pre-existing financial sector weakness, which has been exacerbated by the pandemic.

We now project a fall in GDP of about 10 per cent this year, against the background of the prolongation of lockdown measures, though a more accommodative monetary policy stance should soften the impact of this, and a robust recovery of 8 per cent in 2021, and 5 per cent in 2022.

Figure 29. India: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

Brazil

The Brazilian economy contracted by 9.7 per cent in the second quarter, and the contraction in the first quarter was revised down by 1 percentage point to 2.5 per cent. Despite this, some analysts believe that the worst is now behind Latin America's largest economy, pointing to improvements in the IHS/Markit PMI indicators for both services and manufacturing as early indicators of economic recovery. The easing of lockdown restrictions undoubtedly improved trading conditions, but the PMI numbers require careful evaluation. Respondents in the services sector made further job cuts to offset the higher costs associated with hygiene measures, and managers in the manufacturing sector linked the improvement in new orders from abroad to the depreciation of the Brazilian Real. The Real is trading above 5.6 to the US Dollar, a year-to-date depreciation of approximately 40 per cent.

The development of the pandemic, which has hit the Brazilian economy badly with around 160,000 deaths, and the unwinding of key government support schemes going forward could threaten Brazil's nascent recovery. The social transfer scheme that has provided income support to some 67 million low paid workers since April has been halved in value in September and is due to end in December. Thereafter, President Bolsonaro will face a hard decision: effectively ignore the fiscal austerity platform on which he was elected in order to support the 13 million unemployed Brazilians (an unemployment

rate of 13.9 per cent) or cut back on social spending amid a labour market crisis.

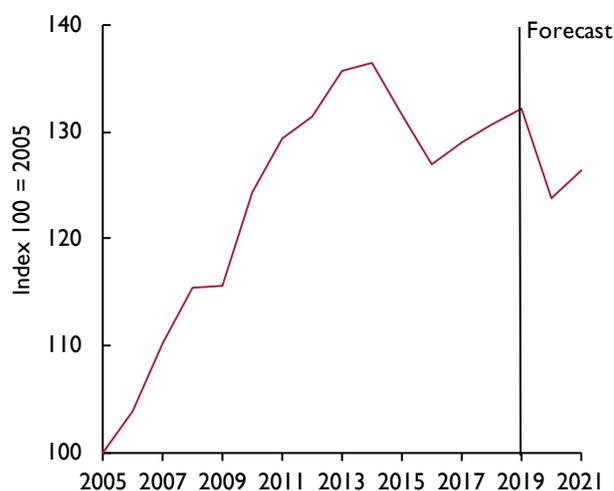
Our forecast for economic growth suggests a contraction of approximately $6\frac{1}{4}$ per cent this year, before the economy starts a gradual recovery of $2\frac{1}{4}$ per cent in 2021, after which growth settles to $2\frac{1}{2}$ per cent in 2022. Weak demand and labour market prospects are expected to keep inflation relatively muted at 3 per cent in 2020, before the weaker exchange rate feeds through to consumer prices during 2021, with inflation at around 4 per cent at end-2021 before normalising to $2\frac{1}{2}$ per cent in 2022.

Russia

After returning to growth in 2107 after a prolonged recession, Russia's economy grew by 2.5 per cent in 2018 – the fastest rate since 2012. After growth of 1.3 per cent last year, the effect of the pandemic and control measures have led to a fall of GDP in the first half of this year of 5 per cent.

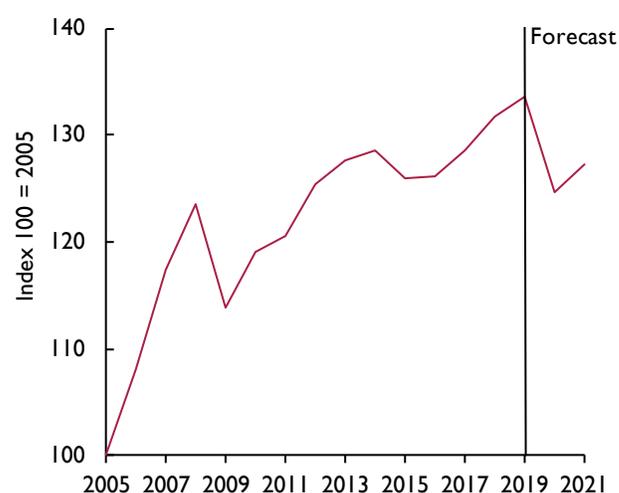
In order to provide support to the economy, on the monetary side, the Central Bank continued to cut rates from 6 per cent in March to $5\frac{1}{2}$ per cent in April before a further cut to $4\frac{1}{2}$ per cent in June followed by a subsequent cut to $4\frac{1}{4}$ per cent in July, where it was held at the September meeting. In addition, it has implemented several measures to support lending to households and

Figure 30. Brazil: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

Figure 31. Russia: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

firms, including temporarily relaxing regulations for banks on lending to industries affected by Covid-19 and also allowing more favourable treatment of those industries with foreign dominated debt. Liquidity limits for systemically important institutions have also been relaxed and it has also disallowed re-classification of risk weights for both households and SMEs, as well as allowing mortgage deferrals for those households with confirmed coronavirus.

On the fiscal side, measures to support loss of earnings and cashflow of businesses have been implemented such as: sick pay for those under quarantine, benefits equal to at least the minimum wage until the end of 2020, extra maternity support, young children to receive extra support payments, deferrals of tax and social contributions for affected businesses, guaranteed loans and interest rate subsidies to SMEs, and specific support to the pharmaceutical, motor vehicle and airline sectors. It is estimated that these fiscal and monetary support packages amount to around 4 per cent of GDP.

Our main-case scenario forecast has reduced the forecast decline in output this year from $-8\frac{1}{4}$ per cent to around $-6\frac{3}{4}$ per cent, with growth in 2021 forecast at $2\frac{1}{4}$ per cent. The revision from our previous forecast for 2020 partly reflects less adverse effects as the spread of coronavirus has been slower than anticipated previously for 2020 and agreed OPEC+ production cuts are expected to weigh on growth through 2021.

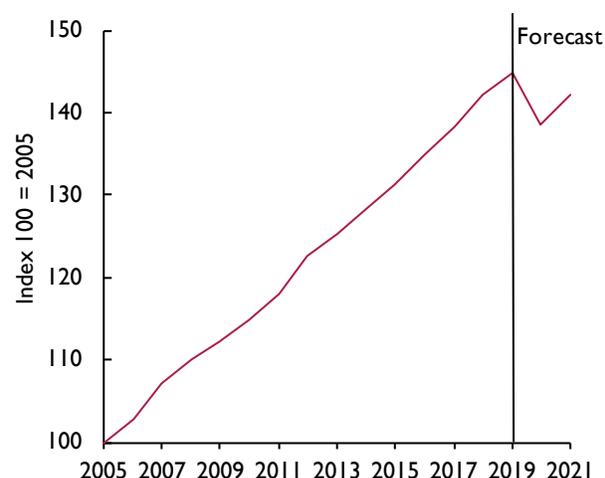
Consumer price inflation will be dominated by the effects of the depreciation in the short term and the recovery of global demand into the second half of 2020 and 2021. We expect annual inflation to rise next year from $3\frac{1}{4}$ per cent this year to around 6 per cent, but this weakens to $3\frac{1}{2}$ per cent in the medium term. The balance between weakening demand and imported inflation will determine the room for further policy rate cuts into 2021, with the Central Bank of Russia likely to hold its easing cycle through 2021.

Australia

During the onset of the pandemic Australia adopted strict lockdown measures, particularly with regard to external travel. National Covid-19 cases were reduced to very low levels in June. After a relaxation of national lockdown measures that started in early May, when schools, restaurants, retail shopping and entertainment venues re-opened and many internal travel restrictions were lifted, a resurgence of cases in Melbourne and Victoria led to lockdown measures being re-imposed in those areas in July and August respectively. On 28 September these restrictions started to be eased as community transmission had fallen, but Australia still requires new arrivals in the country to be in quarantine for 14 days and overseas travel is restricted. The effective closing of borders and the restriction of the movement of people appears to have played an important role in the reduction in the incidence of the virus (as it has in New Zealand) but has adversely affected services trade (especially tourism) and migration which have been two factors that have supported growth over a number of years.

The government responded to the severe economic dislocation caused by the pandemic and the lockdown with a fiscal stimulus to support the economy, consisting of expenditure and revenue measures of A\$272.3 billion (14 per cent of GDP), that runs to 2023–24 but has the major effect in 2020–21. The package includes the JobKeeper wage subsidies (of around 5.4 per cent

Figure 32. Australia: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

of GDP), income support to households and cash flow support to businesses, as well as the multiyear JobMaker programme (A\$73 billion), designed to stimulate new job creation. There have also been other measures at the state and local level, to support the health system, care for the elderly and vulnerable and businesses. The Royal Bank of Australia (RBA) cut policy interest rates (the cast rate) in two 25 basis points steps in March to 0.25 per cent and to support the provision of credit, especially to SMEs, established a A\$90 billion Term Funding Facility (TFF) in which banks are able to access three-year funding at 25 basis points. It has extended access to the TFF until June 2021, with an increase in the amount of the fund. The Prudential Regulatory Authority has allowed banks to utilise some of their capital buffers to support lending (subject to minimum capital requirements being met) and issued guidance supporting banks and insurers deferring dividend decisions and capped payout ratios for 2020.

With the lockdown in place and the economic support, GDP fell by 7.2 per cent in the first half of 2020, a better outcome than in many advanced economies during that period. As with other countries experiencing national lockdowns, falls in consumer spending and services activities were particularly notable in the second quarter. With the local lockdown in Victoria now ended, and a sharp recovery in consumer sentiment recently, it is likely that economic growth in the short term will be driven by the same factors reversing, giving a bounce-back in GDP in the third quarter. Our main-case scenario assumes that lockdown measures do not have to be re-imposed and so economic growth resumes, with GDP falling by 4¼ per cent this year followed by an increase of 2½ per cent next year and 3½ per cent in 2022. These forecasts, as with those for other countries, remain subject to considerable uncertainty because of the unknown future path of the virus and the policy and behavioural responses to it.

With a government debt to GDP ratio of just over 40 per cent before the crisis and running a small fiscal surplus, the Australian government has fiscal space to respond further if needed. However, very recent adverse developments in trade relations with China, with China accounting for a third of Australia's exports, in which China has reportedly placed restrictions on imports of coal and cotton from Australia suggest that geo-political factors add to the risks for the economic outlook in the medium term.

NOTES

- * 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, Dawn Holland and Hande Küçük for helpful comments and Patricia Sanchez Juanino for preparing the charts and compiling the database underlying the forecast. The forecast was completed on 23 October 2020. Exchange rate, interest rate and equity price assumptions are based on information available to 16 October 2020. Unless otherwise specified, the source of all data reported in tables and figures is the NiGEM database and NIESR forecast baseline.
- 1 World Health Organisation, 'COVID-19 Weekly Epidemiological Update', 17 July and 18 October, 2020.
 - 2 GDP on a PPP basis
 - 3 Source of data is World Health Organisation (WHO) Situation Reports on Coronavirus disease 2019.
 - 4 See BLS <https://www.bls.gov/news.release/flex2.t01.htm>
 - 5 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.
 - 6 As in our previous projections, we have scaled the productivity shock to reflect an assumed infection rate of 16 per cent, and that affected people are out of work for 3 months, leading to an associated reduction in productivity of around 4 per cent, with half of the reduction assumed to be permanent.
 - 7 Source - Blavatnik School of Government, University of Oxford, Radcliffe Observatory
 - 8 Figures from Europe Brent spot price from US Energy Information Administration.
 - 9 In PPP terms.
 - 10 Source: <https://www.imf.org/en/Topics/imf-and-covid19/COVID-Lending-Tracker#WHD> accessed 18 October.
 - 11 Source: <https://www.worldbank.org/en/news/factsheet/2020/02/11/how-the-world-bank-group-is-helping-countries-with-covid-19-coronavirus>.
 - 12 See World Health Organisation, 'COVID-19 Weekly Epidemiological Update', 18 October 2020.
 - 13 See 'Most of the US is not like the US', Financial Times, accessed 19 October <https://ig.ft.com/coronavirus-global-data/>
 - 14 World Health Organisation, 'COVID-19 Weekly Epidemiological Update', 18 October 2020.
 - 15 https://ec.europa.eu/eurostat/statistics-explained/index.php/Quarterly_national_accounts_-_GDP_and_employment
 - 16 <https://www.lamoncloa.gob.es/lang/en/gobierno/councilministers/Paginas/2020/20201006council.aspx>

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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 function, 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 on <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
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	2.29	1.75	-0.10	0.00	0.75	2.1	1.6	-0.1	0.4	0.9
2020	0.54	0.56	-0.10	0.00	0.23	0.9	0.7	0.0	0.0	0.3
2021	0.25	0.25	-0.10	0.00	0.10	0.9	0.7	0.2	0.2	0.5
2022	0.25	0.25	-0.10	0.00	0.10	1.1	1.0	0.5	0.6	0.8
2023–27	0.68	0.64	0.37	0.41	0.52	1.8	1.7	1.3	1.5	1.6
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	1.41	1.48	-0.10	0.00	0.61	1.4	1.2	0.0	0.1	0.5
2020 Q2	0.25	0.25	-0.10	0.00	0.10	0.7	0.6	0.0	0.2	0.2
2020 Q3	0.25	0.25	-0.10	0.00	0.10	0.6	0.6	0.0	0.0	0.2
2020 Q4	0.25	0.25	-0.10	0.00	0.10	0.7	0.6	0.0	-0.2	0.3
2021 Q1	0.25	0.25	-0.10	0.00	0.10	0.8	0.7	0.1	0.0	0.4
2021 Q2	0.25	0.25	-0.10	0.00	0.10	0.9	0.7	0.2	0.1	0.5
2021 Q3	0.25	0.25	-0.10	0.00	0.10	0.9	0.8	0.3	0.2	0.5
2021 Q4	0.25	0.25	-0.10	0.00	0.10	1.0	0.8	0.3	0.3	0.6
2022 Q1	0.25	0.25	-0.10	0.00	0.10	1.0	0.9	0.4	0.4	0.7
2022 Q2	0.25	0.25	-0.10	0.00	0.10	1.1	0.9	0.5	0.5	0.8
2022 Q3	0.25	0.25	-0.10	0.00	0.10	1.1	1.0	0.6	0.6	0.8
2022 Q4	0.25	0.25	-0.10	0.00	0.10	1.2	1.1	0.6	0.7	0.9

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
2017	0.1	1.9	-3.1	2.5	1.1	1.7	1.7	-5.5	1.294	112.2	0.887	0.776
2018	-0.1	-1.9	1.2	4.7	2.5	2.5	3.2	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	-0.3	1.327	109.0	0.893	0.783
2020	2.9	-1.2	2.9	3.5	2.0	1.6	2.0	0.2	1.352	107.0	0.881	0.784
2021	-1.5	1.7	0.3	2.7	1.5	1.4	1.7	-0.5	1.322	105.4	0.853	0.774
2022	0.3	0.1	0.7	0.6	0.3	0.3	0.4	0.2	1.322	105.1	0.851	0.773
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	-0.2	-0.1	-0.1	-0.1	-0.5	1.329	109.9	0.890	0.778
2019 Q3	1.1	0.8	3.5	-0.1	-0.1	-0.1	-0.2	-3.4	1.324	107.3	0.900	0.811
2019 Q4	0.0	0.5	-1.4	-0.6	-0.3	-0.4	-0.3	4.8	1.318	108.7	0.903	0.777
2020 Q1	1.7	-5.5	0.1	0.2	0.1	0.1	0.1	0.0	1.397	109.0	0.907	0.781
2020 Q2	3.2	4.0	3.2	3.1	1.8	1.3	1.7	-1.8	1.355	107.5	0.909	0.806
2020 Q3	-3.3	0.6	-1.0	2.8	1.4	1.7	1.8	-0.1	1.332	106.1	0.856	0.774
2020 Q4	-0.8	0.6	-0.2	0.6	0.4	0.2	0.4	0.0	1.322	105.5	0.854	0.774
2021 Q1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.322	105.5	0.854	0.774
2021 Q2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.322	105.5	0.854	0.774
2021 Q3	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	1.322	105.4	0.853	0.774
2021 Q4	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	1.322	105.3	0.852	0.773
2022 Q1	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	1.322	105.2	0.852	0.773
2022 Q2	0.1	0.0	0.2	0.2	0.1	0.1	0.1	0.1	1.322	105.1	0.851	0.773
2022 Q3	0.1	0.0	0.2	0.2	0.1	0.1	0.1	0.1	1.322	105.0	0.851	0.772
2022 Q4	0.1	0.0	0.2	0.2	0.1	0.1	0.1	0.1	1.322	104.9	0.850	0.772

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 before the end of this year in the US, Euro Area, the UK and Japan. As discussed in the UK chapter in this *Review*, in our main-case forecast scenario UK economic growth returns to a rate that is close to its potential after around five years. In that scenario Bank Rate reaches 1.5 per cent in 2029. At that point the MPC is assumed, in line with its previous guidance, to stop reinvesting the proceeds from maturing gilts it holds currently, allowing the Bank of England's balance sheet to shrink 'naturally'.²

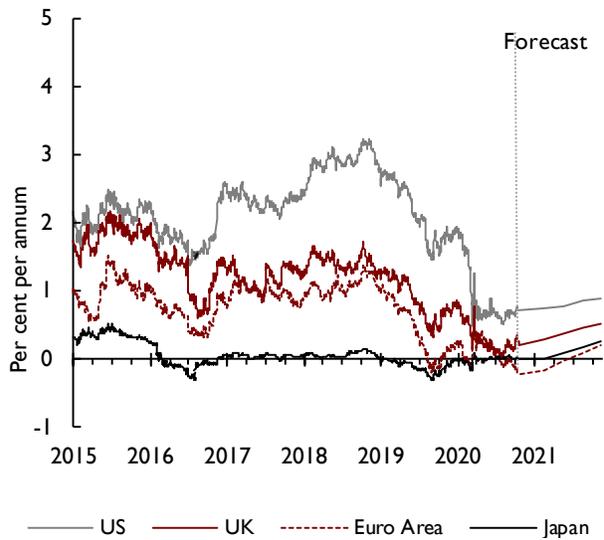
Figure A1 illustrates the recent movement in, and our projections for, 10-year government bond yields in the US, Euro Area, the UK and Japan. The average levels of 10-year sovereign bond yields in the Euro Area decreased in the third quarter of 2020 relative to the previous quarter, by about 30 basis points; but remained largely

unchanged in the US, the UK and Japan. Expectations currently for the government bond yields for the end of 2020 compared to expectations formed three months ago are lower for the Euro Area and Japan by around 30 and 10 basis points respectively, and have not changed much for US and the UK.

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 between 10-year government bond yields of Spain, Italy, Portugal and Ireland over Germany bond yields. Concerns regarding the economic impact from the spread of Covid-19 led to widening of spreads in several Euro Area economies in March, with Greece and Italy experiencing the largest increase, followed by Portugal. Spreads have come down since for the majority of economies. We have assumed that spreads over German bond yields narrow in all Euro Area countries over the course of the forecast horizon.

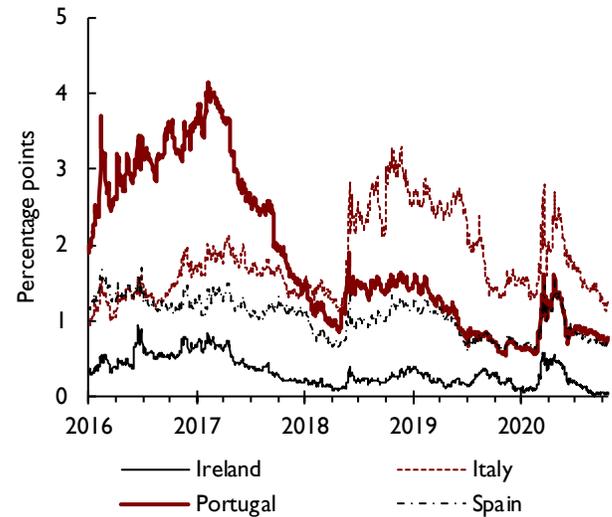
Figure A3 shows the spreads of corporate bond yields over government bond yields in the US, UK and Euro Area. This acts as a proxy for the margin between private sector and 'risk-free' borrowing costs. Corporate

Figure A1. 10-year government bond yields



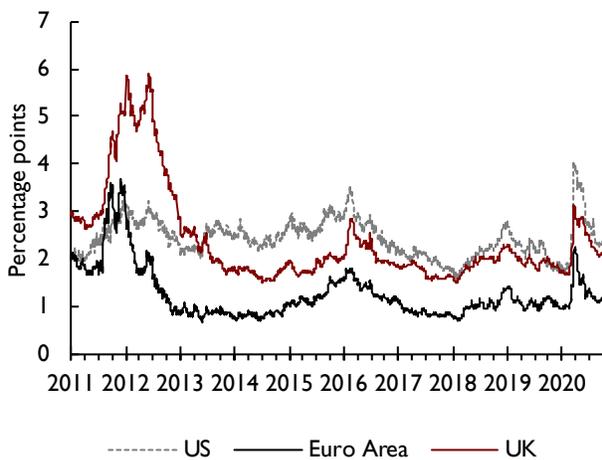
Source: Datastream and NIESR projections.

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



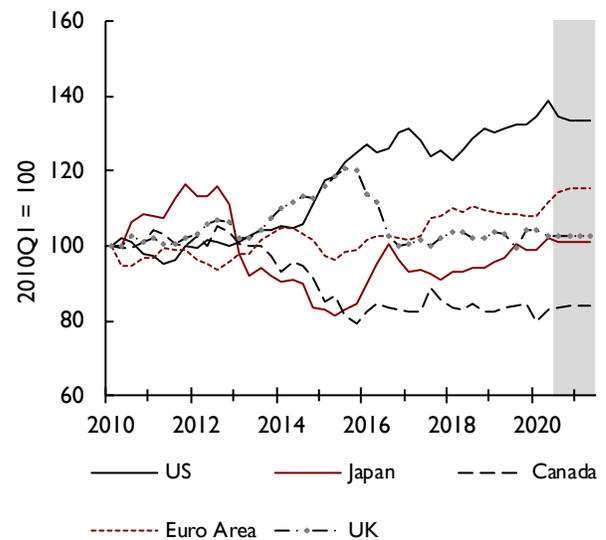
Source: Derived from Datastream series.

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



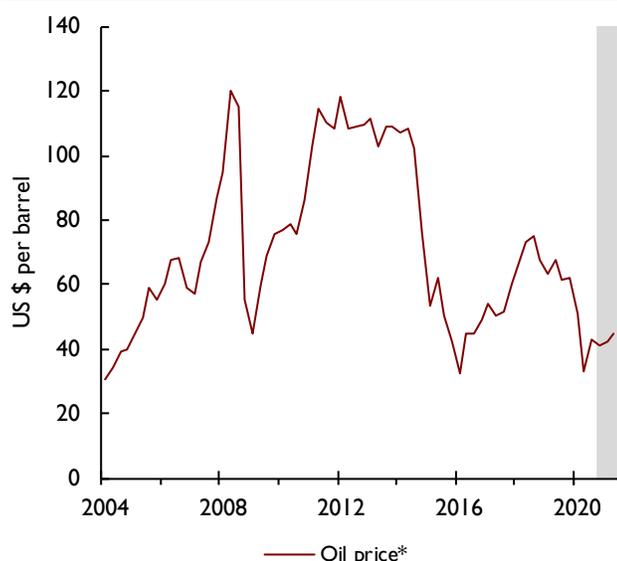
Source: NiGEM database and NIESR forecasts. Weights based on 2017 goods and services trade shares.

bond spreads in the US, UK and Euro Area came down and remained low since the relatively recent peak at the turn of 2016. However, the global spread of Covid-19 and its impact on economic activity has resulted in an increase in private sector borrowing costs, while the observed risk-free rates have decreased. This led to widening of corporate bond spreads at the end of March and beginning of April to levels last seen in the US during financial crises and for the Euro and UK during the

2012–13 sovereign debt crisis. Corporate bond spreads have narrowed since, and recently reached the levels close to historic averages. Our forecast assumption for corporate spreads is that they gradually converge towards their long-term average level.

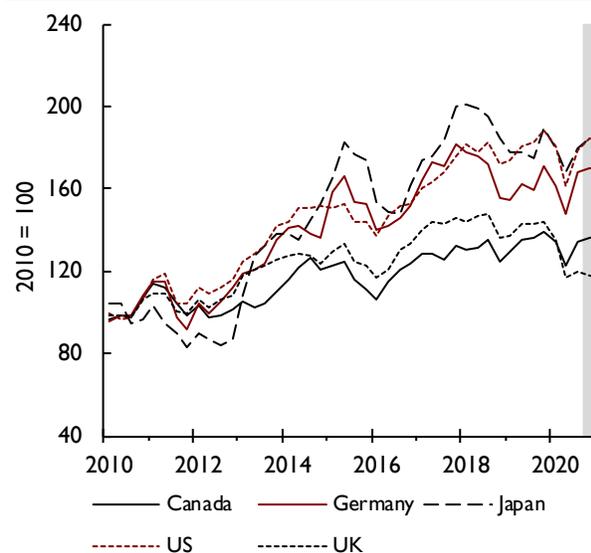
Nominal exchange rates against the US dollar are generally assumed to remain constant at the rate

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.

prevailing on 16 October 2020 until the end of May 2021. 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. In trade-weighted terms, the US dollar appreciated, by about 5 per cent, between the end of 2019 and the second quarter of this year. However, it has lost about 4 per cent in its value, in effective terms, since the second quarter. After depreciating slightly at the turn of last year, the euro has been strengthening since the beginning of 2020 and appreciated by about 6.5 per cent in trade weighted terms. Among the developing economies' currencies in our model, the largest movement in effective terms in the past three months has been the depreciation of the Turkish lira and Argentine peso by about 17 and 14 per cent, respectively.

Our oil price assumptions for the short term generally follow those of the US Energy Information Administration (EIA), published in October 2020, and updated with daily spot price data available up to 16 October 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 risen since our last forecast three months ago by about 10 per cent. Expectations for the oil price by the

end of 2020 are slightly lower compared to expectations three months ago, which leaves oil prices in excess of 60 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. After relatively strong stock market performance at the end of 2019 the sentiment at the beginning of this year has reversed and equity prices fell dramatically in the majority of economies early in the year, reflecting worsening financial conditions and risk appetite following the Covid-19 spread. In the third quarter stock market performance has been somewhat positive, with equity prices in many countries increasing relative to lows in the second quarter. The most recent equity price data has been mixed, with stock markets in some advanced economies falling, and increasing in others. Recent price movements have been relatively modest compared to large changes which had already taken place this year. 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 October 2020.

Appendix B: Forecast detail

Table B1. Real GDP growth and inflation

	Real GDP growth (per cent)						Annual inflation ^(a) (per cent)					
	2018	2019	2020	2021	2022	2023–27	2018	2019	2020	2021	2022	2023–27
Argentina	-2.6	-2.1	-11.9	4.1	2.3	1.7	34.2	52.8	40.5	29.1	22.8	11.4
Australia ^(a)	2.8	1.8	-4.3	2.6	3.6	3.1	1.7	1.7	0.6	1.3	1.9	1.9
Austria ^(a)	2.5	1.4	-5.8	4.1	2.2	1.3	2.1	1.5	1.4	1.2	1.5	1.8
Belgium ^(a)	1.5	1.4	-9.2	3.1	3.4	1.5	2.3	1.3	0.4	0.7	1.1	1.7
Bulgaria ^(a)	3.2	3.3	-4.7	3.9	2.8	2.3	2.6	2.5	1.4	1.6	1.3	1.4
Brazil	1.2	1.1	-6.3	2.2	2.5	2.9	3.7	3.7	3.1	3.7	2.5	5.4
Chile	4.0	1.0	-5.4	3.6	1.9	2.2	2.7	2.3	2.7	2.8	2.3	2.4
China	6.8	6.2	1.9	7.6	5.4	4.2	2.1	2.9	3.1	2.4	2.9	2.5
Canada	2.0	1.7	-6.9	4.0	2.5	2.2	1.7	1.6	0.7	1.3	1.3	1.7
Czechia ^(a)	3.2	2.3	-7.6	3.2	3.6	1.6	2.0	2.6	3.6	2.4	1.6	2.0
Denmark ^(a)	2.2	2.8	-4.7	2.6	1.9	1.5	0.7	0.7	0.4	1.5	1.4	1.7
Estonia ^(a)	4.4	4.9	-5.0	3.8	1.9	1.6	3.4	2.3	-0.7	1.8	1.7	1.5
Finland ^(a)	1.5	1.1	-4.0	2.7	2.6	1.8	1.2	1.1	0.5	1.5	1.9	2.0
France ^(a)	1.8	1.5	-10.0	5.6	2.5	1.8	2.1	1.3	0.6	1.2	1.3	1.7
Germany ^(a)	1.3	0.6	-5.7	3.6	1.7	1.2	1.9	1.4	0.4	0.8	1.2	1.9
Greece ^(a)	1.9	1.9	-9.7	4.3	2.0	1.5	0.8	0.5	-1.1	0.5	1.4	2.2
Hong Kong	2.8	-1.2	-5.1	6.0	2.1	1.3	3.1	2.8	1.8	2.0	1.7	2.1
Hungary ^(a)	5.1	4.9	-6.7	5.1	3.5	1.7	2.9	3.4	3.4	2.1	2.4	2.8
India	6.8	4.9	-9.9	7.9	4.9	4.7	3.9	3.7	6.0	3.2	3.6	3.1
Indonesia	5.2	5.0	-2.3	3.9	2.6	4.0	3.2	3.0	1.9	2.0	1.8	2.6
Ireland	9.3	5.9	-6.1	5.7	4.1	3.0	0.7	0.9	-0.3	0.9	1.1	2.2
Italy ^(a)	0.8	0.3	-11.0	4.4	2.1	1.4	1.3	0.6	-0.2	0.5	1.5	1.5
Japan	0.3	0.7	-5.9	1.8	1.2	1.1	0.6	0.3	0.2	0.0	0.2	1.0
Lithuania ^(a)	4.0	4.3	-3.5	2.7	4.4	2.5	2.5	2.2	1.3	1.9	1.6	1.5
Latvia ^(a)	4.2	2.1	-6.8	2.6	3.8	2.1	2.6	2.7	0.2	1.3	1.5	1.5
Mexico	2.2	-0.3	-9.6	2.5	2.3	2.8	4.9	3.6	3.2	2.3	2.0	2.4
Netherlands ^(a)	2.3	1.6	-5.8	3.7	3.4	1.4	1.6	2.7	1.1	1.1	1.4	1.6
New Zealand	3.2	2.2	-6.8	6.2	5.3	2.8	1.3	1.5	1.9	2.2	2.3	1.4
Norway	1.5	1.2	-3.8	3.4	3.3	1.5	2.2	2.2	2.0	2.1	1.8	1.9
Poland ^(a)	5.4	4.2	-5.3	4.9	3.3	1.6	1.2	2.1	3.7	1.9	2.3	2.0
Portugal ^(a)	2.8	2.2	-9.7	2.9	2.7	1.6	1.2	0.3	-0.2	0.3	1.2	1.3
Romania ^(a)	4.5	4.1	-6.0	3.7	3.2	3.3	4.1	3.9	2.1	2.0	3.2	1.1
Russia	2.5	1.3	-6.7	2.2	5.5	1.7	2.9	4.5	3.2	6.2	4.6	3.6
Singapore	3.5	0.7	-5.5	3.5	3.4	3.5	0.4	0.6	-0.3	0.8	1.0	1.8
South Africa	0.7	0.1	-8.7	2.9	2.4	2.3	4.1	3.6	3.0	4.6	3.6	2.7
S. Korea	2.9	2.0	-1.8	1.4	1.9	2.8	1.5	0.4	0.6	0.9	1.0	1.7
Slovakia ^(a)	3.9	2.4	-6.2	5.3	1.6	1.5	2.5	2.8	2.1	1.9	2.4	2.3
Slovenia ^(a)	4.5	3.1	-9.4	4.4	4.0	2.8	1.9	1.7	-0.2	1.5	1.5	1.8
Spain ^(a)	2.4	2.0	-12.8	4.1	4.1	2.2	1.7	0.8	-0.2	0.8	1.2	1.9
Sweden ^(a)	2.1	1.3	-5.2	1.8	3.4	2.3	2.0	1.7	0.7	1.7	1.4	1.7
Switzerland	3.0	1.1	-5.7	3.5	1.4	2.8	1.1	0.0	-0.7	0.5	0.6	0.8
Taiwan	2.7	2.7	-0.4	3.3	3.0	3.2	1.0	0.6	-0.2	0.4	0.8	2.2
Turkey	3.1	1.0	-2.2	4.2	3.5	2.3	16.3	15.2	12.0	9.6	7.1	5.3
UK ^(a)	1.3	1.3	-10.5	5.9	3.7	1.9	2.4	1.8	0.9	1.1	2.2	2.1
US	3.0	2.2	-3.6	3.3	2.2	1.7	2.1	1.5	1.0	1.4	2.0	2.2
Vietnam	7.1	7.0	3.1	7.4	5.9	5.6	3.6	2.8	4.0	3.5	4.1	3.5
Euro Area ^(a)	1.9	1.3	-8.3	4.2	2.5	1.6	1.8	1.2	0.3	0.9	1.3	1.8
EU-28 ^(a)	2.1	1.6	-8.1	4.1	2.8	1.7	1.9	1.5	0.8	1.1	1.6	1.8
OECD	2.3	1.6	-5.9	3.5	2.4	1.8	2.6	2.1	1.6	1.7	2.0	2.2
World	3.6	2.9	-4.5	4.9	3.7	3.0	3.9	4.1	3.7	3.0	3.2	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

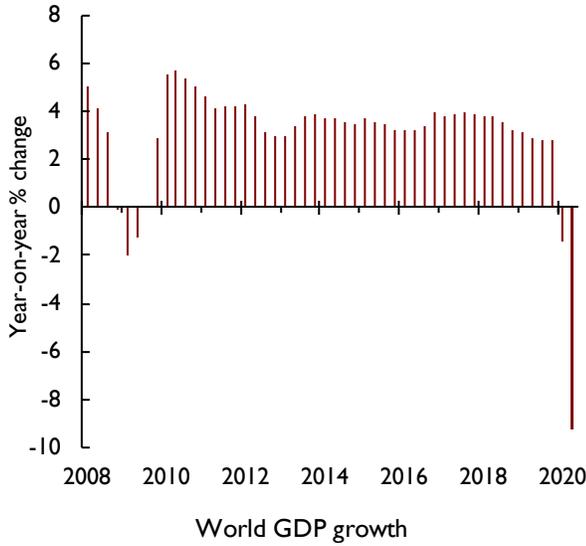
	Fiscal balance (per cent of GDP) ^(a)						Government debt (per cent of GDP, end year) ^(b)					
	2018	2019	2020	2021	2022	2027	2018	2019	2020	2021	2022	2027
Australia	0.0	0.2	-7.7	-5.5	-1.1	-0.9	42.8	41.2	50.3	52.2	50.4	40.6
Austria	0.3	0.7	-3.4	-0.6	1.4	-0.5	73.9	72.0	81.6	78.6	74.3	61.5
Belgium	-0.8	-1.9	-6.0	-4.7	-4.2	-1.9	100.0	99.3	117.7	117.8	116.4	110.7
Bulgaria	2.0	2.2	-3.1	-1.9	-2.0	-1.3	-	-	-	-	-	-
Canada	-0.4	-0.3	-15.1	-8.4	-3.6	-2.2	93.2	94.1	113.3	115.8	114.5	105.4
Czechia	0.9	0.3	-4.0	-1.8	-1.4	-1.9	31.7	29.9	36.0	35.9	35.4	37.5
Denmark	0.7	3.7	-4.0	-2.2	0.2	-0.3	33.8	31.8	37.0	37.3	35.6	30.0
Estonia	-0.5	-0.5	-6.2	-2.2	1.5	-0.6	-	-	-	-	-	-
Finland	-0.9	-0.9	-4.0	-3.8	-2.4	-2.0	59.0	59.2	69.2	69.3	68.2	65.2
France	-2.3	-3.0	-9.1	-9.1	-6.6	-3.9	98.3	98.8	114.4	115.3	117.1	118.5
Germany	1.9	1.5	-5.9	-3.4	-0.7	-1.5	61.8	59.6	69.9	69.8	67.4	57.9
Greece	1.0	1.3	-8.2	-5.7	-2.9	-0.9	181.9	176.9	207.3	196.6	198.1	173.8
Hungary	-2.2	-2.0	-5.7	-4.8	-4.7	-3.1	68.6	65.0	68.3	67.4	67.9	69.1
Ireland	0.1	0.3	-3.0	-0.6	0.6	-0.7	63.6	59.0	65.1	61.9	58.1	44.9
Italy	-2.2	-1.6	-8.0	-6.2	-4.0	-3.0	134.9	136.0	159.0	159.0	156.7	146.3
Japan	-2.4	-2.6	-7.0	-5.4	-3.1	-3.7	225.1	228.0	244.6	248.9	246.8	232.4
Lithuania	0.6	0.3	-2.8	0.5	1.4	-0.6	-	-	-	-	-	-
Latvia	-0.8	-0.4	-2.6	-0.9	0.9	-0.4	-	-	-	-	-	-
Netherlands	1.4	1.7	-2.7	-2.8	-0.7	-2.1	52.4	49.5	56.3	55.9	53.7	52.7
Poland	-0.3	-0.8	-6.0	-3.5	-2.0	-2.7	47.7	45.2	52.3	53.5	52.8	55.2
Portugal	-0.4	0.2	-4.2	-1.9	0.3	-1.4	122.2	119.3	133.2	131.0	125.8	110.9
Romania	-3.0	-4.4	-10.4	-8.1	-7.0	-3.2	-	-	-	-	-	-
Slovakia	-1.1	-1.3	-7.2	-2.3	0.8	-0.6	-	-	-	-	-	-
Slovenia	0.7	0.5	-9.1	-6.0	-1.6	-1.9	-	-	-	-	-	-
Spain	-2.5	-2.2	-6.6	-4.1	-2.4	-2.1	97.6	96.6	118.9	113.6	108.9	90.9
Sweden	0.8	0.3	-5.0	-2.8	-1.0	-0.8	38.7	35.7	43.7	44.8	43.4	36.1
UK	-2.3	-2.3	-14.7	-8.1	-4.7	-1.6	85.0	84.6	107.1	109.6	107.1	94.5
US	-6.2	-6.7	-17.3	-10.0	-7.6	-4.1	105.2	106.8	127.1	132.3	132.8	132.7

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

Table B3. Unemployment and current account balance

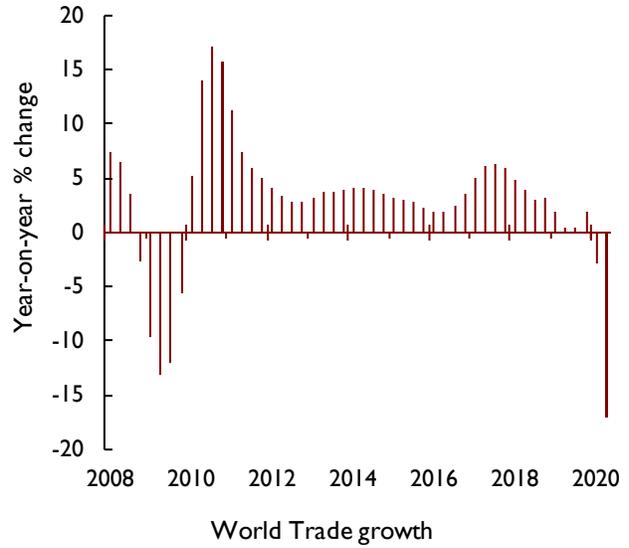
	Standardised unemployment rate						Current account balance (per cent of GDP)					
	2018	2019	2020	2021	2022	2023–27	2018	2019	2020	2021	2022	2023–27
Australia	5.3	5.2	6.6	6.9	5.4	5.1	-2.1	0.6	2.7	1.6	0.0	0.3
Austria	4.9	4.5	5.1	4.9	4.6	3.7	1.3	2.9	0.9	-0.4	1.6	2.7
Belgium	5.9	5.3	5.3	6.3	5.5	5.4	-0.8	0.3	-0.5	-0.4	0.0	0.7
Bulgaria	5.2	4.2	6.1	5.0	4.2	4.4	0.9	3.0	3.5	0.4	1.3	1.0
Canada	5.8	5.7	9.7	8.7	8.2	7.9	-2.5	-2.0	-2.4	-1.5	-1.4	-1.3
China	-	-	-	-	-	-	0.2	1.0	0.8	0.9	0.5	0.1
Czechia	2.3	2.0	2.5	3.7	3.7	4.0	0.5	-0.3	0.9	-0.6	-1.5	-2.6
Denmark	5.1	5.1	5.7	5.8	5.5	4.4	7.0	8.8	5.8	5.6	6.9	7.3
Estonia	5.3	4.4	6.9	6.9	6.9	6.9	0.9	2.0	2.7	3.5	1.9	-1.0
Finland	7.4	6.8	7.8	8.2	7.5	6.8	-1.8	-0.5	-0.1	0.8	1.3	1.7
France	9.0	8.5	7.4	8.2	8.1	7.7	-0.6	-0.7	-2.3	-2.4	-2.3	-1.9
Germany	3.4	3.2	4.2	4.2	3.7	3.3	7.5	7.2	5.9	5.1	5.2	6.3
Greece	19.3	17.3	17.1	16.7	16.9	15.1	-2.9	-1.5	-5.1	-0.8	-0.6	0.0
Hungary	3.7	3.5	4.5	5.5	5.8	6.1	0.3	-0.2	-3.4	-2.3	-1.3	-0.7
Ireland	5.8	4.9	5.3	6.2	6.3	4.1	6.2	-11.1	8.3	5.8	4.3	3.1
Italy	10.6	9.9	9.4	9.8	9.0	7.9	2.5	2.9	2.5	1.4	2.2	5.3
Japan	2.4	2.4	2.8	3.1	3.8	3.1	3.6	3.6	2.0	1.0	0.5	0.5
Lithuania	6.2	6.3	9.1	9.2	7.2	7.2	0.2	4.2	5.9	1.5	2.4	2.9
Latvia	7.4	6.3	8.4	9.5	7.7	6.4	-0.8	-1.7	0.1	-3.1	-3.3	-1.4
Netherlands	3.8	3.4	4.2	5.7	4.6	4.0	10.9	10.0	7.8	7.3	7.3	6.0
Poland	3.8	3.3	3.4	4.9	4.5	4.6	-1.0	0.4	4.1	4.7	4.8	4.9
Portugal	7.0	6.6	8.1	9.4	8.3	7.2	0.4	-0.1	-2.4	-3.6	-3.2	-2.7
Romania	4.2	3.9	5.1	4.8	3.8	4.1	-4.5	-4.6	-5.1	-5.1	-3.7	-2.8
Slovakia	6.5	5.8	7.1	6.9	5.8	5.7	-2.5	-2.9	-3.4	-1.6	0.4	2.6
Slovenia	5.2	4.4	5.5	4.9	5.4	6.0	5.8	5.6	1.1	1.0	4.9	4.7
Spain	15.3	14.1	15.6	17.4	17.1	15.3	1.9	2.1	-0.9	0.3	1.0	0.8
Sweden	6.3	6.8	8.3	7.4	7.2	6.7	2.5	4.2	3.5	2.1	2.8	2.6
UK	4.1	3.8	5.0	7.6	6.5	4.9	-3.7	-4.3	-2.8	-5.4	-4.5	-3.4
US	3.9	3.7	8.5	7.4	6.3	6.0	-2.2	-2.2	-3.4	-3.4	-3.0	-2.0

Figure B1. World GDP is estimated to have shrunk by over 9 per cent in the second quarter of 2020



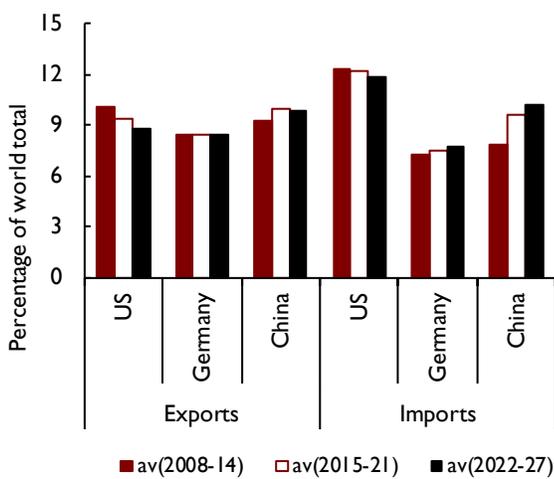
Source: NiGEM database and NIESR forecasts.

Figure B2. NIESR estimates that world trade fell by close to 17 per cent in 2020Q2



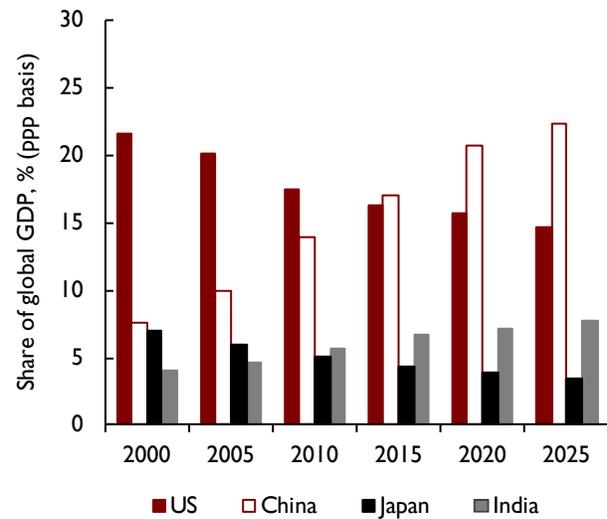
Source: NiGEM database and NIESR forecasts.

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.

Note: PPP shares based on 2011 reference year.

Table B4. United States							Percentage change	
	2017	2018	2019	2020	2021	2022	Average 2023–27	
GDP	2.3	3.0	2.2	–3.6	3.3	2.2	1.7	
Consumption	2.6	2.7	2.4	–4.2	4.0	3.2	1.8	
Investment : housing	4.0	–0.6	–1.7	–0.3	0.0	2.9	1.7	
: business	3.7	6.9	2.9	–5.9	3.8	4.2	1.8	
Government: consumption	0.6	1.5	1.8	9.2	0.4	–3.4	0.8	
: investment	2.2	2.9	4.3	8.8	–0.7	–0.4	1.6	
Stockbuilding ^(a)	0.0	0.2	0.0	–1.1	0.4	0.0	0.0	
Total domestic demand	2.5	3.2	2.3	–3.2	3.6	2.2	1.6	
Export volumes	3.9	3.0	–0.1	–12.2	7.0	6.4	4.0	
Import volumes	4.7	4.1	1.1	–7.6	6.8	5.6	3.2	
Average earnings	2.8	3.1	3.4	4.1	1.0	1.1	3.1	
Private consumption deflator	1.8	2.1	1.5	1.0	1.4	2.0	2.2	
RPDI	3.0	3.5	2.1	6.8	–2.6	1.0	1.0	
Unemployment, %	4.4	3.9	3.7	8.5	7.4	6.3	6.0	
General Govt. balance as % of GDP	–4.3	–6.2	–6.7	–17.3	–10.0	–7.6	–5.3	
General Govt. debt as % of GDP ^(b)	103.7	105.2	106.8	127.1	132.3	132.8	133.1	
Current account as % of GDP	–1.9	–2.2	–2.2	–3.4	–3.4	–3.0	–2.0	

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

Table B5. Canada							Percentage change	
	2017	2018	2019	2020	2021	2022	Average 2023–27	
GDP	3.2	2.0	1.7	–6.9	4.0	2.5	2.2	
Consumption	3.6	2.1	1.6	–7.4	5.9	2.7	1.9	
Investment : housing	2.2	–1.6	–0.6	–6.6	3.4	5.9	3.9	
: business	3.5	1.8	–0.4	–12.1	–0.1	6.8	2.9	
Government: consumption	2.3	3.0	2.1	1.4	2.8	0.4	1.7	
: investment	6.3	5.2	–0.3	0.3	2.3	3.2	2.2	
Stockbuilding ^(a)	0.9	–0.2	0.1	–1.1	0.5	0.0	0.0	
Total domestic demand	4.2	1.9	1.4	–6.8	4.7	2.8	2.1	
Export volumes	1.4	3.1	1.3	–12.4	9.1	3.8	3.6	
Import volumes	4.2	2.6	0.6	–11.9	11.1	4.7	3.2	
Average earnings	3.0	2.7	4.6	3.6	–1.2	3.5	3.7	
Private consumption deflator	1.0	1.7	1.6	0.7	1.3	1.3	1.7	
RPDI	3.7	2.4	3.2	5.9	–3.9	–0.2	2.1	
Unemployment, %	6.3	5.8	5.7	9.7	8.7	8.2	7.9	
General Govt. balance as % of GDP	–0.1	–0.4	–0.3	–15.1	–8.4	–3.6	–2.5	
General Govt. debt as % of GDP ^(b)	92.5	93.2	94.1	113.3	115.8	114.5	108.8	
Current account as % of GDP	–2.8	–2.5	–2.0	–2.4	–1.5	–1.4	–1.3	

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

Table B6. Japan Percentage change

	2017	2018	2019	2020	2021	2022	Average 2023–27
GDP	2.2	0.3	0.7	-5.9	1.8	1.2	1.1
Consumption	1.3	0.0	0.2	-7.7	6.1	2.4	1.6
Investment : housing	1.7	-6.7	2.1	-4.3	2.4	2.7	1.2
: business	4.1	2.2	0.7	-8.0	-2.3	6.6	1.2
Government: consumption	0.1	0.9	1.9	8.2	-3.4	-4.4	0.5
: investment	0.5	0.3	2.8	0.8	-1.4	0.4	0.6
Stockbuilding ^(a)	0.1	0.0	0.1	-0.1	-0.2	0.0	0.0
Total domestic demand	1.6	0.3	0.9	-4.1	2.0	1.5	1.2
Export volumes	6.8	3.5	-1.6	-16.5	6.4	5.2	4.7
Import volumes	3.4	3.7	-0.6	-6.0	7.1	6.1	4.7
Average earnings	0.7	2.0	3.0	1.8	-1.7	-0.7	1.7
Private consumption deflator	0.2	0.6	0.3	0.2	0.0	0.2	1.0
RPDI	0.7	2.1	0.7	-2.0	1.3	-0.7	1.9
Unemployment, %	2.8	2.4	2.4	2.8	3.1	3.8	3.1
Govt. balance as % of GDP	-3.0	-2.4	-2.6	-7.0	-5.4	-3.1	-3.1
Govt. debt as % of GDP ^(b)	220.1	225.1	228.0	244.6	248.9	246.8	238.2
Current account as % of GDP	4.2	3.6	3.6	2.0	1.0	0.5	0.5

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

Table B7. Euro Area Percentage change

	2017	2018	2019	2020	2021	2022	Average 2023–27
GDP	2.7	1.9	1.3	-8.3	4.2	2.5	1.6
Consumption	1.9	1.5	1.4	-10.0	6.1	2.4	1.1
Private investment	4.5	3.2	5.9	-12.3	2.2	5.5	1.7
Government : consumption	1.1	1.2	1.8	4.0	1.6	-1.6	0.6
: investment	2.1	2.9	4.7	3.2	2.0	0.0	0.9
Stockbuilding ^(a)	0.2	0.1	-0.4	0.1	-0.2	0.0	0.0
Total domestic demand	2.4	1.8	1.9	-7.0	4.0	2.0	1.1
Export volumes	5.9	3.6	2.5	-11.8	11.1	6.5	3.4
Import volumes	5.4	3.6	3.9	-9.8	11.4	5.6	2.7
Average earnings	2.0	2.2	2.1	-0.8	1.4	2.8	2.9
Harmonised consumer prices	1.5	1.8	1.2	0.3	0.9	1.3	1.8
RPDI	1.5	1.6	2.2	-0.5	-0.4	1.1	1.2
Unemployment, %	9.1	8.2	7.6	7.9	8.6	8.1	7.3
Govt. balance as % of GDP	-1.0	-0.5	-0.6	-6.5	-4.9	-2.6	-2.2
Govt. debt as % of GDP ^(b)	88.5	86.6	84.9	96.1	97.2	95.4	90.5
Current account as % of GDP	3.1	2.9	2.3	1.8	1.6	1.9	2.7

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

	Percentage change						
	2017	2018	2019	2020	2021	2022	Average 2023–27
GDP	2.9	1.3	0.6	-5.7	3.6	1.7	1.2
Consumption	1.8	1.5	1.6	-8.1	6.5	2.9	0.4
Investment : housing	1.4	3.1	4.0	5.4	3.3	1.2	0.1
: business	3.9	3.5	1.7	-12.2	1.4	5.1	1.4
Government: consumption	1.6	1.2	2.7	8.8	-1.6	-3.9	-0.2
: investment	4.0	5.7	3.7	8.6	-1.5	-2.8	0.1
Stockbuilding ^(a)	0.7	-0.1	-0.7	0.2	0.2	0.0	0.0
Total domestic demand	2.9	1.8	1.3	-3.6	3.7	1.3	0.4
Export volumes	5.4	2.5	1.0	-11.1	12.3	6.4	3.7
Import volumes	5.8	3.8	2.6	-7.2	13.2	5.8	2.4
Average earnings	2.6	3.0	3.3	3.9	-0.1	0.4	2.4
Harmonised consumer prices	1.7	1.9	1.4	0.4	0.8	1.2	1.9
RPDI 2.0	1.9	1.5	0.0	-1.1	-1.2	0.3	
Unemployment, %	3.8	3.4	3.2	4.2	4.2	3.7	3.3
Govt. balance as % of GDP	1.2	1.9	1.5	-5.9	-3.4	-0.7	-1.0
Govt. debt as % of GDP ^(b)	65.1	61.8	59.6	69.9	69.8	67.4	60.7
Current account as % of GDP	7.8	7.5	7.2	5.9	5.1	5.2	6.3

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

	Percentage change						
	2017	2018	2019	2020	2021	2022	Average 2023–27
GDP	2.4	1.8	1.5	-10.0	5.6	2.5	1.8
Consumption	1.7	0.8	1.5	-9.8	6.1	2.3	1.2
Investment : housing	5.7	1.5	1.8	-18.6	7.4	7.5	4.5
: business	6.0	3.8	4.4	-15.1	7.4	6.9	2.1
Government: consumption	1.4	0.9	1.7	2.4	6.5	-1.4	0.9
: investment	0.1	3.3	7.7	-4.2	11.3	0.3	1.3
Stockbuilding ^(a)	0.2	0.0	-0.4	0.0	-0.9	0.0	0.0
Total domestic demand	2.5	1.4	1.8	-7.9	5.7	2.1	1.4
Export volumes	4.6	4.6	1.8	-15.8	13.9	6.7	3.6
Import volumes	4.7	3.1	2.6	-9.4	13.3	5.0	2.4
Average earnings	3.0	2.4	0.0	0.5	1.8	4.0	3.6
Harmonised consumer prices	1.2	2.1	1.3	0.6	1.2	1.3	1.7
RPDI	1.4	1.0	3.0	4.7	-1.6	1.9	1.4
Unemployment, %	9.4	9.0	8.5	7.4	8.2	8.1	7.7
Govt. balance as % of GDP	-2.9	-2.3	-3.0	-9.1	-9.1	-6.6	-4.7
Govt. debt as % of GDP ^(b)	98.4	98.3	98.8	114.4	115.3	117.1	118.4
Current account as % of GDP	-0.8	-0.6	-0.7	-2.3	-2.4	-2.3	-1.9

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

Table B10. Italy Percentage change

	2017	2018	2019	2020	2021	2022	Average 2023–27
GDP	1.7	0.8	0.3	–11.0	4.4	2.1	1.4
Consumption	1.5	1.0	0.5	–12.3	6.6	0.8	0.5
Investment : housing	1.5	1.3	3.3	–18.8	10.0	6.0	1.1
: business	5.1	4.6	–0.1	–8.3	–1.9	4.5	1.7
Government : consumption	–0.1	0.2	–0.2	1.0	0.7	–0.4	0.5
: investment	–3.3	–4.9	9.7	7.8	0.0	0.4	0.6
Stockbuilding ^(a)	0.2	0.0	–0.7	0.1	0.0	0.0	0.0
Total domestic demand	1.7	1.2	–0.2	–10.0	5.2	1.2	0.7
Export volumes	6.0	1.6	1.3	–19.2	11.7	6.7	3.6
Import volumes	6.5	2.9	–0.4	–16.7	14.7	3.9	1.6
Average earnings	0.7	1.8	1.4	–10.2	4.2	4.9	2.7
Harmonised consumer prices	1.3	1.3	0.6	–0.2	0.5	1.5	1.5
RPDI	1.1	0.7	2.3	–4.8	1.8	1.3	1.1
Unemployment, %	11.3	10.6	9.9	9.4	9.8	9.0	7.9
Govt. balance as % of GDP	–2.4	–2.2	–1.6	–8.0	–6.2	–4.0	–3.1
Govt. debt as % of GDP ^(b)	134.0	134.9	136.0	159.0	159.0	156.7	150.5
Current account as % of GDP	2.6	2.5	2.9	2.5	1.4	2.2	5.3

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

Table B11. Spain Percentage change

	2017	2018	2019	2020	2021	2022	Average 2023–27
GDP	3.0	2.4	2.0	–12.8	4.1	4.1	2.2
Consumption	3.0	1.8	0.9	–12.1	6.9	3.1	2.4
Investment : housing	13.4	12.4	4.1	–21.2	0.9	8.7	3.9
: business	3.5	1.5	2.8	–21.1	–0.9	10.6	2.6
Government: consumption	1.0	2.6	2.3	2.7	–0.3	0.3	1.4
: investment	4.5	9.6	–2.7	6.1	–2.7	5.2	1.8
Stockbuilding ^(a)	0.0	0.3	–0.1	–0.1	0.0	0.0	0.0
Total domestic demand	3.3	3.1	1.4	–10.4	3.8	3.5	2.3
Export volumes	5.5	2.3	2.3	–22.0	11.1	6.9	3.2
Import volumes	6.8	4.2	0.7	–15.7	10.4	5.2	3.4
Average earnings	1.5	0.9	3.0	–4.7	3.2	5.4	3.7
Harmonised consumer prices	2.0	1.7	0.8	–0.2	0.8	1.2	1.9
RPDI	1.3	2.2	2.4	–7.1	1.0	3.9	2.4
Unemployment, %	17.3	15.3	14.1	15.6	17.4	17.1	15.3
Govt. balance as % of GDP	–3.0	–2.5	–2.2	–6.6	–4.1	–2.4	–2.0
Govt. debt as % of GDP ^(b)	98.6	97.6	96.6	118.9	113.6	108.9	97.3
Current account as % of GDP	2.8	1.9	2.1	–0.9	0.3	1.0	0.8

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

