THE WORLD ECONOMY

*Barry Naisbitt with Janine Boshoff, Dawn Holland, Ian Hurst, Amit Kara, Iana Liadze, Corrado Macchiarelli, Xuxin Mao, Patricia Sanchez Juanino, Craig Thamotheram and Kemar Whyte**

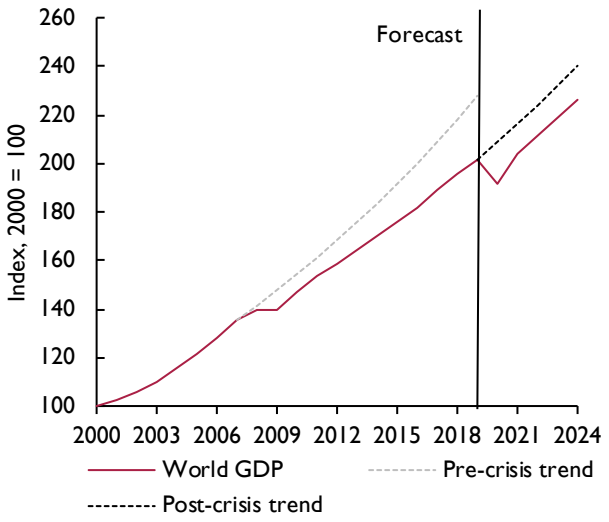
Global outlook overview

The Covid-19 pandemic and the effects of the measures taken to protect lives continue to dominate the short-term global economic outlook. Since our May *Review* the pandemic has spread further, especially to Latin America, and the number of people infected has increased six-fold. However, the lockdown measures to protect public health in those countries that saw high rates of infection in the first four months of this year appear to have been successful and most countries that reported high and rising death rates three months ago are now seeing lower infection and death rates. As a result, many countries have started to gradually ease their lockdown restrictions, allowing suspended economic activities to restart. For these countries, after the lockdowns, unlocking contains its own uncertainties.

The dramatic disruption to the global economy is projected to lead to a fall in global GDP of 5 per cent this year, a loss of around $10 trillion for the global economy relative to our projection made last November. The short-term fall in global GDP dwarfs the reduction experienced in the financial crisis, as shown in figure 1, when the worst fall in global GDP in a calendar year was of 0.1 per cent in 2009. Our main-case forecast scenario envisages a pick-up in economic activity next year, when we project global growth of 6¼ per cent. Even with such a rebound in GDP growth, our projection implies that, at the end of 2021, the level of global GDP would be 1½ per cent higher than at the end of 2019, before the pandemic hit.

The uncertainties created by the pandemic and the lockdown measures have meant that the estimated fall in global GDP in the first quarter of this year of 3 per cent was larger than in any quarter of the financial crisis a decade ago and the second quarter is likely to show an even larger fall, of around 9 per cent. The reported economic activity indicators for European countries, for example, show unprecedented falls in output in March and April but then some stabilisation and rebound in some activities in May and June as the stringency of lockdown measures eased. For China, the rebound in economic activity was earlier. But global economic activity is well below the level of a year ago and concerns about a possible 'second spike' of the pandemic are being expressed.

Figure 1. World GDP (index 2000=100)



Source: NiGEM database and NIESR forecast.

*All questions and comments related to the forecast and its underlying assumptions should be addressed to Iana Liadze (i.liadze@niesr.ac.uk). We would like to thank Jagjit Chadha and Garry Young for helpful comments and Patricia Sanchez Juanino for preparing the charts and compiling the database underlying the forecast. The forecast was completed on 17 July 2020. Exchange rate, interest rate and equity price assumptions are based on information available to 10 July 2020. Unless otherwise specified, the source of all data reported in tables and figures is the NiGEM database and NIESR forecast baseline.

DOI: 10.1017/nie.2020.33

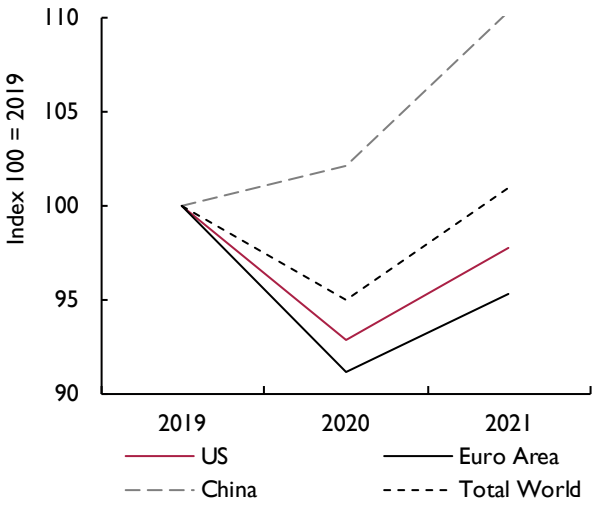
Some major themes have emerged from the crisis. A result of the fiscal policy interventions is that public debt will be higher. The ultra-low interest rate environment looks set to continue, especially in the G7 economies whose GDP could take until 2023 to return to its pre-pandemic level. In addition, a result of the pandemic may mean that the level and growth of international trade could be persistently affected, with tariffs and deglobalisation being important issues.

The likely duration of the current global economic disruption is extraordinarily difficult to forecast because it is an epidemiological policy issue as well as an economic one. The different timing of effects of the pandemic across countries and the uncertainty about whether a vaccine will be found and made widely available relatively soon are additional factors that make the economic outlook particularly uncertain. As a result, we have continued to base our main-case scenario on the assumption that countries experience economic lockdowns (of varying stringency and start dates) in response to the virus and hold these for around three months, with financial support measures taken to sustain economies during the lockdowns. Thereafter we assume phased returns of locked down business operations occur over a further six months and, perhaps most importantly, that a second wave of the virus does not return once lockdowns end. As a consequence, the worst economic effects are seen in the first three quarters of this year, with a recovery thereafter. That recovery is supported by economic stimulus measures taken to revive economies as they unlock.

We examine the possibility of a 'second spike' of the virus as a risk consideration but recognise that we have no special epidemiological insight as to the likelihood or timing of such an adverse outcome. 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 economic activity when lockdown measures start to be lifted in some countries.

The coronavirus pandemic has severely affected output in all the major economies, albeit with slightly different timings in each. The geographical timing of the pandemic outbreak has meant that medical and control measures to contain and control the outbreak were applied earliest in China and other East Asian countries. The adverse effect on the Chinese economy has been concentrated in the first quarter of this year, with output increasing in the second quarter. For the year as a whole GDP in China is projected to rise by 2 per cent. The sharp fall in growth in China from 6¼ per cent last year is unlike that in the financial crisis, when continued robust economic growth in China (of 9.3 per cent in 2009) was able to limit the size of the fall in global GDP. The pandemic then struck the European economies and the US, with economies in Latin America and Africa having the most recent major new outbreaks. The differing timings of the outbreaks of the pandemic across countries have contributed to a lack of coordination of the public health response and economic spillover effects between economies have exacerbated the scale of the fall in global economic activity. There have been uncoordinated but, when viewed on a quarterly basis, synchronised fiscal and monetary policy responses to sustain economies during lockdowns, and to mitigate the adverse economic effects of the pandemic and the control measures taken to shield populations.

Figure 2. Annual GDP (index 2019=100)



Source: NiGEM database and NIESR forecast.

The prospective process of unlocking economies is both an unprecedented problem and one beset by uncertainties about how individuals and companies will react. Unlockings so far have been gradual and the complexities and uncertainties make it difficult to judge how successful policymakers will be in reversing the unprecedented economic disruption.

Our main-case projection implies that the economic policy measures taken will have reduced the extent of the potential fall in global GDP by about one third, but that has not been enough to prevent substantial falls in

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

economic activity, widespread job losses and company failures. Figure 2 shows that a recovery of the level of economic activity that held before the pandemic struck is not widely expected until late 2021, with China as a notable exception.

The economic effects of the epidemic are widespread, and the focus of the pandemic so far has cycled from China to Italy and Spain, to the UK and the US, and now 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 lower trade, record investment outflows in the first quarter of the year, and adverse exchange rate movements. One of the worst affected countries, Brazil, has seen its currency depreciate by 24 per cent against the US dollar since the end of February.

GDP is a blunt concept for summarising the effects of the pandemic on economies. It does not convey the human suffering from illness, death, deprivation and unemployment that has resulted. Unemployment rates which had fallen gradually over a number of years in some economies have started to rise sharply, especially in the US (from 3.5 per cent in February to 11.1 per cent in June). One concern is that unemployment will be slow to fall back, as it was after the financial crisis, creating a scarring effect from the pandemic.

The Covid-19 outbreak hit at a time when world trade growth had already slowed to 1.2 per cent last year, the lowest since 2009, due in part to the imposition of new tariffs by the US (and subsequent tariff retaliations) and uncertainty over future tariffs. One major effect of the virus outbreak has been to disrupt global supply chains and reduce world trade. Our projection is for a fall of 13 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 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 (Dixon, 2020)) is generally expected to continue to undershoot targets in the near-term. In these circumstances, controlling inflation has taken a back seat

Table 1. Forecast summary *Percentage change*

	Real GDP[a]												World trade[b]
	World	OECD	China	BRICS+	Euro Area	USA	Japan	Germany	France	Italy	UK	Canada	
2010–15	4.0	2.2	8.4	6.3	1.0	2.3	1.5	2.1	1.2	–0.3	2.0	2.3	5.7
2016	3.4	1.8	6.8	5.2	1.9	1.6	0.5	2.1	1.0	1.4	1.9	1.0	2.4
2017	3.9	2.7	6.9	5.6	2.7	2.4	2.2	2.8	2.4	1.7	1.9	3.2	5.8
2018	3.6	2.3	6.8	5.4	1.9	2.9	0.3	1.5	1.8	0.7	1.3	2.0	3.7
2019	2.9	1.7	6.2	4.5	1.2	2.3	0.7	0.6	1.5	0.3	1.5	1.7	1.2
2020	*–4.9*	*–7.3*	*2.1*	*–1.9*	*–8.8*	*–7.1*	*–4.9*	*–5.6*	*–10.5*	*–11.6*	*–10.1*	*–9.1*	*–13.1*
2021	*6.3*	*5.0*	*8.1*	*7.2*	*4.6*	*5.3*	*3.1*	*2.9*	*5.9*	*3.5*	*6.1*	*5.9*	*14.1*
2022–26	*3.3*	*2.0*	*4.8*	*4.3*	*1.7*	*1.7*	*0.9*	*1.1*	*1.8*	*1.7*	*1.7*	*2.9*	*4.6*

	Private consumption deflator									Interest rates[c] per cent			Oil ($ per barrel) [d]
	OECD	BRICS+	Euro Area	USA	Japan	Germany	France	Italy	UK	USA	Japan	Euro Area	
2010–15	1.6	5.4	1.2	1.5	–0.1	1.3	0.9	1.4	1.8	0.3	0.1	0.6	93.0
2016	1.1	4.3	0.4	1.0	–0.5	0.7	0.2	0.1	1.4	0.5	–0.1	0.0	42.9
2017	2.0	3.3	1.3	1.8	0.2	1.5	0.8	1.1	1.4	1.1	–0.1	0.0	54.0
2018	2.6	3.8	1.5	2.1	0.6	1.5	1.7	0.9	2.6	1.9	–0.1	0.0	70.4
2019	2.1	4.2	1.2	1.4	0.3	1.3	0.9	0.5	1.3	2.3	–0.1	0.0	63.7
2020	*1.5*	*4.4*	*0.4*	*0.7*	*0.7*	*0.7*	*0.4*	*–0.1*	*0.7*	*0.5*	*–0.1*	*0.0*	*42.4*
2021	*1.9*	*3.7*	*0.8*	*1.4*	*0.2*	*1.2*	*0.9*	*0.2*	*2.0*	*0.3*	*–0.1*	*0.0*	*50.6*
2022–26	*2.1*	*5.1*	*1.5*	*2.0*	*0.7*	*1.5*	*1.5*	*1.5*	*2.1*	*1.1*	*0.4*	*0.4*	*56.2*

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

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

to boosting or protecting the level of economic activity in economic policy decisions as the virus outbreak has hit. Into the medium term, the risks on inflation appear more balanced. The mixture of the effects of the rapid loosening of monetary policy, the substantial fiscal stimulus policies and a period of increased 'forced' savings balances could, at a time of restricted supply, boost demand which, in turn, could lead to higher inflation. While our central projection is for annual OECD inflation in the medium term to run at around 2 per cent, there is a risk that inflation expectations could become unanchored in either lower or higher inflation directions.

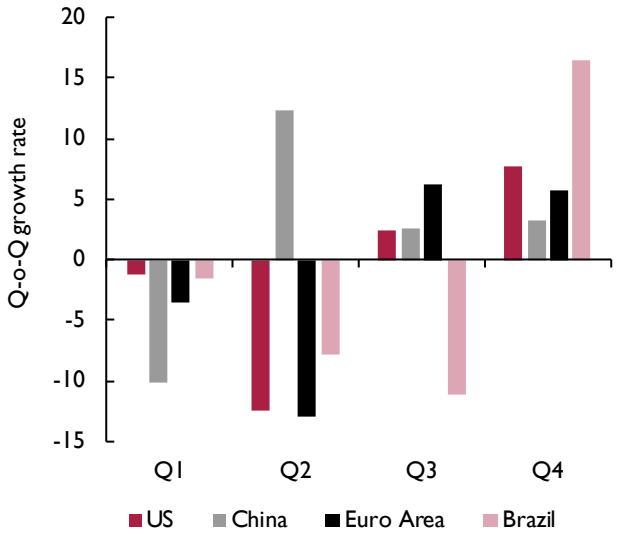
Our main-case projection is, under the assumption that the Covid-19 pandemic is controlled, that medium-term global GDP growth will be around 3¼ per cent a year, slower than the 4.2 per cent annual average in the ten years before the financial crisis. The world's two largest economies, the US and China, which comprise around one third of global GDP, will show slower potential growth than in the past two decades.[1] With the Euro Area, Japan and India also not expected to experience faster growth, a further quarter of the global economy will contribute to the slower growth picture and the short-term shock could also have an adverse effect on the synchronisation of growth seen earlier (Lennard, 2018). For world trade growth, one medium-term issue that adds to uncertainty is over whether there might be a move to increased domestic sourcing within supply chains and greater self-sustainability policies on food supply. Together with the uncertainty about future tariffs, these could be important for the development of the global trading system, and important issues around deglobalisation are discussed in Box A.

The public health and economic policy responses to the pandemic mean that our projections are subject to considerable uncertainty, not least because our conditioning assumptions represent only one possible outcome of the effects of the virus and the measures taken to combat it. While lockdowns are being eased in some countries, it is too early to be able to tell whether unlocking can be achieved without any flaring of the pandemic. It is also too early to be at all confident about how businesses and households will respond to unlocking. The economic recovery from the pandemic and lockdown will depend on many factors, including the extent to which people and companies change their economic behaviour as a result of their experience of this extraordinary period.

Recent economic developments

Global economic activity in the first half of 2020 has been dominated by the Covid-19 pandemic and the policy responses to it. Evidence from monthly GDP figures from advanced economies and surveys of economic activity show that the effect of the pandemic and lockdown measures has been most widely felt in March, April and May. Falls in GDP in the advanced economies in the second quarter are expected to be larger than in the first quarter and, in some countries, could be the largest quarterly falls ever recorded in peacetime. However, China, where the incidence of the virus was earlier, saw GDP grow by 3.2 per cent on an annual basis in the second quarter after a fall of 6.8 per cent in the first quarter.

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



Source: NiGEM database and NIESR forecast.

For European economies and the US, the survey data for economic activity has shown some strengthening in activity in May and June, albeit with activity still at very low levels, and unlocking has started to occur, although there remain concerns about infection rates rising.

While the latest monthly activity readings for some economies have been more positive, in terms of the global outlook this is tempered by the wider spread of the pandemic, particularly into Latin America, and uncertainty about the durability of unlocking if second waves of infection occur. At the time of writing, this latter issue is a particular concern in some US states where infection rates have risen again, and countries are making plans for local, isolated lockdowns if required. The assumption that widespread infections and lockdowns do not recur creates a clear downside risk

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

to the central projection. In addition, the uncertainties about how much economic activity can be conducted as unlocking progresses, either as a result of health protection rules or behavioural choices by individuals and companies, creates considerable uncertainty around any single economic projection.

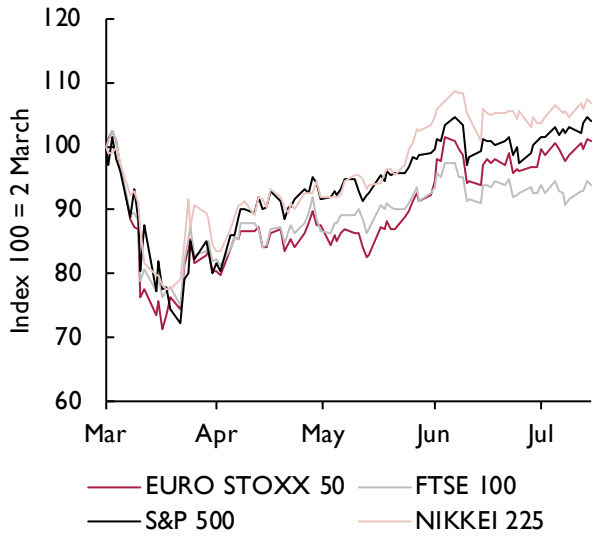
At the time of preparing our May forecast (17 April), the World Health Organisation (WHO) reported 2 million Covid-19 cases worldwide.[2] As at 17 July, WHO reported 13.6 million cases worldwide, with almost 600,000 deaths. The US had reported 3.5 million cases, Brazil 2 million, India 1 million and Russia 0.8 million. The health policies that have been widely adopted to reduce human contact and movement to substantially reduce the transmission of the virus, have also adversely affected the number of companies able to operate.

Service sector industries have been very badly affected, with airlines, hotels, restaurants, transport and other industries seeing a severe reduction 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 and the ability to continue to work normally while obeying various restrictions about personal travel vary across countries. 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, and Gottlieb *et al.*, 2020).[3]

Even for those able to work 'normally', many companies will have seen sharp reductions in customer demand as those unable to work in other parts of an economy have seen their incomes fall. Governments have introduced financial support measures to sustain economies during lockdowns, including 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 their spending, leading to increases in saving rates. The combination of the supply and demand shocks from Covid-19 and the control measures has resulted in lower incomes, reflecting increases in unemployment and reduced hours of work. For example, in the US initial unemployment claims reached a weekly record of 6.9 million in late March. They have steadily reduced since then but were still 1.3 million in the first week of July. In addition to these effects from reduced incomes, the control measures have reduced retail spending for those whose incomes have not been reduced because of the closure of retail outlets.

In addition to the supply and demand shocks, the virus and the lockdown measures adopted to control its spread have created a situation of widespread

Figure 4. Equity price indices (2 March=100)



Source: Datastream.

Figure 5. CBOE volatility index –Vix index

Source: Chicago Board Options Exchange (CBOE).

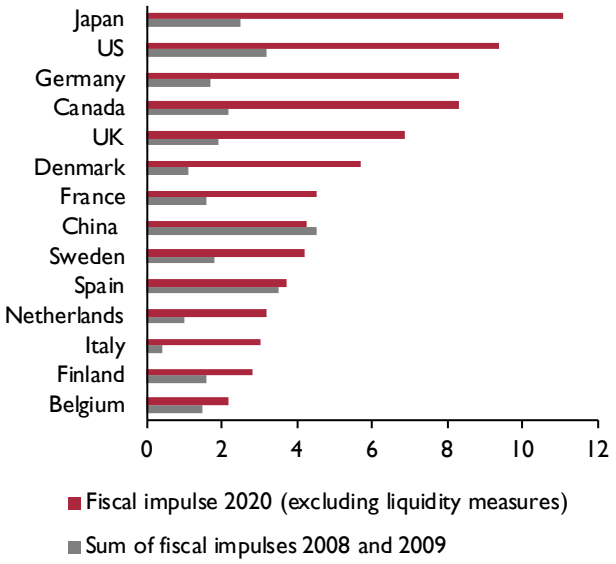
https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Table 2. Recent directions in monetary policy interest rates[a]

	End 2009	Jan. 2020	July 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	2.25	↓
Russia	6.00	6.25	4.50	↓
Australia	3.75	0.75	0.25	↓
Turkey	6.50	11.25	8.25	↓

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

Figure 6. Size of fiscal packages in response to financial crisis and pandemic (per cent of GDP)



Source: NIESR estimates, NIER July 2010, NIER January 2010.

uncertainty. The effects of this uncertainty were initially most marked in financial markets, with the S&P 500 equity price index seeing its largest one-day fall since October 1987 on 16 March, and falling by 15 per cent in the second quarter. 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, creating negative wealth effects on consumer spending. All of these indices have subsequently rebounded, as shown in figure 4, with equity markets appearing more optimistic about economic prospects than the reports from companies. The Vix index,[4] an indicator of financial market volatility or uncertainty, shown in figure 5, had a spike on 12 March which was similar to those in the financial crisis.

The announcements of relaxations in monetary policy and the various fiscal support packages since the magnitude of the effects of the pandemic crisis became evident have effectively reversed sentiment in equity markets. The recovery in the US equity market has seen a 33 per cent rebound in US equity prices from the low on 16 March to 10 July. Market volatility has also decreased, with the Vix index falling back to 27 in early July, from a peak of 76 in mid-March that was similar to that in the financial crisis. The rebound in equity markets has raised issues of the reasons for its vigour and seeming disconnection from assessments of economic prospects, especially as the Covid-19 situation in the US has shown signs of worsening in some US states in late June as the risks of a 'second wave' remain. The seeming disconnect between the growth in equity markets and overall economic growth could be said to have been a feature of much of the past decade. Equity markets, especially in the US, have reached new highs while the pace of economic and productivity growth has, despite continued low interest rates, been slower than in preceding decades.

Until mid-February international bond yields were little affected by the nascent crisis. But, as policy interest rates were reduced, 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. With some volatility since then, US 10-year bond yields were 0.62 per cent on 9 July, still close to record lows. Euro Area bond yields too remain close to record lows, at 0.35 per cent in mid-July.

Many emerging market economies have, to date, been less directly affected by the coronavirus outbreak than advanced economies in terms of infection rates. This is changing as infection rates increase. They have been significantly adversely affected by the indirect economic spillover effects from trade and from financial market movements. The US dollar appreciations of 18 per cent since the end of January against the Mexican peso and of 25 per cent against the Brazilian real illustrate the extent of such changes. At the same time, emerging market economies 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. Outflow has, however, been staunched in the second quarter, with inflows of over $90 billion into emerging economies.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Table 3. Composition of fiscal packages in major economies in response to Covid-19 pandemic (per cent of GDP)

	Spending on public services (including health)	Employment retainment and income support	Business tax cuts and grants	Other current measures	Total	Liquidity support[a]
France	1.6	1.6	1.4	0.0	4.5	14.0
Germany	2.8	1.8	2.0	1.6	8.3	24.0
Italy	0.4	1.4	1.3	0.2	3.2	22.7
Japan	3.6	4.4	2.5	0.5	11.1	29.5
Spain	0.3	1.8	0.6	0.9	3.7	9.2
United Kingdom	1.1	4.2	1.3	0.4	6.9	14.9
United States	2.7	4.1	2.1	0.5	9.4	4.6
Brazil	1.4	3.4	1.4	0.7	6.8	5.5
China	1.7	2.5	0.0	0.0	4.2	0.0
India	0.1	1.6	2.2	0.3	4.2	2.6
Indonesia	0.3	1.5	0.6	0.1	2.5	2.0
Mexico	0.2	0.5	0.0	0.0	0.7	0.5
Russia	0.7	1.7	1.0	0.0	3.4	0.5
South Africa	1.0	3.0	2.0	0.0	6.0	4.0
South Korea	0.6	1.3	0.6	0.3	2.8	0.7

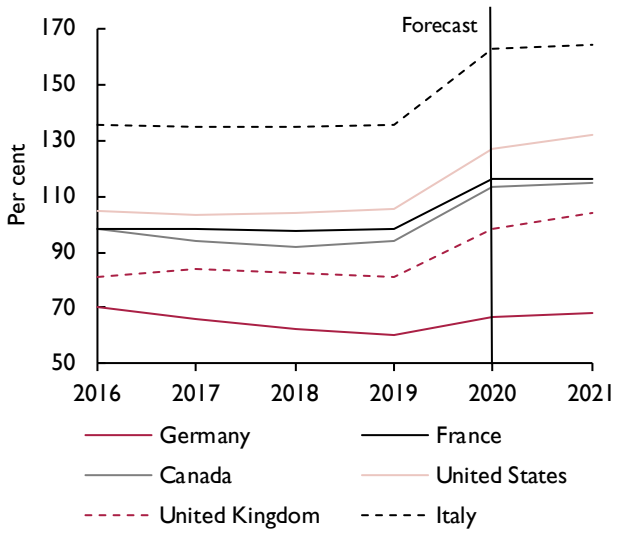
Source: NIESR estimates, drawn primary from IMF Policy Tracker (https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19).
Note: (a) Liquidity support measures do not have an immediate impact on public finances, but represent contingent liabilities that may add to government borrowing in the future if some businesses are unable to repay their loans.

Economic policy responses

In an early response to the crisis central banks reduced policy interest rates, as in the financial crisis last decade, 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 limited. However, central bank intervention has been effective in maintaining the smooth functioning of financial markets. Having introduced programmes of quantitative easing in the response to the financial crisis, central banks have re-activated their asset purchase programmes. As a consequence, central banks have expanded their balance sheets again, with the consequence that the share of government bonds held by central banks has reached over 20 per cent in the US and the Euro Area and over 40 per cent in Japan (BIS, 2020).

Fiscal policy actions taken to support economies have been both widespread and wide-ranging, and have provided more macroeconomic policy support than during the financial crisis, as shown in figure 6. Table 3 summarises the composition of fiscal packages undertaken in major advanced and emerging economies in 2020, distinguishing between employment retention policies and income support; measures to strengthen public services; business

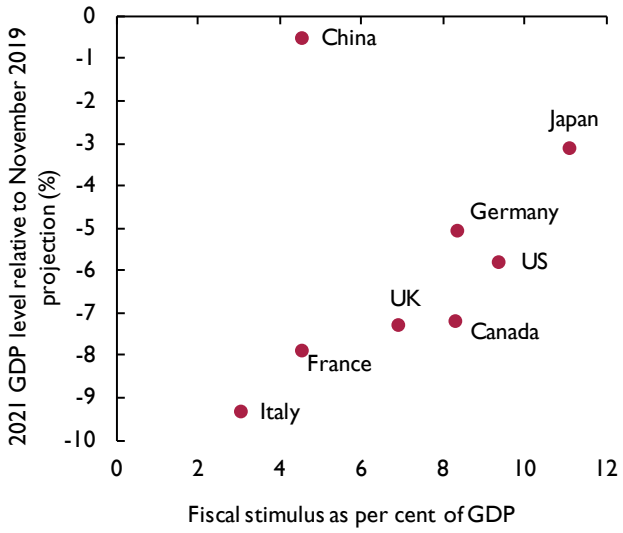
Figure 7. Government debt as a share of GDP (per cent)[a]



Source: NiGEM database and NIESR forecast.
Note: (a) Shares of current year GDP.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Figure 8. Level of GDP in 2021 compared with pre-Covid-19 projection and fiscal stimulus



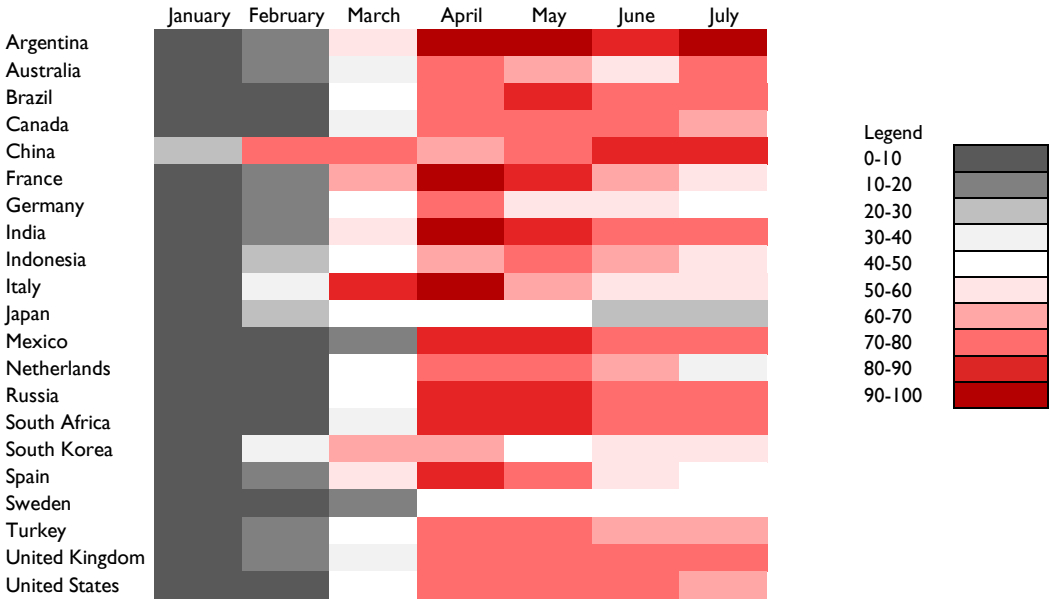
Source: NiGEM database and NIESR forecast.

tax cuts and grants; and liquidity support measures. As with monetary policy, support actions are still occurring, as seen announced in the UK on 8 July. Government funds have typically been provided rapidly, with emergency fiscal support packages being delivered. While the composition and sizes of the fiscal support packages have differed across countries, the clear outcome is that governments have increased borrowing and debt substantially relative to their previous plans, and for the most part at levels far exceeding those in the financial crisis. In addition, most 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 borrowing has been such that government debt as share of GDP has risen appreciably in many economies, as shown in figure 7. With government debt-to-GDP ratios looking set to increase by more than 10 percentage points this year in the majority of advanced economies, this may prove a test of whether high government debt acts to slow economic growth. Into 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 that have been seen over the past decade will be important factors.

Fiscal and monetary support measures have acted to mitigate the negative effects on economies. We estimate that the various fiscal support measures have reduced the fall in global GDP by around one third. Without the fiscal shielding measures, the main-case scenario would

Figure 9. Stringency index of lockdown measures (January–July 2020)



Source: Oxford COVID-19 Government Response Tracker (https://github.com/OxCGRT/covid-policy-tracker/raw/master/data/timeseries/OxCGRT_timeseries_all.xlsx).

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

show a further 4 percentage point fall in global GDP this year. Figure 8 shows that those countries with larger fiscal support packages are associated with smaller projected falls in GDP relative to our economic forecast made last November, before the pandemic struck. China shows a different pattern, reflecting that GDP there has already rebounded in the second quarter of this year.

Key assumptions about the Covid-19 shock for the forecast

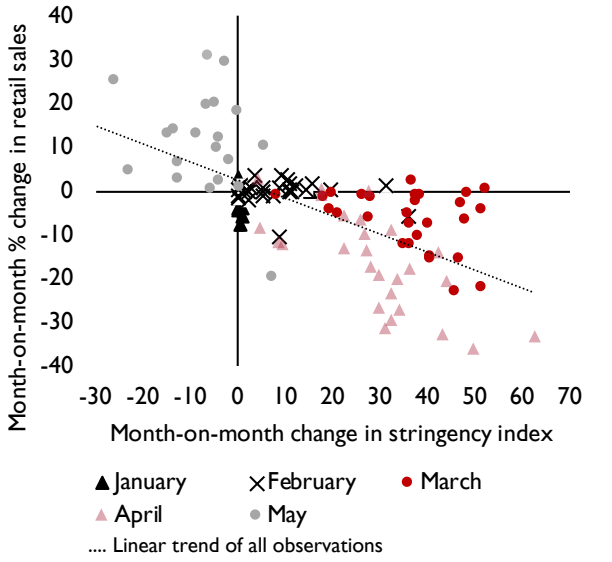
We have used the National Institute's multicountry macroeconomic model, NiGEM, to estimate the impact of the coronavirus shock through a range of channels (Hurst *et al.*, 2020). Similar to the analysis conducted in our May *Review*, we continue to model the impact of the coronavirus shock on economic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

In terms of the direct supply shock from the pandemic, this is assumed to have operated through reduced hours worked and productivity, with people either 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 are already visible in labour market data, specifically in the first quarter for those countries that went into the lockdown earliest and more recent high frequency indicators on labour supply continue to paint a gloomy picture for labour markets. We used employment data available for the first quarter as well as an estimate of lockdown days in the first and second quarter of this year based on the stringency index (as illustrated in figure 9) to gauge the size of the shock to employment in the second quarter.

The impact on productivity in all economies is assumed to be a combination of a short-term severe impact due to lockdowns and more longer-term effects from a shift in working environments. During the peak time of a lockdown, the potential of the supply side of the economy is assumed to fall by a quarter. For a long-term impact, a permanent reduction in labour productivity of 2 per cent per annum[5] relative to our pre-Covid-19 base is assumed, thus implying a permanent negative impact on trend productivity output, similar to that following the financial crisis.

The main channels of the direct domestic demand shock in economies are 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. This is evidenced by the sharp falls in retail spending that have been widely seen and there have also been falls in new car sales and holiday and flight bookings in advanced economies. Figure 10 shows a scatter plot of monthly changes in retail sales and in the stringency index. The figure illustrates that the majority of countries in the sample experienced a significant decline in retail sales in March, followed by a steeper decline in April as lockdown stringency peaked in many countries. Some rebound was evident in the majority of countries in May, accompanying the modest loosening of stringency measures. At the same time, in the lockdowns internet shopping activity has increased, with some commentators claiming that the pandemic has accelerated an existing trend towards on-line consumer activity.

Figure 10. Stringency of lockdown measures versus retail sales volumes[(a)]



Source: Oxford COVID-19 Government Response Tracker and World Bank GEM database (https://www.worldbank.org/en/research/brief/economic-monitoring).
Note: (a) Sample covers January-May 2020 for the following countries: Belgium, Canada, Switzerland, Czech Republic, Germany, Denmark, Spain, Finland, France, UK, Greece, Hungary, Ireland, Italy, Japan, South Korea, Latvia, Mexico, Norway, Portugal, Romania, Singapore, Slovenia, Sweden, Turkey, USA, South Africa

As a global macroeconomic model, NiGEM does not have sectoral or industry level disaggregation to consider the impact of spending on specific sectors. However, using early information, we assume that the share of non-food and non-essential items in household expenditure is around 40 per cent, giving a negative shock of about

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

40 per cent to private consumption for one quarter, adjusted by the severity of lockdown as measured by the stringency index.[6] This is broadly consistent with the trend line in figure 10 which suggests that an increase in the stringency reading to the peak of 100 could be associated with close to a 40 per cent decline in retail sales. This demand shock is applied to all economies[7] in the second quarter of this year (apart from China, where it was applied in the first quarter). This means that the more severe is the lockdown, the larger is the fall in household consumption, with the largest reduction in any country being 40 per cent. For the third and the fourth quarters of 2020 the severity index is assumed to relax gradually, thus reducing the size of the shock on private consumption.

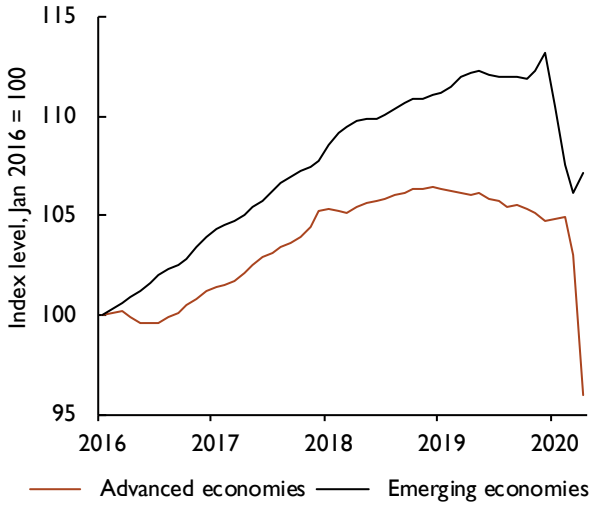
The short-term impact on private consumption is modelled to dissipate towards the end of 2021, on the assumption that there is either some type of cure found by the beginning of the next year, which will become widely available during the course of the next year, or that the virus loses its potency through so-called 'herd immunity'.

A final component of the overall shock comes from the uncertainty created by the virus, which affects both demand and supply sides of economies. It is represented by an increase in investment risk premia, capturing heightened uncertainty, and is an adverse shock to companies. Taking into account the early falls in equity markets, the increase in the Vix index and the volatility in government bond markets, which were of a severity broadly similar to that seen in the financial crisis of 2008–9, a 300 basis point increase in investment premia was assumed, which persists for three quarters and then gradually reduces until the middle of 2021. 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 are likely to reduce sharply their spending on investment, with reduced cashflow and subsequent job losses, leading to lower incomes and spending.

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 (see Holland and Liadze, 2020). In this context, coordination and synchronisation of policy responses might help to offset some negative spillover effects.

With unlocking now starting to be a feature, albeit a cautious one, of advanced economies, the key short-term uncertainties concern what form the lifting of lockdowns will take, how people will react to this process and whether the unlocking can be achieved without a significant increase in coronavirus cases

Figure 11. Recent trends in industrial production (level, index Jan 2016=100, data to April)



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

Table 4. Projected dates of GDP returning to 2019Q4 levels for selected countries

Date of GDP return to 2019Q4 level	Country	Fall in GDP to trough
2020 Q2	China	–10%
2020 Q4	India	–17%
2021 Q4	Russia	–21%
2022 Q1	Australia	–14%
2022 Q3	Canada, Japan	–19%, –8%
2023 Q1	US	–14%
2023 Q2	Spain	–23%
2023 Q3	Germany	–10%
2023 Q4	Euro Area, UK	–16%, –20%
Later	Italy, Brazil, France	–16%, –19%, –19%

Source: NiGEM database and NIESR forecast.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

which might necessitate a re-imposition of a lockdown. Any assumption is, however, subject to considerable uncertainty, with some epidemiologists having argued that the lockdowns might need to be maintained for considerably longer periods and that, without a vaccine to provide immunity, the coronavirus outbreak could recur periodically, with lockdowns being imposed either on a local or a national basis. Some implications of these issues for the short-term economic outlook are examined in the risks section of this chapter.

Main-case forecast scenario

The Covid-19 pandemic hit the global economy at a time when, with world trade having already been hit by tariffs and global industrial production growth stagnating, the world economy was experiencing its slowest annual GDP growth for a decade. In 2019 GDP fell in Argentina, Mexico, Venezuela and Hong Kong. Other economies such as Germany, Italy, Japan, South Africa and Turkey recorded annual growth rates below 1 per cent.

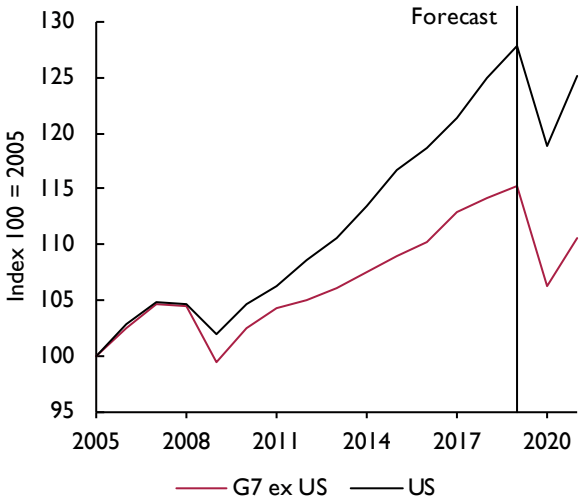
The supply and demand shocks from the pandemic have not hit all countries at the same time. The pandemic has rolled across the world, with China and some other Far East Asian economies being affected first, then Europe, then the US and now Latin America and Africa. As a result, China has seen a rebound in GDP in the second qurter and the Euro Area economies are now unlocking their economies, while some other countries are strengthening restrictions. Our central projection is based on the assumption that there is not a second wave of infection and a subsequent re-imposition of control measures. Consequently, economic activity levels gradually increase as countries and individuals cautiously start to adapt to a still worrying health environment during this year and next. Table 4 shows the timing of when GDP levels are projected to return to their pre-pandemic levels of 2019Q4 in major economies.

Forecast for economic activity

The outlook for global economic activity remains highly uncertain, with the number of Covid-19 cases and deaths continuing to increase globally. In the light of the increased scale and spread of the pandemic and the latest economic data, we project a fall in global GDP this year of 5 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 about 9 per cent.

As governments unlock their economies and economic activity starts to increase, the timing of this process is likely to lead to what will appear to be a sharp rebound in annual global GDP growth in 2021. From the lower level of activity this year, based on our assumption of lockdowns ending this year, global output growth is projected to be 6¼ per cent in 2021. However, as table 4 shows, many of the major economies are not expected to regain their output levels of the final quarter of 2019 until 2022.

Figure 12. G7 economies: level of GDP (index 2005=100)



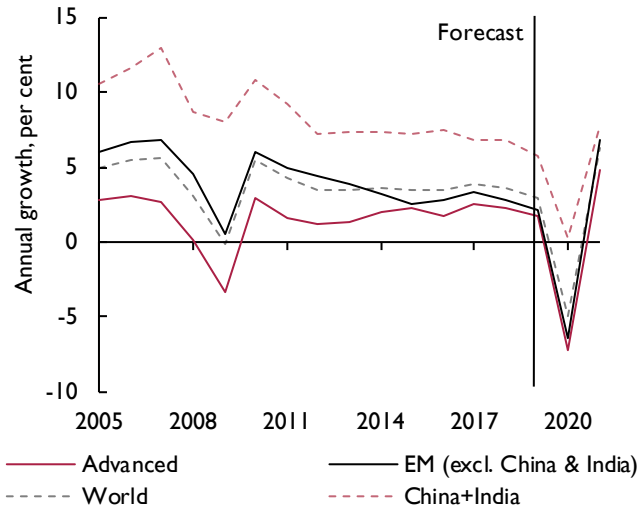
Source: NiGEM database and NIESR forecast.

While China had a 6.8 per cent annual fall in GDP in the first quarter, economic activity has increased in the second quarter, with 3.2 per cent annual growth, as the sharpest effects of the lockdown, which was not nationwide, eased. We anticipate that the effect of Covid-19 will lead China to record 2 per cent GDP growth this year, but that GDP will grow by around 8 per cent next year as the rebound effect occurs.

The timing of the virus outbreaks and lockdown measures meant that the US and Euro Area economies saw the monthly economic activity data turning down in late March, so that there was some negative effect on the first quarter GDP figures. The largest part of the hit to economic activity is projected to have been in the second quarter of this year, before a gradual increase in activity occurs as unlocking progresses. As a result, US GDP is forecast to fall by 7 per cent this year before rising by 3½ per cent in 2021. Euro Area GDP is projected to fall by 5¼ per cent this year, with a rise of 4½ per cent next year. Within the Euro Area,

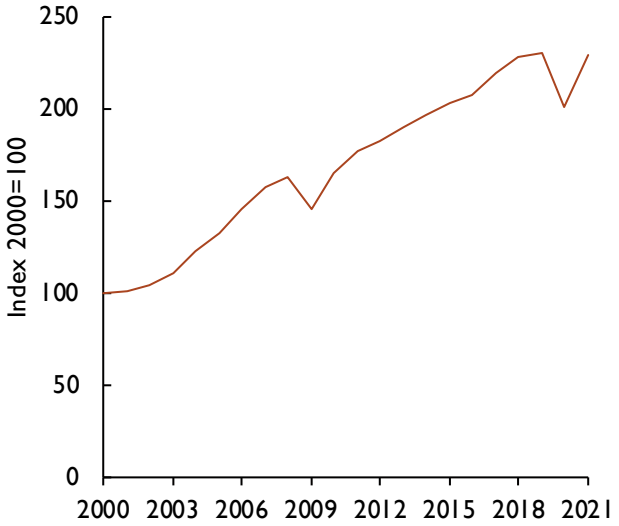
https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Figure 13. GDP growth in advanced and emerging economies



Source: NiGEM database and NIESR forecast.

Figure 14. World trade index (2000=100)



Source: NiGEM database and NIESR forecast.

large GDP falls this year are projected for Italy –11½ per cent, France –10½ per cent and Spain –12 per cent, with each of these countries seeing a larger fall than Germany –5½ per cent, reflecting the intensity of the pandemic and the relative success of the measures taken to both control the virus and shield the economies. However, considerable risks around both the virus and the progress of economies remain.

Within the G7, output growth in the US has outpaced that of the other G7 economies as a group in the past decade, just as it did in the first decade of this century. Even though we project US GDP falling by 7 per cent this year, the other G7 economies are also expected to see substantial output falls, and GDP for the G7 excluding the US is projected to fall back close to its 2013 level this year. The US has responded to the health crisis strongly in monetary and fiscal policy terms (with a fiscal support package in excess of 10 per cent of GDP), partly because the earlier monetary policy normalisation provided more space to reduce policy interest rates. It has, however, suffered more reported cases of infection than the other G7 economies combined and the latest data shows infection cases rising again in some US states.

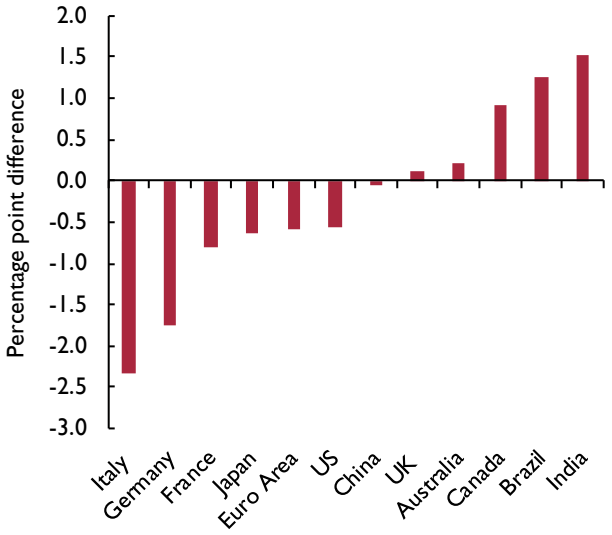
Within emerging economies there has been a developing split in economic growth performance between China and India on one hand and the other economies. The importance of this for the BRICS is discussed in Box B. Figure 13 illustrates this in terms of annual GDP growth, with growth performance of the emerging economies excluding China and India projected to continue to lag that of those economies and be closer to that of the advanced economies, as it has been in the past five years. Excluding China and India, emerging economies are forecast to see a fall in GDP of 6.3 per cent this year and, allowing for the different timings of the spread of the virus this year, a rebound in growth in 2021 (of 6.7 per cent) similar to the advanced economies. In contrast, the economies of China and India, which together comprise around 25 per cent of global GDP, are projected to mark time in 2021 and grow by 5.8 per cent in 2022.

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), and the particular challenges for emerging economies are discussed in Box C.

The sudden, unprecedently sharp fall in economic activity has resulted in widespread increases in unemployment. The unemployment rate in the US is forecast to rise from 3.7 per cent to 11¼ per cent this year and from

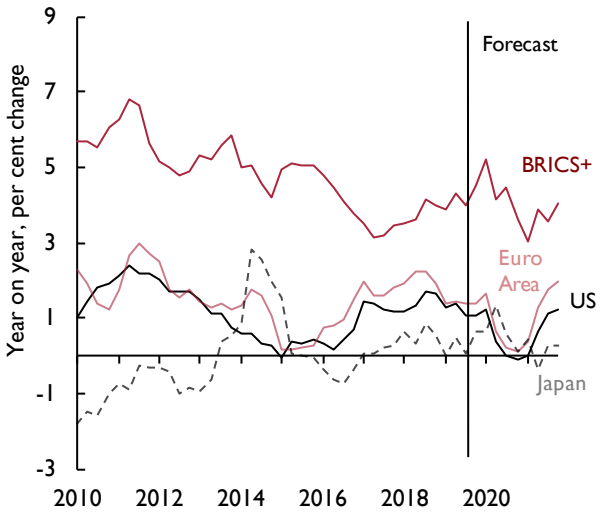
https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Figure 15. Change in current account balance as a share of GDP (difference between 2021 and 2019)



Source: NiGEM database, NIESR forecast and NiGEM stochastic simulations.

Figure 16. Inflation in advanced and emerging economies



Source: NiGEM database and NIESR forecast.

7.6 per cent to 9¼ per cent in the Euro Area. Although we assume that the deep economic dislocation will be temporary, previous experience indicates that as economic activity picks up, the subsequent reduction in unemployment rates is generally slower than the initial increase and there are likely to be concerns about labour market scarring for certain groups who find it difficult to find employment as output expands. As a consequence, the recovery in GDP is generally projected to run ahead of the improvement in labour market outcomes.

One result of the effects of the virus and the lockdown measures has been to intensify the fall in global trade growth after last year saw the slowest pace of world trade growth since the financial crisis. Slower trade growth has turned into falling trade levels so far this year and our forecast is for world trade to fall this year, for the first time since 2009. The size of the fall is projected to be larger than during the financial crisis, of 13 per cent, but with an anticipated rebound next year, as shown in figure 14. The drop in world trade this year has also led to a gradual reduction in current account imbalances, as shown in figure 15. The reductions in both surpluses and deficits have not been uniform, with certain sectors, such as cars, seeing large drops in demand leading to lower exports and imports. Our projection is that this adjustment is likely to be largely temporary, with current account balances returning towards pre-pandemic levels in the medium term. In this context, a discussion of deglobalisation is contained in Box A.

Forecast for inflation

Since the financial crisis a decade ago, inflation in the advanced economies has generally been low relative to inflation targets even though economic expansion has continued to reduce estimated output gaps and in some countries unemployment rates have hit multi-decade lows, with reports of skilled labour shortages in advanced economies having increased. While slow productivity growth and rising wage pressures have led to rises in unit labour costs and increases in tariffs could put upward pressure on inflation (Naisbitt and Whyte, 2020), inflation expectations appear to have remained well anchored in recent years.

The immediate results of the pandemic and the control measures have been to lead to lower inflation, although there are increased difficulties in measuring inflation (Dixon, 2020) at a time when retail shopping patterns have changed because of lockdowns. While short-term consumer inflation expectations have generally fallen, reflecting the collapse in economic activity, longer-term market-based inflation expectations have not responded substantially. With such elevated economic uncertainty, the risks of either sustained very low inflation (as the deflationary effects of the shock work through) or a return to above target inflation in some advanced economies (as the effects of the monetary and financial stimulus affect expectations) are likely to be considerably greater than appeared to be the case before the crisis.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Although supply has contracted in the current crisis, the scale of the reduction in demand is expected to lead to a reduction in OECD price inflation in the near term, with annual inflation forecast to fall from 2.1 per cent last year to 1½ per cent this year. The abrupt fall in the price of oil that resulted from a combination of sharply lower demand and a political disagreement between OPEC and Russia about restricting oil supply and saw the oil price at a near 20-year low of $15 per barrel in the week of 20 April, will play a part in the overall fall in inflation.[8] However, with the lockdown having greatly reduced vehicle traffic in the major advanced economies, much of the potential cost savings to consumers from lower oil prices are not being realised. Despite rising to $42 per barrel in early July, oil prices 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 GDP still lower than before the crisis, this is likely to reduce the downward pressure on inflation, and OECD price inflation is projected to be 2 per cent a year in the medium term.

For emerging economies the prolonged, gradual decline in annual inflation from the start of the last decade ended in 2017 but inflation overall remains subdued (Mao *et al*, 2019). Although there have been some instances of very high rates of annual inflation in recent years, notably in Argentina and Turkey, these have reflected specific domestic economic circumstances rather than a broader trend. Inflation in the major emerging market economies as a group last year was, after some increase, below that in 2015 and earlier in the decade, as shown in figure 16. We project further but limited reductions in inflation in the short term, with annual inflation then gradually rising again to around 3.5 per cent in the medium term.

Medium-term outlook

Over the decade since the financial crisis average annual GDP growth in the G7 economies has been at a slower pace than previously despite policy interest rates being held at ultra-low levels for an extended period in most of those economies. For emerging market economies, the reduction in the pace of average annual growth between 2011 and 2019 (4.9 per cent) from 6.7 per cent between 2000 and 2007 has been almost entirely due to the slowdown in the pace of growth of the Chinese economy (7.4 per cent in the later period compared with 10.6 per cent previously), reflecting the changed development phase of the Chinese economy.

This projection assumes that the effects of the coronavirus outbreak and the measures taken to combat it result in, as with the financial crisis a decade ago, a sharp fall in the level of global GDP that takes almost 2 years to unwind. Thereafter, GDP growth is projected to be slightly slower in the medium term than before the crisis, reflecting both a continued reduction in annual output growth rates in China and some scarring effects on global productivity growth from the changes wrought by the pandemic. Unemployment levels, for example, are projected to rise sharply and then decline only gradually. It is likely that, given the risks, additional resources will be devoted to health care provision. Our medium-term outlook projects global GDP growth running at around 3¼ 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.

With this profile for growth, our central projection is that inflation remains subdued. Reductions in the very high inflation rates in Argentina and Turkey would contribute to an overall steadying in the annual pace of inflation in the medium term. Financial markets are looking to inflation remaining low in the medium term. However, our view is that the risks of either substantially higher or substantially lower medium-term inflation rates are now greater than they were before the pandemic, reflecting the size of the monetary and fiscal boosts, the scale and severity of the short-term negative demand shock, and the possibility of inflation expectations becoming unanchored.

Risk issues for the global forecast

Although the health threat of the pandemic remains, several economies appear to have passed the peak point of the infection threat and have now started to unlock the unprecedented restrictions that have been placed on ordinary life by governments to fight the disease. Such unlocking brings major risks. The first is that the virus could reignite in a second wave and necessitate lockdowns being re-imposed. Such actions may also be necessary if Covid-19, like seasonal flu, returns next year. The second risk is that in some cases the economic and social changes, in terms of the effects of business closures and changes in people's attitudes, may be such that unlocking, of itself, will be inadequate to restore economic activity sufficiently to prevent recession continuing. As a result, the uncertainty around to what extent and how quickly economic activity will recover is enormous. Our forecast is predicated on the assumption that the economic lockdowns last for about one quarter and then restrictions are gradually lifted, as has been the case in some countries so far. However, some of the countries that have started to unlock have re-imposed

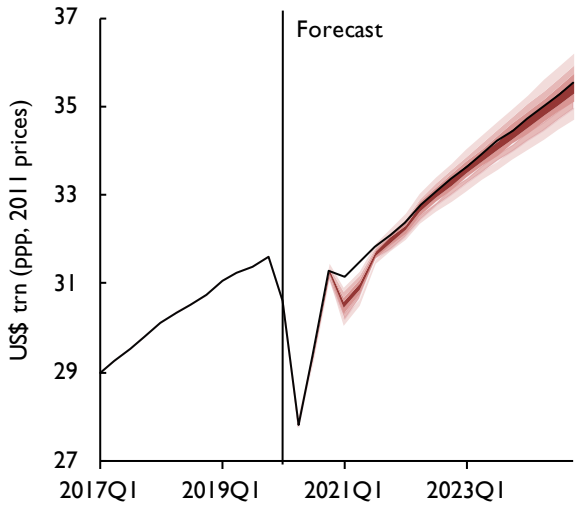
https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

restrictions on either areas of their economies or types of economic activity. International airline travel continues to be severely restricted and countries are carefully monitoring the infection status of countries from which tourists would normally arrive in order to prevent the international transmission of the virus.

If lifting restrictions results in the factors that have suppressed the virus disappearing and the virus taking hold again, re-imposing control restrictions would risk sending economies into a new downturn. If that were to be the case in some European countries, there would now be less scope for additional monetary and fiscal measures to shield households and companies from the adverse economic effects than there has been this year. Figure 17 illustrates our estimates for global GDP of a second (but less severe) wave of infection hitting 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 effects of a probability of a recurrence of the pandemic early next year, in which the intensity of the adverse economic effects of the virus on the economy are around half of those already seen this year.

While the concern about the negative economic and health effects of a possible second wave of the pandemic is natural, it is possible that the short-term economic outcome could be better than the central case forecast. The lockdown measures have particularly hit service sector activities that usually involve face-to-face interactions. But many service sector employees have been able to work from home, and companies are now exploring ways in which many activities that previously required face-to-face contact could now be done remotely. It is possible that output in the worst-affected sectors might recover more quickly than projected, especially if there is 'pent-up' consumer demand, and changes in business procedures enable activity to return safely more quickly. The real key to a more positive outcome globally is the development of an effective vaccine in super-fast time. While there can be no guarantee of this, the extent of the worldwide research effort and the co-operation between researchers internationally provides some support for upside economic risks.

Figure 17. Global GDP projection and scenario with additional downside risks associated with Covid-19 recurrence from 2020Q4 (level)



Source: NiGEM database, NIESR forecast and NiGEM stochastic simulations.

With the pandemic still spreading, one problem is that the deflationary demand impulse continues to move. While there is unlocking in some countries as the scale of new infections there reduces, the scope for globally coordinated unlocking is limited, especially as policymakers face considerable uncertainty about what the effects of their own unlocking measures will have. This problem limits the effectiveness of unlocking relative to the situation in which many countries could agree to unlock at the same time, with confidence about the lack of a return of the virus.

In the medium term, 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 unwind quickly, especially if companies facing financial losses reconsider the scale of their operations or if the resulting higher debt leads to company defaults, leading to economic scarring. More speculatively, the actual experience of the lockdown and social distancing may change individuals' attitudes to living, working and spending, particularly on items such as commuting, visiting retail centres and international travel.

At an international level, mobility of people, goods and services might be permanently reduced, leading to slower trade and output growth (Zymek, 2020). Companies may change their policies with regard to holding stocks ('just in case' replacing 'just in time') or how they arrange their supply chains (Rincon-Aznar *et al.*, 2020).

Some major themes are evident. A result of the fiscal policy interventions is that public debt will be higher. The ultra-low interest rate environment looks set to continue, especially in the G7 economies whose GDP could take until 2023 to return to its pre-pandemic

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

level. In addition, a result of the pandemic may mean that the level and growth of international trade could be persistently affected, with tariffs and deglobalisation being important issues. Governments will have higher debt (and higher debt-to-GDP ratios) than they had previously planned and will, in the medium term, need to decide whether to have a policy to reduce debt or to remain at higher debt levels. Higher inflation might help to reduce the debt in real terms but the risk of higher interest rates increasing the debt service costs would be present. One possible outcome might be a prolonged period of ultra-low interest rates with a tendency to slightly higher inflation to enable real debt burdens to reduce gradually.

One result of the global nature of the effects of the pandemic and the similarity of measures adopted to counter it is that many countries face the same set of policy challenges. Some emerging market economies have additional vulnerabilities, for example around exchange rates, risk premia and debt (as discussed in detail in Box C and Naisbitt, 2020), requiring not just domestic policy intervention but also action from international agencies (Kara *et al*., 2020, and Djankov and Panizza, 2020). However, not all emerging market economies are experiencing the same pressures. Those with adequate fiscal policy space and strong finances are better placed to navigate the crisis.

But all economies could be adversely affected by increases in tariffs and trade wars. In particular, there is a risk that, as the global economy recovers, trade tensions could re-surface, leading to higher tariffs and restricting world trade growth. Some global production value chains have already been adversely impacted by the uncertainty over future tariffs, and there may be increased pressures on companies to re-shore production, perhaps for national health security reasons. Our previous estimates, using our NiGEM model, show direct negative effects of increased US tariffs on global GDP growth (Liadze, 2018a and b, Hantzsche and Liadze, 2018, and Liadze and Haache, 2017a) and the possibility of a renewed trade war presents a clear downside risk for the medium-term global outlook.

Possible policy responses to risks

The economic policy response to the Covid-19 pandemic in the advanced world has been swift and largely synchronous but 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). Given the different timings of the health shock across the globe, the policy responses in emerging economies to the pandemic in Latin America and Africa appear somewhat less synchronised and have also been uncoordinated. While collectively the 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).

The immediate policy priority, with the number of infections still rising and globally now over 13 million and with almost 600,000 people having died, remains to save lives by fighting the spread of the infection and support households, businesses and financial markets through financial measures. With the scale of the shock and the risk of long-term scarring, there is a compelling case for increased international policy coordination to restore both public health and the health of the global economy, and also to help to support those countries that are unable to provide the warranted level of support domestically.

The sudden-stop in capital flows to the emerging markets (Lanau and Fortun, 2020) and an outflow of capital in the first quarter of 2020 that was the largest ever from emerging market economies has now stabilised, with inflows in each month of the second quarter of the year and June having the largest inflows within the quarter. Although capital flows have improved, the IMF is currently making about $250 billion, a quarter of its $1 trillion lending capacity, available to member countries, with 77 countries already receiving assistance of $82 billion at 10 July.[9] 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 set to provide up to $160 billion of support over the coming year.

As a result of the pandemic, sovereign debt levels have risen globally, which will present differing challenges for countries in terms of debt servicing and the ability to issue new debt. There are arguments for debt relief for some emerging market economies, especially in cases where sovereign risk premiums might rise to negate any benefits from lower long-term interest rates in global financial markets. The Catastrophe Containment and Relief Trust (CCRT) allows the IMF to provide grants for debt relief for the poorest and most vulnerable countries hit by public health disasters, with relief on debt service payments creating resources to meet exceptional balance of payments needs and for containment and recovery. Initial relief for 25 countries has been approved.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

With the potential risk of tariffs and protectionist measures on grounds of public health concerns (as well as the ongoing US-China trade war), there could be measures to restrict the licensing of medicines. With the US announcing its intention to withdraw from the World Health Organisation, it will be important for international politicians to safeguard the existing web of relationships that has brought reductions in trade barriers and built prosperity in the post-Bretton Woods era. 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 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 and delay the recovery of the global economy.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box A. The macroeconomics of de-globalisation

*by Amit Kara and Iana Liadze**

The Covid-19 pandemic has revived protectionist measures.[1] The most proximate trigger for this switch is a desire to prioritise national security interests and public health concerns over the long- standing economic rationale for free trade, which is to maximise productivity (Ricardo, 1817) and tap new markets. The macroeconomic consequences of protectionism will depend on the specific form that it takes but, if history serves as a guide, a more restrictive global trading environment is likely to reduce cross-border capital flows, bear down on productivity and economic growth, raise the neutral global interest rate, R*, and exert upward pressure on wage and price inflation. Low-and middle-income countries that have benefitted from globalisation are particularly vulnerable in this environment, as are workers that are exposed to global trade in developed economies.

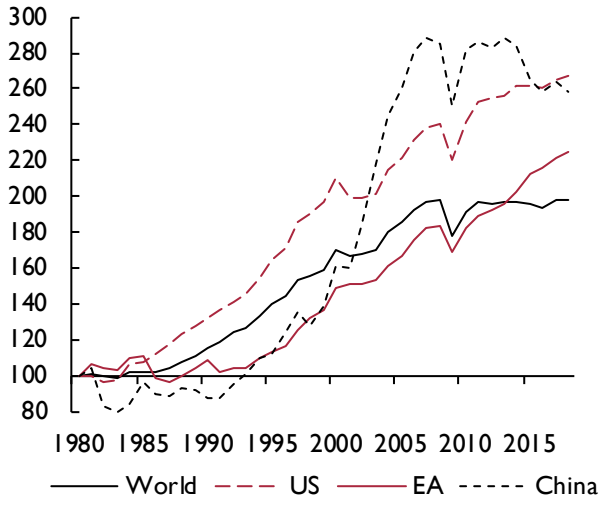
A comprehensive description of globalisation goes beyond the trade in goods and services and includes the movement of people and capital and the sharing of technology and ideas. That said, the two statistics that are most widely used to express the march to globalisation are the ratio of world trade to world GDP (figure A1) and its foreign direct investment equivalent (figure A2) that summarises cross-border capital flows.

Figure A1 shows the trade-to-GDP ratio. The figure shows that growth in world trade outpaced GDP from the mid-1980s and reached a peak just before the Global Financial Crisis (GFC) in 2008. The trade-to-GDP ratio has stagnated since.

The ratio at the global level however, masks important differences across economies. For example, the ratio has continued to rise in the US and Euro Area after the GFC. The story is different in China, where the period around the GFC marks an important switch point. The ratio flattened after that point and in fact, started to fall after 2012. On this metric, the US and Euro Area have remained on the globalisation path in the decade since the start of the GFC, but China and the World have retreated.

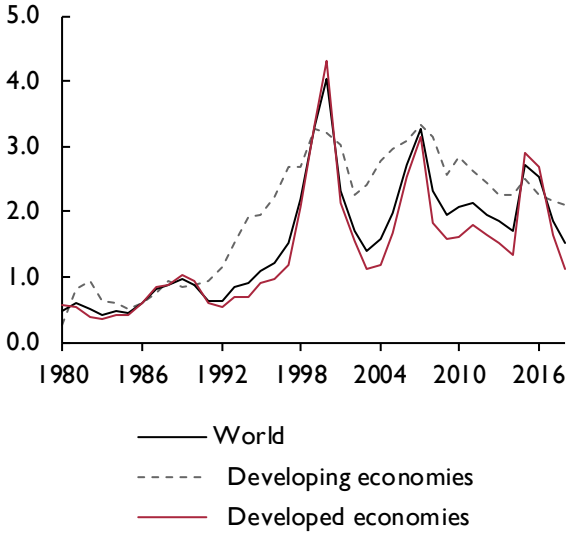
What explains the divergence between China and the US and Euro Area? The main reason is the structural changes in the Chinese economy since the GFC. China turned away from an exports, manufacturing and investment-driven growth model, all of which tend to have a high import content, to one that depends more on services and consumption, which have a relatively low import intensity. This has had a large impact on commodity exporting economies as well as other emerging economies in Asia which are also more exposed to the Chinese economy (IMF, 2016). Although China is a stand-out example, it is worth emphasising that the structural shift away from investment in the post-GFC period is more widespread. For example, countries that rely on commodities also cut back on import-intensive capital spending in response to lower prices (IMF, 2016).

Figure A1. Global trade (export plus import volumes) as a share of GDP (1980=100)



Source: NiGEM database.

Figure A2. Foreign direct investment as a share of GDP (%)



Source: UNCTAD.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box A. (continued)

Figure A2 shows the flow of FDI (as a share of GDP). FDI flows appear cyclical at the global level with peaks around the dot-com bubble and the start of the GFC. Abstracting from the cyclicality of flows, the broad takeaway from this figure is that FDI flows have stagnated since the start of the century and trended lower since the GFC. Bordo (2017) has argued that risk aversion, the economic slowdown and tighter financial sector regulations can explain the slowing of FDI flows since the GFC, a trend that is likely to gain momentum if the focus on self-reliance and security impedes cross border financial flows.

Macroeconomic consequences of de-globalisation

Although the post-GFC experience of relatively slow trade growth is the most recent, there are important differences which make this episode less relevant for our outlook. Chief among these is the trigger for the post-GFC slowdown. The post-GFC slowdown was mainly driven by less demand for investment goods rather than our primary concern, which is de-globalisation that is driven by protectionism.

A more useful period to assess the macroeconomic implications for protectionism might simply be the long period of globalisation that started in the early 1980s. The factors that drove that globalisation are multifold and include the integration of China and Eastern Europe into the global economy, technological advances that enabled deeper and widespread adoption of global value chains (Arslan *et al.*, 2018; Aubion and Borino, 2018), the changing mix of aggregate demand toward capital goods (Auboin and Borino, 2018), financial sector liberalisation and lower trade barriers and transport costs. Future protectionist measures are likely to reverse many of these policies, including new restrictions on technology transfers and financial flows and higher tariffs and non-tariff barriers.

The literature on the macroeconomic consequences of this episode of globalisation is rich and points to a material impact on inflation dynamics, cross-border financial flows and productivity. We discuss each of these in turn.

Starting with inflation, BIS (2017) show that the strength of the relationship between the output gap/labour market slack and prices and wages has diminished in the G7 since the early 1980s. As figure A1 above shows, this is roughly the start of the period of globalisation. This is also the start of the period when central banks in the US and UK made concerted efforts to contain inflation (Batini and Nelson, 2005) and as such the estimated coefficients in a reduced form Phillips curve could be driven by the renewed focus on inflation control rather than globalisation.

However, there is other evidence to show that common global factors are significant in country-level inflation dynamics over this period (Borio and Filardo, 2007, at the cross-country level and Batini, Jackson and Nickell, 2005, for the UK). In so far as the flattening of the wage and price Phillips curve is driven by globalisation rather than other factors, protectionism could lead to a steepening.

Cross-border capital flows have increased since the 1980s as countries in the emerging world started to integrate into the global economy. The savings glut hypothesis, proposed by Bernanke (2005) and elaborated by Carney (2017), identified factors that have contributed to a rise in global savings and a reduction in R*. De-globalisation that restricts cross-border capital and trade flows could drive R* higher.

By boosting competition, globalisation forces a reallocation of resources towards more productive firms (Melitz, 2003). This is evident in several countries and across different sectors, although the size of the impact may not be large (Constantinescu *et al.*, 2016). Again, increased protectionism could disrupt existing global value chains and impinge on the competitiveness of domestic producers (Rincón-Aznar, Mao and Tong, 2020).

Conclusions

The outlook for global trade, technology transfer and capital flows is uncertain. On the one side, businesses looking to maximise productivity and minimise costs will, as before, continue to drive global trade but, on the other hand, a new protectionist agenda will act as a headwind to trade growth and cross-border technology transfers (Harding and Harding, 2019).

The type of protectionism matters, but if history serves as a guide, a more restrictive environment is likely to result in less productivity and economic growth, lower cross-border financial flows, higher R* and upward pressure on wage and price inflation.

Emerging economies that are export-oriented are particularly vulnerable if the global trading environment turns hostile. One of the most important challenges for policy makers in developed and emerging economies will be the disruption caused to local

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box A. (continued)

labour markets. Studies have shown that the emergence of China has led to a reduction in US employment and wages in sectors that were most exposed to competition (Autor *et al.*, 2013). De-globalisation does not automatically imply a reversal of fortunes for these sectors or workers, rather a new form of disruption that is triggered by a different type of structural change.

Note

1 See https://www.macmap.org/en/Covid19 for a list of trade restrictions imposed by governments in response to the pandemic.

References

Arslan, Y., Contreras, J., Patel, N. and Shu, C. (2018), 'Globalisation and deglobalisation in emerging market economies: facts and trends', BIS Paper 100a.

Auboin, M. and Borino, F. (2018), 'The falling elasticity of global trade to economic activity: testing the demand channel', CESifo Working Paper 7228, September.

Autor, D., Dorn, D. and Hanson, G. (2013), 'The China syndrome: local labor market effects of import competition in the United States', *American Economic Review*, 103 (6), pp. 2121–68.

Bank for International Settlements (2017), *87th Annual Report*, 25 June.

Batini, N., Jackson, B. and Nickell, S. (2005), 'An open-economy new Keynesian Phillips curve for the UK', *Journal of Monetary Economics*, 52(6), pp. 1061–71.

Batini, N. and Nelson, E. (2005), 'The UK's rocky road to stability', Federal Reserve Bank of St. Louis Working Paper No. 2005–020A, March.

Bernanke, B.S. (2005), 'The global saving glut and the US current account deficit', Speech 77, Board of Governors of the Federal Reserve System.

Bordo, M.D. (2017), 'The second era of globalization is not yet over: an historical perspective', National Bureau of Economic Research, Working Paper no. 23786, September.

Borio, C.E. and Filardo, A.J. (2007), 'Globalisation and inflation: New cross-country evidence on the global determinants of domestic inflation', BIS Working Papers No. 227.

Carney, M. (2017), '[De] Globalisation and inflation', 2017 IMF Michel Camdessus Central Banking Lecture.

Constantinescu, C., Mattoo, A. and Ruta, M. (2016), *Does the Global Trade Slowdown Matter?*, The World Bank.

Harding, R. and Harding, J. (2017), *Gaming Trade: Win-win Strategies for a Digital Era*, London Publishing Partnership.

IMF (2016), 'Spillovers from China's transition and migration', *World Economic Outlook*, Chapter 4.

Melitz, M.J. (2003), 'The impact of trade on intra-industry reallocations and aggregate industry productivity', *Econometrica*, 71(6), pp. 1695–725.

Ricardo, D. (1817), *On the Principles of Political Economy and Taxation*, London: John Murray.

Rincón-Aznar, A., Mao, X. and Tong, M. (2020), 'Global value chains and economic dislocations: introduction', *National Institute Economic Review*, 252, R1–3.

*The authors wish to thank Jagjit Chadha, Rebecca Harding, Barry Naisbitt and Manuel Tong for helpful comments.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box B. The rise of 'Chindia': what can the other BRICS countries learn?

*by Janine Boshoff and Barry Naisbitt**

The term 'BRIC' was first used in the early 2000s to describe the fast-growing countries of Brazil, Russia, India and China. At the time these countries accounted for around 25 per cent of the world's land mass, 40 per cent of world population and 20 per cent of global GDP.[1] After the leaders of these countries held a summit in 2009, the group developed a more formal status and South Africa joined the group in 2011. It has become relatively common to see analysis of the BRICS countries treated as a group. This box examines trends in economic growth in the second decade of this century and argues that, while the BRICS term may have been a relevant approach in the 2000s, it has become much less helpful as an analytical concept because the economic growth performance of the BRICS countries has diverged sharply during the past decade (Sharma, 2013; Faroohar, 2015).

Diverging economic performance

The key economic metric examined is economic growth. From the standpoint of 2001, the previous decade had seen rapid growth in the BRICS economies, apart from Russia, and this trend was expected to continue. This expectation was well founded until the financial crisis towards the end of the decade. In the years leading up to the financial crisis, each of the five economies grew at a similar or notably faster pace than the global economy and the G7 advanced economies, as shown in table B1.

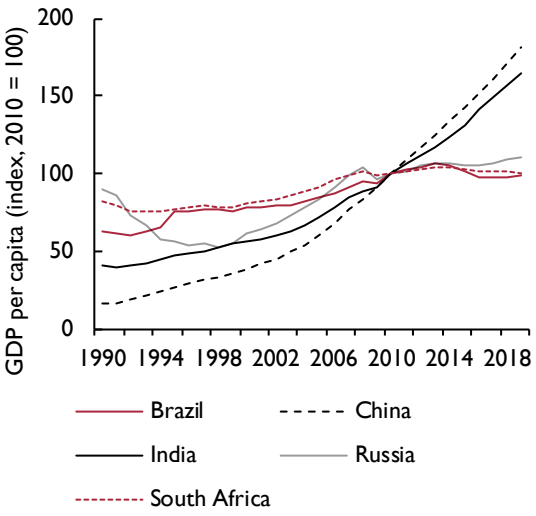
This experience did not, however, persist into the past decade. Higher GDP growth rates of the individual BRICS countries might not have been sustained as the impetus from 'catch-up' development growth faded and the stages of economic development in the BRICS countries evolved. GDP per head in China surpassed South Africa and Russia in the middle of the past decade, although GDP per head in India remains the lowest of the BRICS group.[2] In addition, the financial crisis, which was predominantly a G7 crisis, has led to a slower pace of G7 GDP growth than in the previous decade. The most striking feature, however, is that the divergence of experience among the BRICS economies increased sharply in the past decade, as shown in figure B1. GDP per capita has changed little in the past decade in Brazil, Russia and South Africa but has continued to growth rapidly in China and India.[3] However, with the level of GDP per head still over one third lower in India than in South Africa, and GDP per head in South Africa around half of the level in Russia, there remains space for 'catch-up' growth both within the BRICS group and for the BRICS group relative to the advanced economies.[4]

Table B1. Average annual economic growth (%)

	1990–99	2000–9	2010–19
Brazil	3.2	3.4	1.4
Russia	–5.0	5.5	1.6
India	5.5	6.9	7.2
China	10.0	10.4	7.7
South Africa	1.4	3.6	1.7
BRICS	3.0	5.9	3.9
G7	2.6	3.8	2.8
World (excl. BRICS)	3.1	2.9	2.8

Source: NiGEM database.

Figure B1. GDP per capita in BRICS economies (level, index 2010=100)



Source: NiGEM database, NIESR calculations.

Contributing factors to divergence

Given the increased divergence in growth experience among the BRICS, it is important to try to understand factors that might explain this phenomenon. Why did China and India continue to grow rapidly following the global financial crisis, when the remaining BRICS countries' growth momentum faltered?

1. Commodity prices and China's development

Using analysis based on Bayesian VARs specified for the BRIC (excluding South Africa) countries, Belke, Dreger and Dubova (2017) posit an explanation for the deterioration in the growth performance of these economies due to changes in commodities' markets. Following the global financial crisis, emerging market economies recovered relatively quickly but thereafter GDP growth dwindled despite an

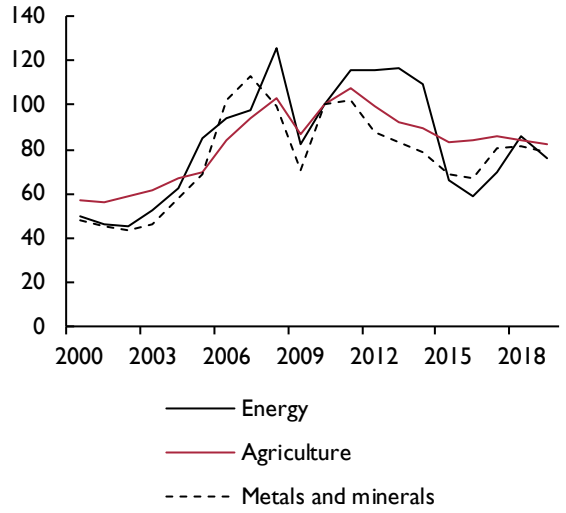
https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box B. (continued)

improvement in advanced economies. Belke *et al.* (2017) suggest that the divergence in business cycles is largely due to the transformation in the Chinese economy. During the financial crisis, the Chinese authorities implemented a massive fiscal stimulus[5] to prevent a decline in GDP growth. A large share of the stimulus package was earmarked for investment in infrastructure, boosting the provision of housing as well as rural and transportation infrastructure. In the process, Chinese demand for resource inputs grew rapidly and supported a rebound in economic growth in resource-rich economies such as Brazil, India and Russia. Once the Chinese economy shifted focus to consumption-driven growth, these resource abundant countries have faced much lower demand for exports, and consequently, GDP growth.

As a consequence of the changes in China, and in the slower growth in advanced economies, commodity prices declined, as shown in figure B2. The relatively poorer performing BRICS in the past decade – Brazil, Russia and South Africa – are more dependent upon commodity exports than India and China, so the end of the commodity price boom in the late 2000s meant that commodity exporters found it harder to sustain relatively rapid growth in the past decade (Benguria *et al.*, 2018) and this has adversely affected the pace of growth in Brazil, Russia and South Africa.

Figure B2. Real commodity prices (index, 2010=100)



Source: World Bank (2020).

Table B2. Annual change in real commodity prices (%, compound annual growth rate)

	1990–99	2000–9	2010–19
Energy	1.3	13.2	1.1
Non-energy	–1.9	5.0	–0.4
Agricultural	–1.1	4.2	–0.9
Metals and Minerals	–3.5	7.5	2.1

Source: World Bank (2020)

2. China and India diversified their exports

In a comparative empirical analysis of the BRICS economies, Naudé, Szirmai and Lavopa (2013) explored the role of structural changes to these economies between the years 1980 and 2010 with a specific focus on the impact of industrial policies on the manufacturing sector, finding that Brazil, Russia and South Africa had a de-industrialisation trend. By contrast, China was the only country where the expanding manufacturing sector accounted for a significant share of aggregate growth. The divergence in the development of the manufacturing sectors between China and the other BRICS countries was largely due to industrial policy – Chinese industrial policy supported investment, both foreign and direct, that allowed for technological advancement. Foreign direct investment (FDI) favoured both the manufacturing sector and manufactured exports, but domestic investment became increasingly important compared to FDI.

Figure B3 shows the share of commodities as a share of exports in 1990, 2000 and 2010 and illustrates the diversification that China undertook to reduce its reliance on commodity exports.

3. Institutional environment can hinder or help economic development

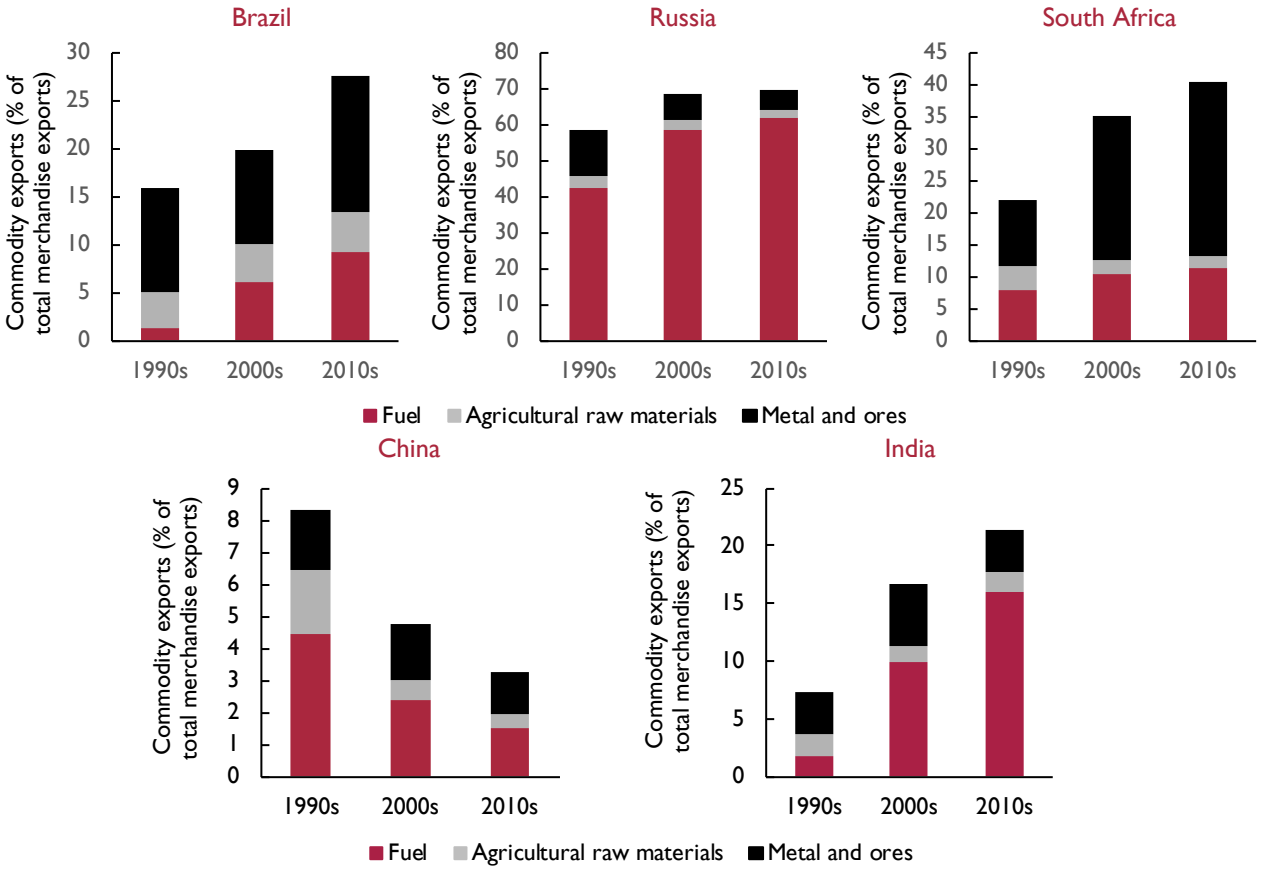
Using industrial policy, China was able to expand its manufacturing sector and ensure a sustainable source of growth in its transformation to a consumption-led economy. In addition, the institutional environment can have a significant impact on macroeconomic policies as well as the growth prospects of an economy. The degree to which an institutional environment can be supportive of growth is, however, a difficult variable to measure.

One approach adopted by the World Economic Forum (WEF) is the Global Competitiveness Index (GCI). Each country index is based on the aggregated scores of 12 unique economic pillars that include Infrastructure, Institutions, Human Capital, Market features and Innovation ecosystem. Figure B4 maps the evolution of the GCI index rankings of the BRICS economies since 2008 and shows the steady improvement in competitiveness in China.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box B. (continued)

Figure B3. Commodity exports as a percentage of total merchandise exports

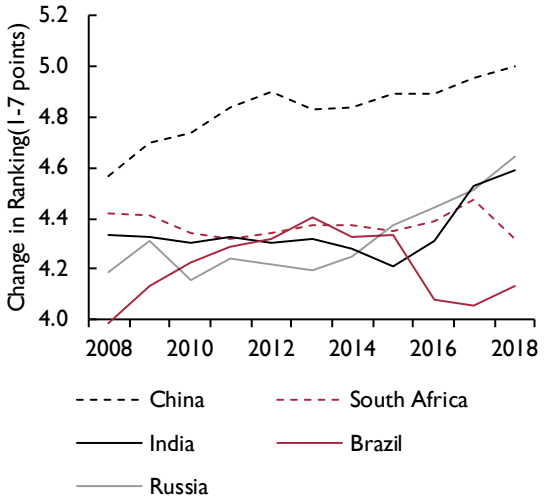


Source: World Bank (2020).

The WEF also conducts an Executive Opinion Survey asking respondents to select the five most problematic factors for doing business in their country. The survey responses provide some insight into perceived or potential obstacles to economic success in the BRICS economies. Factors to frequently matter are corruption, access to finance, high tax rates, government bureaucracy and inadequate infrastructure.

Macroeconomic policies can support economic development if there is a degree of fiscal and monetary policy space. One important consideration here is the extent of change in debt levels in the BRICS economies and to what extent that might affect the government's ability to provide macroeconomic support to potential growth sectors. Table B3 shows that the share of public sector debt to GDP in the BRICS (except for India) has increased over the past decade but China stands out from the others in terms of both the growth in private sector debt and its share in GDP. The faster debt growth is likely to have contributed to the faster overall GDP growth.

Figure B4. Evolution of competitiveness rankings in the BRICS economies



Source: WEF (2020). Notes: Change in ranking assessed on a 7-point scale (1= most uncompetitive; 7= most competitive).

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box B. (continued)

Implications

In terms of the rate of GDP growth per head, over the past decade China and India have pulled away from the other BRICS countries. This has enabled them to close gaps in GDP per head levels and China has overtaken Brazil and South Africa in the past decade. The causes of this divergence in performance are complex and diverse and factors such as improvements in economic governance and domestic political stability could contribute to better economic growth prospects for those countries that have under-performed over the past decade. But much will also depend upon developments in the global economy, especially the prospects for commodity exporters, in the current period of uncertainty about how the post-Covid-19 world will develop.

Table B3. Debt as a share of GDP (%)

	Brazil	China	India	Russia	South Africa
2009					
Private debt	57.6	144.9	56.7	58.3	74.2
Public debt	64.8	34.5	74.1	10.2	31.7
2019					
Private debt	70.6	209.1	56.0	63.6	74.0
Public debt	87.0	52.4	67.9	14.8	60.3

Source: Data to 2019Q2, Bank for International Settlements total credit statistics.

The economies of Brazil, South Africa and Russia appeared quite fragile in the years preceding the global pandemic and now have limited capacity to assist the global economy in recovering. China and India, on the other hand, used the period of high growth to diversify economic output, provide stabilising macroeconomic policies and support innovation in high-growth sectors. As such, 'Chindia' looks to be in a much better position to provide support to the global economic growth picture in a post-lockdown world than the other BRICS economies.

Notes

1 GDP data on a PPP basis.
2 GDP per head on a PPP basis is from the IMF, *World Economic Database*, November 2019
3 Although Subramanian (2019) argues that GDP growth in India has been over-stated in the past decade.
4 GDP per head on a PPP basis is from the IMF, *World Economic Database*, November 2019
5 The fiscal stimulus package amounted to around 12.5% of Chinese GDP in 2008 (Wong, 2011).

References

Belke, A., Dreger, C. and Dubova, I. (2017), 'On the exposure of the BRIC countries to global economic shocks', IZA Discussion Papers, No. 10634, Institute for the Study of Labor (IZA), Bonn.

Benguria, F., Saffie, F. and Urzua, S. (2018), 'The transmission of commodity price super-cycles', National Bureau of Research, Working Paper 24560, November.

Büyükşahin, B., Mo, K. and Zmitrowicz, K. (2016), 'Commodity price supercycles: what are they and what lies ahead?', *Bank of Canada Review*, Autumn.

Faroohar, R. (2015), 'Why the mighty BRIC nations have finally broken', *Time Magazine*, 10 November.

International Monetary Forum (2020), World Economic Forum Database. Available online: https://www.imf.org/en/Publications/SPROLLs/world-economic-outlook-databases#sort=%40imfdate%20descending.

Naudé, W., Szirmai, A. and Lavopa, A. (2013), 'Industrialization lessons from BRICS: a comparative Analysis', IZA Discussion Papers, No. 7543, Institute for the Study of Labor (IZA), Bonn.

Sharma, R. (2013), *Breakout Nations: In Pursuit of the Next Economic Miracles*, Penguin.

Subramanian, A. (2019), 'India's growth rate has probably been overestimated for years', Petersen Institute for International Economics, Op-ed, 11 June.

Wong, C. (2011), 'The fiscal stimulus programme and public governance issues in China', *OECD Journal on Budgeting*, volume 2011/3.

World Economic Forum (2020), 'The Global competitiveness report, 2019', available online: http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.

*The authors are grateful to Jagjit Chadha, Amit Kara and Garry Young for helpful comments.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box C. Effects of Covid-19 in emerging economies

*by Hande Küçük**

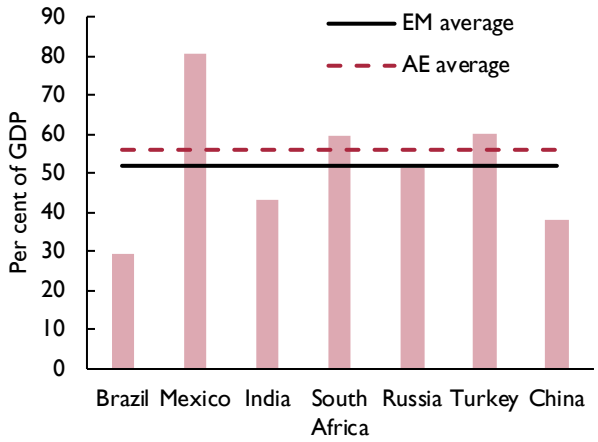
The Covid-19 pandemic led to an unprecedented mix of adverse supply and demand shocks alongside a sharp rise in financial stress due to a sudden stop of economic activity in many countries. Even though the pandemic is a global shock that is expected to cause a severe recession in almost every country it has hit, emerging and developing economies are facing greater challenges compared to advanced economies. This box aims to highlight major channels through which the health crisis affects emerging economies differently compared to advanced economies and focuses on factors that determine the impact of Covid-19 on emerging economies.

Domestic economic shocks related to the outbreak of the virus are similar across advanced economies and emerging economies as most countries have adopted lockdowns and containment measures to mitigate the health crisis, which in turn have severely restricted labour supply and production as well as consumption and investment. The sharp fall in revenues in a wide range of sectors and extensive loss of jobs and incomes along with plunging confidence and rising uncertainty implied a sudden rise in credit risk and rush for liquidity in almost all countries. Although these adverse shocks stemming from domestic outbreaks and associated mitigation measures are common across advanced and emerging economies, the latter are also exposed to substantial external spillovers through trade and financial flows. Hence, even those emerging and developing countries that have a small number of infections have been affected adversely through collapsing external demand for exports of goods and services (tourism), sharp declines in international commodity prices and large capital outflows. What is more, vulnerabilities specific to emerging economies have amplified the effects of both domestic and external shocks related to the pandemic. Major macroeconomic factors that amplify the effects of Covid-19 on emerging economies include reliance on global trade and tourism, dependence on oil and other commodity exports, financial vulnerabilities and limited policy space (World Bank, 2020; IMF 2020a; Djankov and Panizza, 2020).[1]

Global trade and tourism

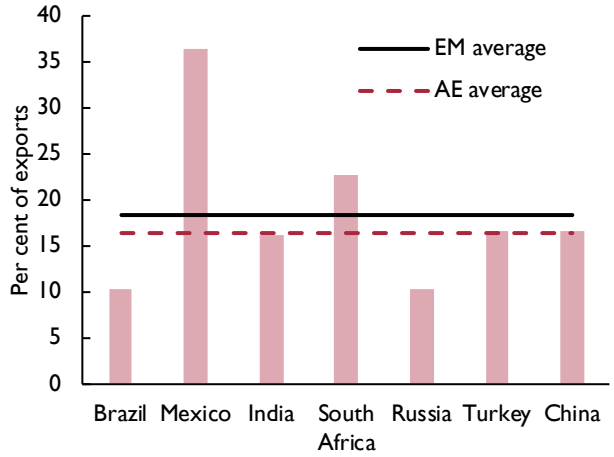
Indicators for the first half of 2020 indicate a severe contraction in global economic activity and a collapse in global trade. Shocks to the growth rates of major economies affect emerging economies not only through external demand (trade channel) but also through global financial conditions and international commodity prices.[2] According to the World Bank (2020), a simultaneous decline in the growth rates of the US, the Euro Area and China by 1 percentage point leads to 1.3 percentage point lower growth in emerging and developing economies (excluding China) in the following year. Spillovers from a global growth slowdown are expected to be larger in emerging economies that have a large share of commodity exports and that are more open to global finance

Figure C1a. Trade openness



Source: WDI, World Bank.
Notes: Trade openness is defined as the sum of exports and imports of goods and nonfactor services in per cent of GDP. Data for 2018.

Figure C1b. Import content of exports (per cent of exports)



Source: OECD.
Notes: Import content of exports is defined as the share of imported inputs in the overall exports of a country. Data for 2016.

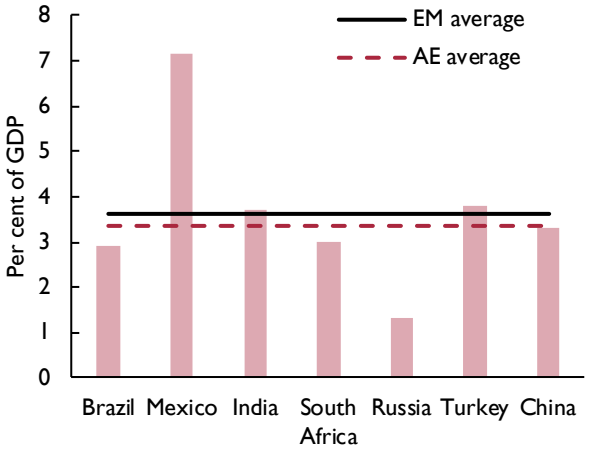
EM average is unweighted average of selected emerging economies depicted in the figure. AE average is unweighted average of Canada, Australia, US, UK, France, Italy, Germany, Japan.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box C. (continued)

and trade (figure C1a). Countries that are deeply integrated into global value chains (GVCs), where foreign (domestic) inputs account for an important share of domestic (foreign) production and exports, are more vulnerable to disruption in global trade regardless of whether they are advanced or emerging (figure C1b). However, productivity and income losses associated with a possible disruption in global supply chains might be higher in emerging economies which receive FDI flows associated with GVCs that bring access to external finance as well as transfer of human capital and knowledge.

Figure C2.Travel and tourism direct contribution to GDP (per cent of GDP)



Source: World Travel and Tourism Council.
Note: EM average is unweighted average of selected emerging economies depicted in the figure. AE average is unweighted average of Canada, Australia, UK, France, Italy, Germany, Japan. Data for 2019.

By its very nature, the Covid-19 pandemic has hit travel, tourism and related sectors particularly harder than others. Hence, tourism revenues have declined to a much bigger extent than has been implied by the ongoing global economic slowdown. Tourist arrivals, which almost came to a halt with severe restrictions on international travel, are expected to display a protracted recovery due to concerns about infection, quarantine rules upon arrival and higher costs implied by social distancing requirements. This is an important problem for many emerging and developing economies as tourism revenues generally constitute a relatively larger proportion of their GDP and exports, have important spillovers to other sectors in the domestic economy such as hospitality, transport and retail trade, and employ a significant fraction of the labour force, especially low-skilled workers that are harder to reallocate to other sectors (figure C2).[3] Although some advanced economies such as France, the UK, Italy and Germany have similar exposure to travel and tourism in their GDP, loss in tourism revenues is likely to affect some emerging economies more adversely, as these countries will find it more difficult to finance a higher current account deficit in an environment with global foreign exchange shortages.

Commodity exports

A large share of emerging and developing economies are commodity exporters, who are facing sharp declines in commodity prices on top of the domestic and external shocks associated with the pandemic.[4] Collapsing commodity prices, oil in particular, imply a huge loss for economic activity, exports and government revenues in these countries (Arezki *et al.*, 2020). Even though oil prices seem to have bottomed-out recently, mostly due to production cuts by OPEC+ countries coming into effect, prolonged weakness in demand particularly for travel and transport as well as high inventory levels and spare crude oil production capacity are expected to limit upward pressures on oil going forward (EIA, 2020). Hence, growth rates of oil exporters are expected to be more severely affected compared to that of other emerging and developing economies for both 2020 and 2021 (World Bank, 2020 and IMF, 2020a). Although the decline in commodity prices affects the current account balance of commodity-importers favourably, for example through a reduction in their energy bills, these effects are likely to be mitigated by lower external demand as well as reduced foreign direct investment and workers' remittances from their oil-exporting trade partners.[5]

Financial vulnerabilities

The substantial weakening in the global growth outlook and uncertainties regarding the pandemic led to a sharp fall in global risk appetite and a pronounced tightening in global financial conditions at the onset of the crisis. With heightened global risk aversion and flight to safety, emerging economies were faced with a record reversal of capital flows, even before some of them witnessed a domestic outbreak of Covid-19.[6] As a result, stock prices fell, bond yields went up, currencies have depreciated and international borrowing costs have risen initially (figures C3a–d). These effects have been larger in commodity exporters and in those emerging economies with a high external financing requirement, a large share of debt denominated in foreign currency and low levels of international reserves (IMF, 2020b). Falls in asset prices, depreciation in domestic currencies and rises in country risk premia associated with a sudden stop in capital flows significantly tightened domestic financial conditions, which in turn increased downside risks to growth and financial stability.[7]

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box C. (continued)

Figure C3a. US dollar exchange rate (% change)

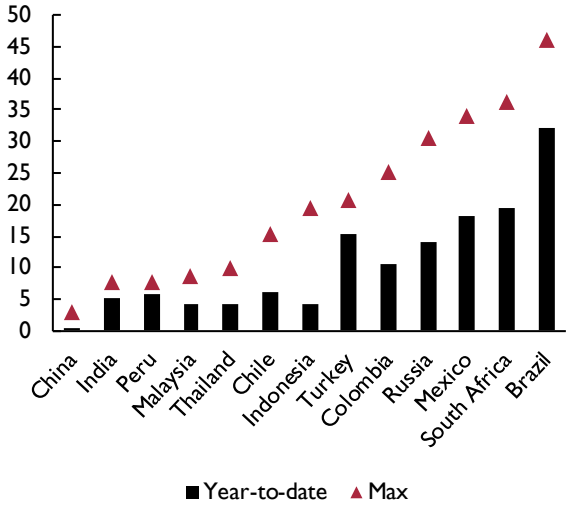


Figure C3b. CDS spread (bps change)

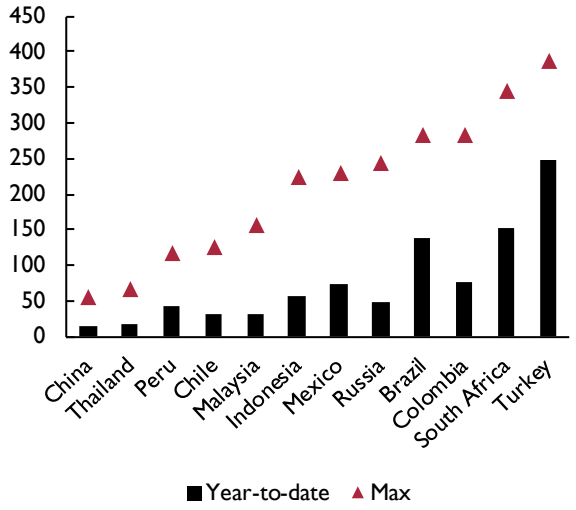


Figure C3c. Stock prices (local currency, % change)

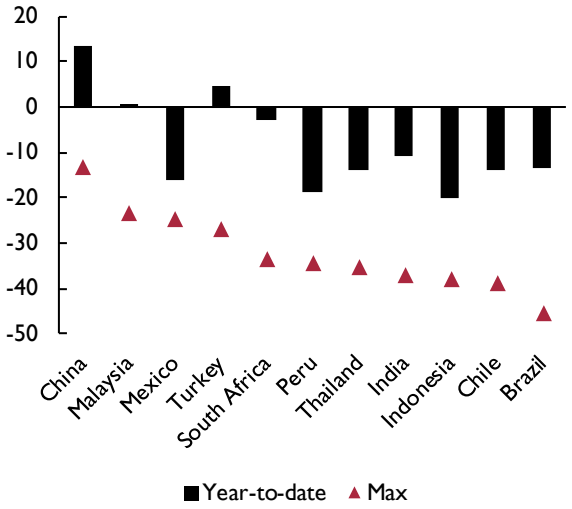
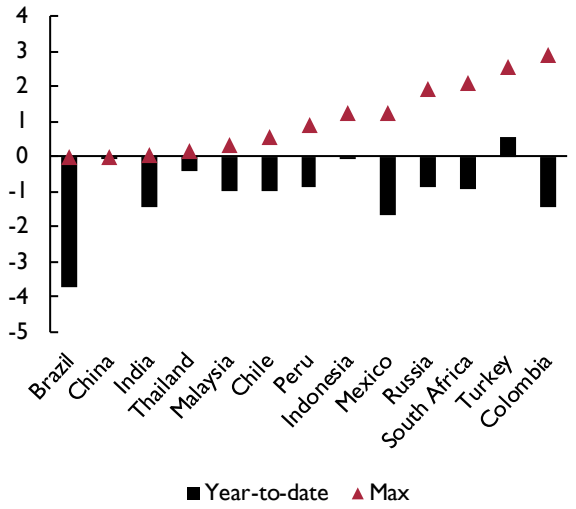


Figure C3d. Five-year bond yield (pp change)



Source: Bloomberg.
Notes: 'Year-to-date' refers to the percentage change or difference between end-2019 and the latest available data up to 13 July. 'Max' refers to the maximum change since end-2019.

Swift and decisive monetary policy actions taken by advanced economies in the form of significant policy rate cuts, forward guidance, expanded asset purchase programmes, liquidity support to banks and provision of US dollar liquidity through swap line arrangements have been effective in lifting risk appetite and easing global financial conditions. Following these steps, adverse financial shocks have reversed to some extent for most emerging economies as shown in figures C3a–d. The unprecedented monetary easing by advanced economies also provided space for emerging economies to pursue asset purchase programmes for the first time, either to support monetary policy or market liquidity, especially to ease pressures on the government domestic debt market. Accordingly, contrary to previous crisis episodes, most emerging economy central banks have been able to take

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box C. (continued)

on a more accommodative stance using a wide range of instruments to provide liquidity to banks and maintain credit flows to businesses and households. So far, these policies have been successful in easing domestic financial conditions and maintaining credit flows to businesses and households without creating adverse reactions in government bond markets or local currencies (Arslan *et al*., 2020). However, there are some factors that might limit the effectiveness of monetary easing in emerging economies going forward.

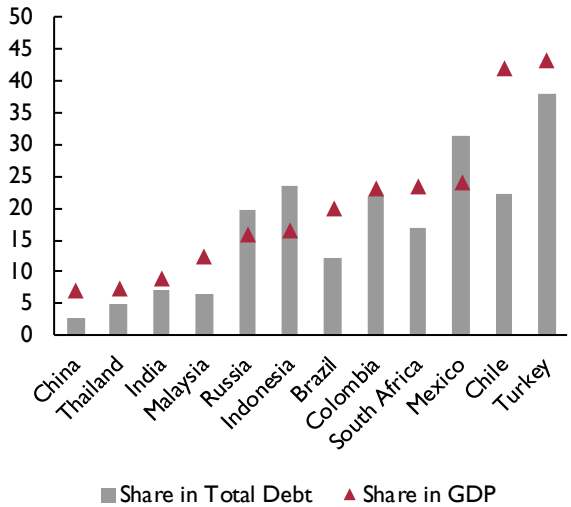
Limits on policy space

First, private sector indebtedness has substantially increased in emerging economies over the past decade, mostly in the form of higher foreign currency debt in the corporate sector (Naisbitt, 2020). As of end-2019, total debt of emerging economies outside the financial sector amounts to $58 trillion, with $5.3 trillion denominated in FX (Tiftik and Mahmood, 2020). Excluding China, the share of FX debt in the total debt of government, non-financial corporates and households is around 20 per cent with a much higher share in some emerging countries (figure C4). This implies that even if domestic borrowing rates are reduced and domestic credit supply is supported by monetary and financial measures, debt-service will continue to be an important obstacle against a faster economic recovery as cash flows continue to be adversely affected by ongoing disruptions in production and sales as well as expectations of prolonged slowdown in economic activity. Furthermore, to the extent that easing monetary and financial conditions start to put a pressure on currencies which cannot be effectively smoothed by the use of foreign currency interventions or other measures, domestic cost of foreign currency repayment could go up, limiting the effectiveness of such policies. Second, although inflation has been under control in most of the emerging economies in the past decade, inflation expectations are often not as well-anchored as they are in advanced economies. Besides, exchange rate pass-through is still relatively high, reflecting a high reliance on imports and foreign-currency debt. Hence, space for further monetary easing in emerging economies might be limited unless pressures on the currencies of emerging economies ease or inflation displays a persistent fall.

The pandemic requires extensive use of fiscal resources to fight the infection, provide financial relief to liquidity-constrained households and firms, and support aggregate demand (Blanchard, 2020). The extent of the required support would easily push the limits of fiscal space even in advanced economies, let alone emerging economies which face higher sovereign borrowing costs and limited access to external finance compared to advanced economies. Besides, automatic stabilisers are known to be weaker in emerging and developing economies, which renders fiscal policy procyclical with a few exceptions, (Frankel *et al*., 2013). During a global risk-off mode, a persistent deterioration in public sector balances runs the risk of feeding back into country risk premium which in turn might raise the cost of borrowing for banks and non-financial corporates and reduce policy effectiveness. On another note, fiscal space is more limited in many emerging economies compared to the global financial crisis due to slower trend growth, the commodity price plunge of 2014–16 as well as the looming recession which implies a significant deterioration in public balances.[8] Nevertheless, emerging countries which have lower public debt-to-GDP ratios and higher ability to generate tax revenues on the back of stronger institutions are better positioned to use fiscal policy to mitigate the effects of the pandemic without causing unwanted side effects.

Emerging economies are faced with an unprecedented combination of adverse domestic and external shocks due to Covid-19. Vulnerabilities stemming from the structure of their economies and limits to their policy space magnify the challenges brought about by the pandemic. Although some emerging economies are better positioned to implement quantitative easing policies to support fiscal policy to reduce economic and social costs imposed by Covid-19, the burden of FX debt-service together with a weak outlook for capital inflows imply more stringent limits on policy compared to advanced economies. More cooperation is required on the international front on debt restructuring, bilateral and multilateral swap lines and international aid packages to reduce the risk of long-term scarring in the broad emerging and developing world (Kara *et al*., 2020).

Figure C4. Fx-denominated debt stock (government, households and non-financial corporations) (per cent)



Source: IIF, Global Debt Database.
Notes: Selected emerging economies. Data for 2019Q4.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Box C. (continued)

NOTES

1 Other (more structural) factors that amplify the impact of Covid-19 on emerging and developing economies include weak health systems (World Bank, 2020), pre-existing high levels of poverty and inequality, large share of informal workers and a small share of jobs that can be done from home (Djankov and Panizza, 2020, among others).
2 Holland and Liadze (2020) find an important role for global spillovers in magnifying the country-specific shocks caused by the pandemic especially for small open economies, i.e. global spillovers amplify the magnitude of domestic shocks by around 60 percent.
3 See Mooney and Zegarra (2020) for detailed analysis on the effects of the pandemic-related tourism shock in Latin America and the Caribbean.
4 UNCTAD (2019) reports that 91 per cent of low-income countries are dependent on commodity exports, i.e. more than 60 per cent of their total merchandise exports are accounted for by commodities, compared with less than one third in high-income countries.
5 Oil-importers in the Middle East and Africa region receive workers' remittances from oil exporters that amount to almost 4 per cent of their GDP as reported by Arezki *et al.* (2020). Remittances have become an important and more stable source of inflows for many emerging and developing economies in Central America and the Caribbean, the Philippines, and Egypt with net remittances varying between 5–20 per cent of GDP in most of these countries.
6 $83.2 billion portfolio outflows in March according to Fortun and Hilgenstock (2020).
7 Akinci *et al.* (2020) show how a sudden stop of capital flows to emerging economies captured by a binding constraint on private sector external borrowing amplifies the effects of Covid-19 on economic activity through the use of an open-economy DSGE model.
8 Effectiveness of fiscal and financial policies in emerging economies are further limited by the large share of an informal sector in these countries.

REFERENCES

Akinci, O., Benigno, G. and Queralto, A. (2020), 'Modeling the global effects of the Covid-19 sudden stop in capital flows,' *Federal Reserve Bank of New York Liberty Street Economics*, 18 May.
Arezki, R., Fan, R.F. and Nguyen, H. (2020), 'Coping with a dual shock: a perspective from the Middle East and North Africa', in Djankov, S. and Panizza, U. (eds), *Covid-19 in Developing Economics*, VoxEU.org eBook, CEPR Press, 22 June.
Arslan, Y. Drehmann, M. and Hofmann, B. (2020), 'Central bank bond purchases in emerging market economies', BIS Bulletin No. 20, June.
Blanchard, P.O. (2020), '"Whatever it takes." Getting into the specifics of fiscal policy to fight Covid-19', Peterson Institute for International Economics, *RealTime Economic Issues Watch*.
Djankov, S. and Panizza, U.(eds) (2020), *Covid-19 in Developing Economies*, VoxEU.org eBook, CEPR Press, 22 June.
EAI (2020), *Short-term Energy Outlook*, US Energy Information Administration, June.
Fortun, J. and Hilgenstock, B. (2020), 'IIF Capital Flows Tracker – May 2020: Flows to EM Improve', IIF, 4 May.
Frankel, J.A, Vegh, C. and Vuletin, G. (2013), 'On graduation from fiscal procyclicality', *Journal of Development Economics*, 100(1), pp. 32–47.
Holland, D. and Liadze, I. (2020), 'Quantifying the global macroeconomic spillovers of illness and lockdown measures', *National Institute Economic Review*, 252, May.
International Monetary Fund (2020a), 'Global prospects and policies', *IMF World Economic Outlook*, April.
—(2020b), 'Global financial stability overview', *IMF Global Financial Stability Report*, April.
Kara, A., Macchiarelli, C. and Giacon, R. (2020), 'Once the dust settles, supporting emerging economies will be the challenge', 11 May, LSE Blogs.
Mooney, H. and Zegarra, M.A. (2020), 'Extreme outlier: the pandemic's unprecedented shock to tourism in Latin America and the Caribbean', in Djankov, S. and Panizza, U. (eds), *Covid-19 in Developing Economics*, VoxEU.org eBook, CEPR Press, 22 June.
Naisbitt, B. (2020), 'Vulnerability from debt in the coronavirus crisis', *National Institute Economic Review*, 252, May.
Tiftik, E. and Mahmood, K. (2020), 'Global debt monitor: Covid-19 lights a fuse', IIF, 7 April.
UNCTAD (2019), 'The State of Commodity Dependence 2019', United Nations Conference on Trade and Development.
World Bank (2020), 'Lasting scars of the Covid-19 pandemic', *World Bank Global Economic Prospects*, June.

*Central Bank of Turkey. The author wishes to thank Jagjit Chadha, Amit Kara, Hakan Kara, Barry Naisbitt and Tolga Tiryaki for helpful comments.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Prospects for individual economies

United States

US GDP fell by an annualised 5 per cent in the first quarter of this year (after a below-par increase of 2.1 per cent in the fourth quarter of 2019) which reflected the initial effects of the Covid-19 pandemic and lockdown measures, especially in New York. The US reporting of quarterly GDP figures means that the second quarter is likely to see an enormous quarterly fall of around 40 per cent.

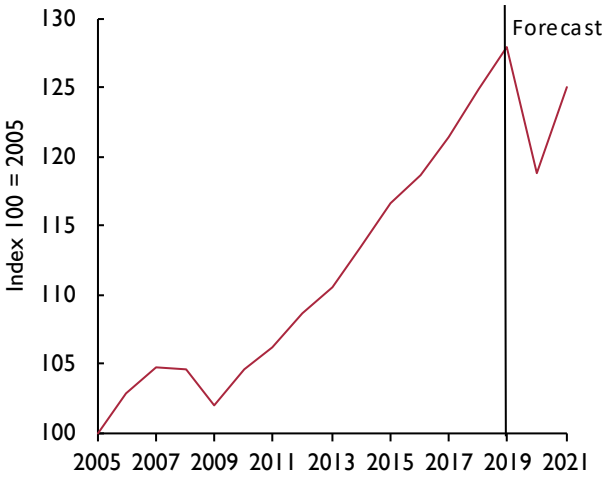
In response to the threat of the virus to the economy, having entered the year with policy interest rates at 1.75 per cent, after the Federal Reserve had reduced them from a peak of 2.50 per cent in the middle of last year, the Federal Reserve announced a 50 basis point policy rate cut, citing the risks caused by the developing coronavirus crisis, at an unscheduled meeting on 3 March. At that time the effects of the virus had already been seen in China, Italy and Spain and global financial conditions had been adversely affected. Just ten days later, after another unscheduled meeting, it cut the policy rate by 1 percentage point to 0.25 per cent. Importantly for the US economy, long-term interest rates fell sharply too, with the 10-year government bond yield falling from 1.10 per cent on 2 March to 0.54 per cent on 9 March. The 10-year bond yield has remained around 0.6 per cent since, thus reducing long-term borrowing costs.

The Federal Reserve has also undertaken substantial quantitative easing (QE) measures in order 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. On the international front, it also announced temporary US dollar swap lines with leading central banks. In addition to these measures, Federal banking supervisors have encouraged depository institutions to use their capital and liquidity buffers to support credit to borrowers affected by the virus and the protection measures and Fannie Mae and Freddie Mac have announced assistance to borrowers, including providing mortgage forbearance.

In terms of fiscal support the Federal government passed the CARES Act on 27 March which provides support of over $2 trillion (over 10 per cent of GDP), which is considerably larger than the fiscal support in the financial crisis, in a mix of direct payments and loans to individuals and businesses. The direct task of implementing health measures to control the spread of the virus rests primarily with state authorities and different states have imposed lockdowns at different times (California and Washington State appear amongst the earliest) and the initial health shock was worst in New York. But with some states unlocking, the latest news on the virus is that the earlier downward trajectory in the number of cases of infection in the US has reversed, with increases in the number of new cases in southern states such as Florida and Texas. In these circumstances, possible additional fiscal support has been discussed.

In circumstances when the number of virus cases is rising again, and the latest indicators for monthly economic activity are now showing a pick-up in activity, the economic outlook is particularly uncertain, especially as renewed lockdowns are possible. Our central case projection is that the worst of the fall in GDP was in the second quarter when lockdown measures were instituted and that by the fourth quarter of this year US GDP will be rising again. The size of the fall in the second quarter is such that we project that US GDP will fall by 7 per cent this year and that, assuming that the number of cases recedes and the economy opens up, GDP will grow

Figure 16. US: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

by around 5¼ per cent in 2021, with annual growth in the medium term of around 1¾ per cent. This would, however, leave the level of GDP next year below that before the virus hit.

The labour market has seen dramatic developments. After steadily falling from a peak of 10 per cent in October 2009 to a low of 3.5 per cent in December 2019, the lowest rate since 1969, the unemployment rate rose incredibly sharply to 14.7 per cent in April as employees were laid off and job vacancies fell. Dramatic increases in weekly unemployment claims have already been seen as the lockdown has hit and businesses closed, if only temporarily. As output recovers, our expectation is that the unemployment rate will fall too, but not back to its pre-crisis level of 3.5 per cent in the foreseeable future. We project it at 7½ per cent in 2021.

The economic shock has lowered the annual CPI inflation rate from 2.5 per cent in January, the highest for over a year, to 0.2 per cent in May, with lower oil price contributing, and 0.7 per cent in June. Lower oil prices relative to a year ago are likely to keep inflation low and our forecast is for inflation to be below 1 per cent this year and rising to 1½ per cent next year, before increasing to around 2 per cent in the medium-term.

While the trade war with China appeared to have been settled with the Phase One agreement, and the virus outbreak is the top priority issue, there remain potential tariff disputes with the Euro Area and the possibility of the further tariffs on China. As a consequence, over the medium term, trade uncertainty is likely to return as an important issue for businesses.

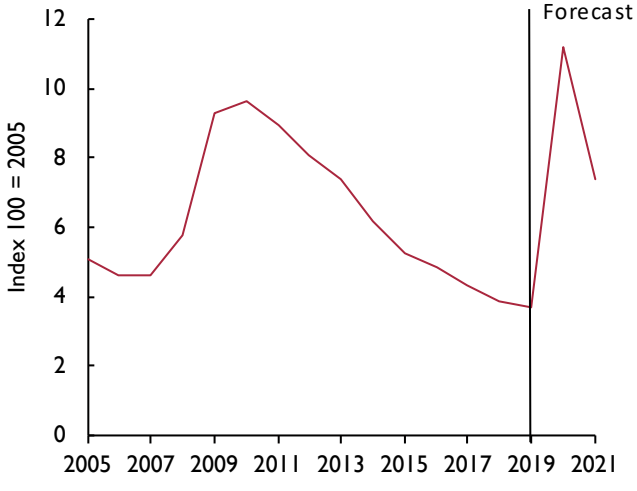
Canada

Covid-19 has spread widely in Canada, with more than 100,000 infections and close to 9,000 deaths. The daily infection and death rates have eased considerably since the peak in early-May, mainly because the Federal and Provincial governments started to enforce lockdown measures in the second half of March. Those restrictions remain very much in place and at the same elevated level according to the Oxford University Covid-19 Stringency Index.

The Canadian economy shrunk by a cumulative 18 per cent in March and April according to official monthly GDP data as a result of these restrictions. More recent survey data from the Bank of Canada, which covered the period until early June, suggests that businesses remained pessimistic until then, but that sentiment appears to have changed in the latter part of June according to the most recent PMI Markit survey. The pessimism in the manufacturing sector has eased considerably in June as factories have started to re-open, but the survey also indicates that the outlook remains highly uncertain.

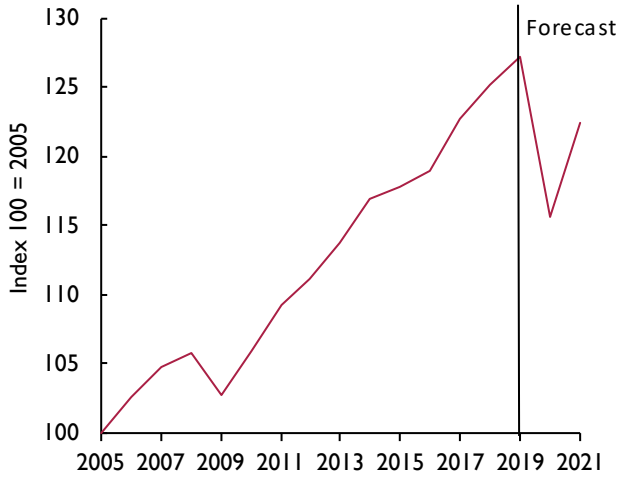
That improving sentiment is also evident in the official labour market data. Employment fell sharply, by around 15 per cent, from the peak in February to the trough in April. More timely employment data show a strong

Figure 17. US: unemployment rate (%)



Source: NiGEM database and NIESR forecast.

Figure 18. Canada: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

turnaround in May and June, such that the cumulative drop in employment stands at less than 10 per cent. We expect the economy to remain on the recovery path provided that the virus is contained and the government starts to ease the lockdown measures further.

Canada is a major commodity producer. So the sharp drop in oil prices is another important headwind that has had a particularly large negative impact on investment in the oil and gas sector as well as on the exchange rate. The economic outlook will be influenced by the strength of the global recovery and commodity markets, mainly oil.

The Canadian government has intervened with a generous set of fiscal measures designed to bolster the economy in the short term and to prevent medium and long-term scarring. The fiscal package is worth around $262 CAD or 12.4 per cent of GDP according to the IMF tracker. More than half of the support is directed towards households and most of the rest is for businesses in the form of income and sales 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. The package includes a 150-basis point reduction in the overnight deposit rate to 0.25 per cent which is the effective lower bound, an asset purchase plan for government bonds, commercial paper, mortgage bonds and a liquidity injection through the repo market.

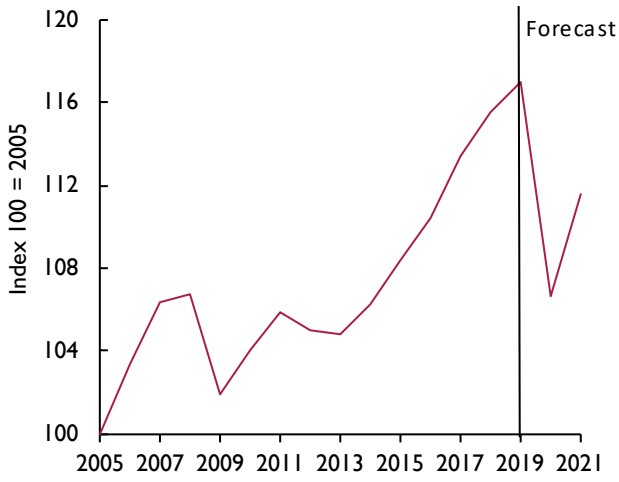
Our forecast suggests that GDP will fall by 9 per cent this year and bounce back next year provided the restrictions in Canada and elsewhere are lifted during the second and third quarters of this year. In so far as the oil price shock is related to the pandemic, a rise in global economic activity will lift oil prices and that in turn is expected to support investment in the Canadian oil and gas sector. That said, the unknown evolutionary path of the virus makes these forecasts unusually uncertain.

Euro Area

As the infection started to spread around the globe, Italy and Spain became the epicentre of the Covid-19 pandemic in March and April, and at 17 July each had around 250,000 reported cases, more than in Germany or France. However, strict lockdown measures taken quickly have meant that the spread of the virus has halted and European governments have now started to unlock their economies. The unlocking has been gradual and has involved some selective, temporary reversals as flare-ups of the virus have occurred. But unlocking has resulted in strengthening economic activity in May and June.

Support for the economy during the pandemic and the lockdown measures has come from monetary and fiscal policy, with the latter primarily in the scope of the individual countries. With the demand shock from the Covid-19 lockdown measures expected to reduce inflationary pressure, the European Central Bank (ECB) on 12 March announced additional asset purchases of €120 billion until end-2020 under the existing asset purchase programme (APP). On 18 March, an additional €750 billion asset purchase programme of private and public sector securities (Pandemic Emergency Purchase Programme, PEPP) until end-2020 was announced and the ECB extended the range of eligible assets under the corporate sector purchase programme (CSPP). Further to that, on 30 April the ECB announced a series of additional longer-term refinancing operations to ensure sufficient liquidity and smooth money market conditions during

Figure 19. Euro Area: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

the pandemic. With economic activity exceptionally weak and lockdowns just starting to be eased, at its 4 June meeting the ECB increased the potential size of the PEPP by €600 billion (to a total of €1,350 billion) to further ease the general monetary policy stance at a time when it had made a downward revision to the inflation outlook (by almost a full percentage point for 2020 and half a percentage point for 2021) taking the projections further below the target of achieving inflation close to, but below, 2 per cent.

In terms of fiscal support, under the Next Generation EU, in July the European Council agreed a Recovery and Resilience Facility (RRF) of €672 billion. This is in addition to a package of €540 billion (about 4 per cent of EU27 GDP) agreed by the European Commission, available to Euro Area members. This includes allowing the European Stability Mechanism (ESM) to provide Pandemic Crisis Support of up to 2 per cent of 2019 GDP for each Euro Area member country.

Euro Area GDP fell by 3.6 per cent in the first quarter of this year, with consumer spending, which was down 4.7 per cent, making the largest contribution to the decline. In addition, fixed investment fell by 4.3 per cent. In terms of industrial performance, the sharpest declines were in trade, transport, accommodation and food service activities, where output fell by 6.8 per cent, and the arts, entertainment and other services sectors which also recorded a 6.8 per cent drop. Employment fell by 0.2 per cent in the first quarter, the first quarterly decline since the second quarter of 2013. The unemployment rate rose to 7.4 per cent in May, and is projected to rise further, reaching around 9 per cent.

However, PMI readings for manufacturing and services rose to around 48 in June, still below the 50 mark that indicates expansion, but much improved from March and April. Industrial production rose by 12.4 per cent in May as unlocking started, but, given the unprecedented fall in production in the previous two months, it remained 20.9 per cent below the level of a year earlier. Retail sales surged in May, up 17.8 per cent month-on-month, a feature that was widespread in the countries of the Euro Area. Even with these strong monthly figures, we project that Euro Area GDP will fall by 8¾ per cent this year but increase by 4½ per cent next year, with GDP only returning to its end 2019 level in late 2023.

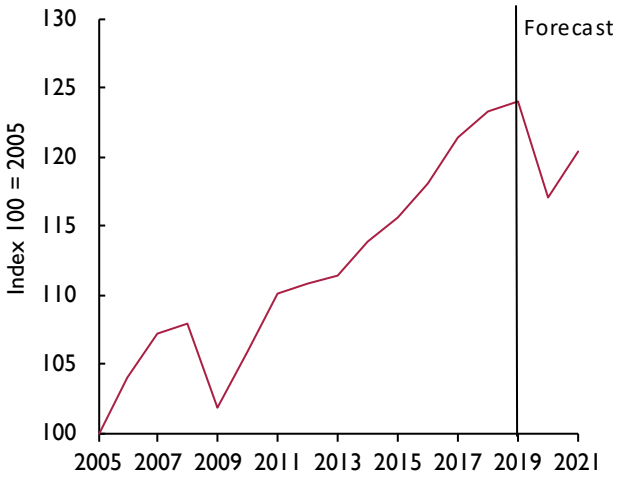
Having risen to 1.4 per cent in January, its highest rate for nine months, annual consumer price inflation (HICP) fell back rapidly to 0.1 per cent in May, the lowest rate since mid-2016. There was a slight uptick in June to 0.3 per cent, and our projection is for inflation to remain subdued, at around ½ per cent this year as output falls, and only show a small pick-up to 1 per cent next year.

Germany

The German economy is expected to have contracted rapidly under the pressure of the Covid-19 shock in the second quarter of 2020. Business investment fell 12 per cent on a year-on-year basis and April's figure recorded one of the steepest contractions on average; housing investment proved quite resilient, however. In April, industrial production fell steeply due to the weakness in external demand. Overall, we project a contraction of about 5½ per cent in GDP in 2020.

The loosening of the fiscal stance by the government is expected to partially dampen the fall in economic activity. 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 new package focuses 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. The German government's robust fiscal response should pave the way for a recovery next year.

Figure 20. Germany: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

The German external sector recorded one of its worst performances on record in April and export volumes are expected to drop by about 14½ per cent in 2020. Imports, at the same time, are expected to contract by around 11½ per cent overall this year. Consequently, the trade surplus is forecast to narrow.

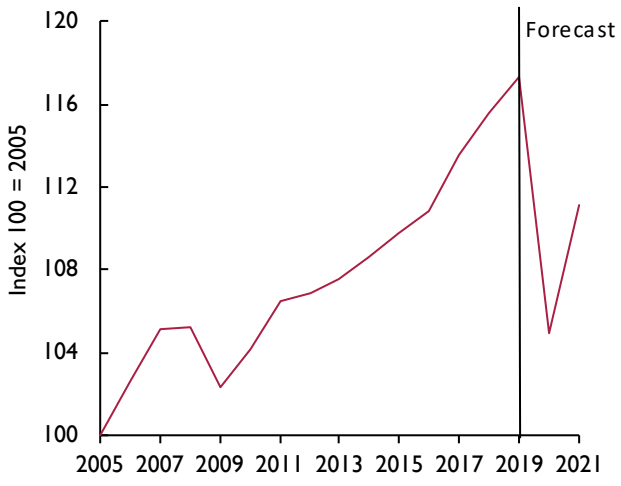
Harmonised inflation is expected to moderate to ½ per cent in 2020 due to continued low oil prices and weaker demand, and also as the result of the government-imposed containment measures. Supply chain disruptions, as well as de-globalisation, could create the potential for inflation to rise to around 1¼ per cent next year.

A prolongation of the crisis is one of the key downside risks, however, as the outlook hinges on a stronger rebound in external demand next year, particularly given Germany's export-oriented economic growth model.

France

The French economy is facing a severe contraction, as both consumption and investment declined sharply during the prolonged lockdown period. The strict national containment measures brought the economy to a sudden stop. GDP fell by 5¼ per cent in the first quarter of 2020 and is expected to have had an even sharper decline in the second quarter of approximately 15 per cent when lockdown measures were fully in place. The lockdown has badly hit the tourism, retail, accommodation and construction sectors.

Figure 21. France: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

Since the start of the easing of lockdown measures, restrictions have only gradually been lifted, which means household consumption remains partially constrained. Further, it is likely that the anticipated increase in unemployment, coupled with the high degree of uncertainty that remains, will continue to weigh on consumer behaviour and confidence. Notwithstanding, policy responses have been rapid and substantial. France has revised its 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. The marked increase in households' saving rate will aid the economic recovery by allowing for an increase in consumption once confidence is restored and consumption opportunities return.

Assuming reduced but continued disruptions for the remainder of 2020, we now project a much sharper decline in GDP than we did in our previous *Review*. We expect GDP to decline by 10½ per cent in 2020, before bouncing back by 6 per cent in 2021 and 2¼ per cent in 2022. The projection for inflation is also uncertain. On one hand, the public health and economic crisis could lead to temporary price pressures on certain products and services. Also, the increased costs to firms for implementing various health and safety measures could be passed on to consumers. On the other hand, macroeconomic forces driving inflation, such as the recent plummet in oil prices, should lead to a fall in energy prices relative to last year and the deterioration in activity should weigh on the growth in prices. Against this background, consumer price inflation is expected to fall to around ½ per cent in 2020, before picking up to 1 per cent in 2021 and 1¼ per cent in the medium term.

Italy

Italy's number of new Covid-19 cases has declined more or less consistently since late March and the manufacturing and construction sectors re-opened under new safety rules as of 4 May. The lockdown measures associated with the pandemic adopted during the first half of this year mean that economic activity is set to contract substantially in 2020, under the effects of both a drop in domestic demand (of around 11¼ per cent), lower external demand and the disruption in European supply chains. Exports are expected to fall sharply, with a volume fall of just below 19 per cent. As a result, GDP is projected to fall by about 11½ per cent this year, but increase by 3½ per cent next.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

With increased government spending to support the economy and lower tax revenues as incomes are hit, the already frail fiscal position will weaken further. Government debt is expected to exceed 160 per cent of GDP this and next year.

More positively, at the Euro Area level, the ECB has loosened the monetary stimulus further, through additional asset purchases until end-2020, more favourable terms on existing targeted longer-term refinancing operations and the introduction of a new liquidity facility, which consists of a series of non-targeted Pandemic Emergency Longer-Term Refinancing Operations (PELTRO). These measures have been supported by the proposal for a 'Next Generation EU' investment plan (notably the Recovery Fund) and the agreement to a series of common European short-term safety nets related to the Covid-19 crisis, e.g. through the European Stability Mechanism, the European Investment Bank, and the European Commission SURE. 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 partially counteracted investors' lack of demand for Italian bonds, and their demand has resumed strongly more recently.

Harmonised consumer prices fell 0.2 per cent in May denoting the sharpest fall since November 2019. 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 among the most important explanatory factors for such downside pressure on prices.

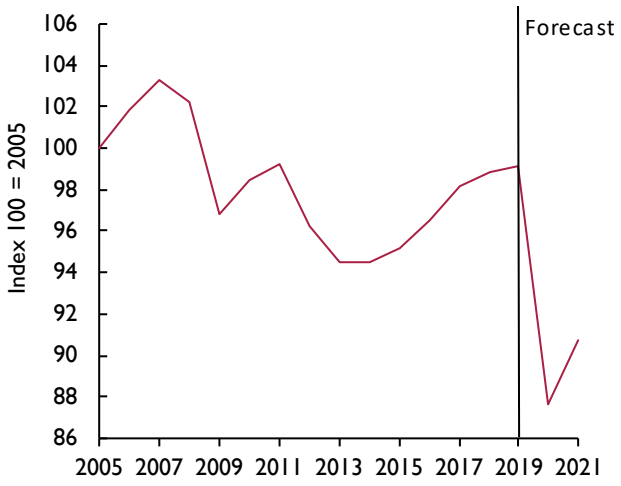
Spain

The Covid-19 pandemic in Spain peaked on 26 March in terms of new cases. The infection rate and the number of deaths went down under the nationwide lockdown which was lifted on 21 June, allowing unconstrained mobility and activities for the first time since mid-March. Likewise, borders were reopened for those coming from the Schengen area and residents of some non-EU-countries.[10] However, several regional outbreaks have flared up since, and localised restrictions have been imposed.[11]

The lockdown measures helped to avert an even worse health crisis, but they led to an unprecedented decline in GDP in the first quarter of the year, with a fall of 5.2 per cent in the quarter, despite the fact that the restrictions were only in force starting from second week of March. Service sectors, particularly those involving a high degree of social interaction such as tourism, have been deeply affected by the crisis. Meanwhile, there has been a significant reduction in the annual rate of consumer price inflation since the onset of the pandemic, reaching –0.9 per cent in May and –0.3 per cent in June.

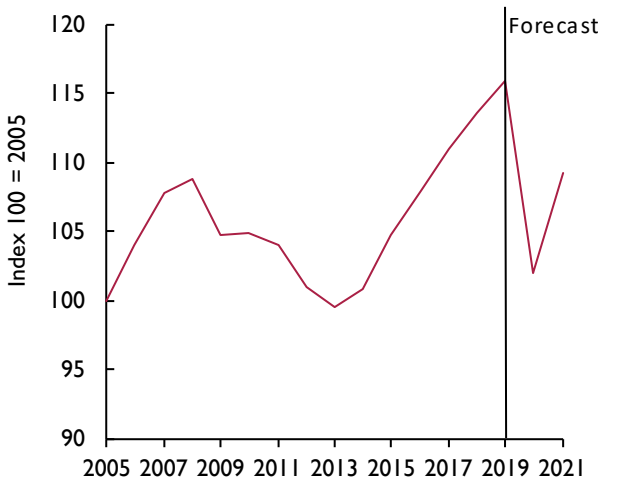
Since our May *Review*, the Spanish government has put forward several fiscal measures including:[12] the creation

Figure 22. Italy: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

Figure 23. Spain: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

of a Covid-19 fund for the regions of €16 billion; €9 billion earmarked for healthcare; €2 billion for education; €5 billion to offset losses in revenues; a Tourism Sector Promotion Plan of €4.25 billion to help the tourism industry to recover; a plan to promote the Automotive Industry, which includes a €100 million programme for vehicle renewal (MOVE II); the introduction of a minimum income guarantee scheme with an estimated cost of €3 billion per year; and an extension of the temporary employment adjustment schemes (ERTE) to 30 September, which has helped to limit the scale of job losses so far.

Despite these measures, we project a contraction in GDP of about 12 per cent in 2020, before GDP grows by 7 per cent in 2021 when all expenditure components are expected to bounce back. Harmonised annual consumer price inflation (HICP) is expected to show a mild deflation in 2020.

The economy still faces risks from the Covid-19 crisis. For example, new infection outbreaks may arise during the summer and social distancing measures will remain in place until further notice, affecting economic activity. In these circumstances, an improvement in the health situation may not fully restore economic activity quickly.

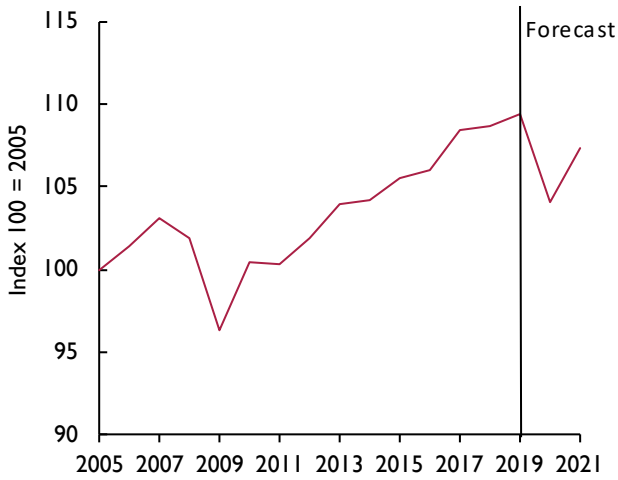
Japan

The Covid-19 pandemic has had a severe impact on the Japanese economy through reductions in private consumption and capital expenditure. In the first quarter of this year, Japanese GDP shrank by 1.7 per cent compared with the same quarter of the previous year and the economy officially entered its first economic recession since 2015. Meanwhile, the annual inflation rate has remained the lowest in the past three years at 0.1 per cent in both April and May.

Faced with both the pandemic and lacklustre economic performance, the Japanese government has adopted fiscal and monetary policies to stimulate the economy. After an emergency economic fiscal package against Covid-19 of ¥117.1 trillion in April 2020, the government approved a second draft supplementary budget of another ¥117.1 trillion in this fiscal year. Besides these two fiscal packages, whose value is equivalent to 42.2 per cent of GDP, monetary measures have been applied by the Japanese central bank to maintain stability in financial markets and support credit provision.

While the incidence of the virus has decreased, the Covid-19 pandemic is continuing to affect demand via falling private consumption. Although the Jibun Bank Japan Manufacturing PMI edged up slightly in June, at 40.1 it was almost the lowest for a decade. Businesses that restarted their production lines reportedly operated well below capacity as economic conditions both

Figure 24. Japan: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

domestically and globally remained fragile. In contrast, the services PMI reached a four month high in June at 45 (and up from 26.5 in May as businesses returned to work) but, like manufacturing, it still indicates falling output. While the second quarter is expected to show the sharpest fall in output, we project that year-on-year GDP will fall by 5 per cent. With supportive economic policies and a reducing negative impact from Covid-19, we expect Japan's economy to grow again in 2021, by around 3 per cent.

China

The Covid-19 outbreak and the following economic shutdown in China in the first months of 2020 have caused severe damage to the economy. China registered its first quarterly economic fall in GDP since 1992 of 6.8 per cent in the first quarter of 2020 compared with a year earlier. In addition, the inflation rate in China fell back to 2.5 per cent in June 2020 amid weak demand resulting from the government control measures to contain the Covid-19 outbreak. With a reduction in new Covid-19 cases, China has very gradually removed mobility and activity restrictions from late February 2020. The economy is showing sign of recovery with non-manufacturing and manufacturing PMI readings above 50 since March.

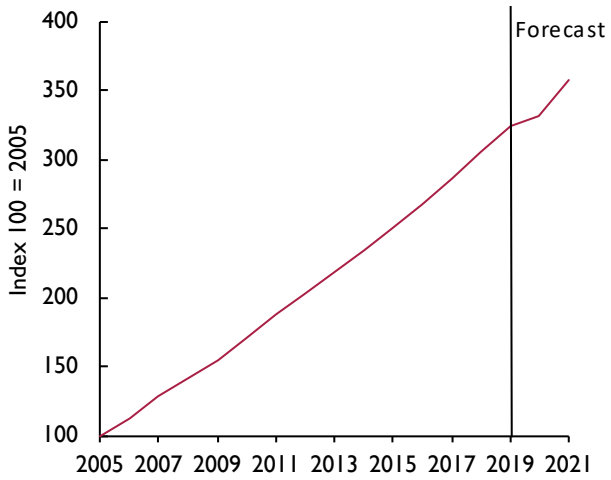
To stimulate the economy, the Chinese authorities have responded with both fiscal and monetary measures. Discretionary fiscal support of RMB 4.2 trillion (or 4.1 per cent of GDP) has been approved to increase spending on epidemic prevention and control, medical equipment, welfare disbursement, tax relief and public investment. China's central bank has also provided monetary policy support and acted to safeguard financial market stability with a number of measures including liquidity injections, policy rate reduction, and new instruments to support lending to small and medium companies.

China's economy grew by 3.2 per cent year-on-year in the second quarter of 2020 as the severe effect on activity of the lockdown abated. China is one of the few major economies with positive annual growth GDP growth projected for 2020 (of 2 per cent), and is forecast to grow further by around 8 per cent in 2021 as activity recovers. In the event of a second wave of the pandemic, it is possible that the Chinese authorities would be able to respond with further fiscal and monetary measures to protect the economy to some extent if a renewed lockdown became necessary.

India

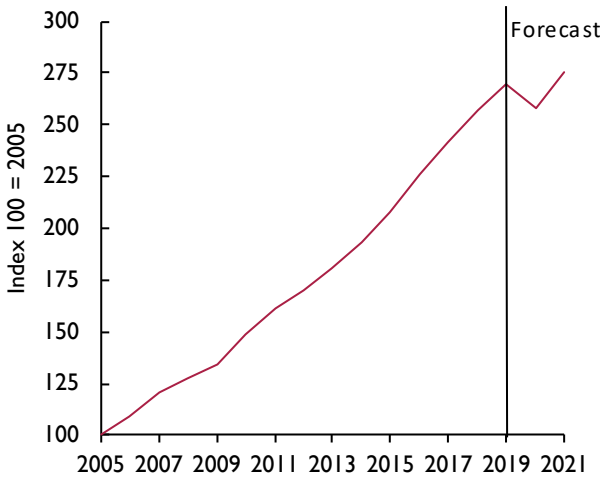
The Covid-19 pandemic and its containment measures have weighed heavily on India's economy. A substantial part of the economy was either shut down or working at reduced pace during the lockdown. As infection case numbers continue to rise, business conditions continue to deteriorate, in part due to extensions to the regional lockdowns. The latest IHS Markit survey suggests that the Indian service sector remains under intense strain as activity fell at another substantial month-on-month rate

Figure 25. China: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

Figure 26. India: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

in June amid ongoing economic disruptions, although the June reading was less negative than that of May. Trade, transport and construction have been severely hit, and data from the Centre for Monitoring Indian Economy (CMIE) show that the unemployment rate in both rural and urban areas rose sharply in March and April.

The lockdown is disproportionately affecting SMEs due to their limited cash flow, which subsequently affects supply and distribution chains. This serves to exacerbate a financial turmoil already in existence in India before the onset of the pandemic. With a banking crisis with several overly leveraged corporates, high non-performing loans and ongoing solvency and liquidity problems for banks and some other financial institutions.

To mitigate the economic fallout from the crisis, the authorities in India have announced a raft of support measures including a $26 billion support package containing both fiscal and monetary measures, worth around 10 per cent of GDP. The fiscal support measures include cash transfers to vulnerable groups, cash support to internal migrants, the extension of a rural workforce scheme, and several measures to reduce financial stress for various entities, particularly SMEs. In terms of monetary measures, the Reserve Bank of India (RBI) has acted to reduce the cost of capital and avoid any potential liquidity shortfall brought on by the lockdown. The RBI has also cut policy rates and injected liquidity amounting to roughly 4 per cent of GDP. The impact of these policy support measures is, however, partially offset by banks' balance sheet problems and risk aversion.

Policy rate cuts and other measures to promote liquidity provision have been timely and the RBI stance is expected to remain accommodative as economic slack. We project a fall in GDP of about 4½ per cent this year, and a robust recovery with an increase of about 7 per cent next year.

Brazil

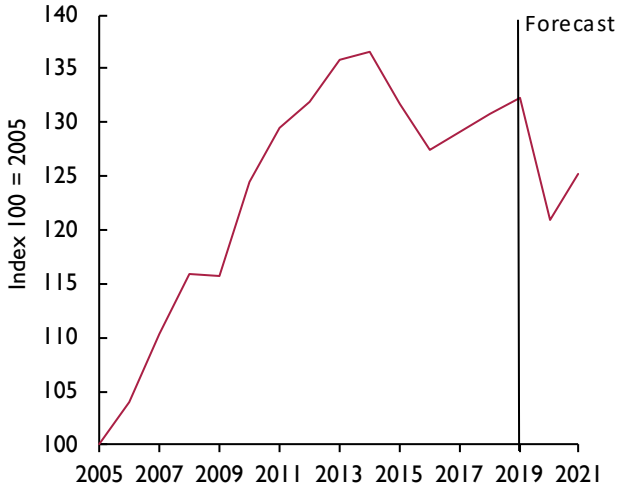
Brazil has been particularly hard-hit by the Covid-19 pandemic, not least because of political disagreement regarding the measures necessary to abate the spread of the virus. Early disagreement about the (potential) severity of the pandemic and a delay in implementing World Health Organisation (WHO) social distancing guidelines means Latin America's largest country is now considered a global virus hotspot with a death toll in excess of 70,000. Health experts believe this number could be significantly higher due to a lack of widespread testing.

Perhaps most importantly, the coronavirus pandemic has exposed an already frail economy to a significant shock. GDP contracted by 1.5 per cent in the first quarter of the year and early data outcomes indicate a further contraction in Q2. The labour market has suffered the brunt of the economic shock as the unemployment rate increased to 12.9 per cent in May, the highest reading in two years. The Brazilian Institute of Economics (IBGE) estimates that less than half of the working age population are now employed. The underemployment rate, a measure of the number of people out of work and leaving the workforce, jumped to 27.5 per cent in May, which is the highest level on record.

Economy minister Pablo Guedes announced an emergency support package that will cost an estimated US$ 222 billion, wiping out all the savings from the lauded tax reform passed last year. Under the additional fiscal strain and with projections for Brazil's gross debt as a share of GDP to increase by 19 percentage points to 95 per cent of GDP this year, it is unlikely that the minister will continue to pursue his reformist agenda. This will likely have longer-term impacts as investors and rating agencies have emphasised the importance of structural changes to reform the tax system, central bank independence and improved access to credit.

We project GDP to contract by 8½ per cent this year, before growing by 3½ per cent in 2021 as economic activity gradually resumes following the pandemic. Consumer price inflation in 2020 reflects the weaker demand conditions at just below 3 per cent this year.

Figure 27. Brazil: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

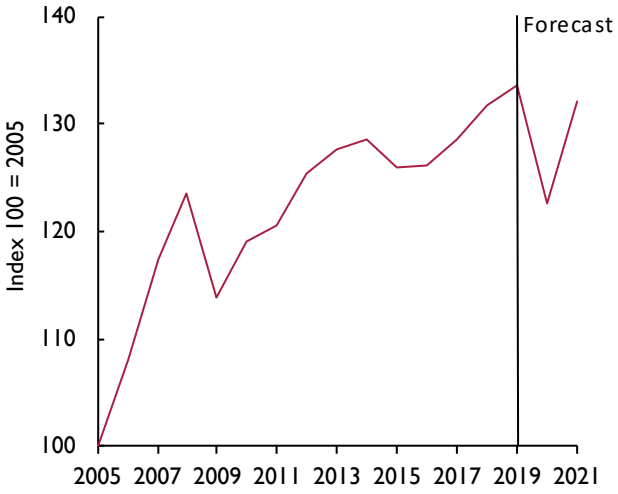
Thereafter, the weaker exchange rate feeds through to consumer prices, with inflation increasing to 3½ per cent in 2021.

Russia

Two significant political events have occurred since our last *Review*. First, Russia's delayed public vote on constitutional amendments that would allow President Putin to stay in power until 2036 has been resoundingly approved by the Russian electorate. Second, President Putin's flagship election policy of spending on national projects deadline has been pushed back by six years to 2030 to allow budgetary space to respond to the Covid-19 shock.

After returning to growth of 1.8 per cent in 2017, the economy grew by 2.5 per cent in 2018 – the fastest rate since 2012. The first half of 2019 showed a deceleration in growth to 0.8 per cent year-on-year as the high base effect from the 2018 World Cup and contractionary VAT rise took hold before recovering consumer spending in the second half of the year took GDP growth to 1.3 per cent. Our current forecast has marked down 2020 GDP growth again from –6 per cent to –8¼ per cent. The negative revision from our previous forecast is driven by the further spread of Coronavirus. Whilst initially appearing to avoid the worst of the virus, with only a couple of hundred cases in mid to late March, in mid-July the number of cases stands at over 720,000, with recorded deaths over 11,000.

Figure 28. Russia: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

On the monetary side, the Central Bank has continued to cut rates, from 6 per cent in March to 5½ per cent in April before a further cut to 4½ per cent in June where it was held in the July meeting. In addition, it has implemented several measures to support lending to households and firms. It has temporarily relaxed regulations for banks on lending to industries affected by Covid-19 and also allowed more favourable treatment of those industries with foreign dominated debt. Liquidity limits for systemically important institutions have also been relaxed. 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 for three months from April, deferrals of tax and social contributions for affected businesses, guaranteed loans to SMEs. It is estimated that this package amounts to around 1½ per cent of GDP.

Consumer price inflation will be dominated by the effects of the currency depreciation in the short term and the recovery of global demand into the second half of 2020 and 2021 with inflation for the year at 3¾ per cent and 4 per cent in 2021. Although short-term activity indicators (PMIs) recovered in June to 49 from 36 in May, any softening in the recovery into the latter half of the year could be met with further rate reductions in this uncertain environment.

Australia

The Australian government eased lockdown restrictions in mid-May in response to a reduction in Covid-19 infection rates. Schools, restaurants, retail shopping and entertainment venues re-opened and many travel restrictions were lifted. According to Oxford University's Blavatnik School of Government response stringency index, restrictions were eased from a peak of around 70 to half that level at around 35. All that changed a month later, in the third week of June, when infection rates re-bounded and the government re-imposed many of the earlier restrictions. As a result, the stringency index returned to the peak level.

These new measures have a direct impact on our forecast, so where in our previous forecast we expected the economy to bounce back strongly in the third quarter in response to an easing of restrictions, we now expect a more muted economic recovery, one that is spread over the next six months. Our revised forecast assumes that the lockdown measures will be eased within the next 3–4 weeks and,

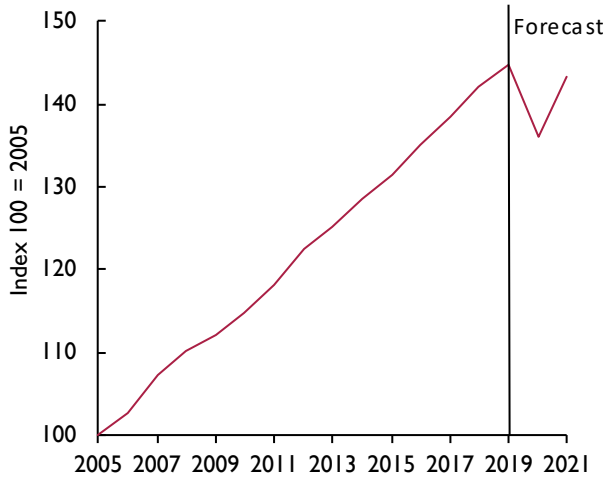
https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

as before, there is enormous uncertainty around these forecasts because of the unknown evolutionary path of the virus and the unprecedented scale of the policy response. GDP in Australia is projected to fall by 6 per cent this year and to rise by 5¼ per cent next.

The government and the Reserve Bank of Australia (RBA) have responded to the severe economic and financial dislocation caused by the pandemic with a series of support measures which more or less echo the actions taken by other governments and central banks. According to the IMF, the government will increase spending by around 9.7 per cent of GDP over the next four years, most of which will be spent in the near term. The vast bulk of this spending is in the form of wage subsides, income support for households and measures to support businesses with cash flow issues. Other measures at the state and local level are designed to support the health system, care for the elderly and vulnerable and businesses. The RBA has also introduced a set of complementary measures to support the economy and the financial system. This includes monetary policy stimulus to boost aggregate demand, financial stability measures to protect the financial system and interventions to ensure smooth functioning of financial markets.

More specifically, the RBA has cut its overnight policy rate, the cash rate, by 50 basis points to 25 basis points and embarked on an asset purchase programme that will specifically target the 3-year government yield at around 0.25 per cent. In addition, the RBA has pledged to inject liquidity into the system through short-term repo operations every day until further notice. Again in common with other central banks, the RBA has introduced a term funding scheme worth AUD 90 billion that will provide three-year funding to banks at just 25 basis points. The government separately announced support for the asset-backed security market to specifically help non-bank financial institutions and lenders that lend to households and small businesses.

Figure 29. Australia: Level of GDP (index)



Source: NiGEM database and NIESR forecast.

Australia is well placed to navigate this crisis. Its fiscal position is sound with the budget balance in small deficit and government debt low. The banking system is exposed to the housing market but it is, in general, considered to be well-capitalised. The economy is, however, closely tied to China through trade and financial channels and as such the economy remains vulnerable to any structural changes that might emerge in response to the pandemic that restrict global trade with China.

NOTES

1 GDP on a PPP basis
2 Source of data is World Health Organisation (WHO) daily Situation Reports on Coronavirus disease 2019.
3 See BLS https://www.bls.gov/news.release/flex2.t01.htm
4 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.
5 As in our May projection, 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 three months, leading to an associated reduction in productivity of around 4 per cent, with half of the reduction assumed to be permanent.
6 Source - Blavatnik School of Government, University of Oxford, Radcliffe Observatory
7 As some country models with reduced scale do not have disaggregated domestic demand, we apply 70% of a shock to domestic demand directly, to proxy the share of private consumption in domestic demand.
8 Figures from Europe Brent spot price from US Energy Information Administration.
9 Source: https://www.imf.org/en/Topics/imf-and-Covid19/Covid-Lending-Tracker.
10 In line with the recommendation of the EU Council of 30 June: https://www.consilium.europa.eu/en/press/press-releases/2020/06/30/council-agrees-to-start-lifting-travel-restrictions-for-residents-of-some-third-countries/.
11 Regions will make decisions on the management of the crisis from 21 June onwards.
12 Some of the policies announced in March and April have been extended to the end of September, such us consumer loans or the moratorium on mortgage payments.

REFERENCES

Baldwin, R. (2020), 'The supply side matters: guns versus butter, Covid-style', VoxEU Column, 22 March.
Baldwin, R. and Weder di Mauro, B. (eds) (2020a), *Economics in the time of Covid-19*, Centre for Economic Policy Research e-book, 6 March.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

—(2020b), *Mitigating the Covid Economic Crisis: Act Cast and Do Whatever it Takes*, Centre for Economic Policy Research e-book, 18 March.
Bank for International Settlements (BIS) (2020), *Annual Economic Report 2020*, 30 June.
Blanchard, O. (2020), 'Designing the fiscal response to the Covid-19 pandemic', Peterson Institute for International Economics, 8 April.
Caldara, D., Prestipino, A., Iacoviello, M., Molligo, P. and Raffo, A. (2019), 'The economic effects of trade policy uncertainty', International Finance Discussion Papers Number 1256, Board of Governors of the Federal Reserve System.
Dell'Ariccia, G., Mauro, P., Spilimbergo, A. and Zettelmeyer, J. (2020), 'Economic policies for the Covid-19 war', IMF Blog, 1 April.
Dingel. J. and Neiman, B. (2020), 'How many jobs can be done at home?', *Covid Economics*, Centre for Economic Policy Research, Issue 1, 3 April, pp. 16–24.
Dixon, H. (2020), 'The measurement of inflation during the lockdown: a trail calculation', National Institute of Economic and Social Research Policy Paper no. 16, 22 April.
Djankov and Panizza, U. (eds) (2020), *Covid-19 in Developing Economies*, Centre for Economic Policy Research e-book, 22 June.
Gottlieb, C., Grobovšek, J. and Poschke, M. (2020, 'Working from home across countries', CIREQ, Montreal, Working paper 07-2020.
Hantzsche, A. and Liadze, I. (2018), 'The war on trade: beggar thy neighbour – beggar thyself?', *National Institute Economic Review*, 244, May, F46–47.
Hofmann, B., Shim, I. and Shin, H.S. (2020), 'Emerging market economy exchange rates and local currency bond markets amid the Covid-19 pandemic', *BIS Bulletin*, No. 5, 7 April.
Holland, D. and Liadze, I. (2020), 'Quantifying the global macroeconomic spillovers of illness and lockdown measures', *National Institute Economic Review*, 252, May, F61–2.
Hurst, I., Liadze, I., Naisbitt, B. and Young, G. (2020), 'Updating the preliminary assessment of the possible economic impact of the coronavirus outbreak', National Institute of Economic and Social Research, NiGEM Observations, No. 18, 27 March.
Kara, A., Liadze, I. and Paczos, M. (2019), 'The impact of a tariff on automobiles', *National Institute Economic Review*, 249, August, pp. F52–4.
Kara, A., Macchiarelli, C. and Giacon, R. (2020), 'Once the dust settles, supporting emerging economies will be the challenge, ' LSE Covid-19 blog, May.
Kohlscheen, E., Mojon, B. and Rees, D. (2020), 'The macroeconomic spillover effects of the pandemic on the global economy', *BIS Bulletin*, No. 4, 6 April.
Lanau, S. and Fortun, J. (2020), 'The Covid-19 Shock to EM Flows' Institute of International Finance, *Economic Views*, 17 March.
Lennard, J. (2018), 'The great synchronisation', *National Institute Economic Review*, 244, May, F40.
Lenoël, C., Macchiarelli, C. and Naisbitt, B. (2020), 'Are the Euro Area and the US en route to Japanisation?', *National Institute Economic Review*, 251, February, F52–7.
Liadze, I. (2018a), 'Trade wars – any winners?', *National Institute Economic Review*, 245, August, F47.
—(2018b), 'Trade wars – the saga continues', *National Institute Economic Review*, 246, November, F38–9.
Liadze, I. and Hacche, G. (2017a), 'The macroeconomic implications of increasing tariffs on US imports', NiGEM Observations, No 12.
—(2017b), 'US monetary policy and its impact on emerging market economies', *National Institute Economic Review*, 240, May, F62–3.
Liadze, I. and Naisbitt, B (2018), 'Global spillover effects of US monetary tightening', *National Institute Economic Review*, 246, November, F42–3.
Mao, X., Naisbitt, B. and Whyte, K. (2019), 'Recent inflation trends in emerging economies', *National Institute Economic Review*, November, 250, F50–51.
Naisbitt, B. (2018), 'The risks of rising global indebtedness', *National Institute Economic Review*, 245, August.
—(2020), 'Vulnerability from debt in the coronavirus crisis', *National Institute Economic Review*, 252, May.
Naisbitt, B. and Whyte, K. (2020), 'The effects of the trade war on inflation', *National Institute Economic Review*, February, 251, F38–9.
Rincon-Aznar, A., Mao, X. and Tong, M, (2020), 'Global value chains and economic dislocations: an introduction', *National Institute Economic Review*, 252, May.
Stiglitz, J.E., Shiller, R.J., Gopinath., G., Reinhart, C.M., Posen, A., Prasad, E., Tooze, A., Tyson, L.D. and Mahbubani, K. (2020), 'How the economy will look after the coronavirus pandemic', *Foreign Policy*, 15 April.
Triggs, A. (2018), 'The economic and political benefits of coordinated fiscal stimulus', Brookings Institution, Global Economy and Development Working Paper no.121, November.
Zymek, R. (2020), 'What will happen if trade and mobility are permanently reduced?', ESRC Economic Observatory, www.coronavirusandtheeconomy.com, 14 July.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

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
2016	0.51	0.50	–0.08	0.01	0.40	1.8	1.3	0.0	0.7	1.3
2017	1.10	0.70	–0.10	0.00	0.29	2.3	1.8	0.1	1.0	1.2
2018	1.90	1.40	–0.10	0.00	0.60	2.9	2.3	0.1	1.1	1.4
2019	2.29	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*	*0.8*	*0.0*	*0.1*	*0.3*
2021	*0.25*	*0.25*	*–0.10*	*0.00*	*0.10*	*1.1*	*0.9*	*0.4*	*0.5*	*0.5*
2022–26	*1.06*	*0.94*	*0.37*	*0.41*	*0.57*	*2.1*	*1.9*	*1.2*	*1.6*	*1.6*
2018 Q1	1.53	1.20	–0.10	0.00	0.50	2.8	2.2	0.1	1.0	1.5
2018 Q2	1.80	1.25	–0.10	0.00	0.50	2.9	2.3	0.0	1.0	1.4
2018 Q3	2.01	1.47	–0.10	0.00	0.66	2.9	2.3	0.1	1.1	1.4
2018 Q4	2.28	1.69	–0.10	0.00	0.75	3.0	2.3	0.1	1.2	1.4
2019 Q1	2.50	1.75	–0.10	0.00	0.75	2.7	1.9	0.0	0.9	1.2
2019 Q2	2.50	1.75	–0.10	0.00	0.75	2.3	1.6	–0.1	0.6	1.0
2019 Q3	2.31	1.75	–0.10	0.00	0.75	1.8	1.4	–0.2	0.0	0.6
2019 Q4	1.83	1.75	–0.10	0.00	0.75	1.8	1.5	–0.1	0.1	0.7
2020 Q1	1.41	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*	*0.7*	*0.5*	*0.0*	*0.1*	*0.1*
2020 Q4	*0.25*	*0.25*	*–0.10*	*0.00*	*0.10*	*0.8*	*0.7*	*0.1*	*0.2*	*0.3*
2021 Q1	*0.25*	*0.25*	*–0.10*	*0.00*	*0.10*	*0.9*	*0.8*	*0.2*	*0.3*	*0.4*
2021 Q2	*0.25*	*0.25*	*–0.10*	*0.00*	*0.10*	*1.0*	*0.9*	*0.3*	*0.4*	*0.5*
2021 Q3	*0.25*	*0.25*	*–0.10*	*0.00*	*0.10*	*1.1*	*1.0*	*0.4*	*0.5*	*0.6*
2021 Q4	*0.25*	*0.25*	*–0.10*	*0.00*	*0.10*	*1.2*	*1.1*	*0.5*	*0.6*	*0.7*

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Table A2. Nominal exchange rates

	Percentage change in effective rate								Bilateral rate per US $			
	US	Canada	Japan	Euro Area	Germany	France	Italy	UK	Canadian $	Yen	Euro	Sterling
2016	5.1	0.2	15.1	4.8	2.5	2.5	2.7	–9.9	1.314	108.8	0.904	0.741
2017	0.1	1.9	–3.1	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	*4.0*	*–2.6*	*2.8*	*2.1*	*1.2*	*0.9*	*1.2*	*0.0*	*1.375*	*107.7*	*0.897*	*0.793*
2021	*0.1*	*1.2*	*0.6*	*1.3*	*0.7*	*0.7*	*0.8*	*–0.6*	*1.359*	*107.1*	*0.885*	*0.793*
2018 Q1	–2.1	–2.2	2.2	1.8	0.9	1.0	1.2	1.9	1.294	108.3	0.813	0.718
2018 Q2	2.2	–0.7	0.4	–0.7	–0.3	–0.5	–0.4	0.2	1.313	109.2	0.839	0.735
2018 Q3	2.6	1.8	1.0	1.2	0.7	0.4	0.7	–1.7	1.304	111.5	0.860	0.767
2018 Q4	2.1	–2.4	0.0	–0.5	–0.3	–0.3	–0.3	0.1	1.343	112.8	0.876	0.778
2019 Q1	–1.0	0.2	1.6	–0.8	–0.5	–0.5	–0.4	1.4	1.337	110.2	0.881	0.768
2019 Q2	0.7	0.9	1.2	–0.2	–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	1.6	–5.5	0.1	0.2	0.1	0.1	0.1	0.0	1.397	109.0	0.907	0.781
2020 Q2	*3.3*	*1.7*	*3.0*	*2.8*	*1.7*	*1.2*	*1.5*	*–1.9*	*1.386*	*107.5*	*0.908*	*0.806*
2020 Q3	*–1.7*	*1.5*	*–1.0*	*0.8*	*0.3*	*0.5*	*0.6*	*–0.4*	*1.358*	*107.2*	*0.886*	*0.794*
2020 Q4	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*1.359*	*107.2*	*0.886*	*0.793*
2021 Q1	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*1.359*	*107.2*	*0.886*	*0.793*
2021 Q2	*0.1*	*0.0*	*0.2*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*1.359*	*107.1*	*0.886*	*0.793*
2021 Q3	*0.1*	*0.0*	*0.2*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*1.359*	*107.0*	*0.885*	*0.793*
2021 Q4	*0.1*	*0.0*	*0.2*	*0.2*	*0.1*	*0.1*	*0.1*	*0.1*	*1.359*	*106.9*	*0.885*	*0.792*

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 within three years. In that scenario Bank Rate reaches 1.5 per cent in 2028. At that point the MPC is assumed, in line with its previous guidance, to stop reinvesting the proceeds from maturing gilts it currently holds, allowing the Bank of England's balance sheet to shrink 'naturally'.[2]

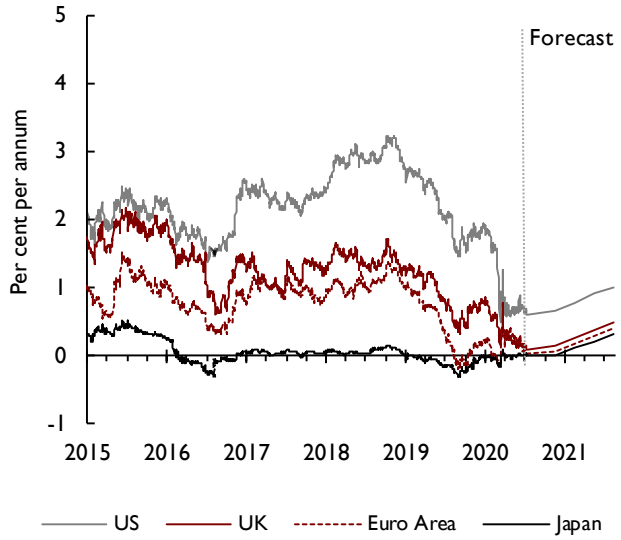
Figure A1 illustrates the recent movement in, and our projections for, 10-year government bond yields in the US, Euro Area, the UK and Japan. The average levels of 10-year sovereign bond yields in the US and the UK decreased in the second quarter of 2020 relative to the previous quarter, by about 30 and 70 basis points, respectively; but increased marginally in the Euro Area, by about 10 basis points, while remaining unchanged in Japan. Expectations currently for the government bond yields for the end of 2020 compared to expectations formed three months ago are lower for the US, Euro Area and the UK by about 20–30 basis points, and by around 10 basis points for Japan.

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's. 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 came down somewhat since March, but remain elevated. 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

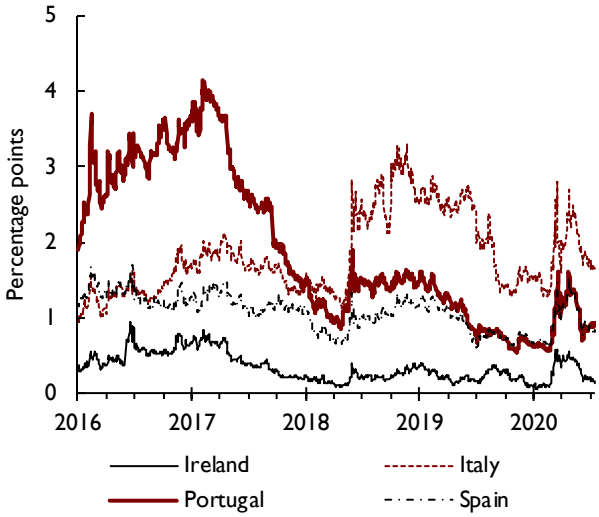
https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Figure A1. 10–year government bond yields



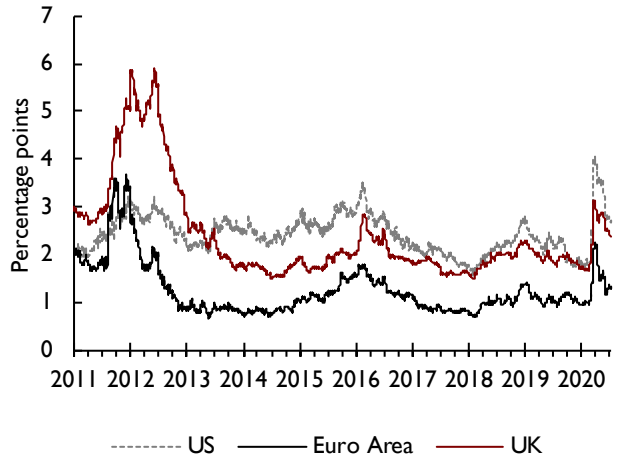
Source: Datastream and NIESR projections.

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



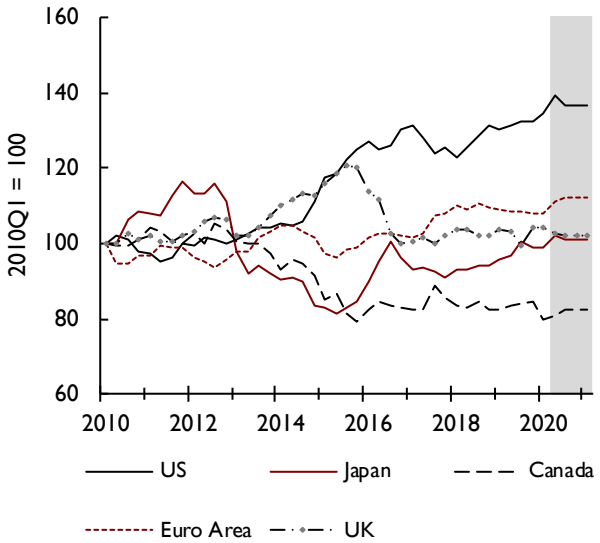
Source: Derived from Datastream series.

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

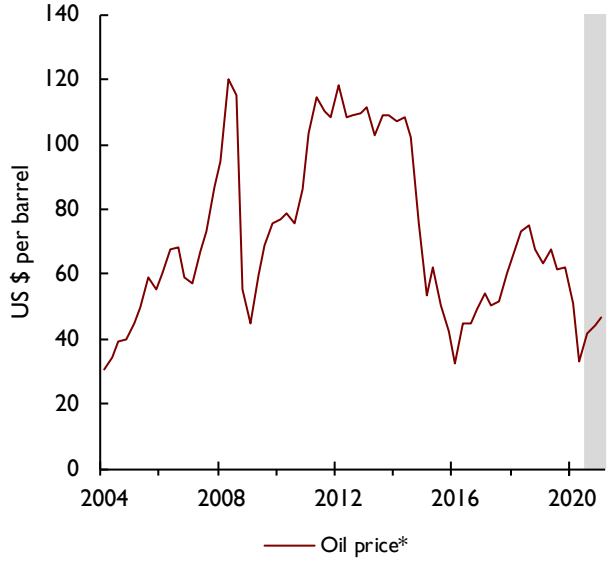


Source: NiGEM database and NIESR forecasts. Weights based on 2017 goods and services trade shares.

Area. This acts as a proxy for the margin between private sector and 'risk-free' borrowing costs. Corporate bond spreads in the US, UK and Euro Area have come down and remained low since the 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 the financial crisis and for the Euro and UK during the 2012–13 sovereign debt crisis. Corporate bond spreads have narrowed since, but remain elevated as compared to average historic levels. Our forecast assumption for corporate spreads is that they gradually converge towards their long-term average level.

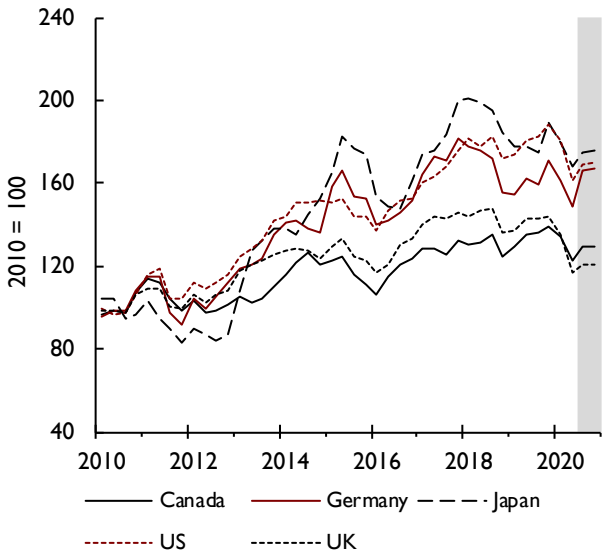
https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

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.

Nominal exchange rates against the US dollar are generally assumed to remain constant at the rate prevailing on 10 July 2020 until the end of March 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 lost about 2 per cent in its value, in effective terms, since the second quarter. After depredating slightly at the turn of last year, the euro has been strengthening since the beginning of 2020 and has appreciated by about 3½ per cent in trade weighted terms. Among the developing economies' currencies in our model, the largest movement in effective terms since the beginning of 2020 has been the depreciation of the Brazilian real, Russian rouble and Mexican peso by about 15, 13 and 12.5 per cent, respectively.

Our oil price assumptions for the short term generally follow those of the US Energy Information Administration (EIA), published in July 2020, and updated with daily spot price data available up to 10 July 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 25 per cent. However, expectations for the oil price by the end of 2020 are marginally 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, sentiment at the beginning of this year has reversed and equity prices have fallen dramatically in the majority of economies during the course of the first and the second quarter, reflecting worsening financial conditions and risk appetite following the Covid-19 spread. However, most recent data on stock market performance have been somewhat positive, with equity prices in many countries increasing relative to lows in the second quarter. 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 10 July 2020.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Appendix B: Forecast detail

Table B1. Real GDP growth and inflation

	Real GDP growth (per cent)						Annual inflation[a] (per cent)					
	2017	2018	2019	2020	2021	2022–26	2017	2018	2019	2020	2021	2022–26
Argentina	2.8	–2.6	–2.1	–8.5	3.6	3.0	26.3	34.2	52.8	44.3	32.7	15.2
Australia[a]	2.5	2.8	1.8	–5.9	5.3	3.5	1.3	1.6	1.8	–0.1	0.4	1.8
Austria[a]	2.6	2.3	1.5	–5.6	3.6	1.7	2.2	2.1	1.5	1.4	1.2	1.6
Belgium[a]	2.0	1.4	1.4	–9.5	4.5	1.5	2.2	2.3	1.3	0.2	0.7	1.4
Bulgaria[a]	3.5	3.2	3.4	–6.0	7.3	3.0	1.2	2.6	2.5	1.1	0.8	1.2
Brazil	1.3	1.3	1.1	–8.5	3.4	2.3	3.4	3.7	3.7	2.9	3.6	2.9
Chile	1.4	4.0	1.0	–5.1	3.2	1.6	2.2	2.7	2.3	3.2	2.8	2.0
China	6.9	6.8	6.2	2.1	8.1	4.8	1.6	2.1	2.9	3.2	2.9	2.8
Canada	3.2	2.0	1.7	–9.1	5.9	2.9	1.0	1.7	1.6	0.4	1.7	1.5
Czechia[a]	5.4	3.2	2.3	–9.4	6.7	2.4	2.4	2.0	2.6	2.6	1.2	1.7
Denmark[a]	2.0	2.4	2.3	–6.6	4.3	1.6	1.1	0.7	0.7	0.3	1.1	1.6
Estonia[a]	5.6	4.7	4.4	–7.7	5.4	1.9	3.7	3.4	2.3	–0.7	1.5	1.4
Finland[a]	3.1	1.6	0.9	–8.2	3.9	1.9	0.8	1.2	1.1	0.4	1.2	1.7
France[a]	2.4	1.8	1.5	–10.5	5.9	1.8	1.2	2.1	1.3	0.4	0.8	1.5
Germany[a]	2.8	1.5	0.6	–5.6	2.9	1.1	1.7	1.9	1.4	0.6	1.2	1.5
Greece[a]	1.4	1.9	1.9	–9.6	5.2	1.7	1.1	0.8	0.5	–0.7	0.4	2.0
Hong Kong	3.8	2.8	–1.2	–4.3	5.2	1.3	2.5	3.1	2.7	1.9	1.9	1.9
Hungary[a]	4.5	5.1	4.9	–7.6	8.1	2.2	2.4	2.9	3.4	1.6	1.6	3.2
India	6.6	6.8	4.9	–4.5	6.9	4.7	3.3	3.9	3.7	5.5	2.5	3.5
Indonesia	5.1	5.2	5.0	–3.4	5.3	3.7	3.8	3.2	3.0	2.2	1.3	2.2
Ireland	8.1	8.3	5.5	–6.7	6.5	3.1	0.2	0.7	0.9	0.2	1.0	1.8
Italy[a]	1.7	0.7	0.3	–11.6	3.5	1.7	1.3	1.3	0.6	–0.2	0.8	1.5
Japan	2.2	0.3	0.7	–4.9	3.1	0.9	0.2	0.6	0.3	0.7	0.2	0.7
Lithuania[a]	4.4	3.7	3.9	–9.8	6.1	3.3	3.7	2.5	2.2	0.7	1.1	1.6
Latvia[a]	3.8	4.5	2.2	–10.2	9.3	3.2	2.9	2.6	2.7	0.0	0.9	1.4
Mexico	2.3	2.2	–0.3	–7.4	3.2	3.6	6.0	4.9	3.6	3.9	3.9	2.4
Netherlands[a]	3.0	2.3	1.6	–8.4	5.7	1.9	1.3	1.6	2.7	1.0	0.8	1.4
New Zealand	3.8	3.1	2.3	–7.7	6.5	3.0	1.6	1.3	1.5	1.9	2.2	1.7
Norway	2.7	1.6	1.2	–6.7	4.4	2.6	2.0	2.2	2.2	0.8	0.8	2.0
Poland[a]	5.0	5.4	4.2	–7.7	8.1	1.9	1.6	1.2	2.1	1.7	1.1	1.8
Portugal[a]	3.5	2.6	2.2	–9.5	5.1	1.8	1.6	1.2	0.3	–0.1	0.5	1.2
Romania[a]	6.9	4.5	4.1	–6.5	5.0	3.5	1.1	4.1	3.9	1.0	2.1	1.1
Russia	1.8	2.5	1.3	–8.2	7.8	2.3	3.7	2.9	4.5	3.7	4.0	3.2
Singapore	4.3	3.5	0.7	–6.6	7.2	3.7	0.6	0.5	0.6	1.7	1.1	1.9
South Africa	1.4	0.7	0.1	–6.8	2.9	2.3	4.5	4.1	3.6	3.1	4.8	2.6
S. Korea	3.2	2.9	2.0	–1.4	2.6	2.7	1.9	1.5	0.4	0.4	0.9	1.5
Slovakia[a]	3.0	3.9	2.4	–9.1	4.9	1.1	1.4	2.5	2.8	1.9	0.9	2.0
Slovenia[a]	5.1	4.2	2.4	–8.5	7.7	3.7	1.6	1.9	1.7	–1.1	1.3	2.5
Spain[a]	2.9	2.4	2.0	–12.0	7.1	2.5	2.0	1.7	0.8	–0.4	0.2	1.6
Sweden[a]	2.8	2.1	1.2	–5.4	2.3	2.1	1.9	2.0	1.7	0.3	1.5	1.5
Switzerland	1.9	2.7	1.0	–5.7	4.9	2.5	0.6	1.1	0.1	0.3	1.4	1.0
Taiwan	3.3	2.7	2.7	–3.1	4.0	2.9	0.0	1.0	0.6	–0.2	0.1	0.9
Turkey	7.4	2.9	0.9	–5.7	9.6	3.7	11.1	16.3	15.2	12.6	11.4	5.9
UK[a]	1.9	1.3	1.5	–10.1	6.1	1.7	2.7	2.4	1.8	0.7	1.9	2.1
US	2.4	2.9	2.3	–7.1	5.3	1.7	1.8	2.1	1.4	0.7	1.4	2.0
Vietnam	6.7	7.1	7.0	3.6	8.8	5.5	3.5	3.6	2.8	3.6	4.9	2.3
Euro Area[a]	2.7	1.9	1.2	–8.8	4.6	1.7	1.5	1.8	1.2	0.3	0.9	1.5
EU–28[a]	2.8	2.1	1.5	–8.9	5.0	1.8	1.7	1.9	1.5	0.5	1.1	1.6
OECD	2.7	2.3	1.7	–7.3	5.0	2.0	2.0	2.6	2.1	1.5	1.9	2.1
World	3.9	3.6	2.9	–4.9	6.3	3.3	3.8	3.9	4.1	3.4	3.3	3.4

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

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Table B2. Fiscal balance and government debt

	Fiscal balance (per cent of GDP)[a]						Government debt (per cent of GDP, end year)[b]					
	2017	2018	2019	2020	2021	2026	2017	2018	2019	2020	2021	2026
Australia	–0.8	0.0	0.2	–9.4	–4.7	–0.7	43.1	42.8	41.2	51.3	53.3	41.9
Austria	–0.7	0.2	0.3	–5.9	–1.6	–0.6	78.1	73.9	72.0	81.5	79.4	66.0
Belgium	–0.7	–0.7	–1.7	–5.6	–4.2	–2.2	101.8	100.0	99.3	116.7	115.6	114.5
Bulgaria	1.1	2.0	2.1	–5.0	–1.8	–1.2	–	–	–	–	–	–
Canada	–0.1	–0.4	–0.3	–13.9	–7.4	–1.5	92.5	93.2	94.1	113.2	113.7	98.2
Czechia	1.5	1.1	0.7	–4.6	–0.9	–1.5	33.7	31.7	29.9	37.1	35.6	32.9
Denmark	1.8	0.7	3.7	–5.6	–2.2	–0.3	35.5	33.8	31.8	39.2	38.9	32.0
Estonia	–0.8	–0.6	–0.3	–7.0	–3.0	–0.6	–	–	–	–	–	–
Finland	–0.7	–0.8	–0.9	–5.7	–4.1	–2.3	60.9	59.0	59.2	69.3	69.6	68.7
France	–2.9	–2.3	–3.0	–10.2	–6.3	–3.2	98.4	98.3	98.8	119.0	117.9	115.0
Germany	1.2	1.9	1.4	–6.4	–2.1	–1.0	65.3	61.9	59.8	69.7	68.8	58.1
Greece	0.7	1.0	1.3	–8.8	–6.2	0.1	176.6	181.9	176.9	209.0	203.4	172.0
Hungary	–2.4	–2.3	–1.8	–4.9	–3.2	–2.8	71.7	68.6	65.0	70.0	66.5	63.0
Ireland	–0.3	0.1	0.3	–4.3	–0.2	–0.1	67.8	63.6	59.0	68.7	64.2	46.0
Italy	–2.4	–2.2	–1.6	–8.3	–6.1	–3.1	134.0	134.9	136.0	165.6	165.6	154.3
Japan	–3.0	–2.4	–2.6	–8.0	–4.6	–3.0	220.1	225.1	228.0	235.8	240.4	227.9
Lithuania	0.5	0.6	0.3	–8.6	–3.3	–0.9	–	–	–	–	–	–
Latvia	–0.8	–0.8	–0.2	–5.8	–1.7	–0.6	–	–	–	–	–	–
Netherlands	1.3	1.5	1.3	–4.1	–2.5	–1.9	56.9	52.4	49.5	57.2	56.0	53.5
Poland	–1.5	–0.2	–0.7	–5.5	–2.4	–2.1	49.5	47.7	45.2	53.0	51.3	50.6
Portugal	–3.0	–0.4	–0.1	–6.7	–3.4	–1.6	126.0	122.2	119.3	137.3	134.3	120.3
Romania	–2.6	–2.9	–4.3	–10.3	–7.5	–3.6	–	–	–	–	–	–
Slovakia	–1.0	–1.0	–1.3	–9.1	–3.3	0.0	–	–	–	–	–	–
Slovenia	0.0	0.7	0.5	–8.7	–4.4	–0.9	–	–	–	–	–	–
Spain	–3.0	–2.5	–2.2	–7.3	–3.8	–2.0	98.6	97.6	96.6	119.8	113.1	95.5
Sweden	1.4	0.8	0.5	–8.1	–4.0	–1.6	40.7	38.7	35.7	45.3	47.2	45.9
UK	–2.5	–2.3	–2.2	–14.9	–7.9	–2.7	85.5	85.0	84.6	107.0	106.4	100.7
US	–4.3	–6.6	–7.2	–18.0	–11.1	–4.9	103.8	105.3	106.9	129.0	134.2	139.4

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

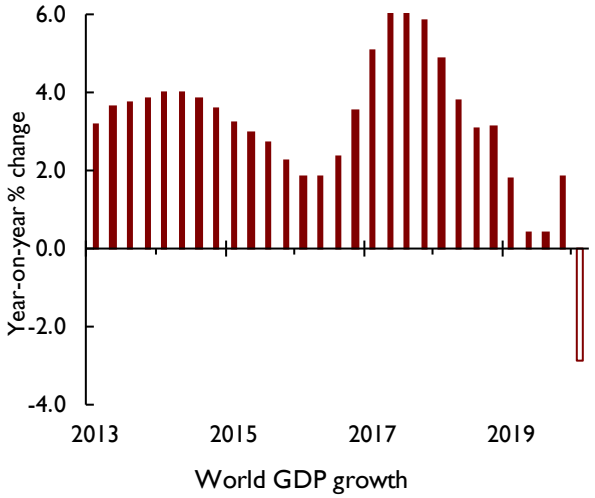
https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Table B3. Unemployment and current account balance

	Standardised unemployment rate						Current account balance (per cent of GDP)					
	2017	2018	2019	2020	2021	2022–26	2017	2018	2019	2020	2021	2022–26
Australia	5.6	5.3	5.2	6.7	6.8	4.7	–2.6	–2.0	0.6	0.8	0.8	–0.8
Austria	5.5	4.9	4.5	5.5	5.0	4.1	1.5	2.4	2.6	2.6	1.1	2.8
Belgium	7.1	5.9	5.3	6.5	5.9	5.6	1.2	–1.4	–1.2	1.2	2.2	1.6
Bulgaria	6.2	5.2	4.2	7.3	5.3	4.3	3.6	1.3	4.0	3.2	2.8	2.1
Canada	6.3	5.8	5.7	9.7	7.9	7.4	–2.8	–2.5	–2.0	–1.4	–1.1	–1.3
China	–	–	–	–	–	–	1.6	0.2	1.0	–0.1	0.9	0.3
Czechia	2.9	2.2	2.0	3.8	3.3	3.7	1.4	0.5	–0.3	–1.0	–1.4	–2.8
Denmark	5.8	5.1	5.0	6.5	6.1	4.6	7.8	7.0	7.8	5.4	5.7	7.0
Estonia	5.8	5.3	4.4	8.2	8.0	6.8	2.7	2.0	2.2	–3.4	–3.3	–1.1
Finland	8.6	7.4	6.8	7.9	7.2	6.7	–0.7	–1.7	–0.8	1.3	1.2	2.2
France	9.4	9.0	8.5	9.3	8.9	8.4	–0.8	–0.6	–0.7	0.2	–1.5	–1.4
Germany	3.8	3.4	3.2	4.5	4.3	3.3	7.8	7.5	7.3	6.7	5.5	6.6
Greece	21.5	19.3	17.3	22.6	22.5	19.0	–1.7	–2.9	–1.4	–4.9	–5.4	0.9
Hungary	4.2	3.7	3.5	7.2	4.9	5.9	2.3	0.0	–0.8	–1.5	0.1	0.1
Ireland	6.7	5.8	5.0	8.4	8.5	5.0	0.1	10.7	–9.3	3.8	8.4	5.3
Italy	11.3	10.6	9.9	11.1	11.4	8.8	2.6	2.5	2.9	3.2	0.6	4.9
Japan	2.8	2.4	2.4	3.0	3.2	3.4	4.2	3.6	3.6	4.2	2.9	2.5
Lithuania	7.1	6.2	6.3	10.8	9.6	7.2	0.6	0.2	4.2	4.6	2.3	2.5
Latvia	8.7	7.4	6.3	10.8	7.7	6.3	0.6	–0.8	–0.7	–1.3	–2.4	0.0
Netherlands	4.8	3.8	3.4	5.6	5.2	4.1	10.8	10.9	10.0	13.2	12.2	8.6
Poland	4.9	3.8	3.3	5.2	5.4	4.9	0.0	–1.0	0.5	–0.9	1.2	4.3
Portugal	9.0	7.0	6.6	9.1	8.5	6.8	1.3	0.4	–0.1	–1.5	–1.8	–1.8
Romania	4.9	4.2	3.9	7.1	5.7	3.9	–3.2	–4.5	–4.6	–4.7	–3.2	–0.5
Slovakia	8.1	6.5	5.8	9.2	8.6	6.3	–2.0	–2.5	–2.9	–7.6	–5.2	–1.1
Slovenia	6.6	5.2	4.4	6.2	4.9	5.7	6.2	6.1	6.5	5.1	2.6	3.9
Spain	17.3	15.3	14.1	17.3	15.5	14.6	2.7	1.9	2.0	2.4	1.0	1.8
Sweden	6.6	6.3	6.8	8.2	7.3	7.1	3.1	2.5	4.2	7.2	5.4	3.7
UK	4.4	4.1	3.8	6.0	6.7	5.2	–3.5	–3.9	–4.0	–2.2	–3.9	–3.8
US	4.4	3.9	3.7	11.2	7.4	5.9	–1.9	–2.2	–2.2	–1.9	–2.8	–1.2

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Figure B1. World GDP is estimated to have shrunk by just under 3 per cent in the first quarter of 2020

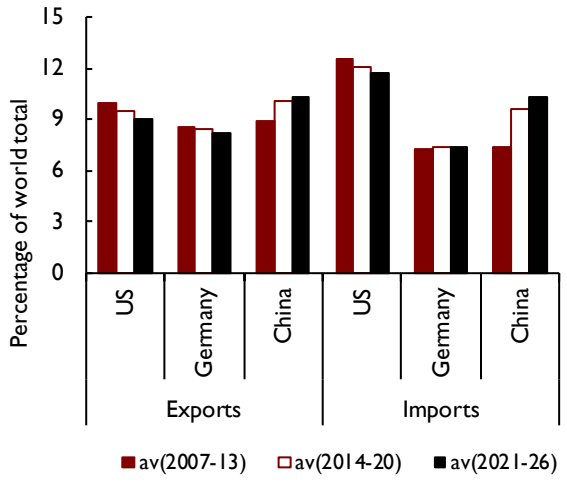


Source: NiGEM database and NIESR forecasts.

Figure B2. NIESR estimates that world trade fell by 1.4 per cent in 2020Q1

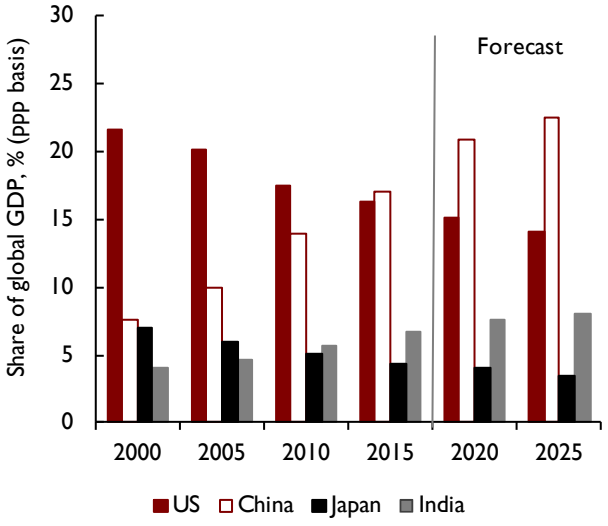
Source: NiGEM database and NIESR forecasts.

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.

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Table B4. United States *Percentage change*

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	1.6	2.4	2.9	2.3	–7.1	5.3	1.7
Consumption	2.7	2.6	3.0	2.6	–9.0	9.4	1.7
Investment : housing	6.5	3.5	–1.5	–1.5	–5.4	1.4	1.6
: business	0.7	4.4	6.4	2.1	–24.6	14.0	2.6
Government : consumption	1.8	0.6	1.7	1.8	14.0	–4.3	–0.2
: investment	1.8	1.2	1.9	4.4	13.1	–4.7	0.6
Stockbuilding[a]	–0.6	0.0	0.1	0.1	–0.7	0.0	0.0
Total domestic demand	1.8	2.6	3.2	2.4	–7.9	6.9	1.5
Export volumes	0.0	3.5	3.0	0.0	–14.1	10.6	5.2
Import volumes	2.0	4.7	4.4	1.0	–17.7	19.1	3.3
Average earnings	1.2	2.8	3.0	3.5	1.7	0.2	3.0
Private consumption deflator	1.0	1.8	2.1	1.4	0.7	1.4	2.0
RPDI	1.8	2.8	3.9	2.9	2.5	1.4	0.9
Unemployment, %	4.9	4.4	3.9	3.7	11.2	7.4	5.9
General Govt. balance as % of GDP	–5.4	–4.3	–6.6	–7.2	–18.0	–11.1	–6.5
General Govt. debt as % of GDP[b]	105.1	103.8	105.3	106.9	129.0	134.2	138.3
Current account as % of GDP	–2.1	–1.9	–2.2	–2.2	–1.9	–2.8	–1.2

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

Table B5. Canada *Percentage change*

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	1.0	3.2	2.0	1.7	–9.1	5.9	2.9
Consumption	2.1	3.6	2.1	1.6	–15.2	9.0	3.4
Investment : housing	3.9	2.2	–1.6	–0.6	–3.5	6.0	4.3
: business	–10.9	3.5	1.8	–0.4	–13.0	1.7	4.5
Government : consumption	1.8	2.3	3.0	2.1	2.6	1.6	1.5
: investment	–0.1	6.3	5.2	–0.3	1.2	1.3	2.5
Stockbuilding[a]	0.0	0.9	–0.2	0.1	–0.8	0.0	0.0
Total domestic demand	0.5	4.2	1.9	1.4	–10.7	6.0	3.1
Export volumes	1.4	1.4	3.1	1.3	–15.1	13.0	4.2
Import volumes	0.1	4.2	2.6	0.6	–19.9	13.9	5.0
Average earnings	–0.5	3.0	2.7	4.6	1.4	1.4	3.4
Private consumption deflator	0.9	1.0	1.7	1.6	0.4	1.7	1.5
RPDI	0.0	3.7	2.4	3.2	3.7	–1.5	2.5
Unemployment, %	7.0	6.3	5.8	5.7	9.7	7.9	7.4
General Govt. balance as % of GDP	–0.5	–0.1	–0.4	–0.3	–13.9	–7.4	–1.6
General Govt. debt as % of GDP[b]	96.4	92.5	93.2	94.1	113.2	113.7	104.1
Current account as % of GDP	–3.1	–2.8	–2.5	–2.0	–1.4	–1.1	–1.3

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

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Table B6. Japan

Percentage change

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	0.5	2.2	0.3	0.7	–4.9	3.1	0.9
Consumption	–0.3	1.3	0.0	0.2	–8.8	8.0	1.6
Investment : housing	5.9	1.7	–6.7	2.0	–7.1	2.9	1.9
: business	–1.5	4.1	2.2	0.7	–13.3	2.2	1.9
Government: consumption	1.4	0.1	0.9	1.9	12.1	–6.7	–0.4
: investment	–0.2	0.5	0.3	2.8	0.3	–1.0	0.6
Stockbuilding[a]	–0.1	0.1	0.0	0.1	–0.2	0.0	0.0
Total domestic demand	–0.1	1.6	0.3	0.9	–5.0	3.0	1.1
Export volumes	1.7	6.8	3.5	–1.6	–14.9	13.4	4.9
Import volumes	–1.6	3.4	3.7	–0.6	–15.4	12.6	6.0
Average earnings	1.7	0.7	2.0	3.0	–0.8	–0.6	1.4
Private consumption deflator	–0.5	0.2	0.6	0.3	0.7	0.2	0.7
RPDI	1.5	0.7	2.1	0.7	–1.2	0.5	1.3
Unemployment, %	3.1	2.8	2.4	2.4	3.0	3.2	3.4
Govt. balance as % of GDP	–3.5	–3.0	–2.4	–2.6	–8.0	–4.6	–2.4
Govt. debt as % of GDP[b]	222.5	220.1	225.1	228.0	235.8	240.4	234.0
Current account as % of GDP	3.9	4.2	3.6	3.6	4.2	2.9	2.5

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

Table B7. Euro Area

Percentage change

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	1.9	2.7	1.9	1.2	–8.8	4.6	1.7
Consumption	1.9	1.9	1.4	1.3	–12.6	10.5	1.0
Private investment	4.7	4.0	2.4	6.0	–16.2	2.5	2.5
Government : consumption	1.9	1.3	1.1	1.8	6.8	–1.3	0.3
: investment	–0.9	2.1	3.5	4.0	3.4	0.7	0.6
Stockbuilding[a]	0.1	0.1	0.1	–0.4	–0.1	0.0	0.0
Total domestic demand	2.4	2.2	1.6	1.9	–8.7	5.8	1.1
Export volumes	2.9	5.8	3.5	2.5	–14.7	12.8	4.2
Import volumes	4.2	5.3	3.0	4.0	–15.0	15.8	3.2
Average earnings	1.2	1.9	2.2	2.2	–0.3	0.9	2.5
Harmonised consumer prices	0.2	1.5	1.8	1.2	0.3	0.9	1.5
RPDI	2.0	1.4	1.6	2.2	0.0	–0.6	1.1
Unemployment, %	10.1	9.1	8.2	7.6	9.3	8.9	7.6
Govt. balance as % of GDP	–1.5	–1.0	–0.5	–0.6	–7.3	–3.9	–1.8
Govt. debt as % of GDP[b]	90.7	88.5	86.6	84.9	98.1	98.4	92.7
Current account as % of GDP	3.3	3.1	3.1	2.7	3.2	2.2	3.2

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

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Table B8. Germany

Percentage change

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	2.1	2.8	1.5	0.6	–5.6	2.9	1.1
Consumption	2.0	1.6	1.2	1.7	–8.2	7.6	0.2
Investment : housing	4.7	1.4	3.1	4.0	–2.2	2.4	0.8
: business	3.0	3.8	3.5	1.7	–12.1	1.5	1.7
Government : consumption	4.1	2.4	1.4	2.7	11.1	–4.2	–0.5
: investment	4.5	4.3	4.8	4.1	8.9	–1.7	–0.7
Stockbuilding[a]	0.2	0.4	0.3	–0.8	–0.1	0.0	0.0
Total domestic demand	3.0	2.6	2.1	1.2	–3.8	3.3	0.2
Export volumes	2.2	5.5	2.3	1.0	–14.4	13.2	4.4
Import volumes	4.2	5.7	3.7	2.5	–11.6	15.2	3.0
Average earnings	2.7	2.4	2.9	3.5	1.2	0.8	1.8
Harmonised consumer prices	0.3	1.7	1.9	1.4	0.6	1.2	1.5
RPDI	2.4	1.7	1.9	1.5	1.1	–1.5	–0.1
Unemployment, %	4.2	3.8	3.4	3.2	4.5	4.3	3.3
Govt. balance as % of GDP	1.2	1.2	1.9	1.4	–6.4	–2.1	–0.4
Govt. debt as % of GDP[b]	69.2	65.3	61.9	59.8	69.7	68.8	61.9
Current account as % of GDP	8.4	7.8	7.5	7.3	6.7	5.5	6.6

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

Table B9. France

Percentage change

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	1.0	2.4	1.8	1.5	–10.5	5.9	1.8
Consumption	1.6	1.7	0.8	1.5	–16.5	14.1	1.4
Investment : housing	2.8	5.7	1.5	1.8	–18.0	7.7	4.9
: business	3.1	6.0	3.8	4.4	–22.1	4.1	3.1
Government : consumption	1.4	1.4	0.9	1.7	7.8	–0.2	0.6
: investment	0.0	0.1	3.3	7.7	–0.8	5.7	1.3
Stockbuilding[a]	–0.4	0.2	0.0	–0.4	–0.6	–0.3	0.0
Total domestic demand	1.4	2.5	1.4	1.8	–11.6	7.8	1.6
Export volumes	1.8	4.6	4.6	1.8	–17.6	13.4	4.3
Import volumes	3.0	4.7	3.1	2.6	–20.6	19.7	3.5
Average earnings	1.0	3.0	2.4	0.0	0.1	0.7	3.3
Harmonised consumer prices	0.3	1.2	2.1	1.3	0.4	0.8	1.5
RPDI	1.6	1.4	1.0	3.0	2.6	–2.3	1.7
Unemployment, %	10.0	9.4	9.0	8.5	9.3	8.9	8.4
Govt. balance as % of GDP	–3.6	–2.9	–2.3	–3.0	–10.2	–6.3	–3.5
Govt. debt as % of GDP[b]	98.0	98.4	98.3	98.8	119.0	117.9	116.4
Current account as % of GDP	–0.6	–0.8	–0.6	–0.7	0.2	–1.5	–1.4

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

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

Table B10. Italy — *Percentage change*

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	1.4	1.7	0.7	0.3	–11.6	3.5	1.7
Consumption	1.2	1.5	0.9	0.4	–13.6	9.8	0.2
Investment : housing	0.5	1.5	2.5	3.1	–16.9	4.7	2.7
: business	6.6	5.1	4.4	0.8	–20.5	–3.1	2.9
Government : consumption	0.7	–0.1	0.1	–0.4	2.3	–0.3	0.2
: investment	–1.0	–2.5	3.0	1.9	1.1	0.0	0.5
Stockbuilding[a]	0.4	0.2	–0.1	–0.7	0.2	0.0	0.0
Total domestic demand	2.0	1.7	1.0	–0.3	–11.3	6.1	0.6
Export volumes	1.9	6.0	1.7	1.4	–18.8	13.4	4.5
Import volumes	4.1	6.5	2.8	–0.2	–18.6	23.5	1.2
Average earnings	0.2	0.7	1.7	1.6	–4.7	2.8	2.3
Harmonised consumer prices	–0.1	1.3	1.3	0.6	–0.2	0.8	1.5
RPDI	1.4	1.1	0.7	2.3	–3.1	1.0	1.0
Unemployment, %	11.7	11.3	10.6	9.9	11.1	11.4	8.8
Govt. balance as % of GDP	–2.4	–2.4	–2.2	–1.6	–8.3	–6.1	–3.5
Govt. debt as % of GDP[b]	134.7	134.0	134.9	136.0	165.6	165.6	157.6
Current account as % of GDP	2.6	2.6	2.5	2.9	3.2	0.6	4.9

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

Table B11. Spain — *Percentage change*

	2016	2017	2018	2019	2020	2021	Average 2022–26
GDP	3.0	2.9	2.4	2.0	–12.0	7.1	2.5
Consumption	2.7	3.0	1.8	1.1	–17.3	15.0	2.2
Investment : housing	8.9	11.5	7.7	2.9	–13.4	8.4	4.1
: business	4.4	3.1	2.9	2.0	–12.9	2.5	3.7
Government: consumption	1.0	1.0	1.9	2.3	3.3	0.0	1.3
: investment	–19.9	4.4	9.7	–2.9	0.9	2.5	2.5
Stockbuilding[a]	–0.2	0.0	0.2	0.1	0.1	0.0	0.0
Total domestic demand	2.1	3.1	2.7	1.5	–11.8	9.3	2.3
Export volumes	5.4	5.6	2.2	2.6	–19.0	13.1	4.2
Import volumes	2.6	6.6	3.3	1.2	–19.1	20.8	3.6
Average earnings	–0.5	1.4	0.9	2.9	0.3	0.8	3.4
Harmonised consumer prices	–0.3	2.0	1.7	0.8	–0.4	0.2	1.6
RPDI	2.5	1.2	2.2	2.1	–3.0	1.9	2.0
Unemployment, %	19.6	17.3	15.3	14.1	17.3	15.5	14.6
Govt. balance as % of GDP	–4.3	–3.0	–2.5	–2.2	–7.3	–3.8	–2.0
Govt. debt as % of GDP[b]	99.2	98.6	97.6	96.6	119.8	113.1	101.2
Current account as % of GDP	3.2	2.7	1.9	2.0	2.4	1.0	1.8

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

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press

https://doi.org/10.1017/nie.2020.33 Published online by Cambridge University Press