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BRIEFING

Safeguarding governments' financial health during coronavirus

What can policymakers learn from past viral outbreaks?

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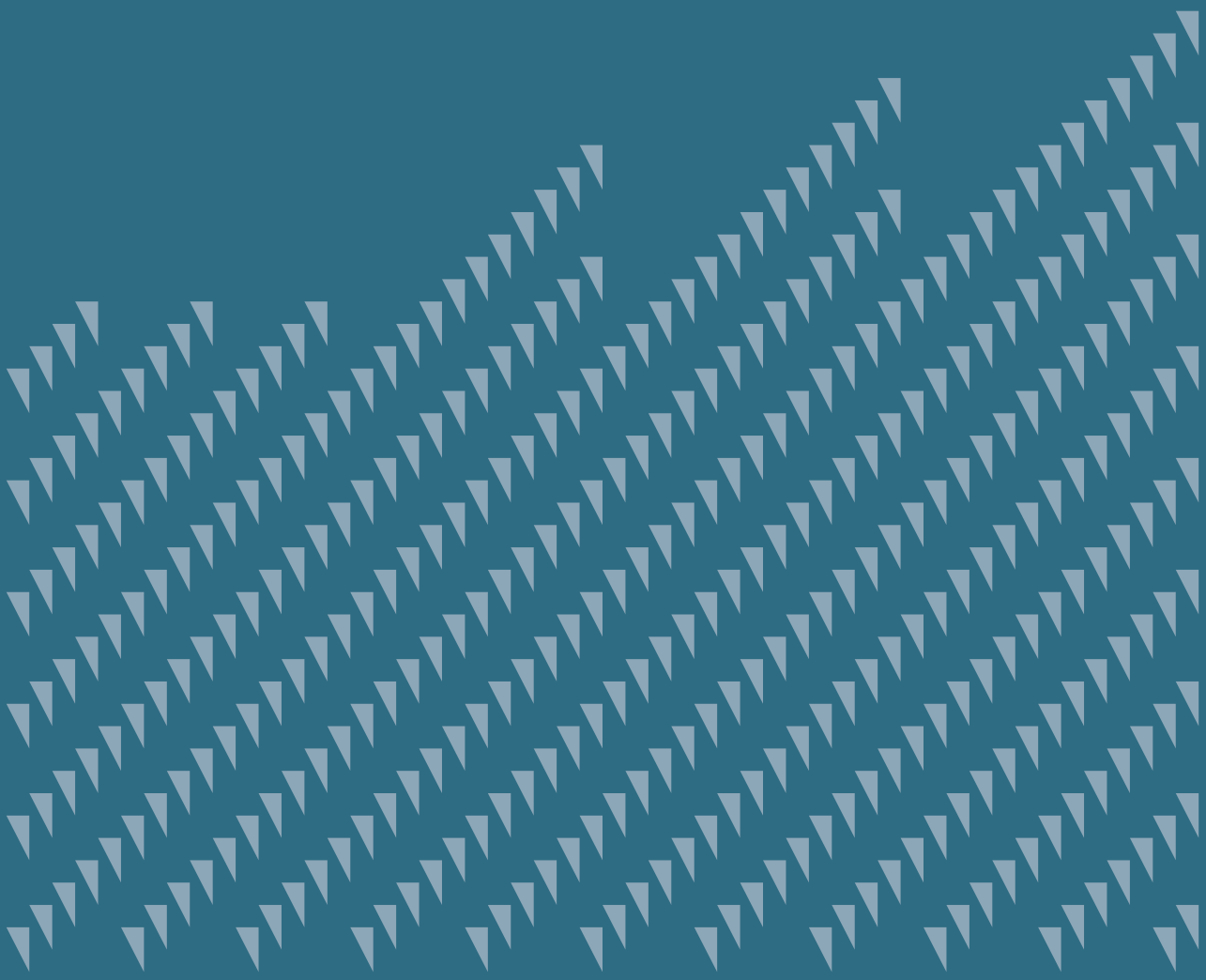

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Summary

In the wake of the coronavirus outbreak, governments have taken unprecedented steps to protect the health of their citizens and support their economies. They now need to take extraordinary steps to safeguard their own financial health through what could be a protracted period of economic disruption necessary to contain and eradicate the virus. This paper explores what policy makers today can learn from how governments coped with the economic and fiscal stresses associated with previous viral outbreaks over the past century.

While coronavirus is the first global pandemic of the 21st century, it is not the first viral outbreak which governments around the world have had to contend with. In just over a century, the world has seen another global pandemic in the form of the 1918-19 Spanish flu and more localised viral outbreaks in the 2003 SARS outbreak in East Asia and the 2014-16 Ebola epidemic in West Africa. During all of these past outbreaks and even more during the current coronavirus pandemic, governments played a central role in not only treating the sick and containing the spread of the virus, but also in mitigating its impact on people, businesses, and the economy as a whole. To do so, however, governments have to keep their own finances in good health in the midst of unprecedented pressures on their expenditure, revenues, and traditional sources of financing.

The experience from these past viral outbreaks points to the following ten lessons for finance ministries to consider in calibrating their policy response to coronavirus:

1. **Economies could face high single or double-digit percentage falls in annual GDP.** The relatively low infection and mortality rates associated with coronavirus are a less important determinant of its economic impact than the public health and social response which is estimated to account for over four-fifths of the economic disruption caused by viral outbreaks. Coronavirus-related public health restrictions have been swifter, stricter, and more global than under any previous epidemic. Annual output losses from coronavirus could therefore be at least as big as the high single or double-digit peak losses seen during Spanish flu and Ebola, rather than being closer to the 0.5 to 1 per cent annual losses in GDP experienced following the SARS outbreak.
2. **Economic impacts could last for many months, if not years, if social distancing measures need to be kept in place for protracted periods.** Comparisons with East Asian countries' 'V-shaped' recovery from SARS in 2003 ignore the fact that coronavirus is now a global pandemic which has proven significantly more difficult to trace, contain, and eradicate. The more fitful economic recoveries that followed the Spanish flu and Ebola outbreaks, during which

public health restrictions were repeatedly tightened and loosened in response to successive flare-ups of the virus, seem to be a more relevant precedent. These resulted in multiple peaks and troughs in the number of cases and losses of output spanning several years. Economies did not return to their pre-outbreak levels for three years on average from the start of the outbreaks.

3. **Government deficits could quickly rise into high single or double digits as a proportion of GDP.** As economic disruptions reduce revenue and tax compliance, healthcare costs spike, and firms and individuals take advantage of existing and newly announced tax reliefs, benefits, salary support, and loans, governments could see their deficits reach levels not seen outside of wartime. Even West African economies with relatively small public sectors, basic welfare states, and limited fiscal policy responses saw their deficits rise by between 5 and 9 per cent of GDP at the peak of the Ebola outbreak. The fiscal policy measures already announced by governments in response to the economic disruption caused by coronavirus area are unprecedented in peacetime and likely to require wartime levels of government borrowing.

4. **Governments should target financial support and avoid universal or open-ended offers.** Even where welfare states were limited as during Spanish flu and Ebola, government finances came under considerable strain during the kind of protracted viral outbreaks the world may now be facing. Promising to prevent all firms from failing or to pay the full salaries of all workers for periods in which they are off work may not be fiscally credible if social distancing measures remain in place for more than a few months. And one-off universal payments to all citizens are administratively time-consuming, inefficient, and unlikely to stimulate consumption while most retail outlets are closed and global supply chains are disrupted. Instead, fiscal support should focus on plugging holes in the social safety net, ensuring everyone has a minimum level of support, and helping fundamentally profitable firms hold onto people and capital. Broad-based demand stimulus measures should be kept in reserve until public health restrictions are lifted and the supply side of the economy can respond.

5. **Governments should avoid fiscal policies which unnecessarily exacerbate the supply disruption.** Support to firms should encourage them to maintain safe levels of operation rather than close if possible. Such measures should also encourage workers to stay attached to their employers rather than become jobless in a dysfunctional labour market. Salary support schemes should avoid incentivising firms to lay-off workers during or after the outbreak and penalise those that do. Business loans should avoid contributing to firm bankruptcies

and layoffs by making repayment conditional on the length of the outbreak, the pace of recovery in firms' earnings, and the continued retention of employees.

6. **Governments need to prioritise expenditure to fund their healthcare systems and support individuals and firms.** Governments need to conduct a rapid triage of all public expenditure to identify savings that can be reprioritised to fund the health and economic emergency. During Spanish flu, governments were fortuitously demobilising from the First World War so could repurpose their warfare states to the fight against the virus. During the Ebola epidemic, governments suspended major investment projects until the outbreak was over to fund their overburdened health services.

7. **Governments need to look to how they finance themselves for protracted periods in which expenditures are likely to far exceed revenues.** Pension funds who are traditional end investors in government bonds are likely to see steep falls in contributions, significant losses on other investments, and requests for early retirement or withdrawals. Commercial and investment banks which operate as primary dealers in the government bond market are likely to face their own liquidity squeeze due to a rise in non-performing loans and negotiated or government-sanctioned mortgage and loan repayment holidays. Foreign creditors may be reluctant to lend across borders for fear of exchange rate volatility, country risk, new capital restrictions, or possible default.

8. **Central banks may have to provide temporary liquidity directly to governments to finance their deficits.** Faced with a synchronised global liquidity crunch, governments may need to turn to their central banks for the liquidity needed to pay out against their commitments while government bond markets are temporarily disrupted. Given current levels of market turbulence and the likely dramatic falls in revenue and increases in expenditure in the coming months, these actions may need to happen sooner rather than later. As long as the liquidity created by the central bank to finance government deficits is temporary and withdrawn once the outbreak is over, the consequences for long-run inflation expectations should be limited. Some amount of short-term inflation may be inevitable and necessary given the need for relative prices to adjust to a significant supply shock.

9. **Government should resist reintroducing capital controls to protect their financing sources.** Capital controls were introduced during the First World War and kept in place until after the Spanish flu outbreak had run its course in the 1920s. It will be tempting for some governments to reintroduce capital restrictions as a means of protecting their national savings and using them to

finance their yawning deficits. However, this would be sub-optimal globally as capital controls will further exacerbate the global liquidity crunch, further disrupt cross-border investment, trade, and supply chains, and jeopardise the post-outbreak recovery.

10. Regional and international financial institutions have a vital role to play in ensuring governments are able to finance themselves through the pandemic. The International Monetary Fund, World Bank, and regional financing arrangements can help to facilitate the pooling and targeting of global financing to those countries most in need – as during the Ebola outbreak when West African governments benefited from external financial support of between 5 and 10 per cent of GDP at the peak of the outbreak. Assuming the virus moves across the globe in one or more waves, as was the case during Spanish flu, countries whose citizens and economies have recovered from the virus can use these institutions to help to support those countries hit in later waves of the outbreak.

Introduction

Many commentators have described the coronavirus outbreak as a unique and unprecedented shock to the global economy. Governments around the world are currently trying to formulate a monetary and fiscal policy response to the potential economic disruption caused by the virus with little data and few models on which to design and calibrate that response. While coronavirus is certainly the first global pandemic outbreak of the 21st century, it is not the first viral epidemic which countries around the world have had to contend with. In just over a century, the world has seen global pandemics in the form of the Spanish flu at the start of the 20th century and dealt with more localised outbreaks in the form of SARS and Ebola at the beginning of this century.

During all of these past outbreaks and even more so during the current coronavirus pandemic, governments play a central role in not only treating the sick and containing the spread of the virus, but also in mitigating its economic impact on people, businesses, and the economy as a whole. To do so, however, governments have to keep their own finances in good health in the midst of unprecedented pressures on their expenditure, revenues, and traditional sources of financing.

This note considers what fiscal policymakers today can learn from how economies and public finances were affected by the 1918-19 Spanish flu global pandemic, 2003 SARS outbreak in East Asia, and the 2014-16 Ebola epidemic in West Africa. It is divided into three sections looking at the:

- economic impact of the viral outbreaks in the countries affected;
- fiscal impact of the outbreaks and associated economic disruption; and
- implications for the fiscal policy response to the coronavirus pandemic.

Economic impact of viral outbreaks

The disruption to economic activity caused by a viral outbreak is a product of five main factors: (i) the number of people infected, (ii) the morbidity and mortality rates associated with people falling ill, (iii) the duration of the outbreak, (iv) the public health restrictions imposed to contain the spread of the virus, and (v) other voluntary social distancing measures that people take to reduce their chances of catching it. As elaborated below, history suggests that (i) and (ii) are key determinants of the long-term economic impact of the disease while (iii), (iv) and (v) are much more important determinants of the near-term economic impact.

TABLE 1: **The human and economic costs of past viral outbreaks have been large**

Epidemiology and economic impacts of past viral outbreaks

	No. of Countries[1]	Duration in months	Number of cases	Number of deaths	Fatality rate	Peak GDP Loss
Spanish Flu (1918-19)	187	24	500 million	17-50 million	3-10%	6-13%[2]
SARS (2003)	8	6	8,096	774	10%	0.5-1%[3]
Ebola (2014-16)	3	26	28,616	11,310	40%	5-20%[4]
Coronavirus (2020 -)	184	..	332,930	14,510	4%	..

NOTES: [1] Number of countries reporting more than 10 cases; [2] In Canada, UK, and US; [3] In China, Hong Kong, Singapore and Taiwan; [4] In Guinea, Liberia, and Sierra Leone.
SOURCE: World Health Organisation, International Monetary Fund, World Bank.

Viral outbreaks can lead to immediate GDP losses of anywhere between less than 1 and over 20 per cent depending on the number of infections, fatality rate, duration of the outbreak, and public health and wider societal and international response (Table 1). The near-term GDP impact of coronavirus is likely to vary across countries. But based on past experience, the worst affected countries could see annual percentage GDP losses in the high single or double digits in the peak year of the outbreak. This is based on the following lessons from previous outbreaks:

- Spanish flu was by far the most widespread of the three pandemics, infecting 500 million people worldwide (about 30 per cent of the world population) and is estimated to have killed between 17 and 50 million people, or between 1-3 per cent of the world's population – a fatality rate of between 3 and 10 per cent for those infected. It also battered the population in three waves over a two-year period between 1918-19. While its GDP impacts are difficult to disentangle from the economic consequences of the First World War and subsequent demobilisation, countries hardest hit by the pandemic saw GDP contract by 6 per cent in the US, 11 per cent in Canada, and 13 per cent in the UK in the aftermath of the outbreak in 1919.[1] Recent research put the average falls in real per capita GDP attributable to Spanish flu at between 8.4 and 9.9 per cent for a typical country.[2]

- The 2003 SARS outbreak, which infected a smaller number of people – 8,096 caught the disease resulting in 774 deaths – was far less widespread but considerably more deadly than Spanish flu, with a fatality rate of nearly 10 per cent.[3] However, the spread of the virus was quickly contained within a few months. In the four countries most affected (Hong Kong, China, Singapore, and Taiwan), output fell in only the second quarter and then returned to positive growth. Therefore, the peak annual output loss ranged from only between 0.5 and 1.1 per cent in 2003.[4]

- The 2013 Ebola outbreak, which infected 28,616 people and led to 11,310 deaths across Guinea, Liberia, and Sierra Leone, was by far the deadliest, with a fatality rate of 40 per cent for those infected. It was also of a considerably longer duration than the SARS outbreak, lasting almost two years before public health measures, including successive mass quarantines, brought the outbreak under control. Across the three West African countries worst affected, Ebola saw peak annual GDP losses of 5 per cent in Guinea, 7 per cent in Liberia, and over 20 per cent in Sierra Leone.[5]

- Despite appearing to have the lowest fatality rate of the four outbreaks discussed in this note at 3-4 per cent,[6] given its already extensive global spread (at the time of writing there have been over 300,000 reported cases across 184 countries), the likely time required to contain it (especially in lower income countries and fragile states), and the severity of public health and social distancing measures required to do that, coronavirus is likely to be closer to or worse than Spanish flu and Ebola in terms of its potential peak impact on economic output in a given country. Past

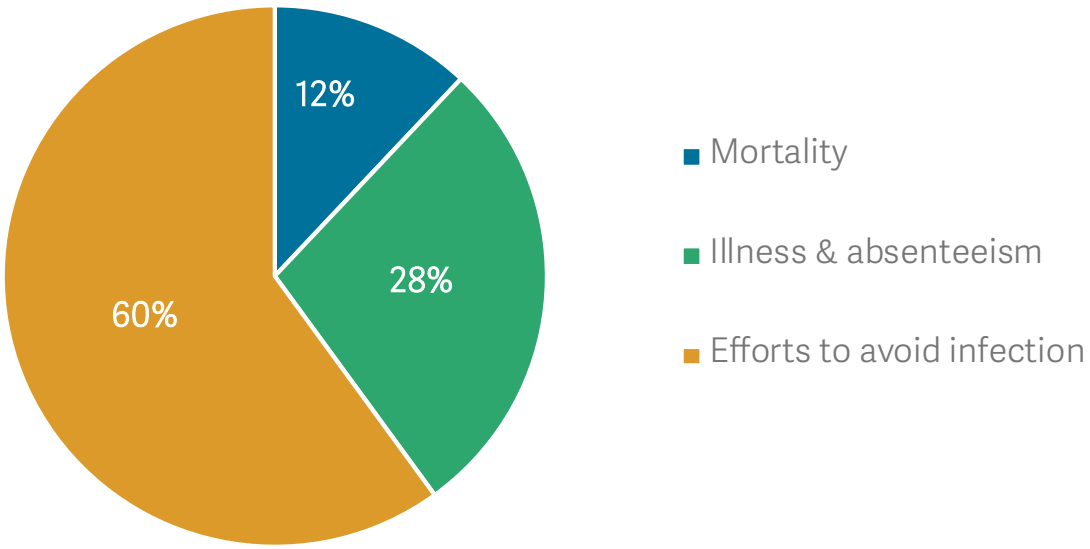
1 W McKibbin & A Sidorenko, Global Macroeconomic Consequences of Pandemic Influenza, Lowry Institute for International Policy, February 2006.
2 R. Barro, J Ursua & J Weng, The coronavirus and the Great Influenza Epidemic, CESifo Working Paper 8166, March 2020.
3 World Health Organization, Consensus document on the epidemiology of severe acute respiratory syndrome (SARS), May 2003.
4 M Brahmbhatt & A Dutta, On SARS-type Economic Effects during Infectious Disease Outbreaks, Policy Research Working Paper 4466, World Bank, January 2008.
5 A Zafar, C Talati & E Graham, 2014-2015 West Africa Ebola Crisis: Impact Update, May 2016.
6 World Health Organization, Coronavirus Situation Report 63, 23 March 2020.

simulations of a severe global flu pandemic put the potential economic losses at 4.8 per cent of GDP. But this is a global figure within which some countries face greater losses than others.[7] Modelling of the impact of a pandemic influenza outbreak on the UK economy yields potential annual output losses of between 2 and 10 percent of GDP.[8] As such, governments need to be prepared to cope with and respond to high single or double-digit falls in output in a given year.

Most (around 80-90 percent) of the short-term economic impact of the outbreak comes not as a result of people falling ill but from the disruption to economic activity associated with public health restrictions and social distancing required to control its spread. A 2008 World Bank simulation of the potential economic impact of a pandemic flu similar to Spanish flu but with a SARS-type public health and societal response estimated that only 12 per cent of the total economic costs arise due to mortality from the disease, while 28 per cent result from higher levels of worker illness and absenteeism, and 60 per cent arise as a result of mandatory or voluntary efforts on the part of individuals to avoid infection (Figure 1). Given the relatively low mortality rate from coronavirus, one would expect the vast majority of its economic effects to result from the necessary social distancing measures required to contain it.[9]

FIGURE 1: **Most economic costs of viral outbreaks come from containment efforts**

Sources of economic losses from pandemic flu



SOURCE: M Brahmbhatt & A Dutta, On SARS-type Economic Effects during Infectious Disease Outbreaks, Policy Research Working Paper 4466, World Bank, January 2008.

7 O Jonas, Pandemic Risk, World Development Report 2014 Background Paper, October 2013.
8 R Smith, M Keogh-Brown, T Barnett, & T Joyce. The economy-wide impact of pandemic influenza on the UK: a computable general equilibrium modelling experiment, British Medical Journal, 339, November 2009.
9 A Burns, D van der Mensbrugghe & H Timmer, Evaluating the Economic Consequences of Avian Influenza, Working Paper 47417, World Bank, June 2006.

Looking at the sectoral impact of viral outbreaks, travel, hospitality, tourism, and face-to-face retail services are especially vulnerable, as are industries where employees have to work in close quarters.

- During the Spanish flu outbreak, many workers were close to subsistence levels of earnings and social safety nets were in their infancy. Workers therefore had little choice but to remain at work until they fell ill to maintain their incomes. Actions taken to contain the pandemic were also sporadic and partial, as evidenced by significant differences in the approach adopted by different US States affected by the virus as it moved across the country. Nonetheless, anecdotal evidence suggested that the retail sector experienced losses of between 30 and 70 per cent, and factories saw absentee rates of 40 to 50 per cent at the height of the outbreak in different US cities.[10]

- During the SARS outbreak, hotels and tourist attractions were hardest hit seeing revenue losses of around 80 per cent compared with the previous year while travel agencies, airlines, restaurants, retail, and transport saw revenue declines of 10-50 per cent.[11] These sectors were affected not only by the imposition of public health restrictions and social distancing measures on local residents but also by a slump in foreign visitors to the region.

- During Ebola, the three West African countries also saw large falls in tourism, foreign investment, trade, and services.[12] Sierra Leone was particularly hard hit due to the need to suspend iron ore mining operations which accounted for 20 per cent of GDP in 2014.[13] In all three countries, output and trade was also affected by repeated lockdowns and quarantines of cities, towns, and villages in which infection was discovered. Quarantines and the border closures saw regional trade plunge and widespread food insecurity in the hardest hit countries despite production of the staple food rice falling by only 3-12 per cent across the three countries.[14],[15]

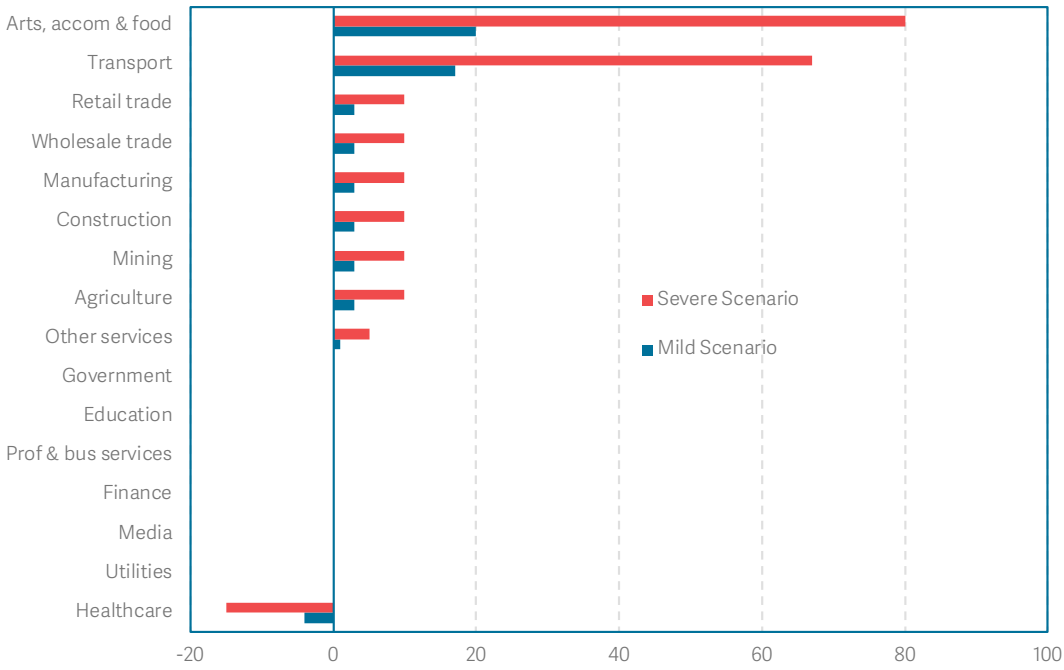
- It is already clear that the coronavirus pandemic is having a serious impact on the transport, tourism, hospitality, and entertainment sectors around the world. An estimate of the potential falls in demand in these sectors can be gleaned from a 2006 Congressional Budget Office study on the economic impact of a Spanish flu-type outbreak on the US economy. According to their models, the entertainment, hotel, and restaurant sectors face an 80 per cent reduction in demand; and air, rail,

10 J Barry, How the Horrific 1918 Flu Spread Across America, Smithsonian Magazine, November 2017.
11 M Brahmbhatt & A Dutta, On SARS-type Economic Effects during Infectious Disease Outbreaks, Policy Research Working Paper 4466, World Bank, January 2008.
12 M Cangul, C Sdralevich & I Sian, Beating Back Ebola, Finance & Development, Vol 54 No 2, June 2017.
13 J Zayid, M Sichei, M Korseh-Hindowa, Sierra Leone 2016, UNDP Africa Economic Outlook, 2016.
14 M Cangul, C Sdralevich & I Sian, Beating Back Ebola, Finance & Development, Vol 54 No 2, June 2017.
15 A Alpha & M Figuié, Impact of the Ebola virus disease outbreak on market chains and trade of agricultural products in West Africa, Food &Agriculture Organization of the United Nations, Dakar 2016.

and local transport experience a 67 per cent fall. Most other industries experience anywhere between a 0 and 10 per cent decline in demand while healthcare sees a 15 per cent increase (Figure 2).[16] Falls of this magnitude are consistent with what has been observed in real-time data on airline, restaurant, and hotel reservations since the start of the coronavirus outbreak.[17]

FIGURE 2: **Modelled impact of viral outbreaks on demand varies across sectors**

Peak Falls in Demand Based on Modelled Avian Flu Outbreak in the US (per cent)



SOURCE: R Arnold, J De Sa, T Gronniger, A Percy & J Somers, 'A Potential Influenza Pandemic: Possible Macroeconomic Effects and Policy Issues', Congressional Budget Office, July 2006.

Once viral outbreaks run their course and public health restrictions are lifted, economies recover, albeit at different speeds. While the global economy will recover from coronavirus, this process could take years rather than months depending on how quickly the spread of the virus is contained in different countries. The average time it took for real output to return to pre-outbreak levels in seven countries hit hardest by the three viral outbreaks examined in this paper was three years – unsurprising given the 10-20 per cent falls in GDP experienced by some at the peak of disruption (Figure 3).[18]

- Because Spanish flu hit the world in three waves over two years, it took several years for the global economy to fully recover from its effects. UK real GDP

16 R Arnold, J De Sa, T Gronniger, A Percy & J Somers, A Potential Influenza Pandemic: Possible Macroeconomic Effects and Policy Issues, Congressional Budget Office, July 2006.
17 V Romei & J Burn-Murdoch, Real-time data show virus hit to global economic activity, Financial Times, 22 March 2020.
18 The countries considered were Canada, UK, and US in the case of Spanish flu, Hong Kong in the cast of SARS, and Guinea, Liberia, and Sierra Leone in the case of Ebola.

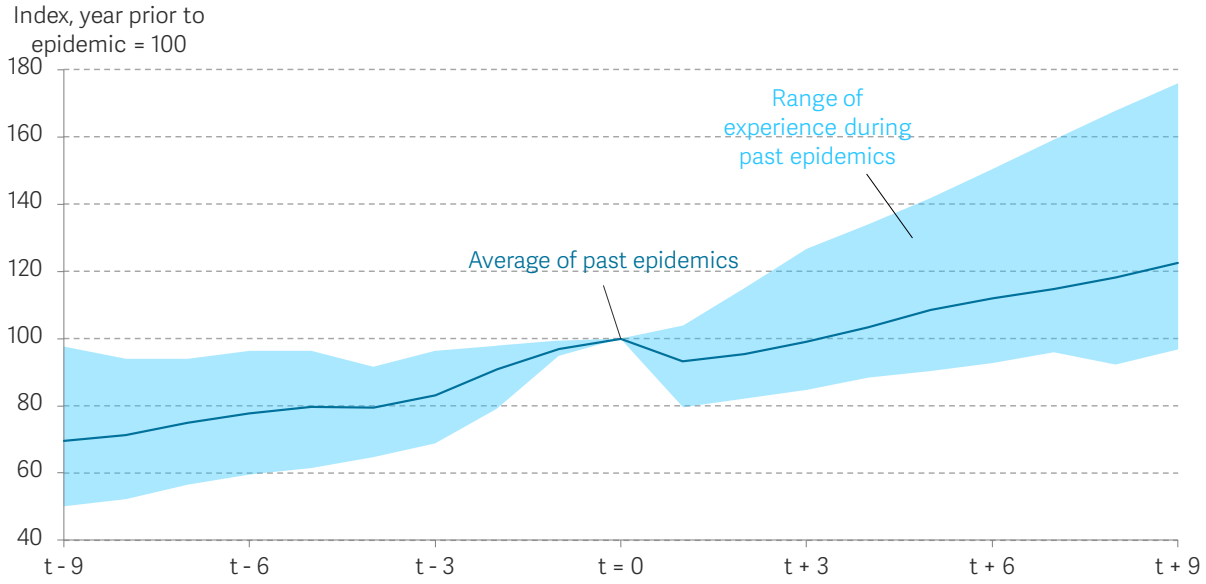
contracted for three years in a row from 1918-1920, though the impact of Spanish flu and post WWI demobilisation are hard to disentangle. Contemporary modelling of the economic impact of a similar pandemic flu today estimates it could take more than 18 months for the global economy to return to its pre-outbreak level.[19]

- SARS reduced output in only the second quarter of 2003 in China, Hong Kong, Taiwan, and Singapore, and growth rebounded strongly in the third and fourth quarters of the year. Hong Kong grew by 4.5 per cent of GDP in the two quarters before the SARS outbreak and the two quarters after – underscoring the economic benefits of early and rapid containment.[20]
- Guinea, Liberia, and Sierra Leone took between 3 and 5 years to return to their pre-Ebola levels of real GDP. This slower pace of recovery was due in part to the duration of the economic disruption, greater dislocation of economic factors, and severing of domestic and international commercial relationships. But the recovery was also confounded by the 2014 crash in global commodity prices that reduced external demand for their principal exports.[21]
- In the case of coronavirus, output will also recover once public health restrictions are lifted, businesses reopen, and people return to work. However, given the potentially global scope and long duration of the pandemic; the resulting dislocation of people, capital, and supply chains; and potential for international travel and other trade restrictions to remain in place for long periods, the recovery could take place not over months (as in the case of SARS) but years (as in the case of Spanish flu and Ebola).

19 G Verikios, M Sullivan, P Stojanovski, J Giesecke, & Gordon Woo, The Global Economic Effects of Pandemic Influenza, Centre for Policy Studies, Monash University, June 2011.
20 M Brahmbhatt & A Dutta, On SARS-type Economic Effects during Infectious Disease Outbreaks, Policy Research Working Paper 4466, World Bank, January 2008.
21 A Zafar, C Talati & E Graham, 2014-2015 West Africa Ebola Crisis: Impact Update, May 2016.

FIGURE 3: **Economies recover at very different speeds after viral outbreaks**

The level of real GDP in countries following a major viral outbreak (index, year prior to epidemic = 100)



NOTES: Chart includes data from Canada, UK and US around the time of the Spanish flu epidemic (1918); Hong-Kong around the SARS outbreak (2003); and Guinea, Liberia and Sierra Leone during the outbreak of Ebola in 2014. The data is annual and the pre-epidemic peak is taken as t = 0.
SOURCE: IMF, World Bank, Òscar Jordà, Moritz Schularick, and Alan M. Taylor. 2017. "Macrofinancial History and the New Business Cycle Facts." in NBER Macroeconomics Annual 2016, volume 31, edited by Martin Eichenbaum and Jonathan A. Parker. Chicago: University of Chicago Press.

Fiscal impact of viral outbreaks

Governments are a vital source of support to individuals, companies, and the economy as whole during the outbreaks. Therefore, safeguarding governments' own financial health is critical to ensuring they have the resources, flexibility, and credibility needed to provide that support. Governments rely upon tax revenues and borrowing from domestic and international creditors to finance their activities. Both tax revenues and the supply of credit rely upon well-functioning domestic economies and financial markets, neither of which are a given during public health emergencies such as these. Global pandemics raise the further challenge of potential disruption to international financial markets, institutions, and aid arrangements upon which many countries also rely to finance themselves.

The fiscal impacts of the outbreaks are driven by three main factors (i) additional expenditure on healthcare services and public health interventions; (ii) the impact of the general economic disruption on the flow of tax revenues and welfare expenditures; and (iii) the costs of supporting specific firms, banks, and individuals that find themselves

in financial difficulty as a result of the economic disruption. In the case of coronavirus, these three factors are likely to drive fiscal deficits into high single- or double-digits as a proportion of GDP based on experience of similar outbreaks.

- The fiscal impact of Spanish flu is difficult to disentangle from the cost of the First World War, which saw dramatic increases in government expenditure and borrowing. US federal, state, and local government expenditure rose from less than 10 per cent pre-war to a peak of over 30 per cent of GDP in 1919, before settling back to around 12 per cent during the interwar years. The US federal government deficit peaked at 17 per cent of GDP in 1919, a level only exceeded at the height of the Second World War (at 29 per cent in 1943). However, much of the burden of coping with the Spanish flu fell on state and city governments whose healthcare systems were quickly overwhelmed by the number of cases – especially as a large number of doctors and nurses were drafted into military service in Europe at the start of the outbreak. Communities relied heavily on the Red Cross and other charitable organisations to treat the sick and help the vulnerable as public health and social welfare systems were in their infancy and there was no national, or even local, system of unemployment benefits.
- During the SARS outbreak, the government of Hong Kong, which had the highest concentration of cases, saw little overall fiscal impact from the outbreak. Despite a rise in unemployment caseload from 7.1 to 8.6 per cent over the year, the fiscal balance actually improved by around 1.7 per cent of GDP in 2003-04 due to rapid growth in mainland China which boosted trade revenues. Healthcare costs were manageable with the resources available thanks to the small number of cases and limited duration.[22] The Hong Kong government did incur losses on the HK$499 million of loans extended under its 2003 'Loan Guarantee Scheme for SARS Impacted Industries' of HK$31 million by March 2008, equivalent to a default rate of around 6 per cent. The vast majority of the defaults were in the retail (54 per cent) and restaurant (44 per cent) sectors.[23]
- Public finances during the Ebola epidemic were much harder hit, with deficits rising by between 4.8 and 8.5 per cent of GDP across the three countries at the peak of the outbreak. Revenues fell by 2 to 4 per cent of GDP and the loss was broad-based across corporate taxes, VAT, and indirect taxes and due to a combination of lower economic activity and lower taxpayer compliance. Expenditure rose by between

22 International Monetary Fund, Hong Kong SAR 2004 Article IV Staff Report, January 2005.
23 Hong Kong Legislative Council Panel of Financial Affairs, The ninth progress report on the operation of the Loan Guarantee Scheme for Severe Acute Respiratory Syndrome Impacted Industries, May 2008.

2 and 8 per cent of GDP to fund a combination of healthcare costs, subsidies and transfers to households, and bail outs of state-owned enterprises and externally financed infrastructure projects.[24]

- The public finance impact of coronavirus is likely to be towards the extreme end of the four outbreaks with fiscal deficits also reaching high single or double digits as a proportion of GDP. This is because the outbreak is as widespread as Spanish flu, public health restrictions may need to be repeatedly used for protracted periods as in the case of Ebola, systemic risks in the financial sector are heightened because of the highly correlated nature of the shock, and governments have extended necessary but unprecedented financial support to firms and individuals in the meantime.

Governments facing a sudden spike in healthcare costs can be forced to reprioritise expenditure until additional financing or revenue can be mobilised. In Sierra Leone, the country hit hardest by the outbreak, the Ebola response alone cost an additional 2.8 per cent of GDP in 2014. To meet part of this cost, government capital expenditure was cut by 14 per cent in the same year.[25] In the case of coronavirus, governments will need to consider how to free up capacity and resources within their health services to accommodate the surge in patients requiring intensive care as well as how to reallocate spending in other areas to offset the cost of programs aimed at supporting the economy in the near-term.

Countries with limited domestic resources relied heavily on international aid to meet a significant share of expected healthcare costs in the face of falling revenue. In the case of Ebola, foreign aid financed between one-half and three-quarters of the gap between total expenditure and domestic revenues during the outbreak. Foreign grants reached 10 per cent of GDP in Guinea and Liberia and 5 per cent in Sierra Leone at the peak of the outbreak in 2014 (Table 2).[26] The IMF and World Bank also provided significant financial support to these governments in the form of loans, grants, and debt relief.

24 A Zafar, C Talati & E Graham, 2014-2015 West Africa Ebola Crisis: Impact Update, May 2016.
25 Government of Sierra Leone, National Ebola Recovery Strategy: 2015-17, July 2015.
26 Zafar, C Talati & E Graham, 2014-2015 West Africa Ebola Crisis: Impact Update, World Bank, May 2016.

TABLE 2: **Governments saw large increases in their deficits during Ebola**

Public finances in countries hit by the 2014-16 Ebola outbreak (as a proportion of GDP)

			Ebola outbreak		
	2012	2013	2014	2015	2016
Guinea					
Revenue	20.2	18.3	12.6	13.8	12.2
Grants	2.7	1.5	9.5	6.6	4.0
Expenditure	26.1	25.1	24.7	23.4	20.9
Balance	**-3.2**	**-5.3**	**-2.6**	**-3.0**	**-4.7**
Liberia					
Revenue	26.4	27.7	22.4	22.4	21.8
Grants	1.7	2.4	10.0	9.6	9.6
Expenditure	31.4	31.7	40.4	42.2	35.6
Balance	**-3.3**	**-1.6**	**-8.0**	**-10.2**	**-4.2**
Sierra Leone					
Revenue	12.2	12.6	10.8	12.2	13.2
Grants	4.1	3.0	4.7	3.1	2.8
Expenditure	21.9	17.5	20.8	23.4	22.0
Balance	**-5.6**	**-1.9**	**-5.3**	**-8.1**	**-6.0**

SOURCE: Zafar, C Talati & E Graham, 2014-2015 West Africa Ebola Crisis: Impact Update, May 2016, IMF Staff Reports.

Despite their efforts to reprioritise expenditure and attract external assistance, governments can find themselves caught in the middle of a significant liquidity crunch during these outbreaks. Reductions in revenue-generating economic activity, granting of tax holidays, and fall offs in tax compliance significantly lower revenues at the peak of the outbreak while expenditure on healthcare costs, unemployment and sickness benefits, and other support to households and businesses spike.

- Government liquidity crunches were less of a problem for many advanced economies during the Spanish flu pandemic because they had already raised taxes significantly to pay for the First World War, including the first US federal income tax. Many left these taxes in place as the cost of wartime mobilisation wound down, freeing up resources to fight the outbreak. Total US government revenues reached a local peak of 15 per cent of GDP in 1921, up from 7 per cent of GDP in 1917.[27] These additional revenues enabled the US federal government to run small surpluses once the outbreak was over and throughout the 1920s.[28]

27 www.usgovernmentrevenue.com
28 www.usgovernmentspending.com

- Government liquidity crunches were more of a problem during the Ebola epidemic given government's lower tax capacities and weaker expenditure controls. In Sierra Leone, on top of its significant cash deficit, the government ran up arrears of 1.6 per cent of GDP in the form of unpaid cheques to government suppliers because cash was not on hand to pay them.[29]

The fiscal measures that many advanced economies have already announced in response to the coronavirus outbreak are necessary but could also add to the liquidity squeeze on government finances. Not only have governments been more aggressive in restricting economic activity than in past outbreaks, they have offered tax holidays and reliefs to firms, extended and increased sick pay and unemployment benefits, offered government-backed loans to firms, and promised to pay some or all of the salaries of those off work during the outbreak.[30] In none of the previous three viral outbreaks did governments provide such extensive, and in some cases unlimited, financial support to firms and households. The modern welfare state was in its infancy during Spanish flu, SARS was too concentrated and short-lived to require an economy-wide response, and Ebola-hit countries had only the most basic of welfare systems. The firm and household support measures that have been announced in response to coronavirus may themselves give rise to their own economic response if they affect the calculations of individuals about whether to turn up to work or firms about whether to remain open or to close. It is difficult to predict how severe the cash squeeze on governments could be in the coming months, but the longer the period of economic disruption extends the more severe it will be.

The liquidity constraints on governments can be exacerbated by the fact that their traditional creditors are themselves also under significant financial stress during viral outbreaks.

- During the Spanish flu outbreak, governments continued to rely on wartime 'patriotic financing' mechanisms to cover their deficits like the Liberty Bonds which the US federal government continued to issue until April 1919. Indeed, the US federal government's debt-to-GDP ratio reached a local peak of 35 per cent of GDP in 1919 before falling back to around half that by the start of the Great Depression a decade later.
- In Sierra Leone, non-performing loans in the domestic banking sector rose from 15 per cent in 2011 to almost 40 per cent by June 2015 and the country's two largest

29 International Monetary Fund, Sierra Leone: Sixth Review Under the Extended Credit Facility Arrangement Staff Report, December 2016.
30 For a discussion of some of the measures put in place internationally to support economies in the face of the coronavirus outbreak, see: Doing what it takes, Resolution Foundation, March 2020.

banks were taken into administration.[31] Given the problems in raising liquidity from banks with a large number of loans in default, the government was forced to resort to borrowing directly from the central bank at the peak of the outbreak to meet its liquidity requirements while awaiting foreign aid disbursements. Inflation rose briefly above 10 per cent in 2016 before peaking at 18 per cent in 2017 and falling back to 16 per cent in 2019.[32]

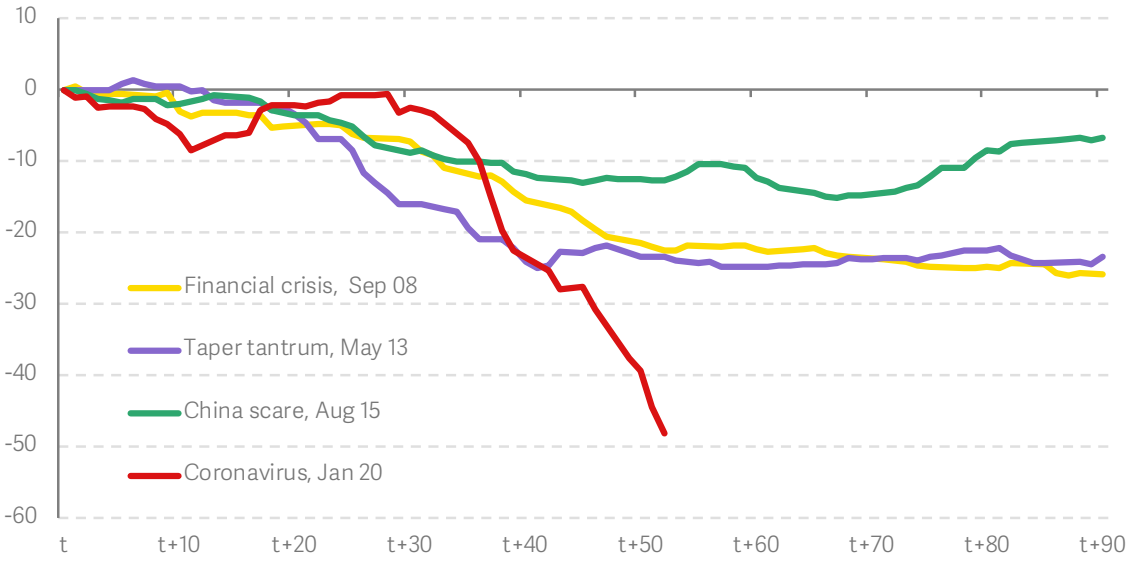
Given the global nature of the coronavirus pandemic, an important issue to consider is how developing, emerging market, or even advanced economies can mobilise the scale of financing required to cover their large deficits. Countries with low levels of debt and large pools of liquid domestic savings will be at an advantage as they will be able to draw on these to finance yawning government deficits during shutdown periods. Those with high debt, low domestic savings, and a high degree of dependency on foreign financing could find themselves shut out of international credit markets. Real-time financial markets data already shows cumulative capital outflows from 20 key emerging markets of over US$50 billion since the start of the coronavirus outbreak in late January 2020. This level of capital flight is already twice as large as that seen in the wake of the 2008 financial crisis and is very large even by the standards of the 1997 Asian financial crisis (Figure 4).[33]

The international financial institutions (IFIs) to which finance-constrained countries typically turn in these situations, such as the IMF and World Bank, may also struggle to meet the needs of their members. The IFI's balance sheets cannot cover the financing needs of more than a handful of advanced or large emerging market countries at any one time, as illustrated during the Eurozone crisis when the scale of assistance required to cover the deficits of Cyprus, Ireland, Greece and Portugal required the IMF to pool its resources with those of the European Commission and European Central Bank in the so-called 'Troika' of lenders. It is also not clear that the IMF and World Bank's major shareholders would be willing to contemplate the scale of capital injections required to equip these institutions to meet the financing needs of countries whose public finances are battered by coronavirus when they themselves are struggling to finance their own deficits.

31 International Monetary Fund, Sierra Leone: Third and Fourth Reviews Under the Extended Credit Facility Arrangement Staff Report, November 2015.
32 International Monetary Fund, Sierra Leone Country Page, Country Data.
33 S Lanau & J Fortun, The COVID-19 Shock to EM Flows, Economic Views, Institute for International Finance, 17 March 2020.

FIGURE 4: **Coronavirus has seen unprecedented emerging market capital flight**

Cumulative non-resident portfolio flows to emerging markets following global shocks, time in days, in $ bn



SOURCE: Lanau & J Fortun, The COVID-19 Shock to EM Flows, Economic Views, Institute for International Finance, 17 March 2020.

If international capital markets and financial institutions are not capable of pooling and targeting liquidity at those countries facing large temporary financing requirements, governments may resort to capital controls, monetary financing, or debt defaults to reduce immediate fiscal pressures and meet their liquidity needs. These are clearly sub-optimal strategies compared with a more cooperative solution in which countries which have weathered the outbreak and restarted their economies help to finance those facing peak numbers of cases. Ideas of this sort are already under discussion among Eurozone countries, and institutions such as the IMF and World Bank would be instrumental in establishing a similar revolving credit facility for emerging market and developing countries.

Implications for the fiscal policy response to coronavirus

Facing a potentially protracted period of economic disruption necessary to contain the spread of coronavirus, governments need to look both to the health of their population, but also to their own financial health, to ensure they can see their citizens and economies through the outbreak. The experience from other viral outbreaks over the past century points to the following lessons for policymakers dealing with coronavirus:

Lesson 1: Economies could face high single or double-digit percentage falls in annual GDP. The relatively low infection and mortality rates to date associated with coronavirus compared to Spanish flu and Ebola are likely to be a less important determinant of its economic impact than the public health and social response to the virus. The public health response to coronavirus has been swifter, stricter, and more global than under any previous viral outbreak. As such, policy makers should expect output losses at least as large, if not larger, than the high single and double-digit peak losses of output seen during Spanish flu and Ebola, rather than the low single-digit losses associated with SARS.

Lesson 2: Economic impacts could last for many months, if not years, if a vaccine is not developed and social distancing measures need to be kept in place for protracted periods. Comparisons with East Asian countries' 'V-shaped' recovery from SARS ignore the fact that coronavirus is now a global pandemic which has proven significantly more difficult to trace, contain, and eradicate. The more fitful economic recoveries that followed the Spanish flu and Ebola outbreaks, during which public health restrictions were repeatedly tightened and loosened in response to successive flare-ups of the virus, seem to be a more relevant precedent. These resulted in multiple peaks and troughs in the number of cases and losses of output spanning several years. Economies did not return to their pre-outbreak levels for three years on average.

Lesson 3: Government deficits could quickly rise into high single or double digits as a proportion of GDP. As economic disruptions reduce revenue and tax compliance, healthcare costs spike, and firms and individuals take advantage of tax reliefs, unemployment benefits, salary support arrangements, and government-guaranteed loans, governments could see their deficits and in-year cash requirements reach levels not seen outside of wartime when large aspects of economic activity were nationalised. Even economies with relatively small public sectors, basic welfare states, and limited fiscal policy responses like Sierra Leone and Liberia saw their deficits rise by between 5 and 9 per cent of GDP at the peak of the Ebola outbreak. The fiscal policies already announced by governments around the world in response to the economic disruption caused by coronavirus are unprecedented in peacetime and likely to require wartime levels of government borrowing.

Lesson 4: Governments need to target financial support and avoid universal or open-ended offers. Even at times and in countries in which welfare states were relatively rudimentary, government finances came under considerable strain as a result of the kind of protracted viral outbreaks the world may now be facing. Promising to prevent all firms from failing or to pay the full salary of all workers for their periods off work may not be fiscally credible if social distancing measures remain in place for more than a few months and governments are already heavily indebted. Making one-off payments to

every household is not only time consuming and inefficient, but it is unlikely to stimulate consumption if most retail outlets are closed and global trade is disrupted. Instead, fiscal support should focus on plugging holes in the social safety net, ensuring everyone has a minimum level of support, and helping fundamentally profitable firms hold onto people and capital. Broad-based demand stimulus measures should await the lifting of public health restrictions and recovery in the supply side of the economy.

Lesson 5: Governments should avoid fiscal policy measures which unnecessarily exacerbate the supply disruption. Support provided to firms should encourage them to maintain safe levels of operation rather than full closure wherever possible. Such measures should also encourage workers to stay attached to their employers rather than become jobless in a labour market with few alternative opportunities. Salary support schemes should avoid creating incentives for firms to lay-off workers either during or after the outbreak and penalise those that do. Business loan schemes need to avoid contributing to firm bankruptcies and layoffs by making repayment terms conditional on the duration of the outbreak, the pace of recovery in firms' earnings, and the continued retention of employees.

Lesson 6: Governments need to strictly prioritise expenditure to fully fund their healthcare systems and support individuals and firms. Governments need to conduct a comprehensive and rapid triage of public expenditure to identify savings that can be reprioritised to respond to the health and economic emergency. During Spanish flu, governments were fortuitously demobilising from the First World War so could repurpose their warfare state to the fight against the virus. During the Ebola epidemic, governments were forced to cancel or suspend major investment projects until the outbreak was over to fund their overburdened health services.

Lesson 7: Governments need to look to how they finance themselves for protracted periods in which expenditures are likely to far exceed revenues. Pension funds who are traditional end investors in government bonds are likely to see steep falls in contributions, significant losses on other investments, and requests for early retirement or withdrawals. Commercial and investment banks which operate as primary dealers in the government bond market are likely to face their own liquidity squeeze due to a rise in non-performing loans and negotiated or government-sanctioned mortgage and loan repayment holidays. Foreign creditors may be reluctant to lend across borders for fear of exchange rate volatility, country risk, imposition of capital restrictions, or possible default.

Lesson 8: Central banks may have to play a role in providing temporary liquidity directly to governments to finance their deficits. Faced with a synchronised global liquidity crunch, governments may have to turn to their central banks to directly provide the liquidity needed to pay out against their commitments while their economies, revenues,

and bond markets are temporarily disrupted. If primary dealers are unable to mobilise sufficient liquidity to intermediate government's temporary financing needs, the government's 'ways and means' account at the central bank may need to be used and credit limits on this account increased. Given current levels of market turbulence and the likely dramatic falls in revenue and increases in expenditure in the coming months, these actions may need to happen sooner rather than later. As long as the liquidity created by the central bank to finance the deficit is temporary, and withdrawn once the outbreak is over, the consequences for long-run inflation expectations should be limited. This may require the government to commit to returning the ceiling on its 'ways and means' account at the central bank to pre-outbreak levels once health restrictions have been lifted and the virus has been demonstrably contained. Some amount of inflation in the short-term may be inevitable and necessary given the significant the labour supply shock and shortages of some goods and face-to-face services.

Lesson 9: Governments should resist reintroducing capital controls to protect their financing sources. Capital controls were introduced at the start of the First World War and kept in place until after the Spanish flu outbreak had run its course in the 1920s. It will be tempting for some governments to reintroduce capital restrictions as a means of protecting their national savings and using them to finance their yawning deficits. However, such a strategy would be sub-optimal globally as the imposition of capital controls will further exacerbate the global liquidity crunch and further disrupt cross-border investment, trade, and supply chains. This could also delay or even permanently disrupt the reestablishment of the commercial links critical to the global economic recovery from the coronavirus outbreak.

Lesson 10: Regional and international financial institutions have a vital role to play in ensuring governments are able to finance themselves through the pandemic. The IMF, World Bank, and regional financing arrangements can help to facilitate the pooling and targeting of global financing to those countries most in need – as during the Ebola outbreak when West African governments benefited from external financial support of between 5 and 10 per cent of GDP at the peak of the outbreak. Assuming the virus moves across the globe in one or more waves, as was the case during Spanish flu, countries whose citizens and economies have recovered from the virus can use these institutions to help to support those countries hit in later waves of the outbreak.

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