



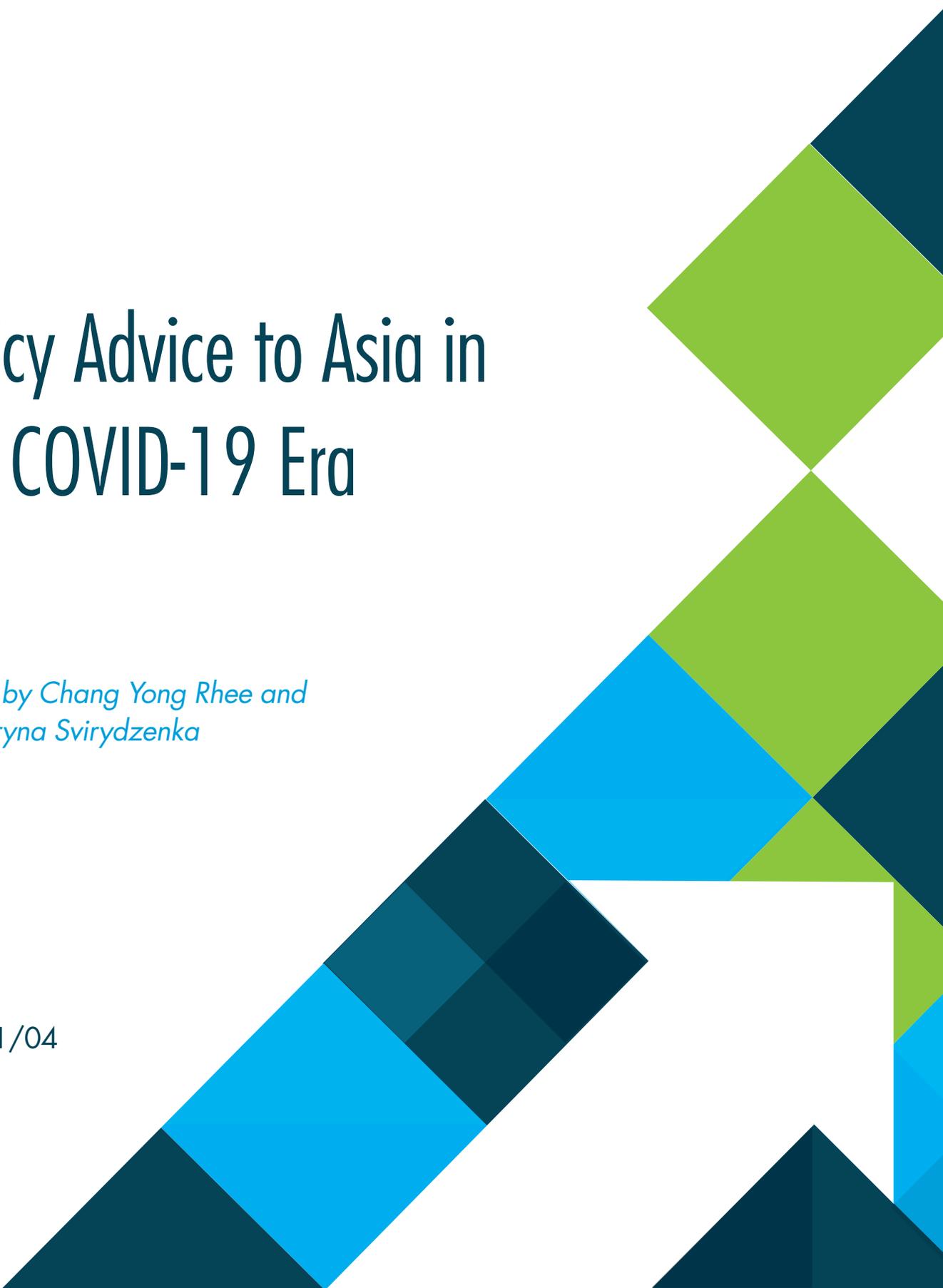
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Policy Advice to Asia in the COVID-19 Era

*Edited by Chang Yong Rhee and
Katsiaryna Svirydzenka*

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Asia and Pacific Department

Policy Advice to Asia in the COVID-19 Era

Edited by Chang Yong Rhee and Katsiaryna Svirydzenka

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Introduction

Chang Yong Rhee and Katsiaryna Svirydzienka

The Asia-Pacific region was the first to be hit by the COVID-19 pandemic; it put a strain on its people and economies, and policymaking became exceptionally difficult. This departmental paper contains the assessment of the key challenges facing Asia at this critical juncture and policy advice to the region both to address the current challenges and to build the foundations for a more sustainable and inclusive future. The paper focuses on (1) adjusting to the COVID-19 shock, (2) using unconventional policies when policy space is limited, (3) dealing with debt, and (4) helping the vulnerable and greening the recovery.

The paper first presents the different ways countries are adjusting to the COVID-19 shock. Chapter 1 takes stock of Asian countries' containment strategies and their effectiveness, highlighting three key lessons for other regions. First, containment measures should be activated early, when infection rates are still low, to effectively flatten the virus curve and reduce the depth and duration of the economic downturn. Second, exiting lockdowns after the virus has been suppressed leads to better health and economic outcomes. As China's experience shows, a sequenced approach that prioritizes essential sectors and reopens regions based on forward-looking risk assessments can reduce the economic costs of lockdowns while minimizing health risks. Third, a comprehensive testing and tracing system can minimize the risk of second waves.

The COVID-19 pandemic has triggered a severe global recession. Policymakers worldwide are understandably focused on mitigating the near-term economic fallout of this dire crisis. But if past experience is any guide, the pandemic will also have long-lasting effects. Chapter 2 presents the examples of Australia and New Zealand, two countries with strong institutions and

fundamentals, to assess the medium-term scarring impact of today's economic dislocation. Using several scenarios, the authors show a large and persistent decline in potential output and the importance of stepping up economic reforms to boost productivity growth and investment, allow for adequate reallocation of resources across sectors, and support workers affected by the transition.

These scarring effects are likely to be larger in countries that are highly dependent on tourism and other services that require in-person contact. The COVID-19 pandemic has caused global tourism to come to a virtual standstill, a major concern for many Asia-Pacific and Caribbean economies. Tourism is a major economic driver, accounting for more than 10 percent of the global economy and a major employer of youth and women and one of the most interconnected industries with multiple sectors dependent on its performance. Chapter 3 takes a first look at the depth of the damage to the tourism industry in the Asia-Pacific and Caribbean economies from the COVID-19 pandemic and discusses policies and reforms to mitigate the impact on output and jobs and help facilitate a skillful transition of the tourism sector toward the “new normal.”

Unlike in past recessions, the prospects for the global trade to lead us back to recovery are rather uncertain. If anything, the COVID-19 pandemic has the potential to accelerate the China–US trade and technology tensions and permanently change the landscape of global value chains and international investment flows. Chapter 4 studies alternative technological decoupling scenarios for the three main hubs of global production chains and sources of knowledge diffusion and spillovers—China–US decoupling, China–OECD decoupling, and a multipolar world of three technology hubs decoupled from one another—and find significant losses for most countries. The findings underscore the role of trade cooperation as a global public good.

Asia-Pacific countries provided significant fiscal and monetary policy support to cushion the impact of the pandemic on their economies. Many, especially the emerging market and developing economies, are running out of policy space. The next part of this paper focuses on the use of unconventional policies in Asia and the Pacific. Chapter 5 takes a regional focus on South Asia and documents the wide range of financial sector measures these countries have taken to ease the pressure on banks and borrowers, including debt service moratoria, targeted lending schemes, and liquidity support. Although these measures have provided appropriate short-term relief, policymakers should make modifications to minimize distortions and have a clear exit strategy, so as not to aggravate existing vulnerabilities.

Chapter 6 takes stock of the types of unconventional monetary policies (UMPs) implemented by the ASEAN-4 economies (Indonesia, Malaysia,

Philippines, Thailand), what triggered their use, whether the UMPs were effective, and their associated risks. The turn to UMPs in emerging economies has been a surprise, as the circumstances do not resemble those prevalent in advanced economies when they used these tools. Malaysia and Thailand resorted to central bank lending operations to provide extra liquidity to firms, while Indonesia and the Philippines used large-scale asset purchases. The use of UMPs, while warranted, inevitably entails risks, which will increase the longer the tools are used, and the ASEAN-4 need to take steps to mitigate them, including by establishing frameworks delineating their use.

Japan is a special case study here, as the Bank of Japan (BoJ) has been at the forefront of monetary policy innovation for several decades. Chapter 7 reviews the experience of the BoJ with the yield curve control (YCC) after it pegged the 10-year Japanese government bond (JGB) yield at about zero percent in September 2016. The BoJ's experience holds lessons for other central banks considering adopting this monetary framework. The choice of the YCC target horizon is subject to a trade-off between stimulating the economy and exposing the central bank's balance sheet to risk, as well as a trade-off between maintaining price inflation and financial stability. Exiting smoothly from YCC could be challenging; if not communicated well to investors, such monetary policy normalization could trigger a government bond market sell-off. Without an automatic exit strategy, YCC can also expose the central bank to the risk of fiscal dominance.

In the aftermath of the global pandemic, a number of countries will have to contend with debt burdens, possibly too large for them to manage. In the third section, this paper tackles the high levels of public and private sector debt in Asia and ways to address it. Chapter 8 explores how for some of the Pacific island countries, the balancing act among ensuring pandemic recovery, rebuilding fiscal buffers, and investing in climate resilience may prove too much. Given the history of weak growth and the likelihood of further exogenous shocks, debt relief or debt reduction for highly indebted and highly vulnerable Pacific Island economies may be required. Such relief could free up resources for crucial social spending on health, education, and social protection and help to catalyze an improvement in public debt management.

Chapter 9 shows that that many ASEAN firms encountered the pandemic with a record-high debt service burden, primarily as a result of a sustained decline in profitability since the global financial crisis, and more recently, the rise in financing costs. The expected impact of COVID-19 shock could lead to an unprecedented wave of corporate bankruptcies in the absence of policy interventions, with close to half of sample firms unable to generate enough earnings to cover their interest payments falling due in 2020. Policy measures should focus on re-orienting support to viable firms with liquidity short-

ages, preparing for an orderly phasing-out of exceptional support measures, strengthening insolvency systems, revitalizing firm dynamism, and reinforcing social protection.

Chapter 10 discusses more broadly how policy support for the corporate sector should evolve as economies in Asia and the Pacific stabilize and enter the recovery phase. The uncertainty about the persistence of the COVID-19 shock means that many of the measures introduced at the onset of the crisis, including emergency liquidity support, should remain in place until there are clear signs of a robust recovery. However, these measures should be complemented and gradually replaced by policies that promote and facilitate corporate restructuring. Among them, reinforcing private debt resolution frameworks to “flatten the insolvency curve,” ensuring the availability of adequate financing, and facilitating access to risk capital to speed up the reallocation of resources into growth sectors will be most important.

“One should never let a good crisis go to waste” is a quote attributed to Winston Churchill. The ongoing pandemic provides an opportunity to deliver on the longstanding promises for inclusive and green growth. In its last part, this paper explores how Asian policymakers can prepare for the post-pandemic world and build the foundations for a more sustainable and inclusive future.

The COVID-19 pandemic took a toll on Asia’s labor markets: unemployment surged, and labor force participation plunged. Chapter 11 shows that job losses were concentrated in industries with lower wages and among women and youth. The pandemic is likely to further increase inequality in the medium term, especially if it accelerates the displacement of low-skilled workers through automation and robotization. The resulting higher levels of inequality could lead to a significant increase in social unrest. While there is no one-size-fits-all solution, model-based analysis suggests that targeted policies are effective in mitigating adverse distributional consequences, while also underpinning economic activity and virus containment.

The pandemic also had a disproportionate impact on the poorest and most vulnerable, exposing severe gaps in social protection and exacerbating already high inequality in advanced and emerging Asia. Chapter 12 takes stock of how governments responded during this crisis and explores whether they should do more to support the unemployed. The chapter lays out what this support would look like, taking into account important structural features of labor markets in the region, and goes over the challenges in expanding social safety nets, including capacity, coverage, incentives, and fiscal sustainability.

The COVID-19 shock also gave a glimpse of what a better future could hold for Asia. The temporary re-allocation from energy-intensive sectors, such as airlines and transportation, provides an opportunity for job creation in more

productive and cleaner sectors. A well-designed carbon tax package and complementary product and labor market policies could support the attendant re-allocation of capital to and reskilling of labor. Chapter 13 explores how South Asia may be uniquely placed to accelerate efforts to reduce emissions—including through inclusive carbon taxes—and how such efforts will not only help limit climate change but also benefit the local economy and health of the region's population, while boosting fiscal revenues. This is important as the region continues to be one of the world's largest carbon-dioxide emitters and has a large role to play in the global fight against climate change.

SECTION

I

Adjusting to the COVID-19 Shock

CHAPTER

1

Exiting Lockdowns: Asia's Reopening Experience and Some Early Lessons

Shihui Liu, Siddharth Kothari, Longmei Zhang, and Caroline Zhou

As the COVID-19 pandemic spread across the world, governments introduced various non-pharmaceutical measures to contain the virus. These measures ranged from introducing testing and tracing systems to near-complete nationwide lockdowns covering all nonessential sectors.

Constructing Containment Indices

To analyze containment strategies followed by Asian countries, the authors leveraged inputs from IMF desk economists to develop a novel *de jure* narrative measure of containment for 11 countries in the region.¹ The stringency index captures government-imposed restrictions related to six sectors, namely schools, retail, services, industry, gatherings and public events, and international travel. Various sources are used to identify government policy actions (both the imposition of restrictions and the subsequent withdrawal) related to each sector, including a survey of IMF economists working on each country, and various publicly available sources such as the ACAPS Government Measures Dataset, government press releases, and other news sources.

The index has two key advantages relative to other publicly available indices (for example, Coronavirus Government Response Tracker of the University of Oxford developed by Hale and others 2020). First, it provides a more granular view of containment measures related to economic activity as it distinguishes between key economic sectors (services, industry, retail). Second, the

This chapter draws on analysis that will be detailed in a forthcoming IMF Working Paper titled “The Effects of COVID-19 Containment Measures on the Asia-Pacific Region.”

¹Our sample covers Australia, China, India, Indonesia, Japan, Korea, Malaysia, New Zealand, the Philippines, Thailand, and Vietnam for the period January 1–September 9, 2020.

index for China is far more granular as it is first constructed at the province level (Zhang, forthcoming), and therefore is able to better capture the easing of containment measures that aggregate indices miss.

Containment Strategies in Asia

Analysis based on our containment indices shows that Asian authorities generally responded early to the epidemic. On average, Asian countries tightened domestic restrictions five days after a significant outbreak (defined as 100 cumulative cases), though Indonesia was slower to act, waiting for 25 days. Sequencing of closures was also similar across countries, with international travel restrictions imposed first, followed by school closures.

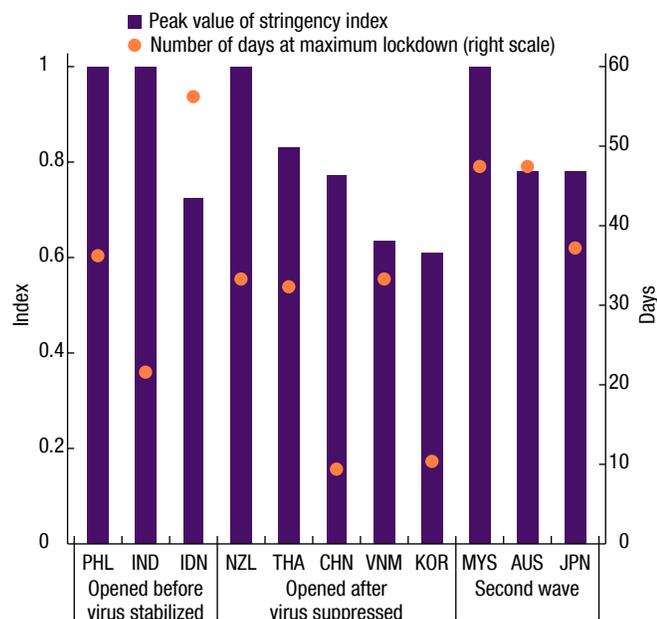
However, the stringency and duration of lockdowns differed markedly across countries (Figure 1). Several countries imposed near complete lockdowns for more than a month (Malaysia, New Zealand, Philippines), but others closed only nonessential services and allowed industrial sectors to continue operating (Australia, Thailand, Vietnam). Korea, however, did not implement mandatory shutdowns, instead issuing strong recommendations regarding business closures, relying on voluntary social distancing and a comprehensive testing and tracing infrastructure to contain the virus.

The effectiveness of lockdowns in reducing infection rates also varied across countries. In general, restrictions tend to be more effective in flattening the epidemic curve if implemented early, that is, when infection rates are still low (Deb and others 2020a; IMF 2020b). On the other hand, challenges (caused by government capacity constraints) in implementing and enforcing lockdowns, especially in more densely populated emerging markets with greater levels of informality and poverty (Deb and others 2020a, 2020b), may have made lockdowns less effective (India, Indonesia, Philippines). Limited health care capacity, including in testing and tracing, may have also affected the effectiveness of lockdowns. Several countries ramped up testing and tracing capabilities, but some countries lagged behind (Indonesia, Philippines).

Asian countries generally reopened their economies after suppressing the virus. Most eased restrictions when new cases were more than 80 percent below peak levels (Figure 2). In this group, only Australia, Japan, and Malaysia have seen a substantial second wave of infections. Some others witnessed smaller outbreaks, though these have largely been contained (China, Korea, New Zealand, Vietnam).

Some countries, however, reopened before infection rates fell significantly and experienced an increase in cases after opening. India started easing restrictions while virus cases were still rising, and Indonesia and the Philippines

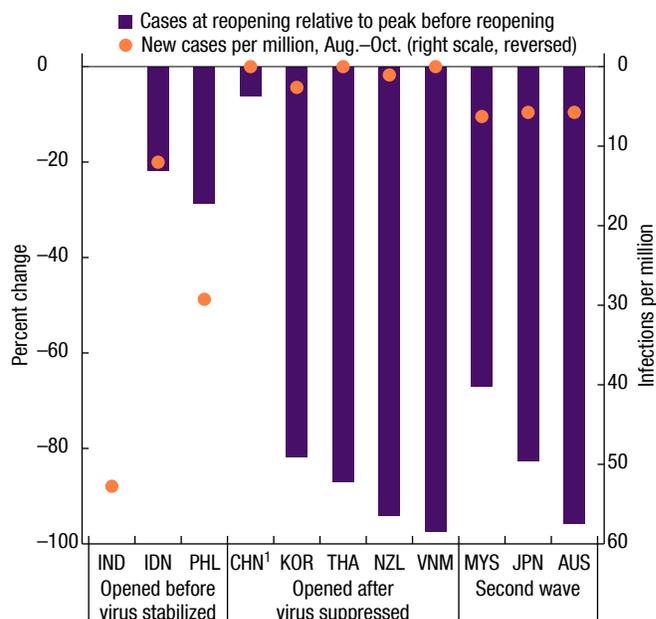
Figure 1. Lockdown Stringency and Duration
(Index; days, right scale)



Source: IMF staff estimates.

Note: Stringency index averages across sub-indices for six sectors (retail, services, industry, school, international travel, public gatherings). Each subindex normalized to lie between 0 and 1, with 1 implying the sector is fully closed and 0 implying fully open. Country abbreviations are International Organization for Standardization country codes.

Figure 2. Reopening Timing and Latest Infection Rates
(Percent change, infections per million, right scale)



Source: IMF staff estimates.

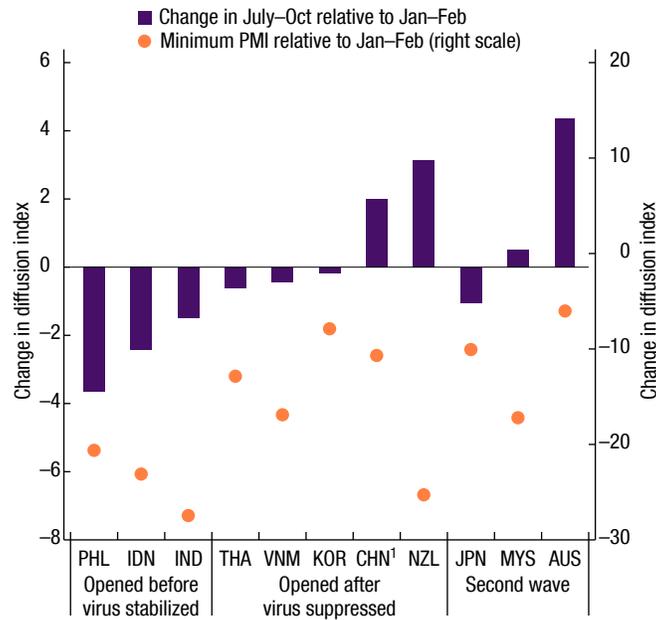
Note: Reopening date is defined as the first time the stringency index declines from its peak.

¹Excludes Hubei. In China, the reopening date based on the index is February 9, 2020, when some low-risk provinces were reopened. Because the reopening strategy differed significantly across provinces and was based on province-level trends, China is not classified as having “opened before virus stabilized,” even though the number of cases nationally had not declined significantly from its peak. Country abbreviations are International Organization for Standardization country codes.

had seen a stabilization in cases but had not suppressed the virus. The decision to reopen early in the epidemic cycle in these countries was potentially motivated by the perceived high economic cost of the lockdown (especially for informal workers with limited access to social safety nets) compared with smaller health gains, given favorable demographics (a younger population that is at lower risk) and higher population density. These early openers have continued to experience a high number of new infections (Figure 2), reflecting a pickup in mobility after reopening, less scope for voluntary social distancing, and other factors like mass movement of migrant workers in India.

The speed of reopening has been slower in the early openers, reflecting persistently high infection rates. Indonesia, India, and the Philippines relaxed their harshest containment measures, but many sectors remain partially closed (that is, some states or subsectors have not reopened). However, countries that started easing restrictions after virus cases subsided have continued

Figure 3. Change in Manufacturing PMI
(Change in diffusion index)



Source: Haver Analytics.

Note: PMI = purchasing managers' index.

¹For China, January PMI is used instead of average over January and February because the impact of the epidemic was already visible in February. Country abbreviations are International Organization for Standardization country codes.

easing restrictions over time, and many sectors now either are completely open or operating with enhanced health protocols. Some of these countries adopted a sequential approach, reopening lower-risk regions or sectors first, and have also reimposed localized lockdowns if needed to control new virus clusters (China, Vietnam).

Economic activity has also recovered more slowly in the early openers. Average purchasing managers' indexes in the second half of 2020 remain significantly below pre-COVID-19 levels in India, Indonesia, and the Philippines (Figure 3), potentially reflecting slower pickup in de facto mobility as high infection rates led to a fear of becoming infected and limited or insufficiently implemented fiscal stimulus (Philippines). By contrast, indexes recovered or surpassed pre-COVID-19 levels in most countries that reopened after they had suppressed the virus.

Health measures such as testing and contact tracing have played an important role in mitigating the spread of the virus after exiting lockdowns. An increase in mobility and social interactions after lockdowns were lifted has

led to new infection clusters in several countries that had suppressed the virus. In Australia, Japan, and Malaysia these have led to second waves. The re-imposition of strict containment measures in affected regions helped contain the second wave in Australia. New cases have also declined from their peak in Japan, though in Malaysia, where the second wave is more recent, case counts remain high as of early November. However, an effective testing, tracing, and quarantining system has helped some countries detect and contain infection clusters before they led to widespread community transmission (China, Korea, New Zealand, Vietnam). Vietnam has used a comprehensive tracing system to quarantine all close contacts of positive cases. China and Korea have used technology and big data to significantly improve the efficiency of contact tracing and conduct risk assessment at a granular level. Localized lockdowns have also been imposed in hot spots to prevent further spread of the virus.

Lessons from Asia's Experience

Asia's experience highlights three key lessons:

- Containment measures should be activated early, when infection rates are still low, to effectively flatten the virus curve and reduce the depth and duration of the economic downturn (IMF 2020b, 2020c).
- Exiting lockdowns after the virus has been suppressed leads to better health and economic outcomes. As China's experience shows, a sequenced approach that prioritizes essential sectors and reopens regions based on forward-looking risk assessments can reduce the economic costs of lockdowns while minimizing health risks.
- A comprehensive testing and tracing system can minimize the risk of second waves. Adequate testing is needed to ensure early detection of new infection clusters, and an effective tracing and isolation system (including quarantining of close contacts and localized lockdowns) can reduce community transmission, preventing clusters from becoming more widespread. Although some system of testing and tracing is likely to be important in controlling second waves, the exact details of the system will vary across countries, depending on societal preferences and legal protections relating to privacy.

CHAPTER

2

Addressing the Pandemic's Medium-Term Fallout in Australia and New Zealand

Geoffrey Bannister, Harald Finger, Yosuke Kido, Siddharth Kothari, and Elena Loukoianova

The COVID-19 pandemic triggered a severe global recession in 2020. Australia and New Zealand have been markedly affected, with a second quarter of 2020 GDP decline of 7.0 percent in Australia and 9.5 percent (expenditure side) in New Zealand. Although a recovery has begun in many countries, it remains uneven, and policymakers around the globe remain understandably focused on mitigating the near-term economic fallout of the crisis.

But if past experience is any guide, the pandemic will also have long-lasting effects. While the current crisis, with a large initial supply shock due to containment measures, is arguably different from most recessions, cross-country evidence can nonetheless provide a useful historical context. A look at past recessions in advanced economies reveals that on average, even five years after the start of a recession, output is still about $4\frac{3}{4}$ percent below its precrisis trend and unlikely to ever catch up (Figure 4). Severe recessions, which are often accompanied by financial crises, have even worse effects, with output still some 11 percent below the pre-recession trend five years on. The long-lasting effects are driven by significant declines in the growth of productivity and the capital stock, along with a persistent increase in unemployment.¹

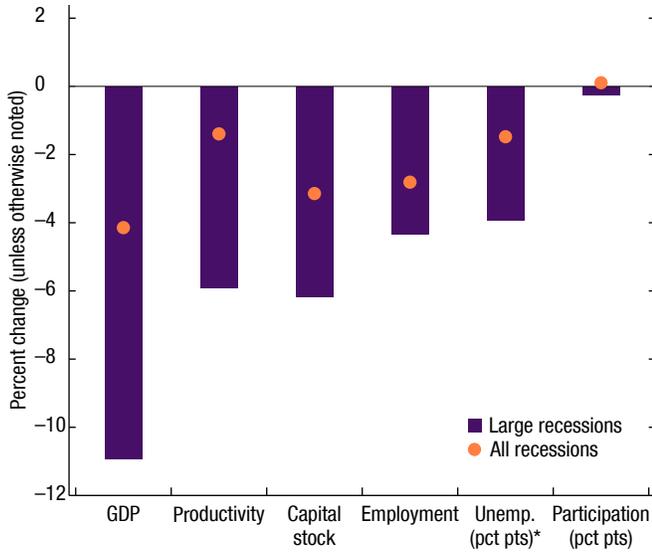
Growth of potential output had slowed in Australia and plateaued in New Zealand already before the pandemic.² A slowdown in productivity

Based on Bannister and others (2020).

¹*Productivity* refers to *total factor productivity*, or the economy's efficiency in making use of capital and labor to produce output.

²*Potential output* refers to the economy's capacity to sustainably produce output without inflationary pressures.

Figure 4. Recessions Have a Marked Medium-Term Impact
(Deviation from pre-recession trend after five years)

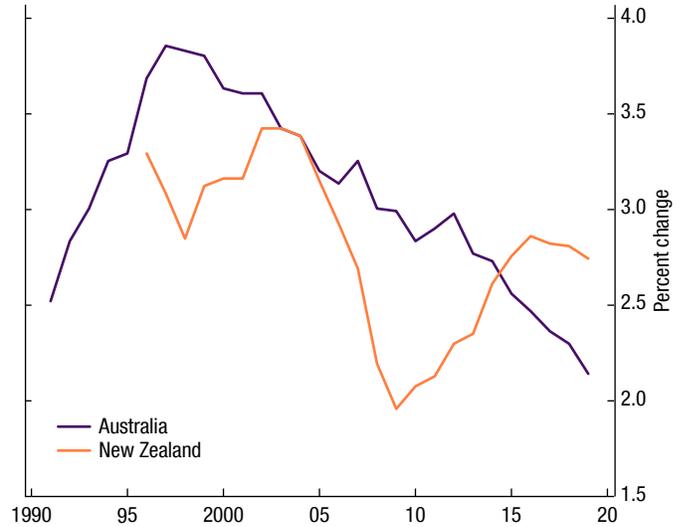


Sources: PWT; Organisation for Economic Co-operation and Development; and IMF staff calculations.

Note: Productivity = total factor productivity; Unemp = unemployment rate; Participation = labor force participation rate. Plotted values show percentage points deviation for the unemployment and participation rates. Estimates based on local projection method. Sample consists of 23 advanced economies from 1970 to 2012. Recession definition taken from Martin, Munyan, and Wilson (2015). Large recession defined as a recession in the top quartile of all recessions (peak-to-trough decline in output of 4¼ percent).

*Scale reversed.

Figure 5. Potential Output Growth Moderated Already Pre-COVID-19
(Potential output growth, percent change)



Source: IMF staff calculations.

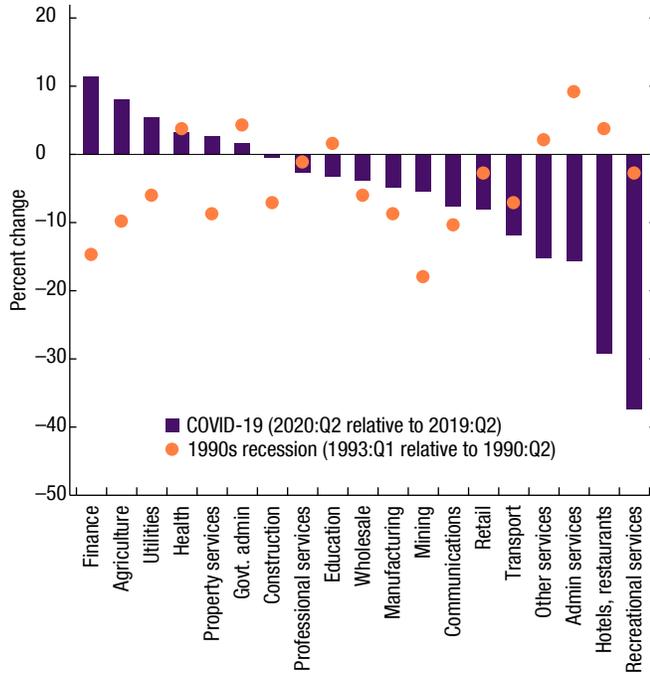
growth and weak capital accumulation have contributed to the decline in potential growth in Australia (Figure 5). In New Zealand, robust growth in the working-age population due to migration was offset by weak productivity growth.

The pandemic will further reduce potential output, with several channels leading to scarring:

- **The economic reorientation away from the most severely affected sectors and frozen migration will limit labor supply.** COVID-19 containment measures and related changes in consumer preferences are likely to lead to a significant sectoral reallocation of the economy. Especially services that require face-to-face contact, like tourism and recreational activities, may not fully recover in the near term (Figure 6). In fact, the extent of sectoral reallocation during the pandemic has been larger than at any time in the past two decades (Figure 7). Such a large displacement can lead to skills mismatches in the labor market. Our estimates indicate that this can

Figure 6. Labor is Exiting Sectors that Require Face-to-Face Contact

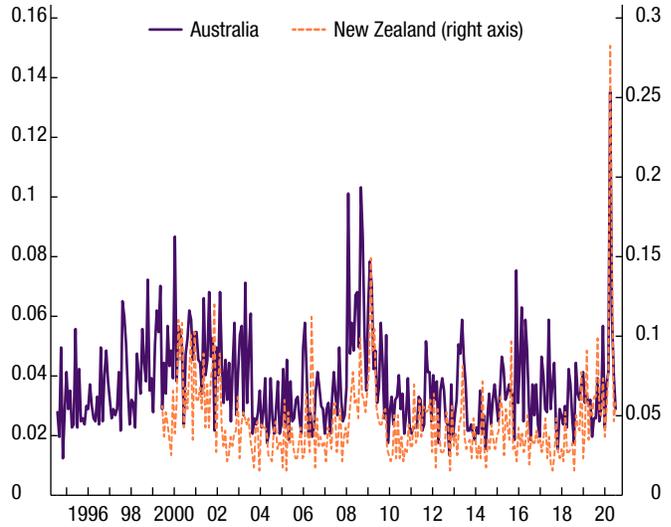
(Employment growth by sector, Australia)



Source: Haver Analytics.

Figure 7. The Speed of Economic Reallocation across Sectors Is Unprecedented

(Index of market-implied sectoral reallocation)



Sources: FTSE; and IMF staff calculations.

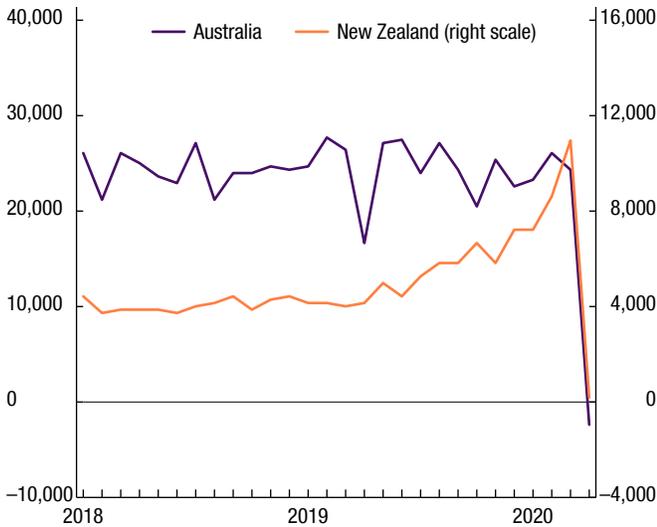
Note: The figure shows Lilien (1982) sectoral reallocation index calculated from FTSE industry-level stock price data (25 industries for Australia, 12 industries for New Zealand).

lead to an increase in structural unemployment of about 0.6–0.8 percentage point in the medium term.

In addition to this, immigration, which has been responsible for about 60 to 70 percent of the population increase in both countries in recent years, has fallen due to border closures and is likely to take several years to fully recover (Figure 8), putting a further damper on labor supply.

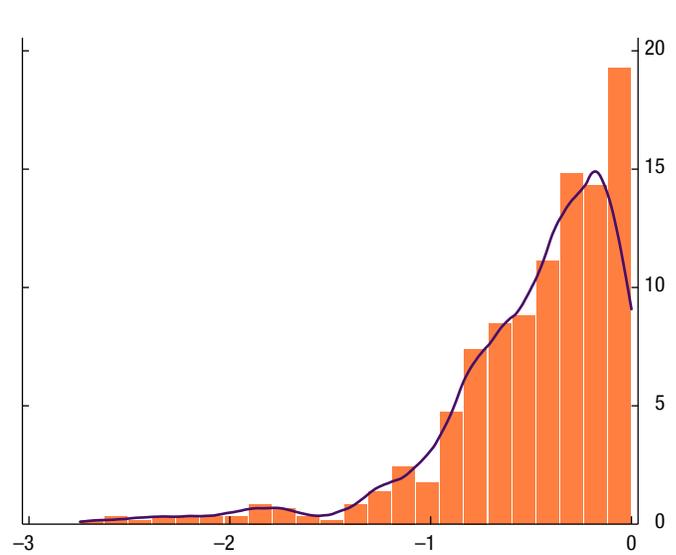
- **Low growth, heightened uncertainty, and rising corporate debt will lead to lower capital accumulation.** Firms are likely to delay investment decisions due to poor growth prospects and greater uncertainty. In addition, as firms borrow to overcome the profound shock, the increase in corporate debt can leave less appetite to finance investments (Figure 9). As a result, projections point to a decline in the capital stock by about 5–6 percent relative to the pre-COVID trend.
- **Productivity growth is also likely to decline.** Recessions tend to be accompanied by a persistent decline in productivity as lower investment, especially in research and development, reduces innovation. Rising mar-

Figure 8. Inward Migration Has Come to a Halt
(Monthly net migration, headcount)



Sources: ABS; and Stats NZ.

Figure 9. Firms' Rising Debt Will Hinder Capital Accumulation
(Firm-level impact of rising debt on investment-to-capital ratio for Australian firms, percentage points)



Source: IMF staff calculations.

Note: Y-axis indicates percent of firms and x-axis indicates change in invest-to-capital ratio due to increase in debt-to-asset ratio. Impacts are calculated based on firm-level investment regression and Australian Bureau of Statistics business survey.

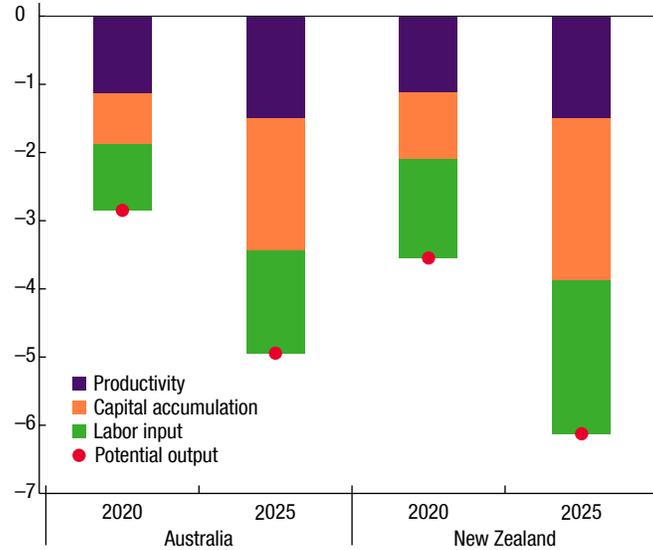
ket concentration, driven by bankruptcies and weak startup activity, can harm healthy market competition and further reduce incentives to innovate. In this recession, the migration of jobs from hard-hit, less-productive service sectors to potentially more productive sectors may offset some of that decline. On net, however, our projections point to a further decline in medium-term productivity by about 1.5 percent compared to the pre-COVID trend.

All told, projections are for a significant and persistent decline in potential output. Although the growth rate of potential output is expected to recover over the medium term, projections indicate that the level of potential output may remain significantly below precrisis projections in Australia and New Zealand, reflecting reduced labor supply, capital stock, and productivity (Figure 10). While there is naturally significant uncertainty around any point projections, various scenarios point to a decline in potential output within a range of 2¾ to 7¼ percent for Australia and 3¾ to 8½ percent for New Zealand by 2025 relative to precrisis projections (Figure 11).

Stepping up economic reforms will be paramount to mitigate COVID-19's fallout on medium-term output. Australia and New Zealand have imple-

Figure 10. COVID-19 Will Have a Lasting Impact under the Baseline Scenario

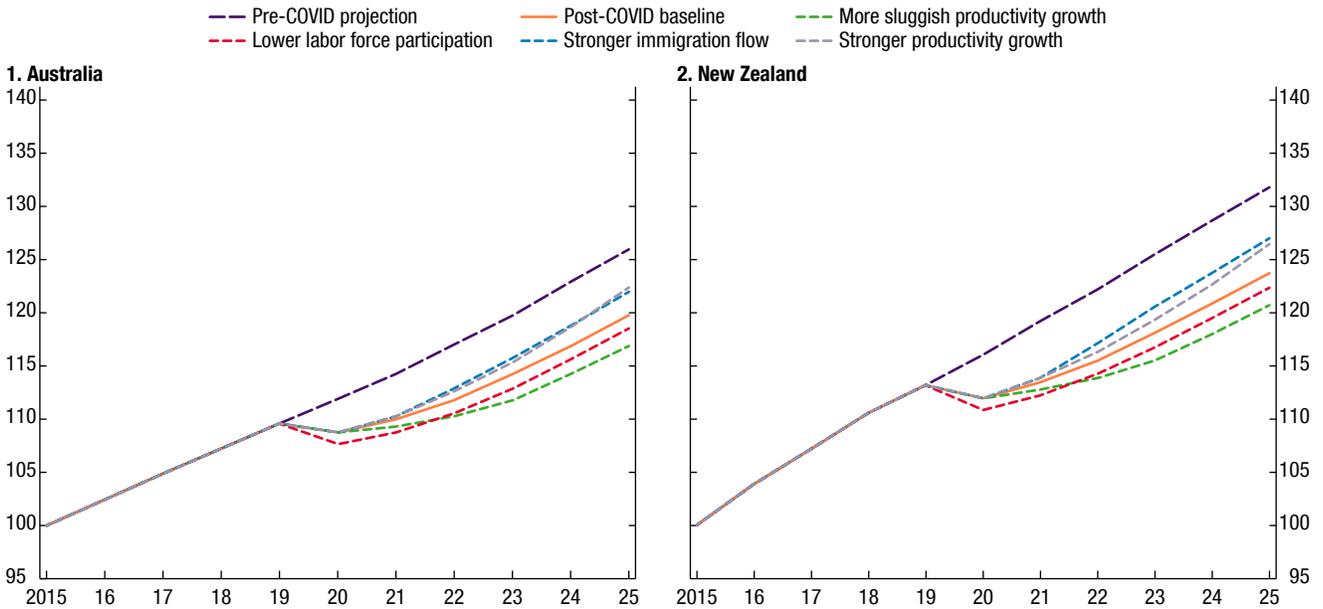
(Potential output, deviation from pre-COVID-19 trend, percent)



Source: IMF staff calculations.

Figure 11. COVID-19's Economic Impact Will Be Sustained Also under Alternative Scenarios

(Projected potential output, 2015 = 100)



Source: IMF staff calculations.

Note: Pre-COVID projection is projection as of January 2020 *World Economic Outlook Update*.

mented crisis-management policies including large-scale fiscal stimulus, featuring wage subsidies, and ultra-loose monetary policy. Vigorous fiscal and monetary stimulus should be maintained until the recovery is well-entrenched, to support demand and limit the medium-term fallout from scarring. As the recovery gets under way, a shift in focus will be needed to render growth more robust and inclusive by prioritizing economic reforms to boost productivity growth and investment, allow for adequate reallocation of resources across sectors, and support workers affected by the transition. Gradually replacing wage subsidies, which aim to maintain pre-existing employment relationships with well-targeted hiring subsidies and adequate unemployment benefits, can allow for a more efficient reallocation of jobs across sectors while protecting workers caught in the transition. Focusing on retraining displaced workers can help reduce skill mismatches. Infrastructure upgrades, including a push into green investments and the digital economy, can help boost the productive capacity of the economy. Reforms to simplify business processes and reduce the regulatory and tax burden can boost innovation, productivity, and investment. As these reforms typically take significant time to boost output, the time to start is now to support medium-term growth and living standards and to help replenish policy buffers for future economic shocks.

CHAPTER

3

The Future of Tourism in the Post-Pandemic World: Economic Challenges and Opportunities for Asia-Pacific and the Western Hemisphere

Aleksandra Babii, Serhan Cevik, Stella Kaendera, Dirk Muir, Sanaa Nadeem, and Gonzalo Salinas

The COVID-19 pandemic has caused global tourism to come to a virtual standstill, a major concern for many Asia-Pacific and Caribbean economies. This chapter takes a first look at the depth of the COVID-19-related damage to tourism in the Asia-Pacific and Caribbean economies. It then discusses policies and reforms to mitigate the impact on output and jobs and help facilitate a skillful transition of the tourism sector toward the “new normal.”

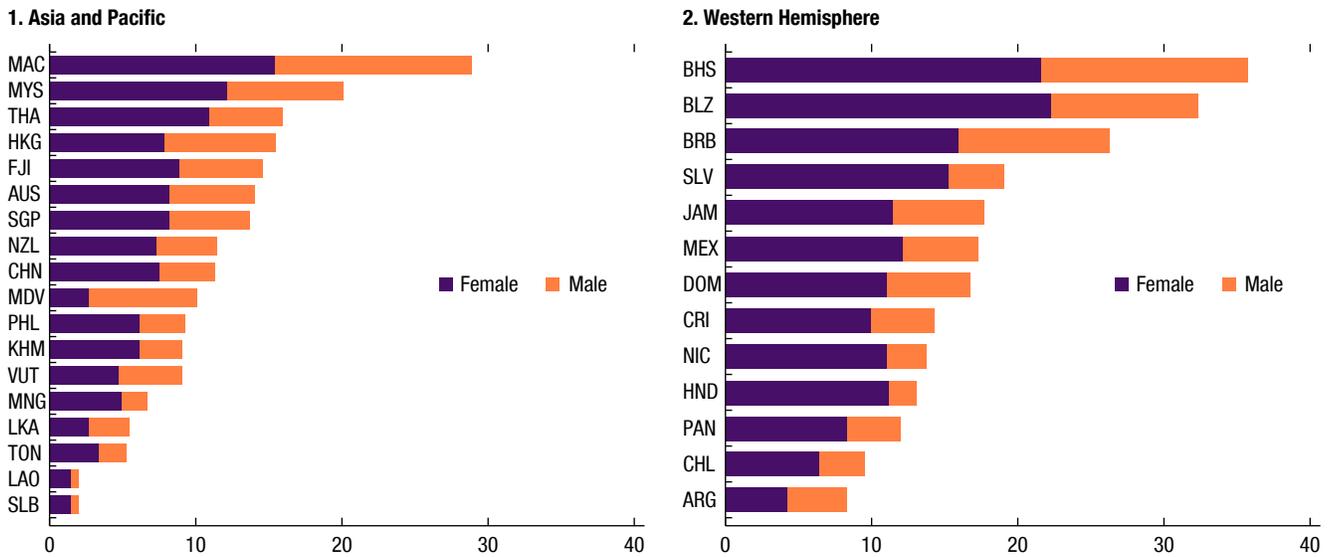
Why Is Tourism so Special?

The COVID-19 pandemic, a global crisis like no other in modern history, has led to a sudden stop in travel and a collapse in economic activity across the world. Tourism is a major economic driver, accounting for more than 10 percent of the global economy and a major employer of youth and women (Figure 12).¹ It is also one of the most interconnected industries

Based on a forthcoming departmental paper prepared by a joint team from the IMF Asia-Pacific and Western Hemisphere Departments, expected to be published January/February 2021, with valuable contributions by Ali Al-Sadiq, Vybhavi Balasundharam, To-Nhu Dao, Jayendu De, Keenan Falconer, Martina Hengge, Robin Koepke, Takuji Komatsuzaki, Raadhika Vishvesh, Karim Youssef, and Tianle Zhu, under the supervision of Manuela Goretti and Lamin Leigh and the guidance of Kenneth Kang and Krishna Srinivasan.

¹On average, tourism directly accounts for about 3½ percent of global GDP; according to the World Travel and Tourism Council (2020) it “includes GDP generated by industries that deal directly with tourists, including hotels, travel agents, airlines and other passenger transport services, as well as the activities of restaurant and leisure industries that deal directly with tourists.” However, given tourism’s significant interlinkages with other sectors and complex supply chain—its *indirect* contribution, including capital investment, government spending in support of tourism activities, and supply chain effects, and *induced* contribution, including spending by those directly or indirectly employed by tourism—are sizeable. Thus, the total contribution of tourism accounting for direct, indirect and induced components is estimated to extend to more than 10 percent of global GDP.

Figure 12. Tourism Share of Employment
(Percent)



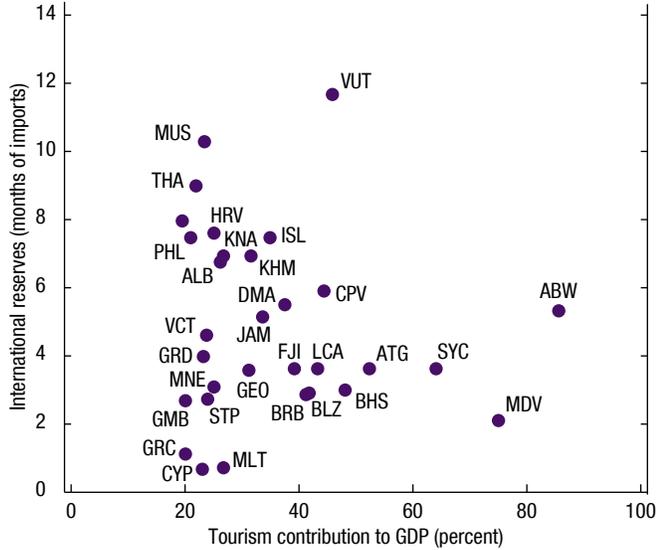
Sources: International Labour Organization; and IMF staff calculations.
Note: Country abbreviations are International Organization for Standardization country codes.

with multiple sectors dependent on its performance. The pandemic is having severe repercussions on the complex global tourism supply chain, putting millions of tourism jobs at risk. Informal and migrant workers, particularly women and youths, have suffered disproportionately from diminished employment opportunities and lack of access to safety nets, leading to increased poverty and slowing progress toward the 2030 UN Sustainable Development Goals. The decline in tourist flows is expected to weigh heavily on the current account balances of tourism exporters (see IMF 2020e).

What Is the Impact of the COVID-19 Pandemic on the Economy and on Tourism Flows?

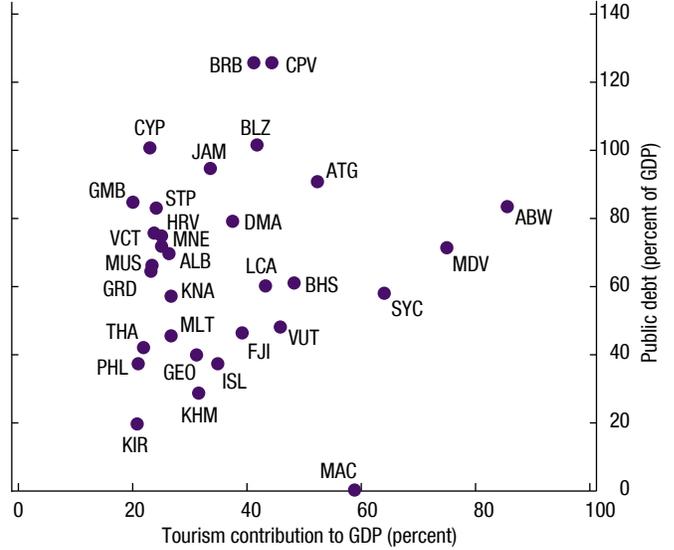
This paper analyzes the depth of the damage caused by the COVID-19 pandemic to tourism in the Asia-Pacific, Latin America, and Caribbean economies. Many tourism-dependent economies in these regions, including small states in the Pacific and the Caribbean, entered the pandemic with limited fiscal space, together with inadequate external buffers and foreign exchange revenues highly concentrated in tourism (Figures 12–15). The empirical analysis leverages on an augmented gravity model to draw lessons from past epidemics and find that the impact of epidemics on tourism flows

Figure 13. International Reserves and Tourism Contribution to GDP, 2018
(Percent)



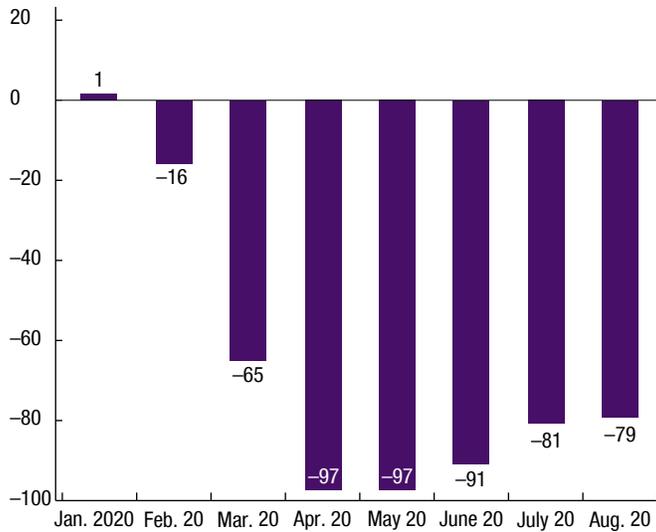
Source: IMF staff calculations.
Note: Country abbreviations are International Organization for Standardization country codes.

Figure 14. Public Debt and Tourism Contribution to GDP, 2018
(Percent)



Source: IMF staff calculations.
Note: Country abbreviations are International Organization for Standardization country codes.

Figure 15. International Tourism Arrival, August 2020
(Year-on-year change, percent)



Source: UN World Tourism Organization.

are much greater in developing countries than in advanced economies.² Given the exceptional nature of this crisis, forward-looking model simulation results for tourism-dependent economies show scope for a faster recovery, if rapid advancements in vaccine distribution were to bring back travel to pre-pandemic levels, but also significant downside risks from protracted uncertainty and limited vaccine effectiveness and availability, with deep and long-term scarring effects potentially amplifying existing vulnerabilities.³

The paper also explores several innovations given the peculiarities of the tourism industry and high pandemic uncertainty. The paper finds strong correlation between the spread of COVID 19 and big data high-frequency indicators on travel, which suggests that the quality of healthcare systems will be pivotal in the post-pandemic recovery of the tourism sector. The analytical and modeling techniques leverage the interaction between epidemiology, tourism development models, and macro-structural features of tourism dependent economies. The analysis suggests, among other things, the challenges that tourism-based economies could face in leapfrogging from high-density to socially distanced tourism. For some countries, the inherent rigidities to switch from one tourism business model to another, combined with the likely protracted process of building consensus across stakeholders, could amplify the pre-pandemic macro and structural vulnerabilities and make the transition to the new normal more challenging.

What Are the Policy Options?

The paper also explores policy options to navigate the post-pandemic world. The COVID-19 pandemic could create long-term scarring effects. How tourism recovers will depend on the availability of a vaccine and policy choices made during the pandemic. Specifically:

- **Phase 1, crisis mitigation:** In response to the COVID-19 shock, many countries have provided fiscal support to buttress demand for the industry and preserve jobs. Further support may be needed and there is scope for well-designed fiscal stimulus to support the most affected sectors including the poorest households and businesses, while being mindful of available fiscal policy space and debt sustainability concerns.

²An augmented gravity framework and data on previous infectious-disease episodes are used to predict international tourism flows, building on Cevik (2020).

³Details of the simulation results can be found in the forthcoming departmental paper prepared by a joint team from the IMF Asia-Pacific and Western Hemisphere Departments, which is expected to be published January/February 2021.

- **Phase 2, reopening:** As countries reopen their economies and borders, special attention should be devoted to health and hygiene protocols. During this transition phase, domestic tourism is being incentivized in several countries through attractive offers from hotels and tour operators, and the tourism sector is being integrated into governments' reopening strategies. The creation of COVID-free travel bubbles also shows some potential across regions despite implementation challenges. Targeted policies to address the pandemic impact on youth and women, enhancing access to new opportunities, including through digitalization, can help mitigate the scarring effect in the tourism sector, broaden inclusion, and help lift potential growth. As many firms in the industry, especially small and medium-sized enterprises, are at risk of slipping from liquidity stress into insolvency, critical to the recovery will be the ability to monitor and promote needed restructuring and retooling in a timely manner.
- **Phase 3, recovery:** As the recovery takes hold, a shift to eco-sustainable tourism services with lower density, higher value-added, and greater digitalization may allow countries to reduce the health risks potentially associated with mass travel, foster a greener recovery, as well as diversify their economies to increase their resilience to future shocks. This challenging juncture also presents an opportunity to accelerate long-term structural transformation, within and beyond the tourism sector, to mitigate the impact on output and jobs and adapt to the post-pandemic normal. Harnessing a long-term solution will require global cooperation, starting with the immediate priority of establishing global safety and health protocols as well as making widely available a reliable vaccine.

Technological Decoupling in the Post-COVID-19 Era? Implications for Asia and Beyond

Diego Cerdeiro, Johannes Eugster, Rui Mano, Dirk Muir, and Jay Peiris

China–US trade and technology tensions are worrisome for both Asia and the world, particularly at a time when the COVID-19 pandemic is disrupting trade flows and global logistics. China and the United States are two key technology hubs for global value chains (GVCs) and are important sources of global technological progress, expanding the technology frontier that then benefits Asia and the world. We find significant losses for most countries in a range of illustrative decoupling scenarios.

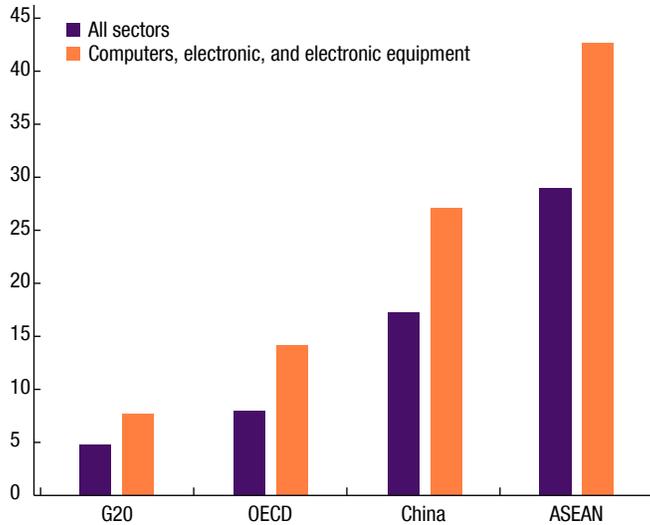
Barriers to trade and investment in high-tech goods and services between major economies could have profound impacts on GVCs and global production patterns. Technological decoupling in this sense can be especially harmful to the global economy as high-tech production is heavily dependent on cross-border trade. For example, the share of foreign value-added in gross exports in the electronics sector is significantly higher than for all sectors in aggregate, especially in Asia (Figure 16). In addition, restrictions on the international diffusion of technology—for example, in the form of foreign direct investment or access to patents or software—will make national R&D efforts less productive globally by limiting positive knowledge spillovers among countries.

Technological decoupling between countries can in practice take many different forms. Here, it occurs by nearly eliminating trade between decoupling countries in high-tech sectors.¹ Three broad alternatives of technological decoupling are considered (Table 1). The first is the possibility of a China–US decoupling. The second is one in which OECD economies as a bloc

Based on the results from a forthcoming working paper on technological decoupling.

¹As defined by the OECD (2011) classification of technological intensity.

Figure 16. Interdependent High Tech
(Share of foreign value added in gross exports, 2015, percent)



Sources: OECD TiVA; and IMF staff calculations.
Note: ASEAN = Association of Southeast Asian Nations.

Table 1. Technological Decoupling Scenarios

Scenario #	Global Hubs	Preferential Attachment by Non-Hub Countries?
1	China United States	No
2	China United States	Yes
3	China OECD	No
4	China OECD	Yes
5	China United States Germany	No
6	China United States Germany	Yes

Source: IMF staff.

Note: In all scenarios, non-tariff barriers are raised so as to nearly eliminate trade in high-tech sectors.

decouple from China. The third is a multipolar world of three technology hubs decoupled from one another, centered on China, Germany, and the United States. There is the question of how other “third” countries interact with the hubs. Two possibilities are considered—third countries trade with each hub freely, or they align themselves with the hub for which their total trade is highest and only trade with other countries in that alignment, which are labeled here as “preferential attachment.”

The macroeconomic effects of these technological decoupling scenarios are assessed in three layers using the IMF Global Integrated Monetary and Fiscal model (GIMF) following the broad approach of IMF (2018a) and (2018b).

Table 2. Long-term Impacts on Real GDP due to Sectoral Misallocation for Selected Countries
(Percent deviation from steady state)

Hubs	Preferential Attachment?	Country									
		Asia			Americas				Europe		
		CHN	JPN	KOR	USA	CAN	MEX	BRA	DEU	FRA	GBR
China United States	No	-0.6	0.1	0.1	-0.4	0.3	0.4	0.0	0.0	0.0	0.1
	Yes	-1.4	-1.0	-2.0	-0.7	0.1	0.8	-0.4	-3.3	-1.5	-1.3
China OECD	No	-2.8	-0.7	-2.9	-0.3	-0.2	0.3	0.0	-0.9	-0.2	-0.2
	Yes	-3.9	-0.6	-3.0	-0.3	-0.2	0.3	-0.1	-0.5	-0.2	-0.2
China United States Germany	No	-0.9	0.2	0.5	-0.4	0.4	0.6	0.0	-2.0	0.2	0.3
	Yes	-2.0	-1.1	-2.3	-0.9	-0.1	1.2	-0.7	-2.7	-1.3	-2.5

Source: IMF staff calculations.

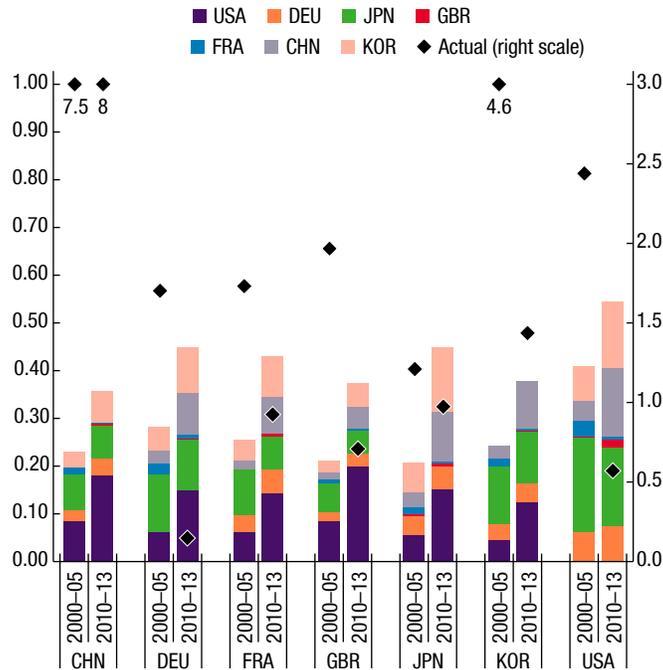
Note: Country abbreviations are International Organization for Standardization country codes.

- The short- and long-term **trade channel**, whereby higher non-tariff barriers depress the relative demand for high-tech imports, which is compounded by investment and consumption responses to permanent income losses.
- The long-term impact on output due to **sectoral misallocation**, a less-efficient allocation of resources across sectors (Table 2), quantified using a sectoral, computable general equilibrium trade model (Caliendo and others 2020).
- The dynamic losses due to the effect of **lower cross-border knowledge diffusion** on domestic labor productivity. These effects are derived empirically from data on patents, R&D spillovers and their productivity effects among technology leaders (IMF 2018d) extended to include China and Korea. This novel analysis shows that knowledge flow is a two-way street, as China has become an important contributor to the global knowledge frontier. For example, China's contribution to US labor productivity now accounts for about one-fourth of the total knowledge spillovers the United States receives from abroad (Figure 17). Spillovers to other countries depend on which countries are linked to one another through the hub and preferential attachment arrangements in each scenario.

The results suggest that most countries, including the global technology hubs, lose across scenarios. In all scenarios, China loses the most with Korea coming second in four scenarios. In Figure 18, the authors compare the scenario with the least impact on China, the China–US decoupling scenario without preferential attachment (Scenario 1) against that with the largest, the China–OECD decoupling scenario with preferential attachment (Scenario 4).² The first layer (the dotted lines) shows the impact of a collapse in high-tech goods trade which would be felt mostly by China in Scenario 1 and those countries currently integrated with China in high-tech supply chains (Korea and Japan) in Scenario 4. Some countries (for example, Korea and Japan) might

²See the Annex for all six scenarios. For greater detail, see the forthcoming departmental working paper.

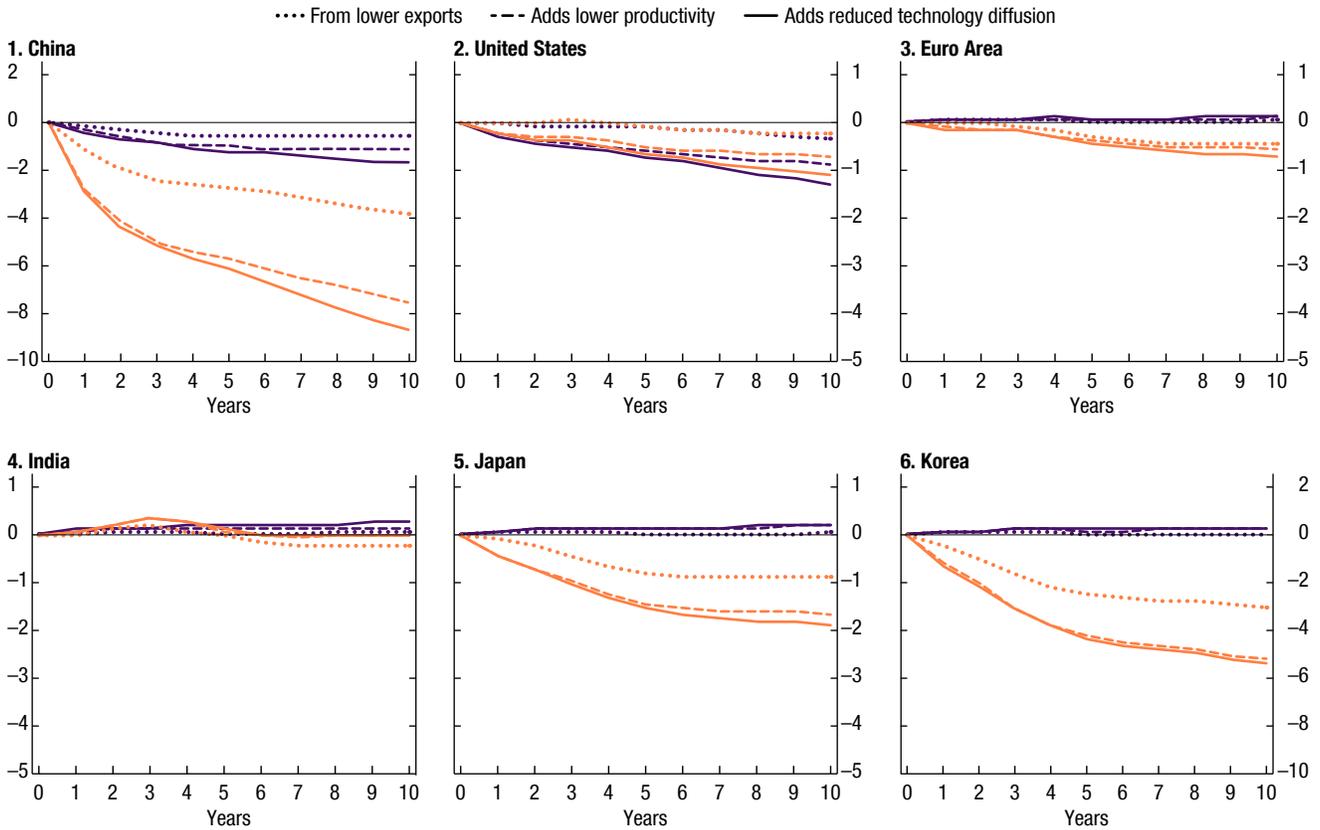
Figure 17. Contributions to Labor Productivity Growth¹
(Percent)



Source: IMF staff calculations.
 Note: Country abbreviations are International Organization for Standardization country codes.
¹Using adjusted Chinese research and development data.

see more benefits from trade diversion in Scenario 1 when the United States decouples from China. India, which has a diverse industrial base, can fill in for either Chinese or US goods in both scenarios. This phenomenon mimics that seen during the China–U.S. trade tensions of the past couple of years (Nicita 2019). A second layer (the dashed lines), adding the costs due to misallocation of labor and capital across sectors (based on Table 2), significantly amplifies the costs. In this layer, China experiences the greatest impacts as it undergoes the largest disruptions in both scenarios. The third layer (the solid lines), assuming temporary reductions in labor productivity growth in tradable goods sectors due to lower technological diffusion (based on Figure 2), has a significant but more modest impact. In this layer, both China and the United States experience notable impacts given that there is significant two-way diffusion. Altogether, China’s potential GDP could be reduced by 1.7 to 8.7 percent in the long term. Korea and Japan could either be slightly positive (Scenario 1) or lose 1.9 and 5.4 percent respectively (Scenario 4) as links with China are broken.

Figure 18. China/United States versus China/OECD Decoupling: Real GDP for Select Regions
(Percent deviation from October 2020 World Economic Outlook)



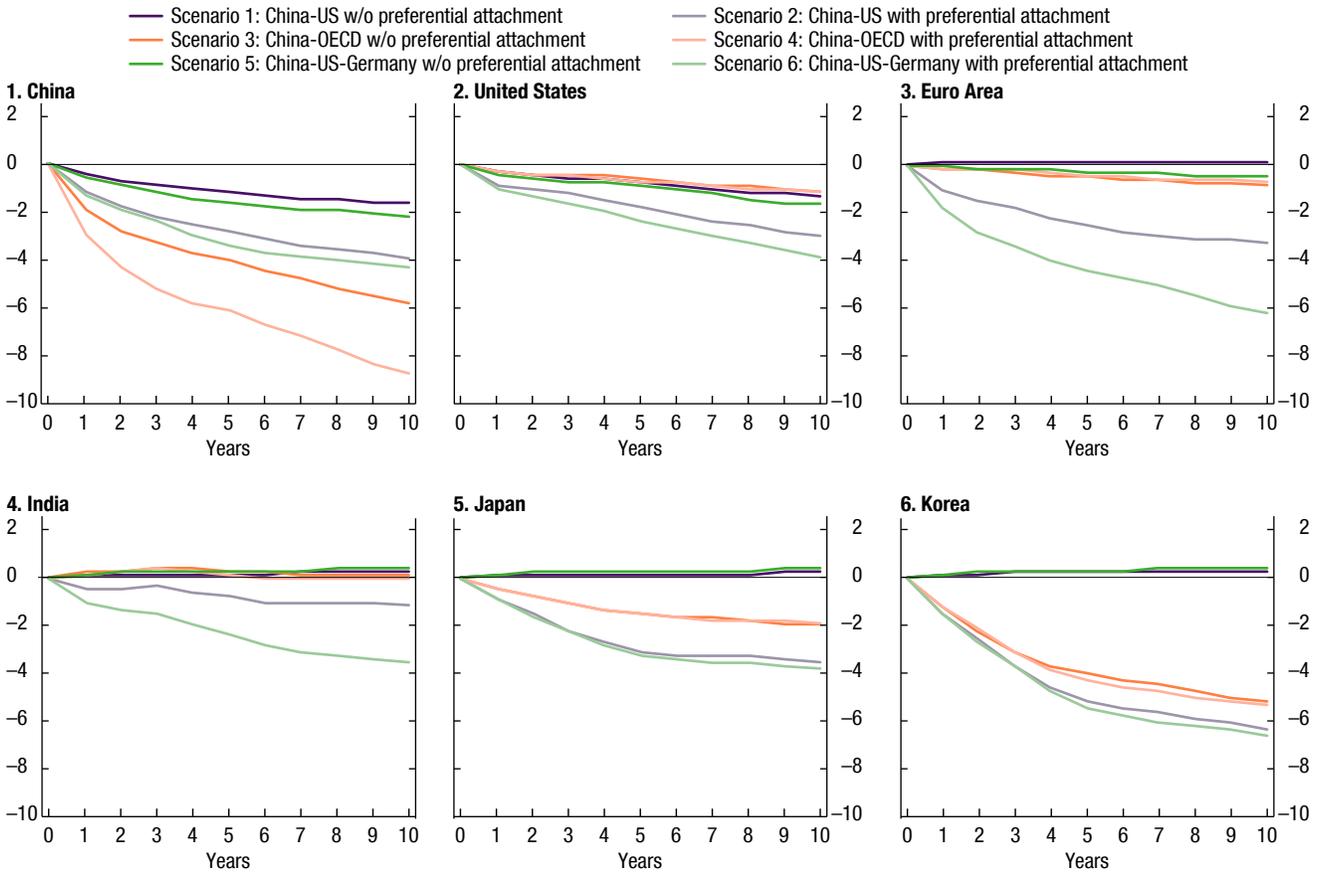
Source: IMF staff calculations.
Note: Purple is China-United States without preferential attachment; orange is China-OECD with preferential attachment.

Technological decoupling is clearly not in the best interest of either global or individual economies, especially in the face of a possibly feeble recovery from the COVID-19 pandemic. Rather than engaging in a harmful technological tit-for-tat, legitimate differences with respect to trade in high-tech goods and services can be better tackled by working constructively in a way that preserves and fosters an open and rules-based international trading system. Resolving these issues presents an opportunity to reinforce international cooperation and expand the technological frontier.

Annex. The Six Technological Decoupling Scenarios

Annex Figure 1 presents results for the six technological decoupling scenarios outlined in Table 1. China usually loses the most in each scenario. Generally,

Annex Figure 1. Technological Decoupling Scenarios: Real GDP for Selected Regions
 (Percent deviation from October 2020 World Economic Outlook)



Source: IMF staff calculations.

some countries can gain in the scenarios without preferential attachment, as some countries can act as partial substitutes for a hub—for example, India can help replace China for the United States or Germany in Scenarios 1, 3, and 5. Scenarios 3 and 4 lead to the largest losses for China, as it breaks up two pairs (China and Japan; China and Korea) that are present in the other four scenarios, and are most beneficial to China, Japan, and Korea. Other regions outside of Asia lose the most under Scenario 6, as regions would no longer trade with two major hubs instead of just one.

SECTION

II

Unconventional Policies When Policy Space Is Limited

Financial Sector Policies in South Asia during the COVID-19 Pandemic

Andrew Hodge and Racha Moussa

South Asia's financial systems are strained by the impact of COVID-19. Although progress has been made in recent years to address weaknesses and build buffers, significant vulnerabilities remain in the financial systems of many South Asian countries. Responding to COVID-19, South Asian countries have implemented a wide range of financial sector measures to ease pressure on banks and borrowers. Although these measures have provided appropriate short-term relief, policymakers should make modifications to minimize distortions and have a clear exit strategy, so as not to aggravate existing vulnerabilities. Risks to asset quality should be monitored carefully as measures are phased-out and nonperforming loans (NPLs) should be identified and resolved in a timely manner.

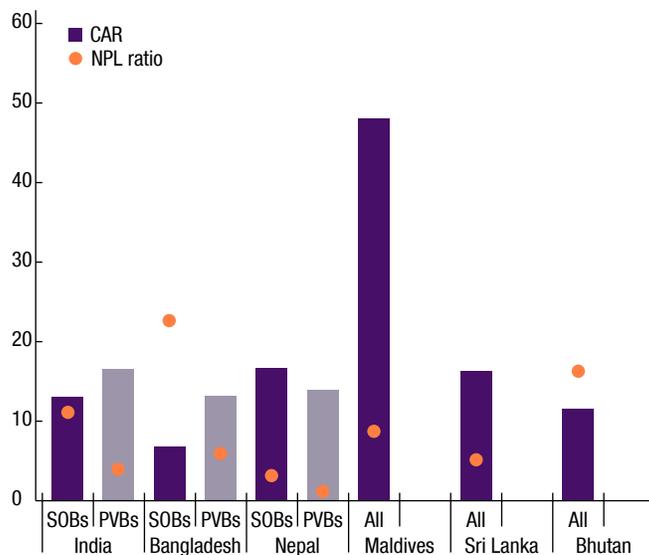
South Asia's financial systems had significant vulnerabilities prior to the emergence of COVID-19, despite some recent efforts to achieve reform and increase buffers in accordance with the Basel III framework.¹ While overall capitalization levels were adequate when COVID-19 emerged, NPLs were elevated, and the asset quality of state-owned banks was weaker than average in some countries. Governance reforms, regulatory forbearance and the resolution and recovery of assets remained areas for further reform, although some improvements had been made (Figure 19).

South Asia's economies have been hit hard by COVID-19, and their financial systems are being strained. Collapsing external demand, border closures, and domestic containment measures are expected to result in a significant economic contraction. This will prevent borrowers from servicing loans, reduce

Based on a forthcoming IMF Working Paper.

¹Several countries had implemented the capital conservation buffer (India, Nepal, Sri Lanka) and the liquidity coverage ratio (Bangladesh, India, Sri Lanka) to build buffers.

Figure 19. Selected Financial Soundness Indicators, Latest Available¹



Sources: Bangladesh Bank; Central Bank of Sri Lanka; Maldives Monetary Authority; Nepal Rastra Bank; Reserve Bank of India; and Royal Monetary Authority of Bhutan.

Note: All = whole banking sector; CAR = capital adequacy ratio; NPL = nonperforming loan; PVBs = private banks; SOBs = state-owned banks.

¹March 2020 for India, June 2020 for Bangladesh, July 2019 for Nepal, 2020:Q3 for Maldives, 2020:Q3 for Sri Lanka, and June 2020 for Bhutan.

liquidity for financial institutions, and undermine asset quality as some loans become nonperforming. At the same time, the financial sector is being used as an important channel for stimulus.

In response to COVID-19, countries in South Asia have implemented a range of financial sector measures, providing appropriate short-term support to borrowers and relieving pressure on banks.² Table 3 presents selected measures introduced across the region.

- **Debt service moratoria and targeted lending schemes are providing immediate relief to households and firms.** The moratoria apply to most term loans and include a freeze on loan re-classification. All countries have announced emergency lending to firms, including working capital loans, micro loans, or loans targeted to specific industries. Banks are responsible for assessing the creditworthiness of eligible borrowers and ensuring

²Please see IMF Monetary & Capital Markets Department Special Series Notes: “Banking Sector Regulatory and Supervisory Response to Deal with Coronavirus Impact (with Q and A)” and “Considerations for Designing Temporary Liquidity Support to Businesses.”

Table 3. Selected Financial Sector Measures in South Asia during COVID-19

Bangladesh	Bhutan	India	Maldives	Nepal	Sri Lanka
<i>Moratorium on loan payments and a freeze in loan reclassification until:</i>					
Dec. 31, 2020	Jun. 2021	Aug. 31, 2020	Nov. 30, 2020	Jan. 2020	Apr. 2021
<i>Monetary policy easing and liquidity support</i>					
Reduced bank rate by 100 bps; repo rate by 125 bps; reverse repo rate by 150 bps; cash reserve ratio by 150 bps. Increased advance-deposit ratio and investment-deposit ratio by 2% Will purchase T-bills and bonds from banks.	The cash reserve ratio has been reduced by 300 bps.	Reduced repo and reverse repo rates by 115 and 155 bps; cash reserve ratio by 100 bps. Liquidity measures include long-term repo operations (LTROs); and increased the marginal standing facility to 3% of the statutory liquidity ratio, to end-Sept.	Reduced the minimum reserve requirement to 5%. Short term credit facility available to financial institutions.	The cash reserve ratio has been reduced by 100 bps. The interest rate on the standing liquidity facility has been reduced by 100 bps.	Monetary policy rates reduced by 200 bps, while the statutory reserve ratio has been lowered by 300 bps.
<i>Targeted measures</i>					
Introduced interest payment subsidies for working capital loans of TK300 billion for industry and services sectors and TK200 billion for cottage, micro, small and medium enterprises (CMSMEs) (total about 1.8% of GDP). The subsidy is for 4.5% and 5% of the loan, respectively.	Working capital loans to businesses in the wholesale, industrial and tourism sectors for 4 years, at concessional interest rates, as well as to all affected businesses in the formal sector. The National Cottage and Small Industry Development Bank will give working capital loans for 4 years at concessional interest rates. Government guarantees for loans are also being issued.	Provided interest rate subsidy for farmers of 2% until August 31, 2020 or the due date of the loan if earlier, and 3% interest subsidy for on-time repayment. Announced a targeted long-term repo operation (TLTRO) 2.0 and an on-tap TLTRO with funds to be invested in targeted industries.	Ensure the availability of working capital to businesses.	Businesses in affected sectors, if they can show the need, can qualify for additional working capital loans of up to 10% of the approved amount of their existing working capital loans, to be repaid within a year.	Introduced working capital loans at the fixed interest rate of 4% per year, with a grace period of 6 months and a repayment period of 24 months. Investment loans with a 5-year maturity are also possible under this scheme.
<i>Refinancing facilities and credit guarantees</i>					
Bangladesh Bank (BB) introduced refinancing schemes for banks that extend working capital loans totaling 1.4 pct of GDP. TK150 billion for industry and service sector loans; TK100 billion for CMSMEs. Additional refinance schemes for specific sectors of Tk 130 bn. BB also introduced a guarantee scheme for working capital loans extended to CMSMEs as take-up has been low (20 percent as of end-Oct.)		Reserve Bank of India introduced special refinance facilities for rural banks, housing finance companies, and small and medium-sized enterprises. The government introduced credit guarantees for micro, small and medium enterprises (MSME) and extended them until Nov. 30 or until the cap is reached (Rs 3 trillion, 1.5% of GDP).		Increased the Refinance Fund to provide subsidized funding for banks willing to lend at concessional rates to priority sectors affected by the pandemic.	Refinancing facility for banks, up to a total of Rs 150 billion (about 1% of GDP). Refinancing is at an interest rate of 1% per year, and the Central Bank of Sri Lanka also provides a partial guarantee. Disbursement of about Rs 133 billion (0.9% of GDP) under this scheme approved as of October.

Sources: Bangladesh Bank; Central Bank of Sri Lanka; Maldives Monetary Authority; Nepal Rastra Bank; Reserve Bank of India; Royal Monetary Authority of Bhutan; and IMF staff estimates.

that funds are channeled to solvent firms facing liquidity strains. Several schemes have subsidized interest rates, with the government bearing the cost and providing partial or total government guarantees in most cases.

- **Banks are receiving liquidity support and capital buffers are being drawn down appropriately to support private sector credit.** There has been monetary easing across the board with cuts to policy rates and cash reserve ratios. To support liquidity, central banks have made refinancing schemes available. Macroprudential policy has also been loosened in some countries, by no longer requiring accumulation of the countercyclical capital buffer (Nepal), drawing down the capital conservation buffer (Sri Lanka) and reducing the liquidity coverage ratio (India). Regulatory relief is provided in India by allowing more time to implement the net stable funding ratio and the last phase of the capital conservation buffer.

Going forward, South Asian countries should adjust and eventually exit from the exceptional measures, to balance the need for stimulus against the risk of aggravating pre-existing vulnerabilities. The following are key priorities:

- **Targeting:** Eligibility criteria for debt service moratoria should be targeted to firms that are solvent but need liquidity support, as broad-based moratoria risk putting pressure on bank liquidity. Uncertainty about the pandemic's direction makes targeting difficult. Targeting can be done gradually over time, after closely monitoring the impact of the moratoria and other relief measures on participating firms. To this end, data reporting requirements should be re-calibrated and strengthened to better understand the impact of the pandemic and the relief measures.
- **Prudential requirements:** It is important not to relax loan classification and provisioning standards or to use regulatory requirements to direct lending to specific sectors, to maintain asset quality. Loan classification rules should not be frozen. Instead, they should be applied normally as banks gather enough information to determine borrowers' ability to repay, taking into account the impact of the moratoria and other relief measures. This will provide transparency about the true state of asset quality. It will be important then for NPLs to be resolved in a timely manner.
- **Preserving bank capital:** Supervisory authorities should temporarily suspend the distribution of dividends, share buybacks, and discretionary bonus payments until the economic outlook becomes more favorable. India and Sri Lanka have already taken some of these steps.
- **Exit strategy:** Exceptional measures should have clear cut-off dates so that they do not become a permanent feature of the financial system and undermine asset quality. As the situation evolves, the authorities can review the policies and extend if needed.

- **Continued reform:** The impact of COVID-19 on the financial sector is uncertain. Continued efforts to implement reforms to address existing vulnerabilities should resume once the shock subsides. It will be important that capital buffers are sufficient to withstand the impact of any future deteriorations in asset quality and mechanisms to deal with NPLs are strengthened.

Unconventional Monetary Policies in Emerging Asia during the COVID-19 Crisis: Why Now? Will They Work?

Eugenio Cerutti and Thomas Helbling

With the large economic fallout from the COVID-19 pandemic, a growing number of emerging market economies have resorted to unconventional monetary policies (UMPs). The turn to UMP in emerging economies has been a surprise, as the circumstances do not resemble those prevalent when advanced economies used these tools during and after the global financial crisis (GFC), which suggests that other factors have played a role as well.

What Types of UMP Have ASEAN-4 Implemented?

Although there is no precise definition, UMPs are often associated with monetary policies that have broader-than-usual objectives and are large in their scale of deployment. During the GFC, for example, central banks in advanced economies not only lowered interest rates aggressively, they also broadened the set of financial institutions eligible for liquidity provision and purchased assets well beyond those typically used in monetary operations. Once policy interest rates got close to zero, central banks broadened the objectives further. As documented in Potter and Smets (2019), the UMP tools used during and after the GFC were not fundamentally different from tools central banks had used in the past. What set them apart was their broad use and the scale of their deployment, which marked an important departure from conventional monetary policy as understood prior to the GFC. UMPs are frequently divided into four groups: large-scale asset purchases, lending operations with financing institutions (for example, funding-for-lending schemes and special purposes vehicles), forward guidance, and negative policy interest rates.

Based on a forthcoming departmental paper by ASEAN-4 teams.

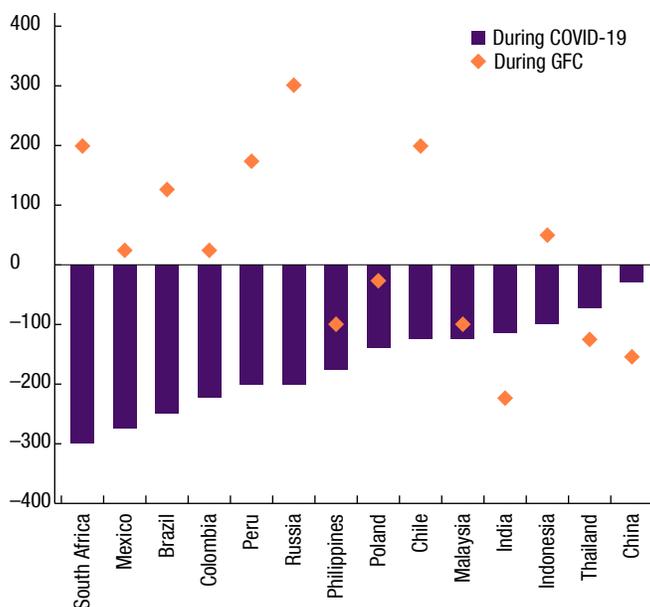
Table 4. ASEAN-4 Unconventional Monetary Policy Measures Taken during the COVID-19 Crisis

	Indonesia	Philippines	Malaysia	Thailand
Large-scale asset purchases	<ul style="list-style-type: none"> - BI allowed to purchase government bonds in the primary market as a noncompetitive bidder on a last resort-basis (March 31) - BI and Ministry of Finance agreed on a burden-sharing scheme. BI buy government bonds to finance public good expenditures (Rp 397 trillion, 2.5% of GDP) as well as cover interest expenditures of different bonds (July 7) 	<ul style="list-style-type: none"> - BSP announced a P300-billion (1.6% of GDP) to the government through a 6-month repurchase agreement (March 23) - BSP expanded the ranged of purchases of government securities in the secondary market (Accumulated purchases above P500-billion). (April 10) 	No	No
Lending operations	No	No	<ul style="list-style-type: none"> - BNM created a Fund for lending to SMEs to help alleviate the short-term cash flow problems. The total amount was about RM13.1 billion (0.9% of GDP) (Feb 27 and enhanced on Mar 27) 	<ul style="list-style-type: none"> - BOT set loan payment holiday and soft loans for SMEs (April 7) - BOT established a fund to provide bridge financing of up to THB 400 billion for high-quality corporate bonds maturing during 2020–21 (April 7) - BOT set up a special facility to provide liquidity for mutual funds through banks (March 22) - BOT created a program to facilitate corporate debt restructuring (Aug 21)
Forward guidance	No	No	No	No
Negative interest policy rates	No	No	No	No

Sources: Bank of Indonesia (BI); Bank of Thailand (BOT); Bank Negara Malaysia (BNM); Bangko Sentral ng Pilipinas (BSP); and IMF staff estimates.

ASEAN-4 countries (Indonesia, Malaysia, Philippines, Thailand) have used only large-scale government bond purchases or new lending operation schemes. As shown in Table 4, even though their policy interest rates were above the zero-lower bound, ASEAN-4 central banks announced most of the UMPs during the peak turbulence in financial markets in March and early April 2020. Depending on the central bank, the announcements either involved large-scale asset purchases, typically government bonds, or lending operations. In the case of Indonesia, UMP large-scale asset purchases have involved an explicit monetary budget financing component, including in the form of a burden-sharing agreement between Bank of Indonesia (BI) and the Ministry of Finance in July. The agreement defines amounts of tradable government bonds to be purchased by BI in the primary market and the return to Treasury of some interest receipts from the bond purchase by BI. With policy rates in the ASEAN-4 countries still above the zero-lower

Figure 20. Policy Rate Changes¹
(Basis points)



Sources: Haver Analytics; and IMF staff estimates.

Note: GFC = global financial crisis.

¹COVID-19 is the period January to September 15, 2020; the global financial crisis is the period end of July 2008 to January 2009.

bound, unlike many central banks in advanced economies, it is not surprising that forward guidance and negative policy rates have not been used as tools in the region.

Why Were UMPs Implemented in ASEAN-4 Countries during the COVID-19 Crisis?

The large impact of the COVID-19 shock, including the spillovers from the global financial market turmoil in March and early April 2020, explain why ASEAN-4 countries have resorted to UMPs. Initially, the ASEAN-4 countries used the policy room they had to lower policy interest rates at the onset of the pandemic. This room contrasts with the situation at the beginning of the GFC. BI, for example, was not able to cut the policy rate at the time, given large capital outflows, but it was able to lower policy rates in early 2020 when the COVID-19 shock hit (Figure 20). But lower policy interest rates were not enough. The COVID-19 pandemic has required extraordinary, comprehensive policy responses to contain the economic fallout well beyond conventional monetary policy, including fiscal, macroprudential, and other

financial sector policies, as well as foreign exchange market interventions. In this context, central banks have had to use UMP to ensure adequate liquidity and orderly market conditions, or to overcome structural constraints. In particular, the constraints include, to varying degrees, shallow domestic bond markets, lower availability of high-quality “safe assets,” and weaker monetary transmission mechanisms, with a more limited role for benchmark yield curves than advanced economies.

The initial trigger for UMP was the COVID-related global financial market turmoil in March and April of 2020. Like other emerging market economies, the ASEAN-4 economies faced large capital outflows and large asset price declines during the turmoil, including currency depreciation and increasing bond yields. While Malaysia and Thailand implemented some central bank lending operations to provide extra liquidity to firms in March and early April, the Philippines and Indonesia used large-scale asset purchases. The latter were designed to provide general liquidity, improve market liquidity and lower price volatility, and alleviate the short-term cash flow problems faced by corporates.

The unprecedented impact of the COVID-19 shock also explains why UMPs continue to be used after the market turmoil. Even though capital flows and global financial markets conditions have improved since mid-April, the policy response to the COVID-19 pandemic has resulted in substantially higher budget deficits not only in 2020, but also in the next few years. Financing much larger deficits is a challenge in countries with relatively shallow domestic financial markets amid continued risks of capital inflow volatility, and some central banks have continued to use UMP. The central banks of Indonesia and the Philippines have directly or indirectly contributed to financing the new issuance of government bonds. Moreover, in the case of Indonesia, the authorities have explained that they consider the monetary accommodation of increased government expenditure to the sectors most affected by COVID-19 to be more effective than providing additional liquidity through the usual banking sector transmission channel. This advantage of fiscal policy responses is corroborated in recent theoretical analyses of the economic impact of COVID-19. For example, Woodford (2020) argues that the COVID-19 shock presents a challenge for stabilization policy that is different from those resulting from either “supply” or “demand” shocks that affect all sectors of the economy similarly. An important difference is that the temporary suspension of some but not all economic activities disrupts the circular flow of payments. In this context, monetary stimulus through reductions in the policy rate might fail to stimulate demand in the sectors most in need of support.

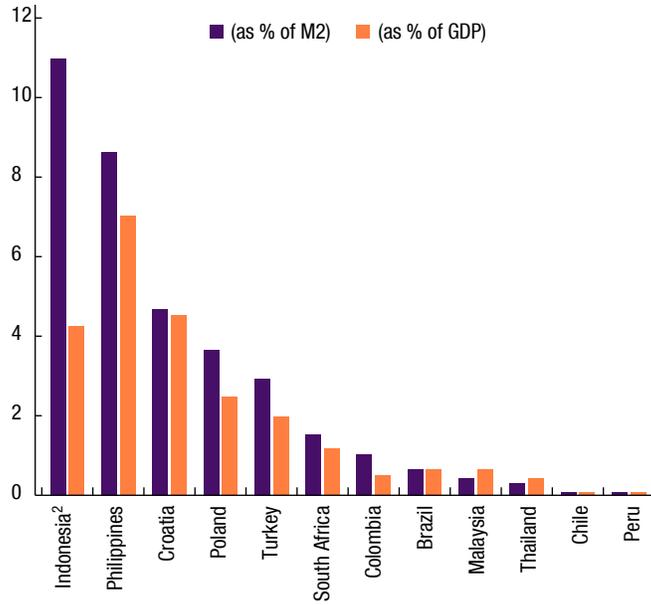
Will UMP Work? What Are the Risks?

Although it is too early for a more definitive assessment, UMP seems to have been effective so far. In Thailand, cuts in the policy rate and extraordinary lending operations appear to have been successful, given that financial markets remained broadly stable throughout April, with any instability just following global trends. In Indonesia, direct monetary financing of the budget in 2020 has contributed to an easing of financial conditions and greater stability in domestic bond markets despite higher budget financing needs, thereby accommodating the fiscal expansion. There are no apparent negative consequences for Malaysia and the Philippines. More generally, the global context, where central banks in advanced economies have further injected a lot of liquidity globally, has also contributed to reducing risk aversion toward emerging market economies by international investors.

The UMP responses to the pandemic, while warranted, inevitably also entail risks and require time-consistent strategies.¹ The large increase in domestic currency liquidity (Figure 21) could trigger balance of payments pressures and even affect the integrity of the monetary policy framework. As well-known past experiences indicate, this is especially the case with the recourse to monetary budget financing. Any amount of bond purchases should not be pre-defined and should be guided by well-defined last resort criteria, based on bond market and broad financial conditions. Such a temporary and state-dependent approach could be integrated into the established monetary policy frameworks in the ASEAN-4 countries, and it would curtail investor concern, lower the buildup of vulnerabilities in the financial system, and limit risks to monetary policy credibility and central banks' operational independence.

¹See also IMF (2020a, 2020d, 2020g).

Figure 21. 2020 Changes in Central Banks' Claims to Central Government¹
(Percent of M2 or GDP)



Sources: IMF, Monetary and Financial Statistics database; IMF, World Economic Outlook database; and IMF staff estimates.

Note: M2 = money supply, sum of money, and quasi-money (see International Financial Statistics).

¹Changes in claims to central government during period January to August 2020.

²In the case of Indonesia, figure includes commitments within 2020 burden-sharing agreement.

Lessons from Yield Curve Control in Japan

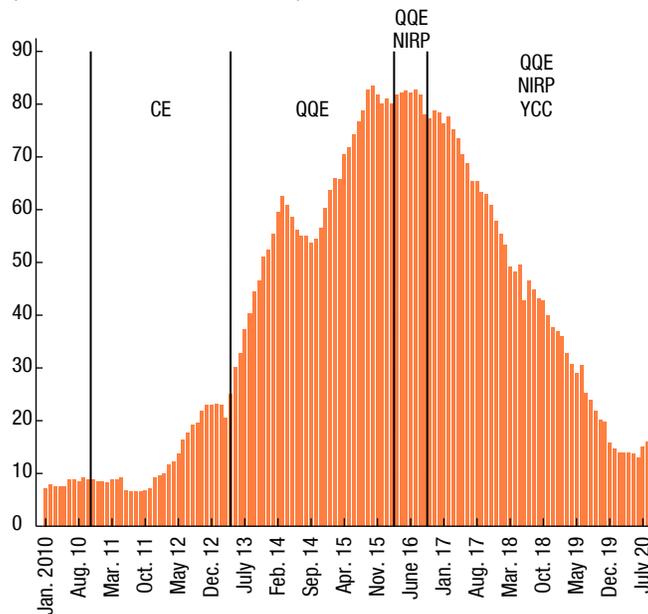
Pablo Lopez Murphy, Piyaporn Sodsriwiboon, and Francis Vitek

For several decades the Bank of Japan (BoJ) has been at the forefront of monetary policy innovation and was until recently the only central bank to have adopted yield curve control (YCC) in the past 20 years. While the US Federal Reserve considered adopting YCC in the aftermath of the global financial crisis, the BoJ was the first central bank to adopt YCC, when it pegged the 10-year Japanese Government Bond (JGB) yield at about zero percent in September 2016. The Reserve Bank of Australia adopted YCC in March 2020, when it set a three-year sovereign bond yield target of about 0.25 percent. The Fed recently explored options to further support the economy, including adopting YCC, but reformulated its inflation target instead. The BoJ's experience with YCC since 2016 holds lessons for other central banks considering adopting this monetary framework.

The BoJ adopted several quantitative easing (QE) programs before YCC. Although the policy rate had been reduced to zero in 1999 to fight deflationary pressures, headline consumer price inflation remained negative. Stepping up its efforts to reflate the economy the BoJ in March 2001 adopted a program of QE, entailing purchases of long-term JGBs to increase the monetary base. The QE program lasted until March 2006 and the monetary base almost doubled in nominal terms during that period. Following the global financial crisis, the BoJ relied again on QE when it introduced the Comprehensive Monetary Easing (CE) Framework in October 2010 (Figure 22). The CE program included an asset purchase program consisting not only of JGB purchases but also purchases of risky assets to reduce term and risk premia. In April 2013 the BoJ introduced Quantitative and Qualitative Easing (QQE), which was a remarkable scale-up of CE as the BoJ committed to increase its

Based on IMF (2019a, 2019b), Cashin and Ilabaca (forthcoming), and Westelius (2020).

Figure 22. Increase in Japanese Government Bonds Held by the Bank of Japan
(12-month increase; JPY trillions)



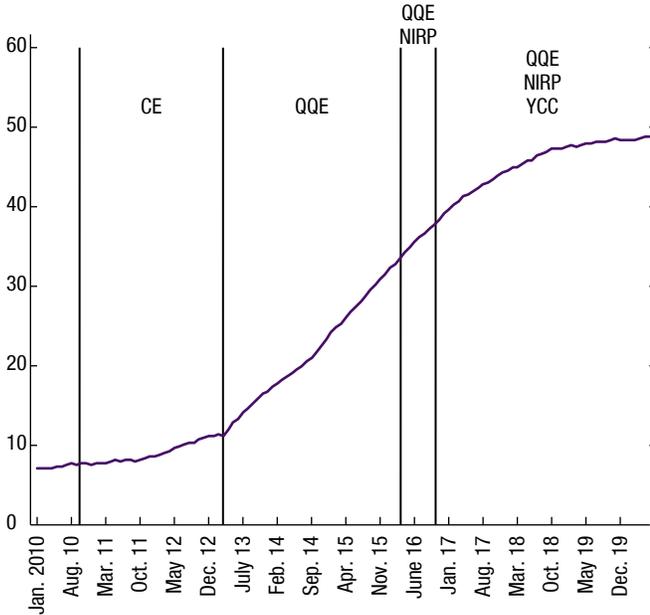
Source: Haver Analytics.

Note: CE = comprehensive monetary easing; NIRP = negative interest rate policy; QQE = quantitative and qualitative easing; YCC = yield curve control.

annual purchases of JGBs by about ¥50 trillion per year. In October 2014, the JGB purchase commitment was further raised to ¥80 trillion.

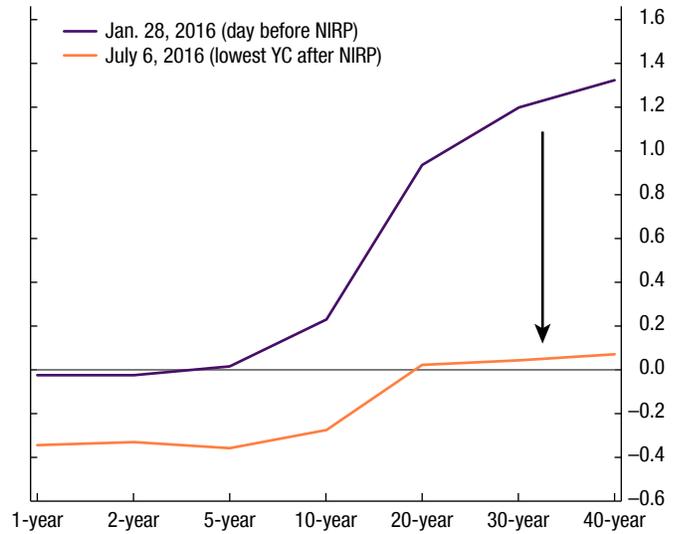
The impact of a negative policy rate triggered the adoption of YCC. By end 2015 the BoJ was holding 33 percent of total outstanding JGBs, compared to 11 percent of outstanding JGBs at the start of QQE (Figure 23), and concerns arose that the scope to further stimulate the economy through QQE was limited. Amid that background, the BoJ cut its main policy rate (the deposit rate on marginal excess reserves) from 0.1 percent to -0.1 percent in January 2016. This negative interest rate policy (NIRP) led to a significant flattening of the yield curve and to financial stability concerns from lower profitability of financial institutions and their increased risk taking (Figure 24). The rationale for YCC was to shape the yield curve by targeting both the short-term interest rate (NIRP) and the long-term interest rate (10-year JGB yield) by buying JGBs along the entire yield curve. When YCC was introduced by the BoJ in September 2016, the expectations of JGB market investors became anchored around the zero percent midpoint of its 10-year JGB yield target range. Importantly, this smooth regime shift was supported by the BoJ's strong track record of limiting the volatility of the JGB yield curve through active market intervention.

Figure 23. Share of JGBs in Hands of the Bank of Japan
(Percent of total outstanding JGBs)



Source: Haver Analytics.
 Note: CE = comprehensive monetary easing; JGBs = Japanese Government Bonds; NIRP = negative interest rate policy; QQE = quantitative and qualitative easing; YCC = yield curve control.

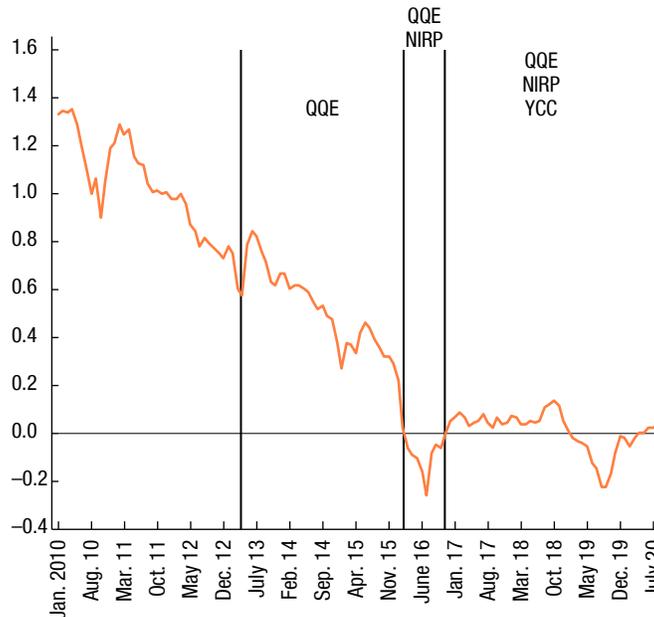
Figure 24. Sharp Flattening of the Yield Curve Following NIRP
(Percent)



Source: Haver Analytics.
 Note: NIRP = negative interest rate policy; YC = yield curve.

The BoJ adjusted its forward guidance over time, following changes of its monetary policy framework. With the introduction of the two percent inflation target and QQE in 2013, the BoJ aimed to achieve the target “at the earliest possible time, with a time horizon of about two years” and linked the expansion of the monetary base through QQE to the achievement of the inflation target. Under YCC, however, the BoJ shifted to a gradual reflation approach, and the time horizon for achieving the inflation target was de-emphasized. Together with the adoption of YCC, the BoJ adopted an “inflation overshooting commitment,” committing the central bank to maintain monetary easing until inflation exceeded 2 percent, aiming to make inflation expectations more forward-looking. Policy guidance became complicated as the policy commitment linking base money to achievement of the inflation target was retained while there was a growing discrepancy between the ¥80 trillion QQE guidance and actual JGB purchases (Figure 22). To strengthen forward guidance, in the fall of 2019, the BoJ explicitly committed to keeping interest rates low to keep the momentum toward achieving the 2 percent inflation target, and in April 2020, the BoJ dropped the ¥80 trillion guidance for JGB purchases removing potential inconsistencies with YCC.

Figure 25. Ten-Year Japanese Government Bond Yield
(Percent)



Source: Haver Analytics.

A credible commitment to the yield target is essential for YCC to work. If a central bank announced a target for the five-year sovereign bond yield below the level prevailing in the market, it may be forced to purchase the entire outstanding stock of five-year government bonds to achieve this target, thereby potentially losing control over the size of its balance sheet. A credible commitment to the yield target would limit the need for intervention from the BoJ, as investors' sovereign bond yield expectations would gravitate toward the announced target, pulling the bond market equilibrium toward it.

Adopting YCC can help make accommodative monetary policy more sustainable. The BoJ has been quite successful at achieving its 10-year JGB yield target of around zero percent since late 2016 (Figure 25). Reflecting the credibility of its YCC framework and prevailing market conditions, the BoJ has accomplished this while purchasing far fewer JGBs than it did under its QE program launched in 2013 and augmented in 2014 (Figure 22). Stable JGB yields supported by smaller purchases have made the BoJ's accommodative monetary policy stance more sustainable, while alleviating pressures on JGB market liquidity.

While adopting YCC can slow the reduction of sovereign bond market liquidity arising from QE, it does still lower it. Under YCC, the BoJ's still

Table 5. YCC: Target Maturity Tradeoffs

	Longer Maturity	Shorter Maturity
Economic Stimulus	Larger	Smaller
Scope for Scaling Up	Less	More
Financial Stability Risks	Higher	Lower
Potential for Disorderly Exit	More	Less

Source: IMF staff assessment.

Note: YCC = yield curve control.

large-scale JGB purchases have structurally reduced market liquidity.¹ In normal times, low JGB market liquidity has not been a major problem. However, at times of stress, implementation of YCC has limited the collateral available to financial institutions to secure trades. To backstop JGB market liquidity, the BoJ has had to operate a securities lending facility, under which it lends JGBs to financial institutions via repurchase agreements.

The choice of the YCC target horizon is subject to a trade-off between stimulating the economy and exposing the central bank's balance sheet to risk. Lengthening the target maturity stimulates consumption and investment expenditures more, but the risk of a change in the economic outlook is larger over longer time horizons. Specifically, if inflation rises unexpectedly above target, the central bank may incur large losses as it raises the target yield to control inflation. A tension between maintaining the YCC target and controlling inflation could arise, undermining monetary policy credibility. Targeting a shorter-term sovereign bond yield exposes the central banks' balance sheet to lower risk, because the economic outlook is less likely to change over a shorter time horizon. In particular, the central bank may be expected to incur smaller valuation losses on its sovereign bond holdings, and smaller profitability losses from remunerating commercial banks' excess reserves, if it raises interest rates to control inflation (Table 5).

The choice of the YCC target horizon is also subject to a trade-off between maintaining price inflation versus financial stability. Targeting a longer-term sovereign bond yield generates more economic stimulus, supporting the realization of the inflation target sooner. However, the resultant loosening of financial conditions also builds up financial stability risks over time. In particular, flattening the sovereign yield curve out to longer maturities reduces the profitability of banks, by limiting their gains from maturity transformation. It also erodes the profitability of banks, insurers, and pension funds over time by reducing their investment returns on sovereign bond holdings, as outstanding bonds mature and are replaced with lower-yielding ones. In their search for yield to support their profitability, these financial institutions are spurred to adopt riskier asset portfolios, raising systemic risk.

¹See Han and Seneviratne (2018).

Exiting smoothly from YCC could be challenging. After the inflation target is achieved, the central bank could phase out YCC by gradually raising its sovereign bond yield target or shortening the target maturity, thereby steepening the yield curve. If not communicated well to investors, such monetary policy normalization could trigger a government bond market sell-off, generating a sovereign bond yield spike. Since the sovereign yield curve underpins the pricing of risky financial assets, financial conditions would tighten abruptly, threatening the economic recovery and exposing the central bank to losses. These risks can be curtailed by adopting an automatic YCC exit strategy, under which the target maturity is set to the expected duration of the framework, then steadily reduced over time. Nonetheless, an automatic exit strategy may imply that a central bank exits accommodation before reaching its target, thereby undermining its credibility. Targeting a short-term bond yield would contain the risk of a disorderly exit, as the repricing of risky financial assets would be more moderate.

Without an automatic exit strategy, YCC also exposes the central bank to the risk of fiscal dominance. Fiscal monetization occurs when the central bank buys government debt, thereby permanently expanding the monetary base. This effectively transfers control over the central banks' balance sheet to the government, subordinating monetary policy to fiscal policy. In Japan, the BoJ has implemented QE and YCC by buying JGBs in the secondary market. By keeping the government's borrowing costs low, the BoJ has reduced market pressure on the government to undertake fiscal consolidation. As the government debt ratio rises, the risk of fiscal dominance increases, and exiting YCC could become more difficult.

SECTION



Dealing with Debt

Public Debt in the Pacific—A Rising Concern

Todd Schneider, Seohyun Lee, Yinqiu Lu, and Scott Roger

A number of Pacific Island countries (PICs) will have to contend with large public debts in the aftermath of the global pandemic—possibly too large for them to manage. More than half of PICs are at high risk of debt distress, one is deemed to be in an unsustainable position, those assessed as sustainable or at moderate risk are also generally seen as facing significant downside risks and vulnerability to external shocks (including frequent natural disasters in the region) (Table 6).

These countries—among the most remote and vulnerable countries in the IMF membership—had limited fiscal and external buffers even prior to the COVID-19 crisis, limited or no external market access, and thin domestic debt markets. Rising levels of public debt were already a concern, particularly given a history of low economic growth, limited capacity with respect to revenue generation and debt management, and a high vulnerability to external shocks (such as natural disasters) combined with a pressing need to invest in climate resilience.

Dangerous Dynamics

For the Pacific Islands as a group, the average public debt-to-GDP ratio rose since the global financial crisis from 34.4 percent in 2007 to 43.5 percent in 2020 and is expected to increase further by 2025. The trajectory for external public debt shows a similar trend. This is broadly in line with the worrisome trend seen in many developing economies—which witnessed a rise in public

Based on a forthcoming IMF Working Paper.

Table 6. Public Debt in the Pacific

	Projected Public Debt to GDP (2020)	Debt Management Unit	Debt Management Strategy	Sustainability Assessment	Risk Assessment
Fiji	68.9	Yes	Yes	Sustainable	Elevated
Kiribati	26.3	No	No	Sustainable	High
Marshall Islands	29.6	No	No	Sustainable	High
Micronesia	16.5	No	No	Sustainable	High
Nauru	59.8	No	No	Unsustainable	High
Palau	60.6	No	No	Sustainable	Elevated
Papua New Guinea	43.5	No	No	Sustainable	High
Samoa	55.6	Yes	Yes	Sustainable	High
Solomon Islands	15.8	Yes	Yes	Sustainable	Moderate
Tonga	45.0	No	No	Sustainable	High
Tuvalu	66.0	No	No	Sustainable	High
Vanuatu	50.8	Yes	Yes	Sustainable	Moderate

Source: IMF country teams.

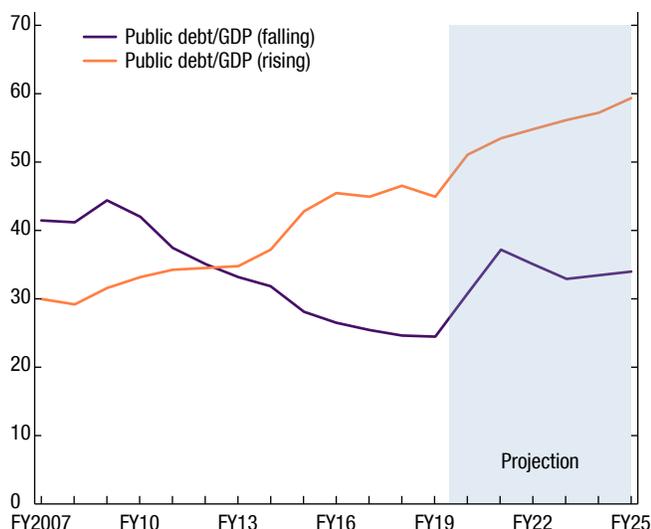
debt-to-GDP ratios in the years following the global financial crisis.¹ More than half of PIC debt has come from multilateral creditors (most predominantly the World Bank and Asian Development Bank). But for some PICs, bilateral debt has taken on increasing prominence in the last few years—most notably from non-Paris Club creditors (Figures 26 and 27).

From a debt dynamics perspective, the primary fiscal balance was the largest contributor to the increase in public debt over the last 10 years. In the case of Papua New Guinea, for example, the primary deficit was by far the most important factor driving the cumulative increase in the debt-to-GDP ratio during 2010–19; so too in Samoa. By contrast, Tonga was able to improve its primary balance starting from 2014, resulting in a stabilization of debt-to-GDP ratio, while at the same time increasing its recourse to donor support—with the share of grants in total revenue increased from 25 percent in 2010 to 44 percent in 2019.

The other key driver of the debt dynamics in the Pacific Islands has been low growth. While emerging market and developing economies (EMDEs) grew on average by 5.1 percent annually over 2010–19, the PICs struggled to achieve even a modest 3.5 percent average growth over the same period (and even less excluding Papua New Guinea—which benefited from liquefied natural gas production). This weak performance reflects the frequency of natural disasters in the region, and the lack of diversification, making the PICs more susceptible to external shocks.

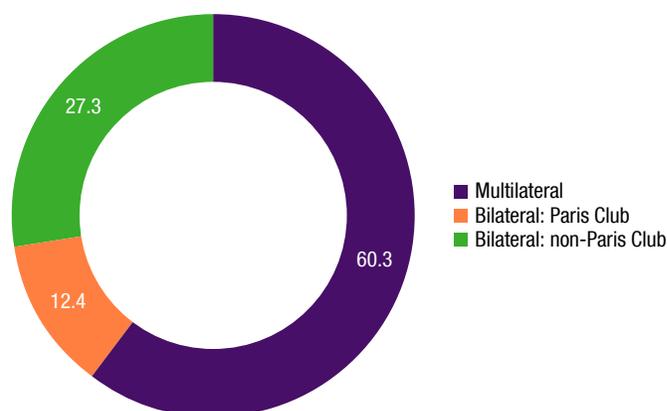
¹See IMF (2016, 2020f).

Figure 26. Public-Debt-to-GDP Ratio, by Subgroup (Percent)



Source: IMF country teams.
¹Countries whose debt-to-GDP ratio fell include Marshall Islands, Micronesia, Palau, and Solomon Islands.

Figure 27. Debt Composition by Creditors¹ (FY2019, percent)



Source: IMF country teams.
¹Nauru and Tuvalu are excluded. Marshall Islands and Micronesia (FY2018).

And Then the Pandemic

The onset of COVID-19 has exacerbated the PICs’ public debt problem. With the pandemic came a nearly instant evaporation of the tourism industry, a plunge in some key commodity export prices, and sharp contractions in domestic activity reflecting containment measures. Accompanying these developments has been a sharp rise in fiscal deficits as government revenues dried up and expenditures rose to meet critical public health demands and support household incomes and businesses struck by the pandemic.

The pandemic has not hit all the PICs equally. Those most integrated with the global economy and reliant on industries needing personal contact were hardest hit. A subset of the PICs—Fiji, Kiribati, Papua New Guinea, Samoa, and Tonga—are expected to witness a particularly alarming increase in public debt as a result of the crisis. This comes on top of existing concerns about sustainability for some, and less-developed debt management capacity in the region. As noted at the outset, relatively few countries have either a dedicated debt management unit, or a robust debt management strategy.

Too Much Debt?

The standard metrics for debt sustainability give insight as to carrying capacity in the Pacific Islands, but potentially fail to tell the whole story. As a group, the PICs have a history of low growth. The post-pandemic recovery—and the return of tourism, value chains, and commodities trade—may be slow. Collateral damage to regional airlines which support tourism in the Pacific may also be severe—potentially undermining a quick recovery of this vital sector while at the same time adding to public debt where direct loans and government guarantees are involved. Over the medium term, PICs are expected to lag behind other EMDEs in the pace of their recovery, especially given their dependence on tourism and commodities. The sluggish growth challenges a return to sustainability, with staff projections displaying a persistent increase in the regional debt-to-GDP over the medium term.

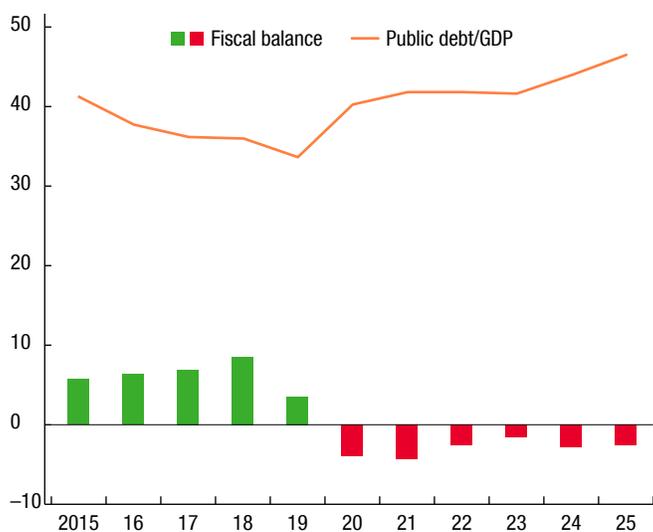
PICs also face both the regular threat of natural disasters (which have increased in frequency over the years) and climate change. As a group they face disproportionate impacts on output and incomes of such events—almost four times the level of damage (as a share of GDP) compared with East Asia and Pacific economies as a whole, and nine times the impact on the population (in terms of number of people affected). The need for fiscal buffers to cushion against such events plus the need to invest in climate resilience creates an acute difficulty for a number of Pacific island economies (Figure 28).

Reduction, Recovery, and Resilience

For some of the PICs, the balancing act among engaging in pandemic recovery, rebuilding fiscal buffers, and investing in climate resilience may prove too much. Particularly in light of the history of weak growth and the likelihood of further exogenous shocks down the road, consideration should be given to higher grant assistance or some form of debt relief or both. Multilateral partners' liquidity support including the IMF Rapid Credit Facility/Rapid Financing Instrument and the G20 Debt Service Suspension Initiative is an important step but may prove insufficient past the short term as these remedies do not address solvency issues. Looking forward, debt relief and/or debt reduction for highly indebted/highly vulnerable Pacific island economies may be required. Such relief could free up resources for crucial social spending on health, education, and social protection and help to mitigate challenges in public debt management.

IMF engagement on debt and related issues will also remain critical for helping the PICs achieve a sustained recovery and a sustainable debt and fiscal trajectory. For some, this may entail longer-term provision of liquid-

Figure 28. Pacific Island Countries: Average Public Debt and Fiscal Balance
(Percent of GDP)



Source: IMF staff projections.

ity support through more traditional (non-emergency) lending and reform programs. For others, this should entail a heightened focus on revenue mobilization, public financial management, and debt management in IMF capacity development activities. IMF technical assistance and training to the region is already being realigned to hone in on these important areas. Surveillance of debt and debt management will also need to be strengthened by considering the specific challenges faced by the PICs—such as the impact of natural disasters—through refinement of the IMF’s debt sustainability analysis (DSA). Incorporating the risk of natural disasters into Pacific island DSAs, for example, could help to better gauge the risk of debt distress and debt sustainability.²

²See IMF (2018c).

Impact of COVID-19 on the Financial Health of Nonfinancial Firms in ASEAN

Minsuk Kim, Xin Li, and Jiae Yoo

From the onset of the COVID-19 pandemic, ASEAN countries have launched sizeable emergency support measures to help their firms survive the initial economic impact. As the pandemic lingers on, however, governments are increasingly facing a difficult trade-off between preserving policy space for the future and continuing with costly support to save more firms and jobs now. The policy decisions involved need to consider the long-term viability of firms, as well as the high social costs and economy wide scarring effects resulting from mass bankruptcies. As the economy starts to recover, solvency problems will become more prominent, calling for policy focus on facilitating reallocation of resources, for example, by setting up effective insolvency frameworks. At the same time, the varying speed of recovery across industries will warrant targeted liquidity support to assist the restructuring of hard-hit industries. Unfortunately, empirical findings to inform such decisions are surprisingly scarce for the ASEAN region, especially compared with other systemic economies in Asia.

This study aims to fill this gap first by documenting the financial health of ASEAN firms entering the pandemic and evaluating the potential fallout of the COVID-19 crisis on their debt service capacity and cash positions. The analysis uses a sample of about 2,600 nonfinancial firms from six major ASEAN economies¹ with annual financial statements ending in 2019.

Based on a forthcoming IMF Working Paper “Impact of COVID-19 on Financial Health of Nonfinancial Firms in ASEAN.”

¹These countries include Indonesia, the Philippines, Malaysia, Singapore, Thailand, and Vietnam. The firm-level data set comes from Capital IQ, S&P Global Market Intelligence, which allows for cross-country comparisons of accounting information.

Precrisis Corporate Vulnerabilities in ASEAN

The good news is that nonfinancial firms in ASEAN do not appear to have engaged in excessive risk-taking prior to the pandemic, in contrast with the Asian Financial Crisis of the late 1990s. Sample firms have kept their balance sheet leverage broadly stable since the global financial crisis (GFC) while gradually reducing their reliance on short-term debt. Furthermore, the level of their outstanding foreign exchange debt has generally moved in tandem with their foreign sales volume, limiting the exposure to currency risks. As a result, ASEAN firms entered the COVID-19 pandemic with relatively more resilient balance sheets than in the past.

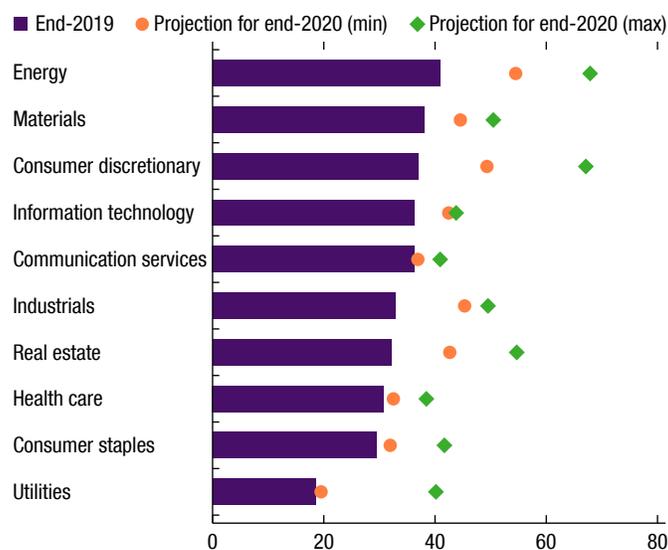
The bad news: many ASEAN firms had encountered the pandemic with a record-high debt service burden, primarily as a result of a sustained decline in profitability since the GFC, and more recently, the rise in financing costs. In 2019, one-third of sample firms in the region were unable to cover their interest payments with their income earned from business operations. About a quarter of these firms (or 8 percent of the full sample) were, in fact, “zombie” firms—those aged 10 years or more with persistent debt service difficulties for at least over the last five years. The debt service burden was particularly high among firms in energy, materials, and consumer discretionary industries, and among small-sized firms.

Meanwhile, the liquidity buffer to sustain the COVID-19 shocks was also low even for many viable firms before the pandemic. More than half of sample firms did not have enough cash holdings to cover three months’ worth of cost of goods sold in 2019. The cashflow-generating capacity was also weak for many, with about a quarter of sample firms experiencing difficulties in maintaining positive operating cash flows during 2017–19.

Impact of COVID-19

Along with pre-existing corporate vulnerabilities, ASEAN firms now must cope with the extraordinary shock from the pandemic. Given the large uncertainty as to the size and persistence of the COVID-19 shock across different industries, assessing the expected impact of COVID-19 on firms’ financial health—namely their debt service capacity and cash positions—is no easy task. The authors address this challenge by adopting several complementary approaches. Specifically, they rely on the latest IMF *World Economic Outlook* forecasts to set the size of macroeconomic shocks and then use analysts’ consensus forecasts or historical firm-level data to obtain industry-specific earnings shock estimates.

Figure 29. ASEAN-6: Firm-at-Risk by Industry
 (Percent share of firms generating earnings not enough to cover interest payment)



Sources: S&P Global Market Intelligence; and IMF staff estimates.

Without policy interventions, the results predict a possible unprecedented wave of corporate bankruptcies. Close to half of sample firms would be unable to generate enough earnings to cover their interest payments falling due in 2020. About one-third of sample firms would run out of cash by year end (after principal and interest payments) without liquidity support. Finally, one out of five sample firms would pertain to both of these groups, thus at high risk of default.

Across industries, the share of these high-risk firms is expected to be the highest in energy and consumer discretionary sectors, which reflects both a relatively larger expected impact of the COVID-19 shock and firms' already high debt service burden before the pandemic (Figure 29).

Policy Support to the Rescue

From early on, ASEAN countries have deployed a wide range of measures to provide critical lifeline support to the corporate sector. Overall, the public support measures have been geared more toward liquidity support (for example, loan guarantees) than solvency support (for example, equity injections), and often exclusively targeted to small- and medium-sized enterprises (Table 7).

Table 7. ASEAN-6: Key Measures to Support Nonfinancial Firms in Response to COVID-19¹
(As of September 8, 2020)

	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Liquidity Support						
Temporary tax and social security contribution deferrals	✓	✓	✓	✓	✓	✓
Temporary loan moratorium	✓	✓	✓	✓	✓	✓
Government loan guarantee	✓	✓	✓	✓	✓	✓
Subsidised lending ²	✓	✓	✓	✓	✓	✓
Solvency Support						
Tax relief	✓			✓	✓	✓
Equity injections ³	✓	✓	✓	✓		
Wage subsidies		✓	✓	✓		
Major grants		✓		✓		

Source: IMF staff survey based on authorities' public announcements.

Note: Table uses International Organization of Standardization country codes.

¹Including key measures under implementation or announced as of September 8, 2020.

²Including support to financial intermediaries for their on-lending to businesses, interest subsidies, and direct lending schemes.

³Including equity injections to state-owned enterprises or banks (Indonesia, Philippines), as well as the establishment/enhancement of a fund for co-investment in businesses with the private sector.

Several countries, however, have also implemented various types of solvency support, in part reflecting the nature of their precrisis vulnerabilities. In Singapore, for example, whose share of firms with relatively weak debt service capacity was high, relatively more consideration has been given to solvency support measures, including support for startups.

What's Next

As the economies move beyond the containment phase, the policy focus should shift from keeping firms alive toward supporting an economywide reallocation of resources and tackling the debt overhang. Some specific priorities include the following:

- **Keep adjusting policy measures to support only viable firms with liquidity shortages.** Over time, the emergency support measures aimed at preventing initial mass bankruptcies should be regularly adjusted in size and scope to ensure only viable but illiquid firms are supported. Subsidies for the most-affected industries should gradually transition toward new growth industries, such as those involving digitalization or climate change mitigation technologies.
- **Prepare for an orderly phasing-out of exceptional support measures.** Considering the magnitude of the crisis, unwinding the initial public interventions may take a long time. The exit should be timed carefully to minimize undesirable moral hazard effects while ensuring a durable economic recovery and financial stability. For example, targeted liquidity

support could be provided to facilitate the restructuring of industries hit by persistent COVID-19 shocks.

- **Strengthen insolvency systems.** It will be essential to reduce the time and costs needed to process bankruptcies, which will require streamlining the administrative procedures, expanding the court capacity, and building efficient out-of-court insolvency frameworks.
- **Revitalize firm dynamism.** The expected surge of bankruptcies would reduce market competition, while the increased corporate risk premium could hinder credit supply to young and small firms. Liquidity support should thus be more targeted to productive young firms with limited collateral and innovative startups. The ease of doing business reforms, such as cutting red tape and lowering the entry barriers, should also take on a higher priority.
- **Reinforce social protection.** The economywide reallocation of resources will inevitably entail significant economic and social costs during the transition phase. Augmented policy efforts will be essential to minimize these costs, which could include strengthening the social safety net and job retraining programs.

Flattening the Insolvency Curve—Promoting Corporate Restructuring in Asia and the Pacific to Support the Post-Pandemic Recovery

Andreas Bauer, R. Sean Craig, Jose Garrido, Kenneth Kang, Kenichiro Kashiwase, Sung Jin Kim, Yan Liu, and Sohrab Rafiq

The spread of COVID-19 in the first months of 2020 triggered a global economic contraction of unprecedented depth and synchronization. In Asia and the Pacific, most major economies experienced their infection peaks between March and April, although in some countries new cases continued rising into the summer. Most governments implemented stringent lockdowns to limit the spread of the virus. These measures, along with the collapse in external demand, caused a sharp downturn in regional activity that was broader and deeper than experienced in the global financial crisis.

Policymakers in Asia and the Pacific responded swiftly and boldly to soften the blow and prevent a more severe collapse. They adopted a “whatever it takes” approach in their initial response to help firms survive the shock and prevent a more severe economic collapse. Governments and central banks across the region rapidly deployed monetary, fiscal, and financial sector policies on an unprecedented scale, which helped prevent negative feedback loops that could have exacerbated the economic downturn. In the corporate sector, the immediate objective was to help firms survive the severe liquidity squeeze triggered by a collapse in operating income and prevent large-scale job losses.

Support for the corporate sector will have to evolve as the economies in the region stabilize and enter the recovery phase. The pandemic has contributed to a depletion of working capital and an increase in debt for many firms, raising insolvency risks and limiting their ability to restore production. It is also expected to trigger important structural change, including permanent shifts in consumer preferences and a reconfiguration of supply chains. Firms will

This chapter summarizes material from a forthcoming IMF Working Paper by the authors.

thus have to both repair their balance sheets and adjust their business models to operate successfully in the post-pandemic economy. Authorities should facilitate this adjustment while developing more robust policy frameworks and institutions for the future.

The immediate priority for policymakers is to avoid a crippling wave of drawn-out insolvencies and defaults and facilitate efficient restructuring of viable firms while allowing nonviable firms to exit. Policy support for firms will have to pivot from broad-based liquidity support to measures that help restore the solvency of viable firms. This involves addressing excessive corporate leverage while mobilizing funding for new investment and retooling. The depth and broad-based nature of the pandemic shock, the unusually large uncertainty about its duration and sectoral impact, and the large negative macroeconomic and social externalities that mass bankruptcies would generate justify active government support.

What are the key policies for countries in Asia and the Pacific entering this new phase of pandemic response? The specific measures appropriate for each country will vary depending on the fiscal and monetary support extended when the pandemic hit, the effectiveness and capacity of existing insolvency frameworks, the state of financial development, and the available macroeconomic policy space. The uncertainty about the persistence of the COVID-19 shock means that many of the corporate support measures introduced—such as emergency liquidity support, credit guarantees, and direct fiscal transfers—should continue until clear signs of a robust recovery emerge. These policies, however, should be complemented and gradually replaced by policies geared toward facilitating and supporting corporate restructuring. Among them, three areas will be of particular importance:

- **Reinforcing private debt resolution frameworks to “flatten the insolvency curve” and facilitate large scale corporate restructuring.** The flow of insolvency cases has been contained so far by the initial liquidity support and other interim measures, but this is not sustainable over a prolonged period of time. Greater reliance on out-of-court and hybrid restructuring mechanisms would help address firms’ need for financial restructuring while effectively “flattening the insolvency curve” by reducing the number of court cases to a manageable level. At the same time, the formal in-court debt resolution frameworks should be strengthened to ensure a more efficient formal insolvency process for firms with major viability problems. Simplified procedures for SMEs can further help resolve a high number of small insolvency cases at a reduced cost.
- **Ensuring adequate financing to support corporate restructuring in the post-pandemic recovery.** Banks provide the bulk of corporate credit in most financial systems in Asia and the Pacific. Authorities should use the

flexibility built into the existing regulatory and supervisory frameworks to ensure that banks maintain an adequate flow of credit to the economy. In some cases, easing macroprudential settings will be appropriate. Maintaining capital well above prudential minimum levels will support banks in providing new financing and taking on more risk in corporate restructurings. For this, policymakers may need to temporarily curb capital distributions and strengthen incentives for banks to proactively raise private capital. A publicly funded vehicle for equity injections can be a useful backstop for banks if private capital is not forthcoming. Nonbank sources of financing for corporate restructuring, including special investment vehicles, should also be promoted.

- **Facilitating access to risk capital for existing firms and startups to speed up the reallocation of resources into growth sectors.** Many firms in Asia and the Pacific are already highly leveraged and will need new risk capital to retool in a post-pandemic world. Policymakers can help by eliminating the tax bias against equity, providing incentives for debt-to-equity conversions, simplifying regulations, and reducing the cost of launching startups. Small and medium-sized enterprises (SMEs) are a significant source of employment in the region and have been hit hard by the crisis, which may justify additional support. Authorities can promote new financial instruments for SMEs such as equity-like finance that does not involve shareholder control and, hence, may be more attractive to firm owners (for example, non-voting preferred shares, convertible subordinated bonds, or profit participation loans). In situations where private equity may be insufficient owing to heightened uncertainty after the pandemic, the public sector can facilitate raising new equity, as a “venture capitalist of last resort” with appropriate safeguards to guard against moral hazard. This can catalyze private risk-taking and lay the foundations for a more robust equity culture in Asia.

SECTION

IV

Helping the Vulnerable and Building a Sustainable Future

11 COVID-19 and Inequality in Asia

Davide Furceri, Emilia Jurzyk, Prakash Loungani, Medha Madhu Nair, Jonathan D. Ostry, Pietro Pizzuto, Nathalie Pouokam, Tahsin Saadi Sedik, Anthony Tan, Rui Xu, Irina Yakadina, and Jiae Yoo

High-frequency labor surveys document that job losses during the COVID-19 pandemic have been concentrated among low-wage workers rising inequality. These distributional effects could be even larger in the medium term—including through the displacement of low-skilled workers by robots—and the resulting higher levels of inequality could undermine social cohesion. Although there is no one-size-fits-all solution, our model-based analysis shows that policies targeted to where needs are greatest are effective in mitigating adverse distributional consequences from the pandemic, and in underpinning overall economic activity and virus containment.

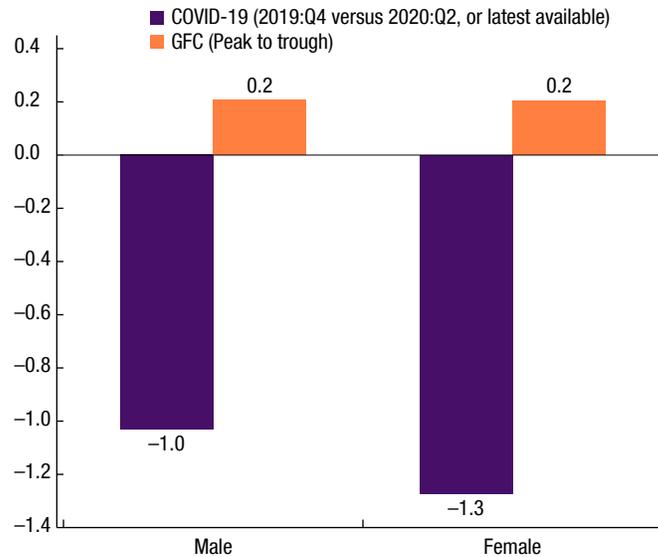
Labor Market Surveys Indicate Rising Inequality

The COVID-19 pandemic is taking its toll on Asia's labor market that has deteriorated markedly and to a much greater extent than during the global financial crisis. Aggregate hours worked have declined both at the extensive (employment rate) and intensive margins (hours worked per employee). Unemployment has surged, and labor force participation plunged—an early sign of scarring effects. The pandemic is worsening distributional outcomes in Asia (Jurzyk and others 2020):

- **Job losses are concentrated in industries with lower wages . . .** The crisis is affecting all industries, but high-contact sectors (such as hospitality and

This chapter draws on analyses detailed in Furceri and others (2020), Jurzyk and others (2020), Saadi Sedik and Xu (2020 and forthcoming), and Saadi Sedik and Yoo (2021).

Figure 30. Asia: Female Labor Force Participation Rates Delta
(Percentage points)



Source: Jurzyk and others (2020).

Note: Asia refers to Australia, Hong Kong Province of China, Japan, Korea, the Philippines, and Thailand. Data are seasonally adjusted. For COVID-19, data are up to June 2020 (or latest available). GFC = global financial crisis.

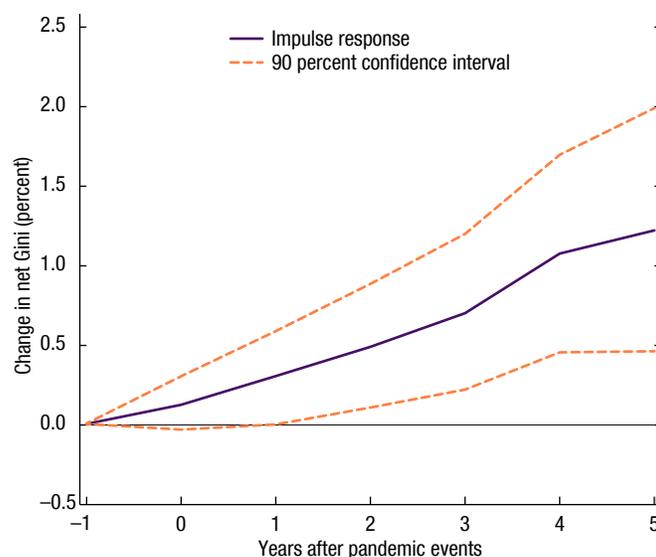
retail) and non-teleworkable industries (such as mining, manufacturing, and construction) are experiencing the largest declines. These sectors have a larger share of low-skilled workers and lower wages.

- . . . **among women** . . . Labor force participation is significantly declining, especially for women. Asia's female participation rate declined by a third more than for males (Figure 30).
- . . . **and youth.** Asia's youth have experienced sharper job losses compared with other workers during the pandemic.

The Adverse Distributional Effects Could Be Even Larger in the Medium Term

The COVID-19 pandemic is likely to increase inequality further in the medium term, unless policies succeed in altering historical patterns. Furceri and others (2020) provide evidence that major epidemics over the past two decades, even though smaller in scale than COVID-19, have led to persistent increases in the Gini coefficient, raised income shares to higher-income deciles, and lowered the employment to population ratio for those with basic education compared with those with higher education (Figure 31).

Figure 31. Average Response of Net Gini to Pandemic for 175 Countries, 1961–2017
(90 percent CI; change in net Gini; percent)



Source: Furceri and others (2020).

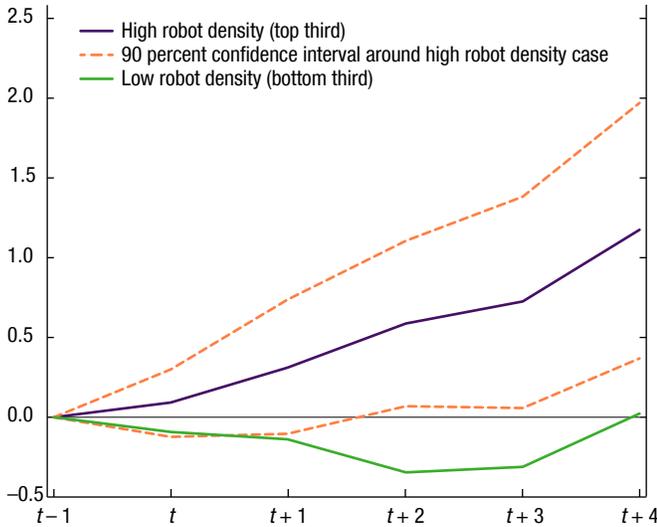
Note: The figure estimates the average change in net Gini associated with a pandemic (impulse response functions and 90 percent confidence bands estimated using a sample of 175 countries during 1961–2017).

One channel through which pandemics may further increase inequality is the acceleration in automation and robotization. Automation raises productivity, but the analysis suggests that it also increases inequality by displacing workers in routine manual occupations, which have low earnings. Robot adoption (measured by new robot installations per 1,000 employees) tends to increase after pandemic events, especially when such events are associated with a significant economic contraction. The increase in inequality over the medium term tends to be larger for economies with higher robot density—above 2.3 per 1,000—and where robot adoption increases more after the pandemic (Figure 32). Given that Asia has been at the forefront of robot adoption, the distributional effects of the COVID-19 pandemic could be sizable (Saadi Sedik and Yoo 2021).

Pandemics and Social Unrest: When Inequality Becomes Intolerable

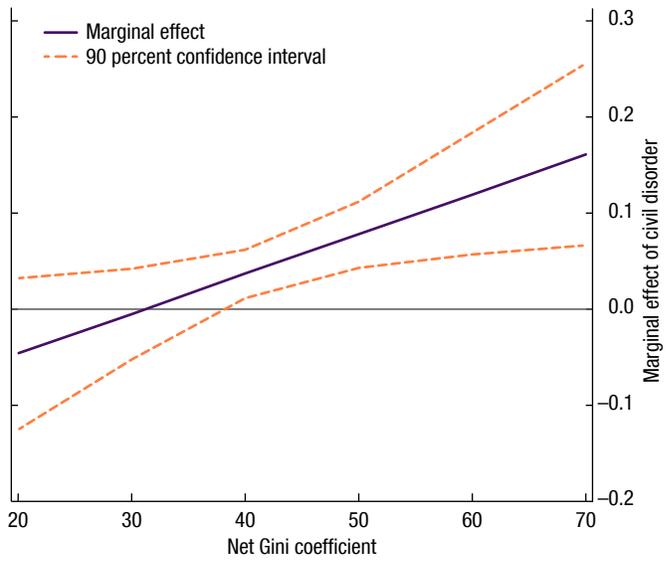
We find that past pandemics—by reducing growth and increasing inequality—have led, on average, to a significant increase in social unrest in the medium term (Saadi Sedik and Xu 2020). This effect is larger when the level of the net Gini is above 40—a warning for Asia, where about one-third

Figure 32. Changes in Net Gini Coefficient after Pandemic, by Robot Density
(Percentage points)



Source: Saadi Sedik and Yoo (2021).
 Note: Impulse responses estimated using a sample of 14 industries in 39 economies during 2000–14 and local projection method (Jordà 2005), allowing the coefficients on pandemic variables to vary depending on robot density (bottom third, middle third, and top third): left scale = net Gini; right scale = pandemic events, interacted with dummy variables indicating high/medium/low robot density, controlling for country and year fixed effects, log of wage, capital-to-wage ratio, and the measures of macroeconomic development (income, demographics, measures of trade, and financial globalization). Robust standard error clustered at country level.

Figure 33. Marginal Effect of Net Gini on Civil Disorder
(90 percent confidence interval; ICRG sign inverted)



Source: Saadi Sedik and Xu (forthcoming).
 Note: Civil disorder measures the potential risk to governance or investment from mass protest, such as anti-government demonstrations, strikes, etc. The score ranges from 0–4, where higher score means lower disorder. Given a non-linear relationship, the marginal effect of a 1-point (out of 100) increase in net Gini on civil disorder varies with the level with net Gini. The figure shows marginal effect of an increase in net Gini and 90 percent confidence intervals around the point estimates. ICRG = International Country Risk Guide.

of economies have a net Gini coefficient higher than this threshold (Figure 33). The effect also depends on the extent of redistribution (measured as the difference between market Gini and net Gini): an increase in inequality is associated with more unrest when redistributive transfers are low suggesting that redistributive measures indeed help to reduce social tensions (Saadi Sedik and Xu, forthcoming).

Policy Analysis: More Targeted Measures, More Lives Saved

Countries with broader social safety nets, greater fiscal space, lower levels of informality, and higher digitalization have been able to respond effectively in protecting the vulnerable while those with weaker initial conditions face greater challenges. Relative to emerging market and developing economies, Asian advanced economies favored targeted cash transfers. The degree of digitalization likely played a role, helping to reach citizens in need. Most advanced economies also introduced enhanced unemployment benefits, wage

subsidies, and fiscal support to firms. Less frequent adoption of such measures among low-income countries and emerging markets was likely related to a higher degree of informality, which made reaching the workers and firms more challenging.

The model-based analysis shows that fiscal support measures not only mitigate the economic cost of the pandemic but can significantly reduce the number of infections—about one-third relative to the no-intervention baseline (Jurzyk and others 2020). By helping to protect the livelihoods of consumers and workers and increasing their disposable income, these measures make staying home more affordable and help reinforce greater social distancing.

The favorable effects are larger for targeted than for untargeted measures. The former help reduce inequality in disposable income and preserve a higher consumption share of GDP for the low-skilled. Targeted measures allow for a larger share of transfers to reach poor households which in turn helps save more lives because low-skilled workers tend to be more exposed to the health crisis. The reduction in infections and fatalities, in turn, helps reduce the depth of the recession. It is therefore economically and socially beneficial to provide targeted support to the low-skilled.

To minimize longer-term damage, policies should also address challenges from automation, including by revamping education curriculums to achieve more flexible skill sets and lifelong learning, as well as offering new training for adversely affected workers. These measures may still fall short if the training involves acquiring a substantively different and challenging set of skills, raising the possibility of a persistent increase in dropouts. It is therefore important to address medium-term social challenges, including through income redistribution and safety nets.

After the Pandemic: A Case for More Unemployment Support in Asia and the Pacific?

Era Dabla-Norris, Yosuke Kido, Emilia Jurzyk, and Alasdair Scott

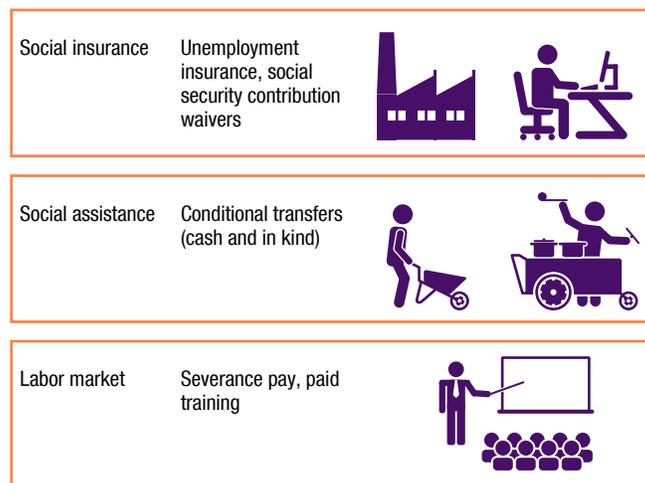
The effect of the COVID-19 pandemic has been stark. Shutdowns and collapsing demand have caused widespread job losses, with the prospect that some jobs may never return as the world adjusts to a new, post-COVID reality. In a few countries in the Asia-Pacific region, workers have been supported by formal unemployment insurance; some governments have provided ad hoc assistance. In others, there is no support from the state.

Even before this crisis, gaps in social protection were evident across the region. A very large share of the labor force is in the informal sector, working in part-time and temporary jobs without social insurance, or in sectors of the economy that are neither taxed, nor regulated by any form of government. In the region's lower-income countries, the share of informal workers is particularly high. But informality is not an issue only for the poor—an increasing share of jobs in wealthier economies are in the gig economy, without permanent contracts and very often self-employed. Informal workers lack legal protections, face more uncertainty about whether their employment will continue, and are typically excluded from state support if they lose their jobs.

The current crisis and the prospects for labor markets dominated by informal or ad hoc jobs raise vital questions: Should governments do more to support the unemployed? What would that look like? And can they afford it? This chapter examines these questions for economies in the Asia-Pacific region. It starts by describing what is already there and how governments have responded during this crisis. It then considers what could be done, taking into account important structural features of labor markets in the region and assessing sustainability.

This chapter draws on material in forthcoming papers by the authors.

Figure 34. Unemployment Support and its Coverage



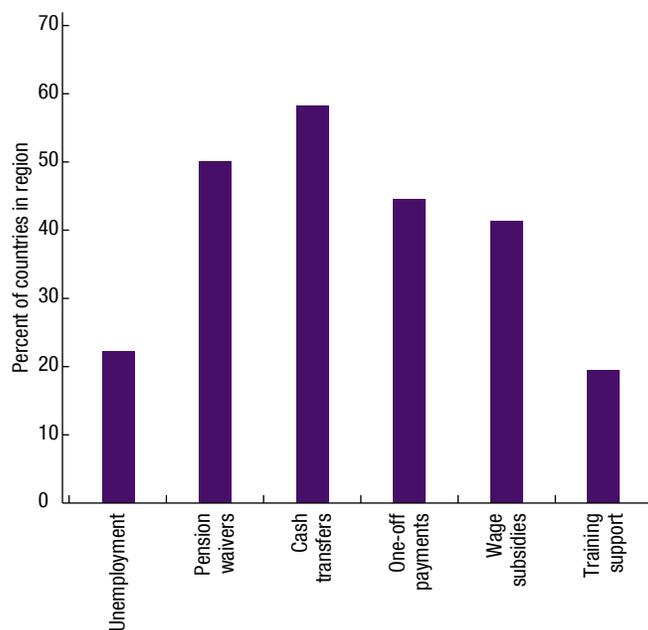
Source: IMF staff.

By unemployment support, the authors include not only formal unemployment insurance (UI) schemes, but also some conditional cash transfers (or potentially equivalent support through severance pay), and also paid training schemes. Hence, the focus cuts across the conventional division of social *protection* into social *insurance*, social *assistance*, and *labor market measures* (Figure 34). Unemployment support can not only reduce the risk of citizens falling into poverty, by pooling risks, but also raise economic efficiency—by reducing the costs of being temporarily unemployed, it could improve job market matching and reduce potentially excessive precautionary saving.

What is already there? As a whole, the Asia-Pacific region is reputed to have generally low social protection. Whether a country has statutory UI is quite well explained by its per capita income—as with countries in the rest of the world, UI is usually offered by richer countries. The coverage of workers—the exclusions based on the type of job, such as whether self-employed—is also very similar to other regions. As with the rest of the world (even Europe), UI is typically funded both by the state and social contributions. Many countries that lack UI have requirements for severance pay that are economically equivalent to UI funded entirely by firms. In short, there is little evidence of a cultural preference against unemployment support—but in turn, clear evidence that affordability and the types of jobs in the labor market matter a great deal.

The response during the pandemic also shows that much can be done when the need is clear. Nearly all countries in the region have introduced new

Figure 35. New Measures in Asia-Pacific Countries during the COVID-19 Crisis



Source: Gentilini and others (2020).

measures (Figure 35). For example, cash transfers have been given in more than half of the countries in the region. In some cases (for example, Japan), they have been unconditional. In most cases, they have been targeted, such as to low-income households in the Philippines. Thailand has directed cash transfers to workers outside its social security system. Unemployment benefits have been expanded in Indonesia, and subsidized training introduced in Cambodia. Waivers to contribute to social security or dispensations to draw down on state pensions have been allowed in countries from Australia to Vietnam.

What does this evidence tell us about the challenges going forward?

- **Capacity** has been an issue—middle-income countries, generally lacking the automatic mechanisms such as statutory UI, have been most active in introducing new measures, but low-income countries (particularly Pacific island states) have introduced relatively few. Some countries with existing social assistance mechanisms (such as for healthcare) have been able to adapt them for income support; Cambodia, starting with very little in the way of social protection generally, has used a system designed to identify

those living in poverty to deliver cash transfers. Across the region, higher rates of digital adoption have been associated with more targeted transfers.

- **Coverage:** A big challenge remains from before the pandemic: how to ensure that unemployment support reaches those workers currently shut out from existing schemes. Governments in other regions have attempted to increase coverage of UI schemes to those outside of the system, but with difficulty.¹ This implies that increasing coverage of UI schemes will need policy measures to reduce informality, which in turn requires addressing why people work in the informal economy.² But it is likely that targeted cash transfers will be the most efficient way to reach those in need, particularly for those countries with high informality, but also with the increasing share of gig work.
- **Incentives and fiscal sustainability:** Overall, those countries that were richer or had less public debt leading going into 2020 have been able to increase spending on unemployment support by more. How to move forward from this point is a key issue. The degree of unemployment support—whether statutory UI or cash transfers—is crucial, both for the sustainability of public finances and the incentives to find new jobs. The wealthier countries in the region that have UI systems typically pay about ½ percent of GDP each year on average through the business cycle, which would be a significant expenditure for lower-income countries. Attempts to introduce UI schemes funded by mandatory savings have had mixed success. But replacement rates (the ratio of unemployment benefits to earnings while working) in East Asian systems are relatively high, perhaps more than is needed, suggesting that richer countries could make UI more fiscally affordable. Middle-income countries could consider moving away from reliance on severance pay—which deters firms from offering formal employment—to mixed state-private-funded UI schemes. Transfers need to be well targeted.

The responses during this crisis by governments in the Asia-Pacific region have been impressive, showing that much can be done. But the approaches have been necessarily ad hoc, and attention now needs to be directed to what to keep and how to change. Fiscal pressures will show; ongoing transfers will need to be carefully reviewed and targeted.³ The way forward will also

¹In Latin America, UI schemes have combined self-insurance with public insurance by providing a fixed payment, from a common pool of funds, but the schemes have generally not succeeded in building up sufficient funds to provide adequate protection for those who find themselves unemployed.

²Reasons include costs to enter the formal sector (such as training), set up formal businesses, and employ and dismiss, which can be mitigated with public policies. Monopsony employment points to competition policy. A lack of childcare—particularly in urban environments, where better jobs typically are—can hold back female participation.

³In the initial stages of the crisis, wage subsidies were effective because they could be delivered relatively quickly, but they have typically only reached formal workers, and should not be extended to unviable firms.

need to reflect the diversity of countries in the region. Low-income countries should focus on getting workers into formal systems that can be activated and scaled up to provide unemployment support in emergencies. Wealthier countries with UI schemes could perhaps increase coverage for the same overall spending, but they too will likely need to develop conditional cash transfer schemes to cope with growing shares of informal workers.

A Green Recovery in South Asia: Can the Region Become a Global Leader in Mitigation Efforts to Fight Climate Change?

Ruchir Agarwal and Patrick Blagrove

The COVID-19 pandemic has severely impacted growth and fiscal positions in South Asia. At the same time, the region continues to be one of the world's largest carbon-dioxide emitters (albeit not in per capita terms), implying it has an important role to play in the global fight against climate change. Looking ahead, the region may be uniquely placed to accelerate efforts to reduce emissions—including through inclusive carbon taxes. Such efforts will not only help limit climate change but also benefit the local economy and health of the region's population, while boosting fiscal revenues.

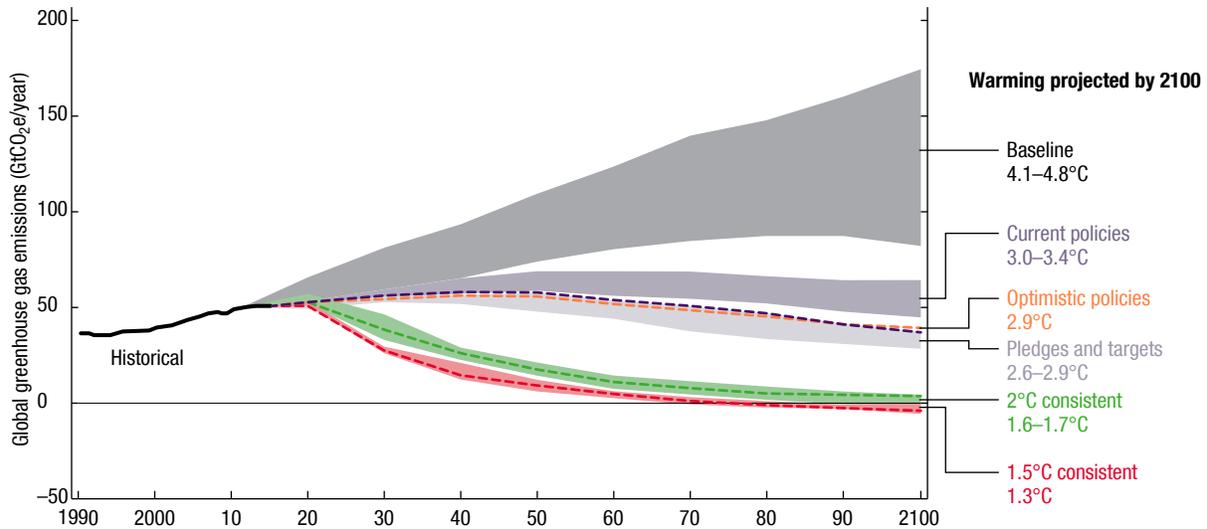
The Global Fight Against Climate Change and Mitigation Targets

The Paris Agreement aims to keep the global temperature rise this century well below 2°C above preindustrial levels and to pursue efforts to further limit warming to 1.5°C. Additionally, the agreement aims to strengthen the ability of countries to deal with the impact of climate change and includes enhanced support for developing countries.

These pledges should be evaluated against the huge human effort that is needed to meet the Paris Agreement goal to limit warming. According to the estimates in the UN Emissions Gap 2018 report, to prevent warming of 2°C by 2100, global emissions should not exceed 40 gigatons of CO₂ equivalent by 2030. By comparison to limit warming to 1.8°C, emissions will have to be cut even further, not exceeding 34 gigatons of CO₂ equivalent by 2030. And to prevent a 1.5°C temperature rise, total emissions will have to stay below 24 gigatons of CO₂ equivalent.

Based on a forthcoming IMF Working Paper.

Figure 36. 2100 Warming Projections
(Emissions and expected warming based on pledges and current policies)



Source: Climate Action Tracker.
 Note: GtCO₂e = gigatonnes of equivalent carbon dioxide.

Even if countries follow through on all their unconditional climate pledges, the planet’s average temperature is expected rise by about 3.2°C by 2100—well beyond the goal of the Paris Agreement (Figure 36). Therefore, to avoid damaging levels of climate change, countries will need to be bolder in their climate commitments with material action to make those commitments a reality.

All six South Asian countries have ratified the Paris Agreement and have submitted their first Nationally Determined Contributions (NDCs). As of 2019, 184 parties have submitted their first NDCs, and all six South Asian countries covered here (Bangladesh, Bhutan, India, the Maldives, Nepal, and Sri Lanka) have submitted their NDCs.

There is considerable diversity in the type of commitments made by the six South Asian countries in their respective NDCs. For instance, India has committed to a 33–35 percent unconditional reduction in emissions intensity by 2030, compared to 2005 levels. By contrast, Bangladesh has committed to a 5 percent reduction in greenhouse gas (GHG) emissions by 2030, compared to business-as-usual (BAU) levels in the power, transport, and industry sectors, and the Maldives has committed to unconditionally reduce 10 percent of its GHG (below BAU) by 2030. Meanwhile, Nepal has no 2030 targets, but a conditional 2050 target to reduce fossil fuel dependency by 50 percent conditional on receiving bilateral/multilateral grant support.

Bhutan is notable for being one of two countries (along with Suriname) in the world that is already carbon neutral. Bhutan made the commitment to remain carbon neutral in 2009 despite its status as a small, mountainous developing country and has renewed the commitment to remain so going forward.

Thus, among the South Asian countries, much of the focus is on India with respect to mitigation, given its relatively large share of GHG emissions. As of 2012 (a date for which comparable data are available for all six countries), India accounted for nearly 6 percent of global GHG emissions, despite its low per capita emissions and large needs for better living standards for a sizable fraction of the population. By contrast Bangladesh accounted for 1/3 percent; and the others less than 0.1 percent of global GHG emissions. In this context, India's mitigation policy is of central interest to the global community. Moreover, with significant economic and population growth India is likely to account for larger share of global emission in the next 10 to 20 years.

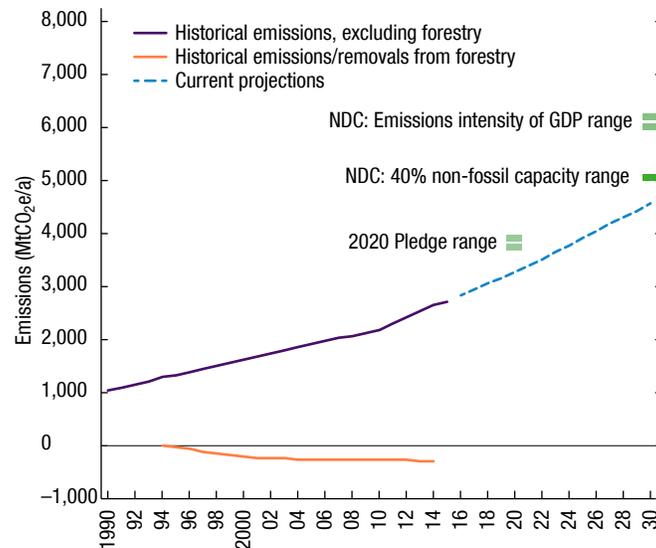
India's Mitigation Path

Although India's emissions are projected to grow as the country's economy develops, its commitments are compatible with the 2°C goal set in Paris according to some observers. India is emerging as a leader in renewable energy, with significant investments in renewable energy (in addition to sizable investments in fossil fuel). According to the 2018 UN Emissions Gap Report, India is one of the few G20 members wherein the emissions under current policies are projected to be more than 10 percent below their unconditional NDC targets for 2030.

India is expected to achieve both its 40 percent non-fossil fuel target and its emissions intensity target by 2030. India's NDC commits to reducing its emissions intensity of GDP by 33–35 percent below 2005 levels by 2030 and increasing the share of non-fossil energy in total power generation capacity to 40 percent (with help of international support). Estimates by the Climate Action Tracker—an independent scientific analysis under a collaboration between Climate Analytics and New Climate Institute that track government climate actions—suggest that India can achieve its NDC target with currently implemented policies (Figure 37).

India's progress offers it an opportunity to become a world leader by taking bolder steps toward mitigation. India's current emissions target is not as strong compared to some other countries, with some even adopting net-zero emissions targets for 2050 or 2060. Going forward, India will have an opportunity to strengthen its mitigation goals in the 26th session of the Confer-

Figure 37. India's Paris Agreement Targets and Current Projections



Source: Climate Action Tracker.
 Note: MtCO₂e/a = metric tons of carbon dioxide equivalent; NDC = nationally determined contributions.

ence of the Parties (COP 26) to the United Nations Framework Convention on Climate Change, which is expected to be held in 2021.

To achieve larger emission reductions, India may need to focus on phasing out its reliance on unabated coal-fired power plants. In particular, India's Electricity Plan (Central Electricity Authority 2018) still envisions several new coal-fired power plants in the future. The next section discusses some ideas as to achieving an end to new coal plans and a phase out of coal over the next couple decades.

An Inclusive Carbon Tax

The effort to reduce emissions requires a meaningful change in the relative cost of renewables. This can be achieved either by lowering the cost of renewables through greater subsidization or technological innovation, or by increasing the cost of thermal production. Existing policies in India have elements of both approaches. Recognizing the need to partly internalize the externalities associated with the generation of electricity using thermal sources, especially coal production, a coal cess or tax was enacted in 2010. In addition, levying a direct tax on fossil-fuel production, in proportion to carbon content and ultimately carbon emissions (a so-called carbon tax) would accelerate the

shift away from thermal power generation while also providing a fiscal dividend. As discussed in the 2019 *Fiscal Monitor*, the enactment of a \$50 per ton carbon tax would reduce carbon dioxide emissions by about 35 percent below a “no-policy-change” baseline scenario by 2030.

Unlike subsidization, which carries a fiscal cost, a substantial carbon tax could provide a large fiscal boon to India and the South Asia region. The 2019 *Fiscal Monitor* estimates that a \$50 per ton carbon tax would generate 1.5 to 2 percent of GDP in additional fiscal revenues by 2030. If this boost to revenues were put toward reducing the country’s deficit, it would play a large role in counteracting the deterioration in India’s fiscal position associated with COVID-19 and necessary fiscal support measures.

In addition, a well-designed carbon pricing reform can support distributional and poverty objectives. Analysis in the 2019 *Fiscal Monitor* suggests that a carbon tax in India may in fact have a similar or smaller incidence on lower-income households than on those with higher incomes, due largely to the fact that electricity is either less available or less consumed by rural households in India. Additionally, using part of carbon pricing revenues to increase fiscal transfers to lower-income households would make the reform more progressive and could result in net benefits among poorer households. Doing so could make the reform both pro-equity and pro-poor. In addition, it could also help with improving air quality and mitigating pollution. Further work is needed in each South Asian country to evaluate, assess, and design the practical aspects of the policy implementation to ensure vulnerable and low-income households are protected and adequately covered by the various fiscal transfers. Moreover, more thought will need to be given to the impact of carbon taxes on growth and inflation as policymakers are likely be worried about this.

The COVID-19 shock has already led to sectoral reallocation away from some dirty-energy-intensive sectors, which could help reduce transition costs on the path to a greener economy. Some sectors that rely intensively on carbon—such as airlines, transportation, etc.—have been particularly impacted by the COVID-19 shock, and the adverse impact is expected to last for several years. While in the short-term this has led to sizable pain for the workers and businesses operating in these sectors, over the medium-term this provides an opportunity for job creation to occur in less pollution-prone sectors. In this context, a well-designed carbon tax package—that is combined with complementary product and labor market policies—could support the re-allocation of capital to and re-skilling of labor in more productive and cleaner sectors.

The post-pandemic recovery offers a unique opportunity the region: its countries can be global leaders in climate-change mitigation efforts. While

several advanced economies are envisioning a phasing out of less-clean energy sources (for example, Canada by 2030), India has an opportunity to embark on a similar goal and demonstrate global leadership. This path would also benefit the local population by reducing local air pollution and would incentivize a shift toward cleaner and potentially job-rich renewable technologies.

Challenges Ahead

These are difficult times, requiring Asia to navigate multiple challenges. Fear of infection and social distancing weigh on consumer confidence, keeping economic activity below capacity. Labor markets show increasing signs of scarring, with surging unemployment and plunging labor force participation, particularly for women and younger workers. Prospects for a global trade-led recovery are uncertain, with weak global growth, closed borders, and festering tensions around trade, technology, and security. Although the positive news on vaccines promise upside potential.

The COVID-19 pandemic comes in the context of longer-running challenges in the region: slowing productivity growth, high indebtedness, population aging, and rising inequality. A renewed bout of tighter global financial conditions could aggravate already weak public and private sector balance sheets, trigger a wave of corporate defaults, and potentially push vulnerable countries into a debt crisis. Redistributive policies in Asia are limited and the informal sector is large, making it difficult to reach and support the most vulnerable. Income and wealth inequality, already increasing before the pandemic, are likely to rise further unless decisive actions are taken.

This book surveys how the Asia-Pacific region responded to the pandemic and discusses different policy options to address COVID-related challenges. The key policy takeaways are as follows:

- **To flatten the virus curve:** (1) activate containment measures early, when infection rates are still low; (2) exit lockdowns after the virus has been suppressed for better health and economic outcomes; and (3) put in place comprehensive testing and tracing systems to minimize the risk of second waves.

- **To prevent longer-term scarring:** step up economic reforms to boost productivity growth and investment, allow for adequate reallocation of resources across sectors, and support workers affected by the transition. The reform package could include well-targeted hiring subsidies and worker-retraining schemes, infrastructure upgrades, and reforms to simplify business processes and reduce the regulatory and tax burden.
- **To minimize the side effects of unconventional policies:** (1) target liquidity support toward firms that are solvent, (2) ensure that bond purchases are guided by well-defined last resort criteria, and (3) establish clear frameworks for the use of unconventional policy and have an exit strategy.
- **For countries with high public debt burdens:** focus on revenue mobilization, public financial management, and debt management; liquidity support from multilateral partners, the G20 Debt Service Suspension Initiative, and debt relief and/or debt reduction can provide some relief.
- **To address high corporate debt burden:** reinforce private debt resolution frameworks, ensure the availability of adequate financing, and facilitate access to risk capital to speed up the reallocation of resources into growth sectors.
- **To create more resilient and inclusive economies:** (1) support the vulnerable through targeted policies, including conditional cash transfer schemes; (2) get workers into formal systems that can be activated and scaled up; and (3) in rebuilding the economy, channel support toward cleaner sectors, to reduce emissions and fight climate change.

The region must remain agile, focused, and innovative to protect the vulnerable; exit the crisis in a durable way; and deliver greener, smarter, and more equitable recovery. Some reforms—in health care, social safety nets, labor market, and the corporate sector—will not only help to address the challenges presented by the pandemic, but also facilitate a speedier return to pre-pandemic output and build social cohesion. To enable structural change, Asia's economic policies should be focused on the world of tomorrow, not yesterday. The IMF stands ready to support the economies across Asia and the Pacific, with financing, policy advice, and capacity development tailored to the diverse needs in the region.

References

- Anderson, Derek, Benjamin L. Hunt, Mika Kortelainen, Michael Kumhof, Douglas Laxton, Dirk V. Muir, Susanna Mursula, and Stephen Snudden. 2013. “Getting to Know GIMF: The Simulation Properties of the Global Integrated Monetary and Fiscal Model.” IMF Working Paper 13/55, International Monetary Fund, Washington, DC.
- Anderson, James E., and Eric van Wincoop. 2003. “Gravity with Gravitas: A Solution to the Border Puzzle.” *American Economic Review* 93: 170–92.
- Bannister, Geoffrey J., Harald Finger, Yosuke Kido, Siddharth Kothari, and Elena Loukoianova. 2020. “Addressing the Pandemic’s Medium-Term Fallout in Australia and New Zealand.” IMF Working Paper 20/272, International Monetary Fund, Washington, DC.
- Bauer, Andreas, Jose Garrido, Kenneth Kang, Kenichiro Kashiwase, Sung Jin Kim, Yan Liu, and Sohrab Rafiq. Forthcoming. “Flattening the Insolvency Curve: Promoting Corporate Restructuring in Asia and the Pacific in the Post-C19 Recovery.” IMF Working Paper, International Monetary Fund, Washington, DC.
- Caliendo, Lorenzo, Robert C. Feenstra, John Romalis, and Alan M. Taylor. 2017. “Tariff Reductions, Entry, and Welfare: Theory and Evidence for the Last Two Decades.” CEPR Discussion Paper DP10962, Center for Economic and Policy Research, Washington, DC.
- Cashin, Paul, and Francisco Ilabaca. Forthcoming. “Anchoring Japanese Inflation Expectations.” IMF Working Paper, Washington, DC.
- Cevik, Serhan. 2020. “Going Viral: A Gravity Model of Infectious Diseases and Tourism Flows.” IMF Working Paper 20/112, International Monetary Fund, Washington, DC.

- Cooper, Malcolm. 2006. "Japanese Tourism and the SARS Epidemic of 2003." *Journal of Travel and Tourism Marketing* 19: 117–31.
- Deb, Pragnan, Davide Furceri, Jonathan D. Ostry, and Nour Tawk. 2020a. "The Effect of Containment Measures on the COVID-19 Pandemic." IMF Working Paper 20/159, International Monetary Fund, Washington, DC.
- Deb, Pragnan, Davide Furceri, Jonathan D. Ostry, and Nour Tawk. 2020b. "The Economic Effects of COVID-19 Containment Measures." IMF Working Paper 20/158, International Monetary Fund, Washington, DC.
- Ding, Xiaodan, and Metodij Hadzi-Vaskov. 2017. "Composition of Trade in Latin America and the Caribbean." IMF Working Paper 17/42, International Monetary Fund, Washington, DC.
- Egger, Peter. 2000. "A Note on the Proper Econometric Specification of the Gravity Equation." *Economic Letters* 66: 25–31.
- Furceri, Davide, Siddharth Kothari, and Longmei Zhang. Forthcoming. "The Effects of COVID-19 Containment Measures on the Asia Pacific Region." International Monetary Fund, Washington, DC.
- Furceri, Davide, Prakash Loungani, Jonathan D. Ostry, and Pietro Pizzuto. 2020. "Will COVID-19 Affect Inequality? Evidence from Past Pandemics." *COVID Economics* 12 (May): 138–57.
- Garrido, José, Sanaa Nadeem, Nagwa Riad, Anjum Rosha, Chanda M. DeLong, and Nadia Rendak. 2020. "Tackling Private Over-Indebtedness in Asia: Economic and Legal Aspects." IMF Working Paper 20/172, International Monetary Fund, Washington, DC.
- Gentilini, Ugo, Mohamed Almenfi, Ian Orton, and Pamela Dale. 2020. *Social Protection and Jobs Responses to COVID-19 : A Real-Time Review of Country Measures*. World Bank, Washington, DC.
- Hale, Thomas, Noam Angrist, Emily Cameron-Blake, Laura Hallas, Beatriz Kira, Saptarshi Majumdar, Anna Petherick, Toby Phillips, Helen Tatlow, and Samuel Webster. 2020. "Oxford COVID-19 Government Response Tracker." Blavatnik School of Government, Oxford, UK.
- Han, Fei, and Dulani Seneviratne. 2018. "Scarcity Effects of Quantitative Easing on Market Liquidity: Evidence from the Japanese Government Bond Market." IMF Working Paper WP/18/96, Washington, DC.
- International Monetary Fund (IMF). 2014. "Sustaining Long-Run Growth and Macroeconomic Stability in Low-Income Countries—The Role of Structural Transformation and Diversification." IMF Policy Paper, International Monetary Fund, Washington, DC.
- International Monetary Fund (IMF). 2016. *Fiscal Monitor*. Washington, DC, October.

- International Monetary Fund (IMF). 2018a. “Scenario Box 1: Global Trade Tensions.” *World Economic Outlook*. Washington, DC, October.
- International Monetary Fund (IMF). 2018b. “Regional Economic Outlook: Asia and Pacific Background Paper No. 2.” Washington, DC, October.
- International Monetary Fund (IMF). 2018c. “The Economic Impact of Natural Disasters in Pacific Island Countries: Adaptation and Preparedness.” IMF Working Paper 18/108, Washington, DC.
- International Monetary Fund (IMF). 2018d. “Is Productivity Growth Shared in a Globalized Economy?” *World Economic Outlook*. Washington, DC, April.
- International Monetary Fund (IMF). 2019a. Article IV Staff Report—Japan. IMF Country Report 20/39. Washington, DC.
- International Monetary Fund (IMF). 2019b. Selected Issues—Japan. IMF Country Report 20/40, Washington, DC.
- International Monetary Fund (IMF). 2020a. “Central Bank Direct Financing of Government and Monetary Instability.” Special Series on COVID-19, Washington DC, September.
- International Monetary Fund (IMF). 2020b. “COVID-19 Lockdowns and Exits in Asia: Some Lessons.” *Regional Economic Outlook*. Washington, DC, October.
- International Monetary Fund (IMF). 2020c. “Dissecting the Economic Effects.” *World Economic Outlook*. Washington, DC, October.
- International Monetary Fund (IMF). 2020d. “Emerging and Frontier Markets: A Greater Set of Policy Options to Restore Stability.” *Global Financial Stability Report*. Washington, DC, October.
- International Monetary Fund (IMF). 2020e. *External Sector Report*. Washington, DC
- International Monetary Fund (IMF). 2020f. “The Evolution of Public Debt Vulnerabilities in Lower Income Economies.” IMF Policy Paper No. 20/003, Washington, DC.
- International Monetary Fund (IMF). 2020g. “Unconventional Monetary Policy in Emerging Market and Developing Economies.” Special Series on COVID-19, Washington, DC.
- Jordà, Òscar. 2005. “Estimation and Inference of Impulse Responses by Local Projections.” *American Economic Review* 95 (1): 161–182.
- Jurzyk, Emilia, Medha Madhu Nair, Nathalie Pouokam, Tahsin Saadi Sedik, Anthony Tan, and Irina Yakadina. 2020. “COVID-19 and Inequality in

- Asia: Breaking the Vicious Cycle.” IMF Working Paper 20/217, International Monetary Fund, Washington, DC.
- Kowalski, Przemyslaw, Javier Lopez Gonzalez, Alexandros Ragoussis, and Cristian Ugarte. 2016. “Participation of Developing Countries in Global Value Chains.” OECD Trade Policy Papers 179, OECDE Publishing, Paris.
- Kuo, Hsiao-I., Chi-Chung Chen, Wei-Chun Tseng, Lan-Fen Ju, and Bing-Wen Huang. 2008. “Assessing Impacts of SARS and Avian Flu on International Tourism Demand to Asia.” *Tourism Management* 29: 917–28.
- Lilien, David M. 1982. “Sectoral Shifts and Cyclical Unemployment.” *Journal of Political Economy* 90 (4): 777–93.
- Martin, Robert F., Teyanna Munyan, and Beth Anne Wilson. 2015. “Potential Output and Recessions: Are We Fooling Ourselves?” FRB International Finance Discussion Paper 1145, Board of Governors of the Federal Reserve System, Washington, DC.
- Nicita, Alessandro. 2019. “Trade and Trade Diversion Effects of United States Tariffs on China.” UNCTAD Research Paper 37, United Nations Conference on Trade and Development, Geneva.
- Organisation for Economic Co-operation and Development (OECD). 2008. “Enhancing the Role of SMEs in the Global Tourism Industry.” In *Tourism in OECD Countries 2008 Trends and Policies*. Paris: OECD Publishing.
- Organisation for Economic Co-operation and Development (OECD). 2011. “ISIC Rev. 3 Technology Intensity Definition.” OECD Directorate for Science, Technology and Industry, Economic Analysis and Statistics Division, Paris. <https://www.oecd.org/sti/ind/48350231.pdf>.
- Potter, Simon, and Frank Smets. 2019. “Unconventional Monetary Policy Tools: A Cross-Country Analysis.” CGFS Papers 63, Committee on the Global Financial System, Basel.
- Roselló, Jaume, Maria Santana-Gallego, and Waqas Awan. 2017. “Infectious Disease Risk and International Tourism Demand.” *Health Policy and Planning* 32: 538–48.
- Saadi Sedik, Tahsin, and Rui Xu. Forthcoming. “When Inequality Becomes Intolerable.” IMF Working Paper, Washington, DC.
- Saadi Sedik, Tahsin, and Rui Xu. 2020. “A Vicious Cycle: How Pandemics Lead to Economic Despair and Social Unrest.” IMF Working Paper 20/216, International Monetary Fund, Washington, DC.
- Saadi Sedik, Tahsin, and Jiae Yoo. 2021. “Pandemics and Automation: Will the Lost Jobs Come Back?” IMF Working Paper 21/11, International Monetary Fund, Washington, DC.

- Santana-Gallego, María, Francisco J. Ledesma-Rodríguez, and Jorge V. Pérez-Rodríguez. 2010. "Exchange Rate Regimes and Tourism." *Tourism Economics* 16: 25–43.
- Westelius, Niklas. Forthcoming. "Twenty Years of Unconventional Monetary Policies: Lessons and Way Forward for the Bank of Japan." IMF Working Paper, Washington, DC.
- Woodford, Michael. 2020. "Effective Demand Failures and the Limits of Monetary Stabilization Policy." CEPR Discussion Paper DP15211, Center for Economic and Policy Research, Washington, DC.
- Zeng, Benxiang, Rodney William Carter, and Terry De Lacy. 2005. "Short-Term Perturbations and Tourism Effects: The Case of SARS in China." *Current Issues in Tourism* 8: 306–22.
- Zhang, Fan. Forthcoming. "China and the Great Lockdown." IMF Working Paper, International Monetary Fund, Washington, DC.

