



IMF RESEARCH

Volume 23, Number 2

Fall | Winter 2020

perspectives



LIGHTING the **PATH** to **RECOVERY**



resbulletin@IMF.org

CONTENTS

01 Interview with Gian Maria Milesi-Ferretti

04 COVID's Long Shadow: Social Repercussions of Pandemics

07 Is Remote Working? An Index of Teleworking Capacity by Country

10 Credit Where Credit Is Due: Policies to Mitigate the Pandemic Fallout

13 Rules or Fear? Tracking the Early Economic Impact of COVID-19 and Mitigation Policies

18 Living in the Extreme: Economics of Pandemics, Climate Change, and Tail Risks

NOTE FROM THE GUEST EDITOR



Where do we go from here? That is the question on everyone's mind, as we hopefully approach the closing stretch of the worst pandemic in a century, the most disruptive event that most people have experienced in their lifetimes.

But we cannot know where we are going without a deeper insight into where we stand and how we got here. The greatest contribution that economic research can make right now is to analyze the impact of the pandemic and cast light on its shadows, so that the paths, both behind and ahead of us, begin to emerge. There is no darkness but ignorance.

John Maynard Keynes said that an economist's calling is to study the present in light of the past for the purpose of the future. The researchers whose work is showcased here have taken up that calling. Whether by looking at the history of social unrest in the aftermath of pandemics, casting our eyes on the inequalities of telework, putting COVID's infection of banks under the microscope, or examining how economic activity has been shaped by people's reaction to the virus and to the policy measures to contain it, these researchers' torches help light our path. *~Itai Agur*

IMF RESEARCH *perspectives*

EDITORS-IN-CHIEF

Deniz Igan
Chris Papageorgiou

GUEST EDITOR

Itai Agur

ASSISTANT EDITOR

Patricia Loo

EDITORIAL ASSISTANT

Tracey Lookadoo

CONTRIBUTORS

Itai Agur
Philip Barrett
Nina Biljanovska
Emine Boz
Mariya Brussevich
Sophia Chen
Salma Khalid
Nan Li
Era Dabla-Norris
Nicola Pierri
Andrea F. Presbitero

COVER, DESIGN, AND LAYOUT

IMF CSF Creative Solutions Division

IMF Research Perspectives—the IMF online bulletin with news on research—is a biannual publication in English and is available exclusively online free of charge.

The views expressed are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Material from this publication may be reprinted with proper attribution.

Editorial correspondence may be addressed to:

INTERNATIONAL MONETARY FUND
Attn: Editor, IMF Research Perspectives
700 19th Street, NW
Room HQ1 9-253
Washington, DC 20431
USA
✉ resbulletin@IMF.org

ISSN 2708-3535

DOI 10.5089/9781513564081.053

✓ SIGN UP!

For new issues of *IMF Research Perspectives* and a variety of other IMF publications, sign up for electronic notifications at IMF.org/external/cntpst/index.aspx.

Individual issues are available at IMF.org/researchbulletin.

Interview with **GIAN MARIA MILESI-FERRETTI**



Gian Maria Milesi-Ferretti is the retiring Deputy Director of the IMF's Research Department, who has long overseen the IMF's most influential publication, the *World Economic Outlook*.

You just finished presenting the latest World Economic Outlook (WEO). That must be a very intense process. Could you tell us what it feels like to prepare for and present the WEO?

There is a fantastic mechanism in place, and the WEO has an amazing team. I think this was my 27th WEO press conference. Of course, there are always challenges, and we are in very unusual times, but by now I sort of know the drill.

The World Economic Outlook always gets plenty of attention all around the world. But this time the stakes are as high as they have ever been. Overseeing the IMF's forecasts, how do you grapple with the fact that COVID-19 is a crisis for which we have little precedent and which, as economists, takes us far out of our usual knowledge base?

I think a lot of humility is important, because, in an unprecedented situation like the current one, you are going to get things wrong. You need a lot of flexibility and creativity, very good people around you, and a willingness to talk to experts in areas that are far away from your own expertise, like epidemiology. You also need to make sure that IMF country teams are fully cognizant of the general picture that is shaping up at the world level.

Throughout your long career at the IMF, you have seen many crises. Not long after you joined the institution, Mexico was rocked by the first in a long list of major crises that occurred during your first years as an IMF economist. Looking back, do you feel that the Fund has changed, and approaches crises differently than it once did?

I think we learn from mistakes. We learn from the way new crises materialize. I would say that the institution has become more flexible in its response. We cannot address every single occurrence of an external crisis the same way, and there are many factors that need to be taken into account. The strategies we once thought were appropriate may not be appropriate in the environment in which we live now. I think the Fund also absorbs the progress of knowledge in the profession and in policymaking more generally.

During your career you have seen many different aspects of the Fund and held various positions, including mission chief for the United States. But the Research Department has really been your home base, to which you always returned. What do you love about working in the Research Department?

I love research, so that is clearly the main driving force. I think it is a fantastic department with first-rate economists, and it has this wonderful blend of analytical work, grounded in very concrete and real economic problems. As your career advances, you move from targeting academic publications and growing your CV to really thinking about influence and about what matters to the institution you are working for and to the policymakers who come to ask for

policy advice. That is what shaped my thinking and my interests over time.

All through your IMF career, you have published a lot of research, including in leading academic journals. Did you find that the policy work you were involved with also fertilized your own research agenda? And, conversely, in what ways has your research affected the way you think about economic policy problems?

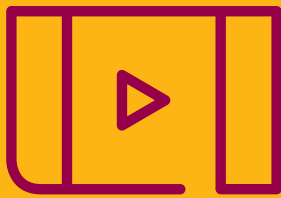
The types of economic problems I have seen countries face since I came to the IMF have shaped my research a lot. You mentioned the Mexican crisis earlier, which was followed by the Asian crisis. During that period, I really started working in earnest on external sustainability and the drivers of large current account deficits. At that time, we saw a lot of foreign direct investment and portfolio equity investment flowing to emerging and developing economies. We realized back then that tracking external debt dynamics was going to be a very imperfect way of examining what was happening to the external position of a country. From there, I started to grow a project with Philip Lane that eventually became the [External Wealth of Nations](#). As for how my research influenced the way I think about policy problems, I can say that I have become a data person. I look at data very carefully and try to find patterns. That really became the way I have thought about problems during the past 20 years.

For nearly three decades, your research has played an important role in shaping the academic agenda on financial globalization and external imbalances. Can you tell us a bit about how your work in this field has evolved over time?

It is still evolving. As you grow older, you realize that the world is much more complicated than we make it out to be and that you need a much broader approach to economic problems. You should dabble in economic fields that may not exactly be up your alley. Taking a more holistic view of what is happening in the external sector is one way in which I have changed the way I look at the problem. I try to think about a country's overall balance sheet and how its external position is driven by individual sectors in the country.

You have had many achievements overall, both in policy work and research. Could you tell us about an achievement that made you especially proud?

I am proud of many. Clearly, your first acceptance letters for academic journals are just very special. So is



WATCH NOW

GIAN MARIA MILESI-FERRETTI INTERVIEW

Gian Maria Milesi-Ferretti looks back at his career at the IMF and talks about how economic research and policy inform each other.

recognition by people you hold in very high esteem, like an e-mail I once received from Stanley Fischer, who was First Deputy Managing Director at the time, complimenting the work Philip and I were doing on our wealth of nations database. Most recently, I would say I am especially proud of the WEO team's achievements. It is the work of an amazing group of people that put their souls into it. Seeing the attention that the world pays to this is great, because you know how hard people have worked.

What do you expect you will miss the most about working at the IMF?

My friends. I have many friends at the IMF, spanning all grades. I ran the IMF soccer team for a very long time, and the stars were often the Research Assistants. So I have many friends in all career and all age ranges at the Fund. I think that is the beauty of working with a team:

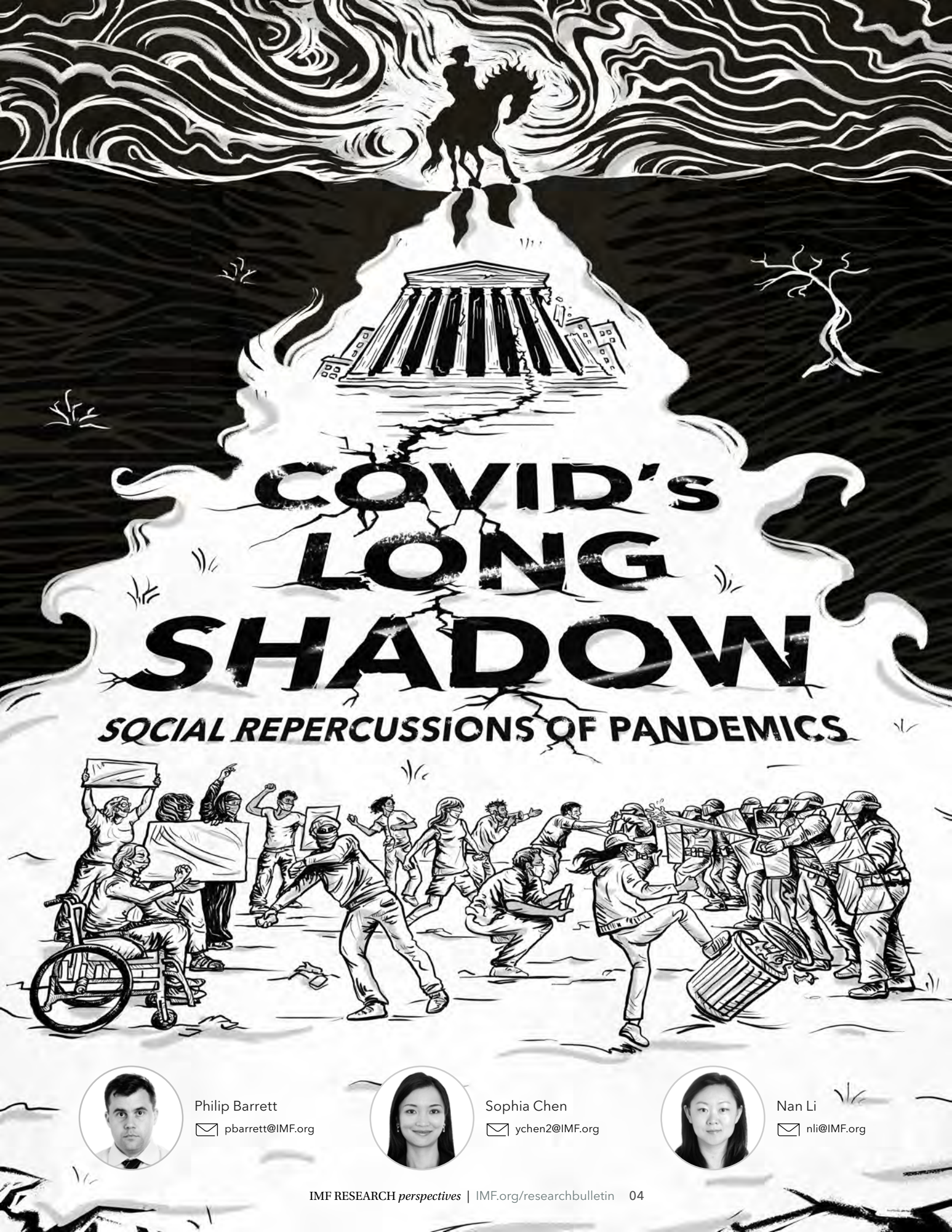
you are really in touch with everybody. That team spirit is something I will miss.

And what are you particularly looking forward to in the coming years?

Flexibility in my life. The ability to decide when to do things and what to do. But I really do hope to stay engaged with policymaking institutions and to participate in policy debates, just from a different vantage point.

"Seeing the attention that the world pays to the WEO is great, because you know how hard people have worked."





COVID'S LONG SHADOW

SOCIAL REPERCUSSIONS OF PANDEMICS



Philip Barrett
✉ pbarrett@IMF.org



Sophia Chen
✉ ychen2@IMF.org



Nan Li
✉ nli@IMF.org

In 1832, the great cholera pandemic hit Paris. In just a few months, the disease killed 20,000 of the city's 650,000 population. Most fatalities occurred in the heart of the city, where many poor workers lived in squalid conditions, drawn to Paris by the Industrial Revolution. The spread of the disease heightened class tensions, as the rich blamed the poor for spreading the disease and the poor thought they were being poisoned. Animosity and anger were soon directed at the unpopular king. The funeral of General Lamarque—pandemic victim and defender of popular causes—spurred large anti-government demonstrations on the barricaded streets: scenes immortalized in Victor Hugo's novel *Les Misérables*. Historians have argued that the pandemic's interaction with preexisting tensions was a principal cause of what came to be known as the Paris Uprising of 1832, which may in turn explain subsequent government repression and public revolt in the French capital in the 19th century.

From the [Plague of Justinian](#) and the [Black Death](#) to the [1918 Influenza Pandemic](#), history is replete with examples of disease outbreaks casting long shadows of social repercussions: shaping politics, subverting the social order, and some ultimately causing social unrest. Why? One possible reason is that an epidemic can reveal or aggravate preexisting fault lines in society, such as inadequate social safety nets; lack of trust in institutions; or a perception of government indifference, incompetence, or corruption. Historically, outbreaks of contagious diseases have also led to ethnic or religious backlash or worsened tensions among economic classes.

Despite ample examples, quantitative evidence on the link between epidemics and social unrest is scant and limited to

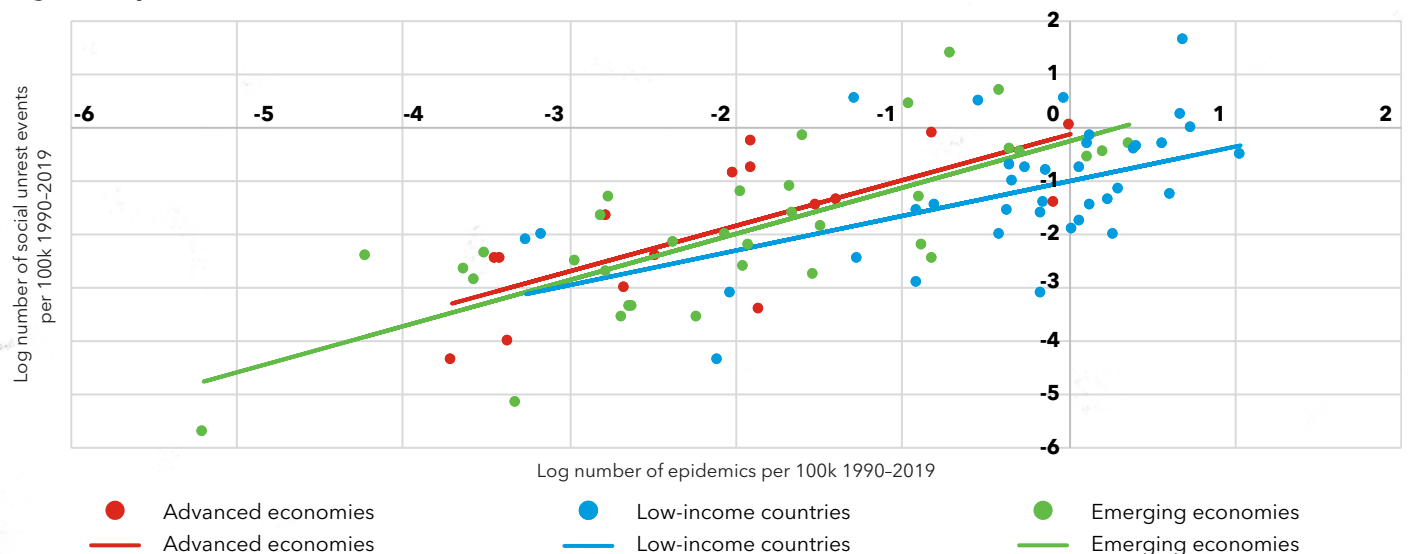


specific [episodes](#). Recent [IMF research](#) fills this gap by offering global evidence of this link in recent decades.

A key challenge for research on social unrest is identifying when events of unrest have occurred. Although sources of information on unrest are available, many are at low frequency or have inconsistent coverage. To address these shortcomings, a recent [IMF paper](#) uses press coverage of social unrest to create a Reported Social Unrest Index (RSUI). This provides a consistent, monthly measure of social unrest for 130 countries from 1985 to the present. Spikes in the index line up very closely with narrative descriptions of unrest in a variety of case studies, suggesting that the index captures real events rather than shifts in media sentiment or attention.

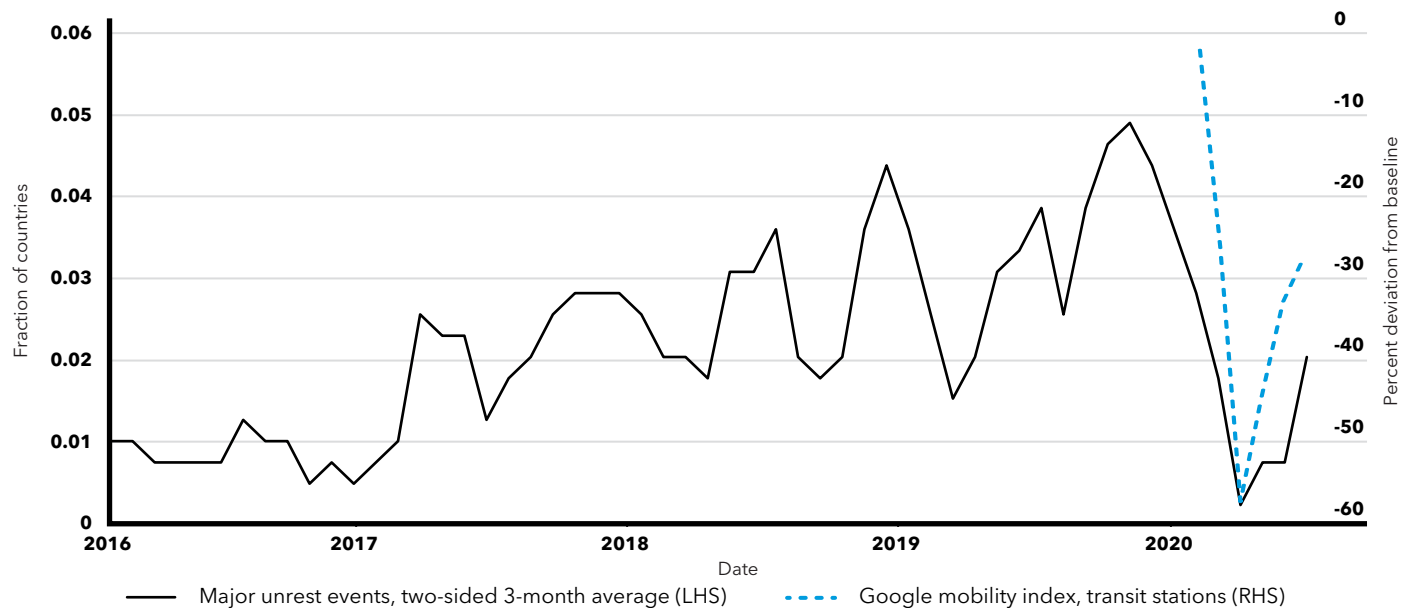
Using this index, the IMF research finds that countries with more frequent and severe epidemics also experienced greater unrest on average (Figure 1).

Figure 1. Epidemics and Unrest Events across Countries



Sources: [Emergency Events Database](#); and authors' calculations.

Figure 2. Unrest and Mobility Declines during the COVID-19 Pandemic



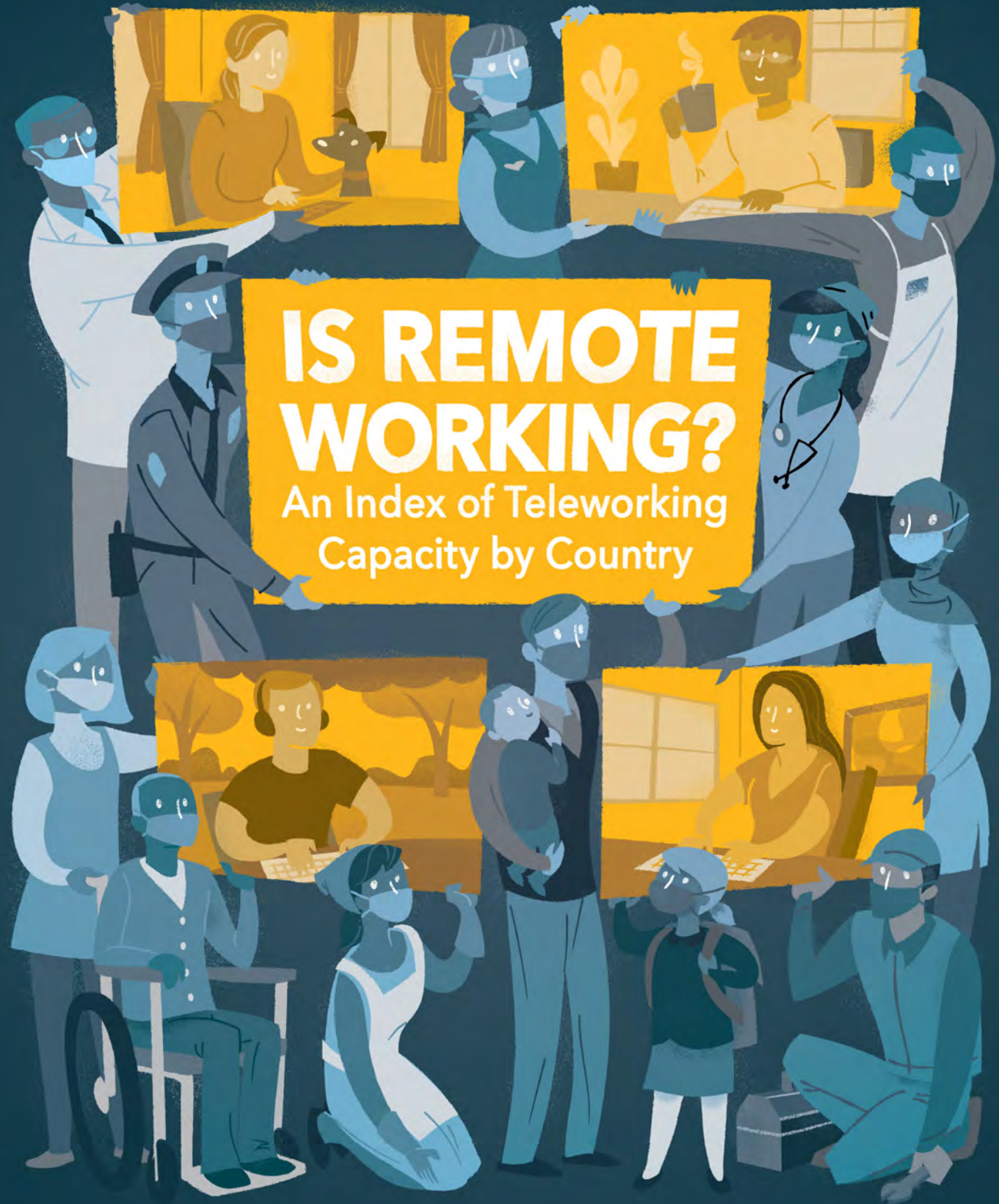
Sources: [Google mobility](#) index; and authors' calculations.

During and immediately after a pandemic, the social scarring in the form of unrest may not show up quickly. Indeed, humanitarian crises likely impede the communication and transportation needed to organize major protests. Moreover, public opinion might favor cohesion and solidarity in times of duress. In some cases, incumbent regimes may also take advantage of an emergency to consolidate power and suppress dissent. The COVID-19 experience is consistent with this historical pattern, so far. In fact, the number of major unrest events worldwide has fallen to its lowest level in almost five years (Figure 2). Notable exceptions include the United States and [Lebanon](#), but even in these cases, the largest protests are related to issues that could potentially be exacerbated, but not directly caused, by COVID-19 (for example, [racial injustice in the United States](#)).

But looking beyond the immediate aftermath, the risk of social unrest spikes in the longer term. Using [information](#) on the types of unrest, the IMF research focuses on the form that unrest typically takes after an epidemic. This analysis shows that, over time, the risk of riots and anti-government demonstrations rises. Furthermore, there is evidence of heightened risk of a major government crisis—an event that threatens to bring down the government and that typically occurs in the two years following a severe epidemic.

If history is a predictor, unrest is likely to reemerge as the pandemic eases but its effects become more apparent. The threats may be bigger where the crisis exposes or exacerbates [preexisting problems](#) such as a lack of trust in institutions, poor governance, poverty, or [inequality](#).





Mariya Brussevich
✉ mbrussevich@IMF.org



Era Dabla-Norris
✉ edablanorris@IMF.org



Salma Khalid
✉ skhalid@IMF.org

Will COVID-19 kill the traditional workplace? The impact of lockdowns and social distancing policies to contain the spread of the pandemic on labor markets has been unprecedented, especially for contact-intensive industries that require physical presence at the workplace or high levels of personal interaction. Workers in such industries are consequently at a higher risk of reduced hours or pay, temporary furloughs, or permanent layoffs. In contrast, occupations involving the use of information and communication technology (ICT) are less likely to experience disruption.

How is the risk of job disruption spread across different economic sectors? How does the level of “tele-workability” relate with worker characteristics (age, educational attainment, gender, employment status, and income level)? How does the ability to work remotely vary across advanced and emerging market economies? Answers to these questions can inform the policies needed to support workers both during and after the lockdown period.

[Recent IMF research](#) has estimated the distribution of tele-workability across sectors, occupations, age groups, gender, income, and education levels in 35 advanced and emerging market economies, including 30 OECD member countries and Cyprus, Ecuador, Kazakhstan, Peru, and Singapore. Worker-level microdata from the OECD Programme for the International Assessment of Adult Competencies (PIAAC) allows the authors to unpack differences in job task characteristics—and therefore tele-workability—among workers within the same occupation, as well as across different occupations, sectors, and countries. The existing literature on tele-workability uses aggregated data at the occupational level ([Dingel and Neiman 2020](#); [Hensvik and others 2020](#); [Mongey and others 2020](#)). This type of data cannot establish risk and exposure at the level of individual workers.

TELE-WORKABILITY INDEX

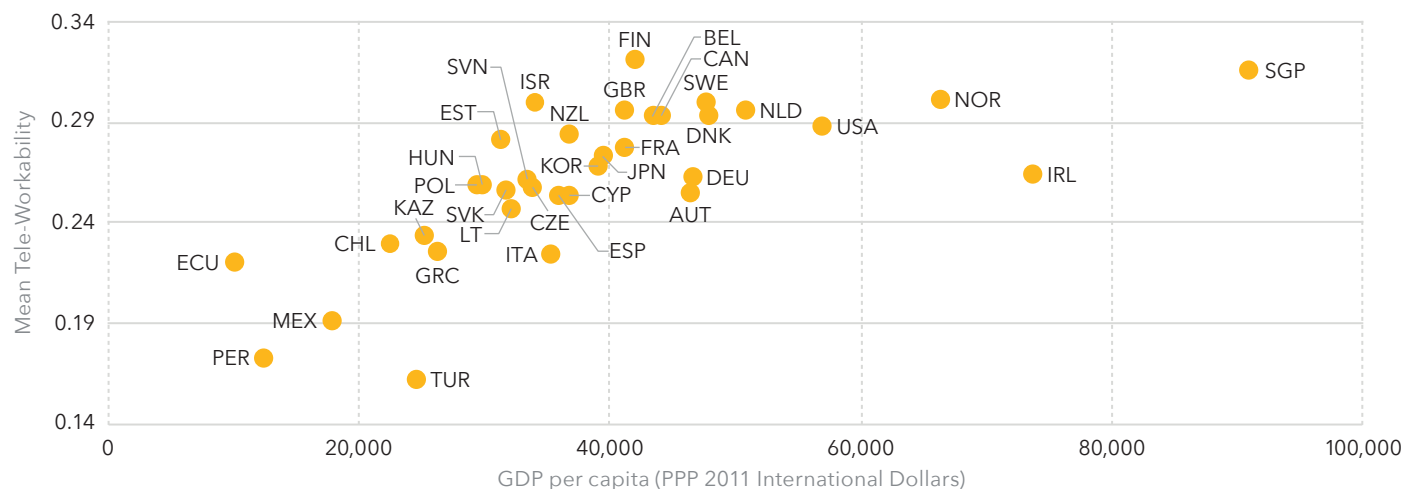
The study combines two sources of data to estimate the ability to telework. First, estimates of the ability to telework at the occupational level from [Dingel and Neiman \(2020\)](#) serve as a starting point in the estimation procedure. Second, these estimates are projected onto worker characteristics from the PIAAC database, including gender, age, education, income, and a rich set of task characteristics, such as flexibility in work hours and the use of ICT. The result is an index of tele-workability that pairs individual workers’ characteristics with their ability to telework.

WHO ARE THE MOST VULNERABLE?

Sectors that are the least tele-workable, and therefore at the highest risk of job loss, include accommodation and food services, construction, transportation, and wholesale and retail trade. Meanwhile, the financial services and ICT sectors are highly tele-workable, and therefore workers in these sectors are at lower risk of displacement. These trends are in line with high-frequency data on employment losses by sector in the United States. Data from the US [Bureau of Labor Statistics](#) show largest employment losses in the hospitality and services sectors and smallest in financial activities.

There is substantial variation in workers’ ability to work remotely by country, and emerging market economies have significantly lower tele-workability indices than advanced economies (Figure 1). These differences persist across all sectors. For instance, ICT in Turkey has lower tele-workability than wholesale and retail trade in Finland, highlighting important aggregate differences in tele-workability among economies at various levels of development.

Figure 1. Tele-workability Index by GDP per capita



Sources: [Dingel and Neiman 2020](#); PIAAC survey; IMF, *World Economic Outlook*; and authors’ calculations. PPP - purchasing power parity. Data labels use International Organization for Standardization (ISO) country codes.

The ability to telework also varies by demographic characteristics (Figure 2). Workers younger than 30 are significantly less likely to be able to telework, while workers older than 60 tend to be employed in positions that are more amenable to teleworking. This difference is reflective of career progression over the life cycle as older workers are more likely to occupy managerial positions. However, there is significant cross-country variation with, for instance, older workers in Korea being less able to telework and younger workers being more able to telework. On average, men are less likely to be in telework-friendly jobs than women, although the difference between male and female workers is negligible in some countries, such as Japan and Korea.

Firm size, contract type, skill, and pay levels also play significant roles in determining the ability to telework. Workers in smaller firms are less likely to be able to telework than workers in larger firms. Moreover, part-time workers are less likely than full-time workers to hold jobs that are teleworkable. Workers without a college education and workers with low wages are much more likely to face employment interruption because their jobs are less amenable to teleworking.

Tele-workability is likely to exacerbate inequality in the workforce, given that workers whose jobs are at highest risk from the pandemic are also the most vulnerable in terms of their existing socioeconomic status.

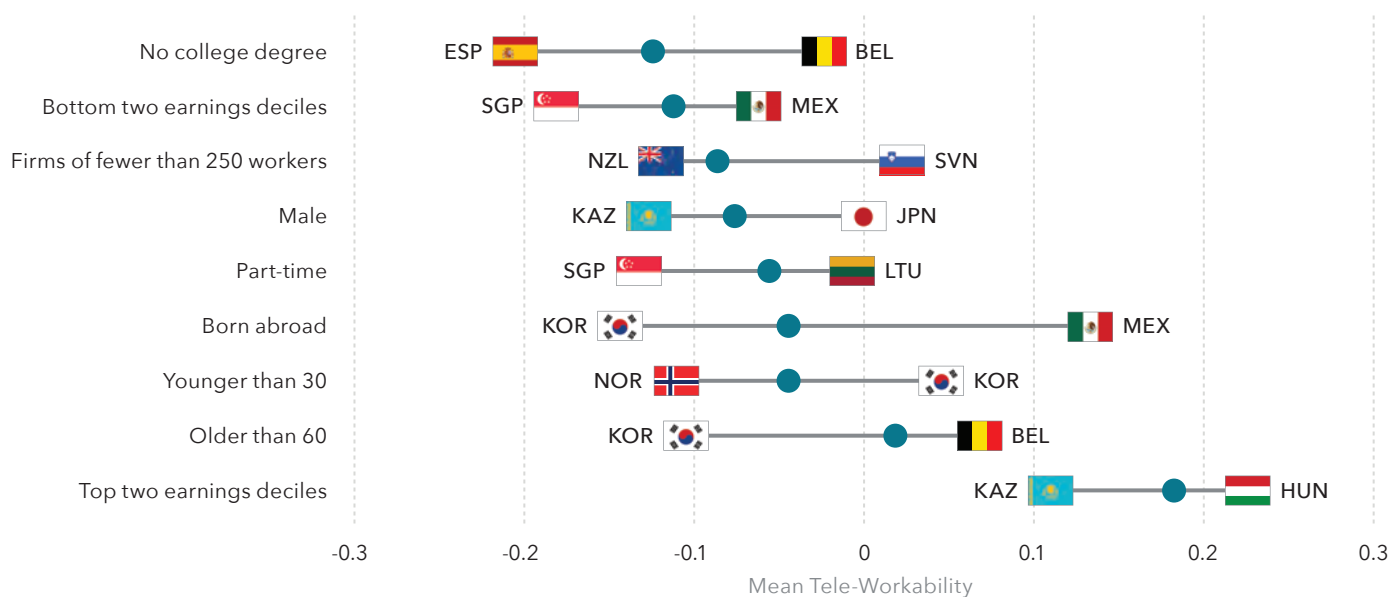
HOW MANY JOBS ARE AT RISK?

To gauge the pandemic’s impact on job losses, the study uses data on the employment by sector in the United States during the lockdown period to estimate job losses for all economies in the sample. Using data from the [Oxford Coronavirus Government Response Tracker](#), this approach accounts for differences in the stringency of lockdown measures among countries. The outcome: more than 97 million jobs are at high risk of layoff or furlough across the 35-country sample, with the United States alone contributing more than 21 million jobs to this total. The accommodation and food services sector is the worst hit, with more than 17 million workers at risk of job loss, equivalent to 47 percent of all jobs in that sector. Sectors including finance and utilities are more insulated with an estimated 10 percent of jobs at risk of disruption.

To support incomes and formal employment during the crisis, governments should broaden social protection, social insurance, and safety nets. [Wage and hiring subsidies as well as public works programs should be the focus as activity resumes](#). To prepare the workforce for the jobs of the future, [governments need to strengthen education and training](#).

This crisis has highlighted the importance of access to digital infrastructure in workers’ ability to continue to engage in the workplace. [Policies should be geared toward closing the digital divide for firms and workers](#).

Figure 2. Tele-workability Index by Worker Characteristics



Sources: [Dingel and Neiman 2020](#); PIAAC survey; and authors’ calculations.

Note: Dots in the figure represent estimates from cross-country regressions wherein the tele-workability index is regressed on one of the worker characteristics in the list. All coefficients are statistically significant at 1 percent significance level. End points represent the smallest and largest coefficients on worker characteristics from regressions. Data labels use International Organization for Standardization (ISO) country codes.

CREDIT WHERE CREDIT IS DUE

Policies to Mitigate the Pandemic Fallout



Nina Biljanovska

✉ nbiljanovska@IMF.org

Businesses rely on cash flows from their operations, and—when cash flows are delayed or dry up—they use credit to weather what should hopefully be temporary shortfalls. Hit with the COVID-19 shock, firms worldwide increased borrowing to cope with business interruptions.

Firms in the United States massively [increased their borrowing](#) between March 11 and April 1, while a similar pattern in the euro area was observed in the [2020:Q2 ECB Bank Lending Survey](#). However, when such interruptions are persistent—as has been the case with the pandemic—firms' profits and financial resources are eroded, and access to credit becomes difficult as lenders become more risk averse and start imposing [stricter lending standards](#).

A recent [IMF study](#) builds a quantitative macroeconomic model to analyze the economic impact of a pandemic when the financial conditions that firms face tighten over time. Initially, when the COVID-19 shock hits, workers cannot work as much as they did before (in the model, hours worked are assumed to drop by 20 percent) and revenues decrease. Luckily, bankers are keen to lend, and this enables firms to borrow and keep up with their payroll and other expenses. Subsequently, however, bankers grow skittish and lending conditions tighten, leaving firms no longer able to borrow as much as they need to handle their financial difficulties.

The economic impact of the COVID-19 shock depends on the ability of firms to borrow in response to the shock. When the COVID-19 shock hits and it becomes hard to employ workers to the fullest, this alone causes output to fall by about 15 percent in the year of the pandemic. If banks keep the credit tap open, firms borrow and limit the impact of the shock. But if lenders also decide to curtail lending when the COVID-19 shock hits, then consumption and output take a larger hit during the pandemic, as shown in Figure 1.

The study examines three policies that can help cushion this blow. The first is a subsidy on credit, in the form of a reduction of the interest rate equal to 1 percentage point. This policy resembles the [Small Business Administration](#) loans in the United States that attempt to reduce the cost of borrowing. This program does not lend money directly to businesses, but sets guidelines for loans made by the financial institutions with which

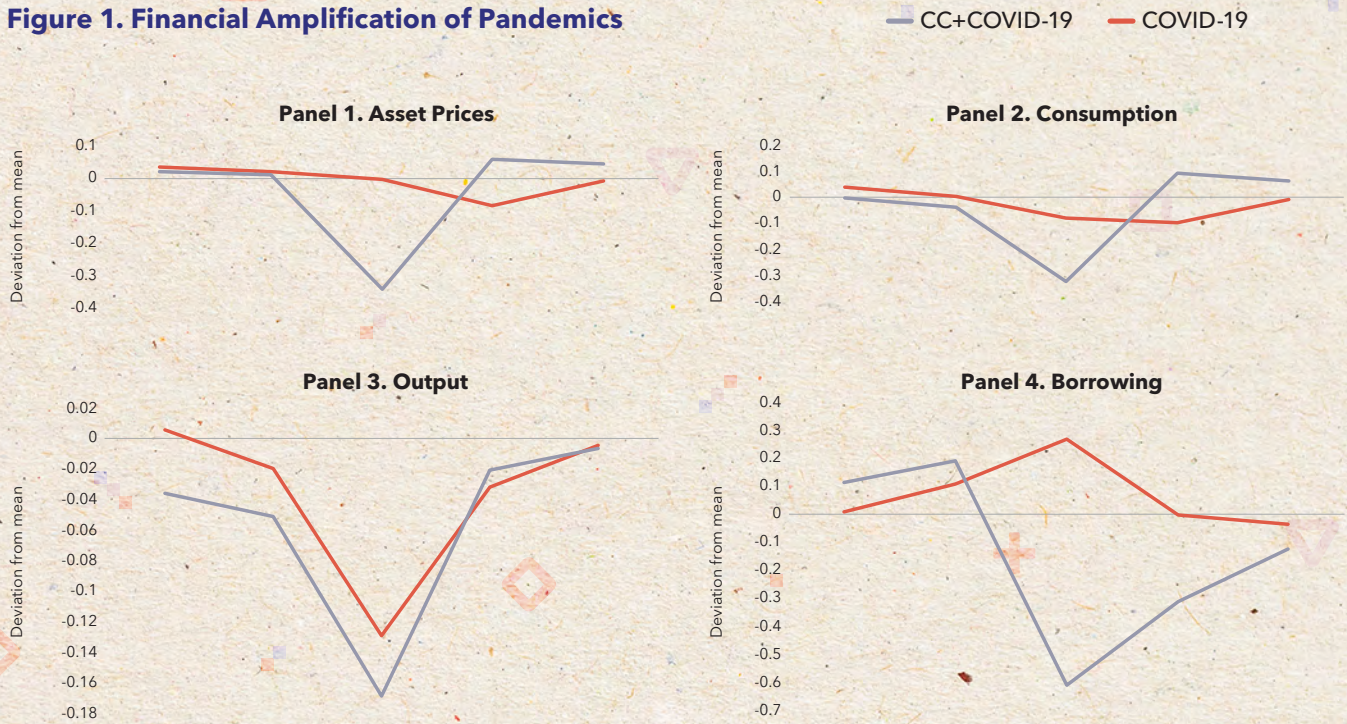
it partners. The program reduces risk for lenders and makes it easier for them to access capital and extend loans to small businesses.

Second, a policy that provides credit guarantees is considered. Normally, small business loans are secured with collateral. But credit guarantees can reduce the collateral needed. Such a policy can come in the form of a government guarantee or direct government lending via a development bank. Third, a combination of the credit subsidies and guarantees is put to the model's test.

Looking at the impact of these policies through the lens of the model leads to two main takeaways (Table 1). First, credit policies are especially important and effective when times are darkest, and the pandemic has brought firms shortages of both credit and labor. Second, a package of policies is greater than the sum of its parts. Combining credit subsidies and guarantees gives both policies more bang for the buck than implementing each in isolation. Overall, the results highlight that credit subsidies and guarantees, especially when combined, can make a big difference at a time when workers and banks cannot deliver their normal amounts of labor and credit.



Figure 1. Financial Amplification of Pandemics



Source: Author's calculations.

Note. The figure plots the simulated paths of asset prices, consumption, output, and borrowing when the following events materialize: (1) COVID-19 shock hits the economy (COVID-19 line), and (2) financial conditions are tight and COVID-19 shock hits the economy (CC+COVID-19 line, where CC stands for "Credit constraints"). The responses of the variables are in terms of deviations from the long-term mean.

Table 1. Financial Policy Responses

	1	2	3
	Credit subsidy	Credit guarantee	Credit subsidy and guarantee
COVID-19	0.7	0	2.4
COVID-19 + Credit Constraints	0.9	0.4	2.6

Source: Author's calculations.

Note: The table reports welfare gains in terms of percentage compensating consumption variation for a 1 percent change in policy. For credit subsidies this is equivalent to a 1 percentage point decrease in the interest rate, while for credit guarantees it is equivalent to a 1 percent guarantee of the face value of the loan. For credit guarantees the 1 percent is rather low, but it is considered for comparability. That is, the table might seem to suggest that credit subsidies are more effective than credit guarantees, but in practice implementing an extensive government loan guarantee scheme is typically done at a [higher percentage of the loans' value](#) than the 1 percent considered in the exercise for comparability.



RULES OR FEAR?

TRACKING THE EARLY ECONOMIC IMPACT OF COVID-19 AND MITIGATION POLICIES



Nicola Pierri

npierri@IMF.org



Andrea F. Presbitero

apresbitero@IMF.org

IT IS NOT OVER YET

More than nine months after the World Health Organization (WHO) officially declared COVID-19 a pandemic, infection rates remain high in the United States and various European countries. Several governments are facing difficult decisions as to enforcing new lockdowns or other milder non-pharmaceutical interventions (NPIs) to once again “flatten the curve.” Policymakers therefore must understand the economic and social costs of NPIs. In particular, they need to discern whether the economic impact of COVID-19 is primarily driven by voluntary social distancing by individuals—the fear element—or by the implementation of mitigation policies—the rules element. The first half of 2020 can provide some guidance as to implementing the appropriate kinds of rules (and when) and managing expectations to influence people’s behavior.

[A recent IMF study](#) uses several high-frequency indicators—such as electricity usage, smartphone movements, and employment for small businesses and hourly workers—to track people’s mobility

and economic activity since the COVID-19 outbreak and around the reopening phase, both across US states and in Europe.

The study shows that the contraction in economic activity is strongly associated with the severity of the health crisis and with the observed decline in mobility, which reflects both voluntary and mandatory social distancing. In contrast, the relationship between NPIs and economic contraction is weaker. This evidence suggests that NPIs are only part of the story, and perhaps not the most important. Compliance and voluntary social distancing matter a great deal. Sweden’s experience aligns with this evidence; it adopted relatively less strict mitigation policies, but many of its residents have been practicing social distancing by choice. Sweden’s observed decline in economic activity, consumer spending, and mobility is only slightly smaller than in neighboring countries.

The recent IMF study digs deeper into the role of voluntary and mandatory social distancing by

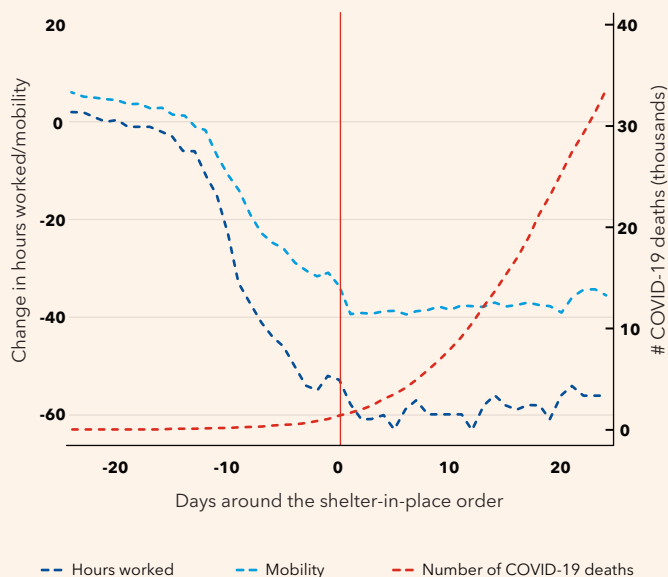
looking at the evolution of mobility and economic activity over time. In Europe, stay-at-home orders were adopted when the decrease in mobility and electricity usage was already sizable (Figure 1, panel B). In contrast, earlier interventions, such as school closures, were unanticipated and acted as a trigger for the drop in mobility and economic activity (Figure 1, panel D). For the United States, the sharp decline in mobility and economic activity began well before the introduction of NPIs at the state level (Figure 1, panels A and C). This holds true even for school closures, although to a lesser extent.

A likely explanation of the difference between the United States and Europe: Americans had time to learn from the European experience and practiced voluntarily distancing and closures before NPIs were adopted. In fact, relative to COVID-19 caseloads during the evolution of the outbreak, NPIs were implemented earlier, and mobility dropped earlier in the United States than in Europe. The United States reached 1,000 COVID-19 cases 11 days

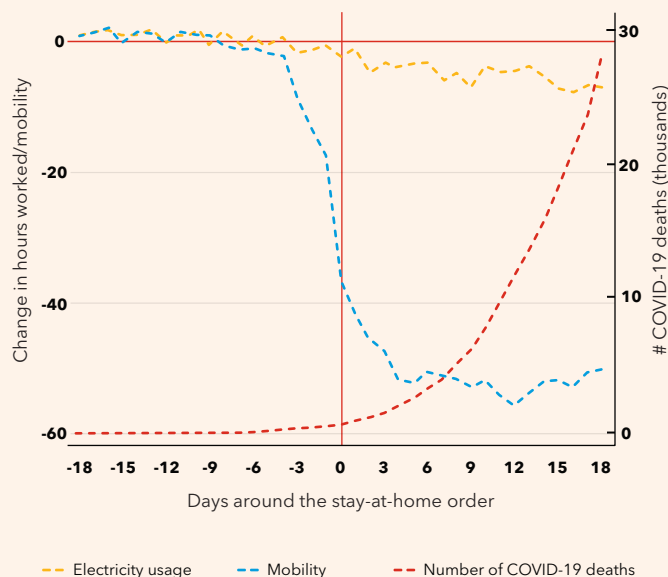


Figure 1. COVID-19, NPI Timing, Mobility, and Economic Activity

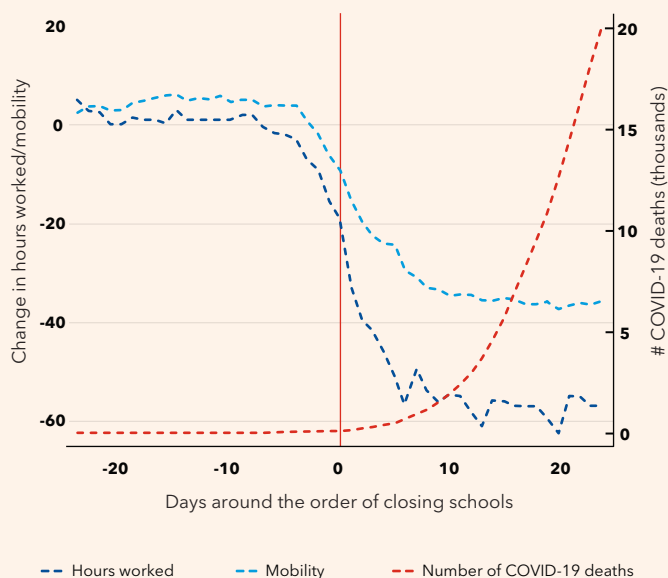
A. Shelter-in-Place Orders in the United States



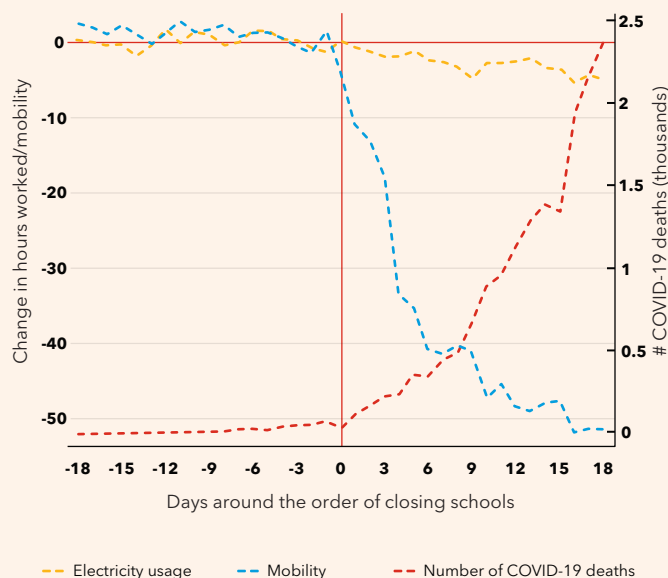
B. Stay-at-Home Orders in Europe



C. School Closures in the United States



D. School Closures in Europe



Sources: <https://covidtracking.com>; <https://github.com/Keystone-Strategy/covid19-intervention-data>; [Google Community Mobility Reports](#); [Homebase](#); [ECDC](#); [ENTSO-E](#); [Hale and others \(2020\)](#).

Note: Panels A and C plot the changes in hours worked (in percentage point deviations from the pre-COVID baseline) for a large sample of small US businesses, mobility (relative to the pre-COVID-19 period) for the median US state, and the cumulative number of COVID-19 deaths for all US states in the sample. The x-axis shows the number of days before/after the introduction of non-pharmaceutical interventions (NPIs) (shelter-in-place orders in panel A and school closures in panel C). The sample only includes states that had adopted the policy by April 30. Panels B and D plot for European countries the median change in electricity usage (with respect to the previous year), the median change in mobility relative to the pre-COVID-19 period, and the cumulative number of COVID-19 deaths. The sample only includes European countries that had adopted the policy by April 10. NPIs’ introduction and classification are based on [Hale and others \(2020\)](#).



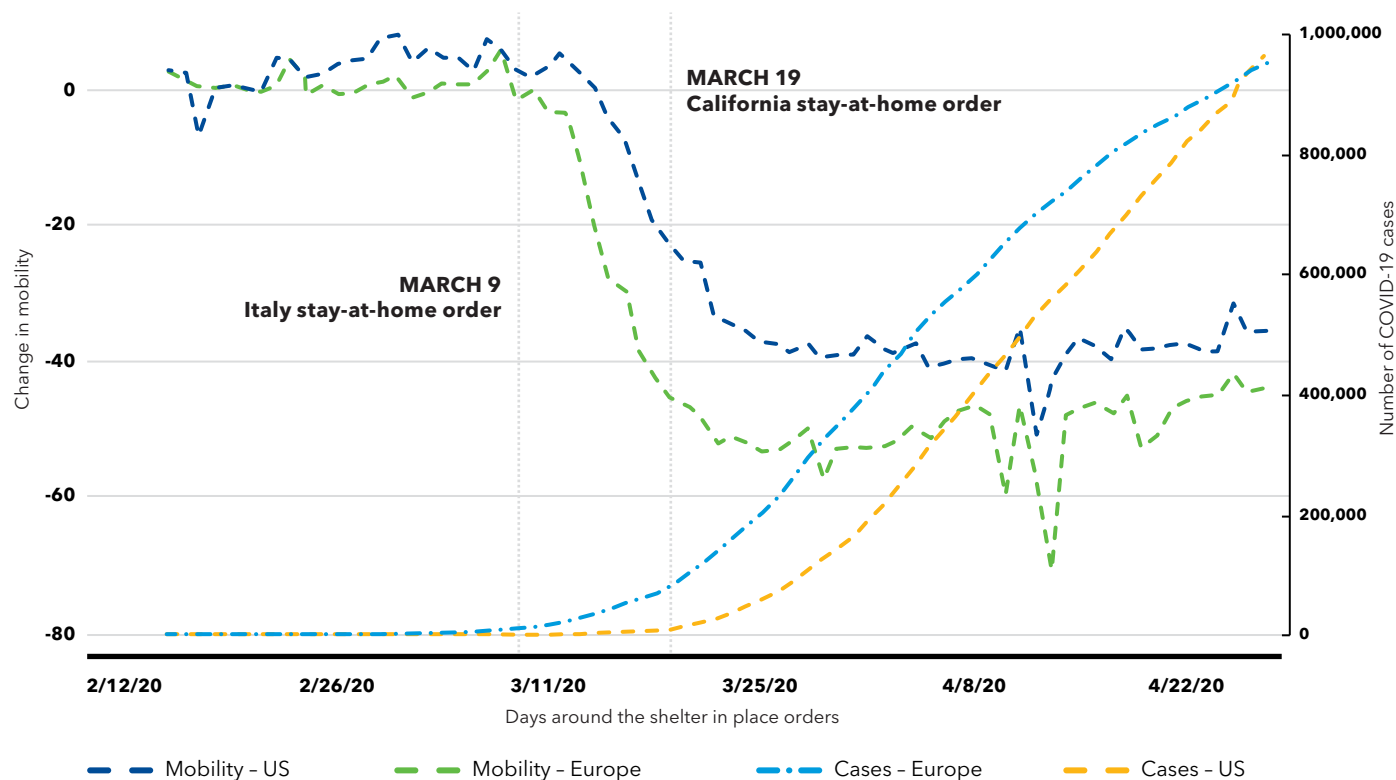
after Europe, and the first stay-at-home order in the United States was implemented 10 days after the first stay-at-home order in Europe (in Italy). But mobility in the United States fell by 20 percent compared with January 2020 just four days

after Europe (Figure 2). Most likely, news coverage of COVID-19 also played a role. The sharp drop in mobility starts on March 12—the day after the WHO declared COVID-19 a pandemic, the NBA suspended its games, and Hollywood star

Tom Hanks revealed that he had tested positive.

The lifting of mitigation policies in many countries and states provides additional evidence about the role of NPIs and voluntary social

Figure 2. COVID-19, NPI Timing, and Mobility in Europe Versus the United States



Sources: <https://covidtracking.com>; [Google Community Mobility Reports](#); [Homebase](#); [ECDC](#); [ENTSO-E](#).

Note: The figure plots the cumulative number of COVID-19 cases and percentage changes in mobility relative to the pre-COVID-19 period in the United States and Europe. The vertical lines are March 9 and March 19, 2020—the dates when state-at-home orders were issued in Italy and California, respectively.

distancing (Figure 3). US states that have allowed nonessential businesses to reopen since late April witnessed a gradual recovery of mobility and economic activity starting about two weeks before the reopening. A similar picture emerges from analyzing the easing of NPIs in European countries. These findings suggest that, in the reopening phase, people’s behavior matters more for the resumption of activities than does the timing of the reopening.

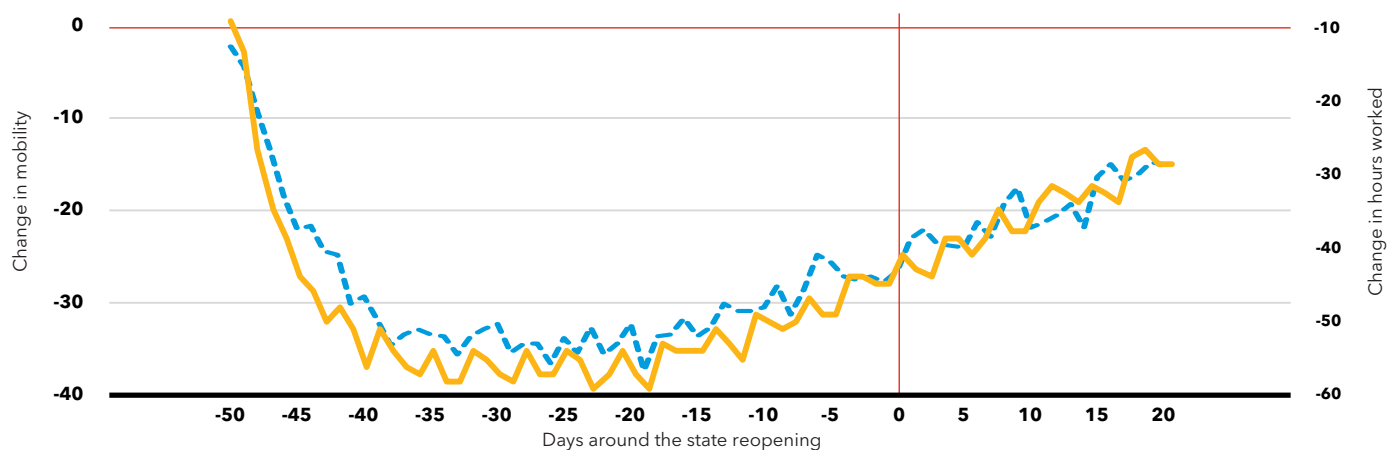
Overall, the study finds that the impact of COVID-19 on the economy is primarily due to the way it affects people’s willingness

to actually go out to work and spend, whereas the formal adoption (or lifting) of NPIs has less of an impact. This implies that the economy may not rebound unless workers and consumers feel safe about resuming their normal activities. These findings suggest that avoiding or delaying NPIs may not fully shield an economy from the pandemic shock. Moreover, lifting mandatory lockdown measures—especially when the health crisis is not under control—may not have the expected effect on economic activity, as people would continue to voluntarily limit their mobility. This is a reminder of the importance of preserving

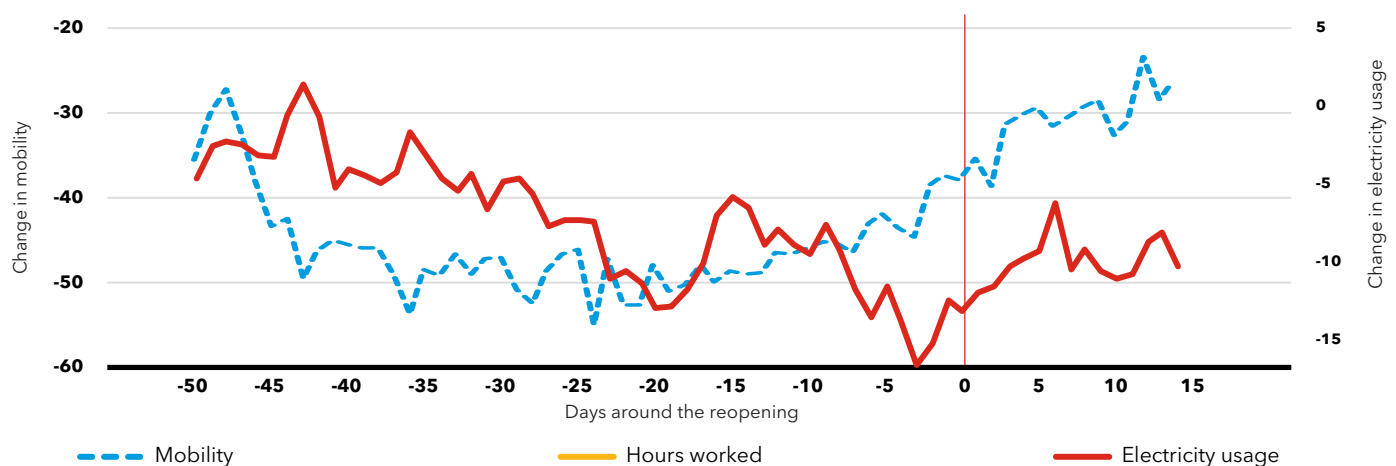
the trust of citizens toward health authorities, by ensuring that restrictions are kept in place if necessary and only lifted when appropriate. The study also shows that, although COVID-19 is a truly global shock, regions and countries where the outbreak is more sizable experience significantly larger economic losses. This finding underlines the importance of prevention, early response, and other health measures in containing the outbreak at both the local and national levels, as communities where the virus circulates to a lesser extent are also spared the most adverse economic impact of the pandemic.

Figure 3. Reopening, Mobility, and Economic Activity

A. Reopening in the United States



B. Reopening in Europe



Sources: <https://tracktherecovery.org/>; Google Community Mobility Reports; Homebase; ENTSO-E, Hale and others (2020).

Note: See note in Figure 1 for the definition of the plotted variables. Panel A sample comprises 45 US states that had reopened by May 30, while panel B comprises data from 21 European countries. On the x-axis, day 0 is the first time that the Oxford stringency index (Hale and others 2020) declines by at least 5 points.

21st Jacques Polak

Annual Research Conference



Emine Boz

✉ eboz@IMF.org



LIVING IN THE EXTREME

Economics of Pandemics, Climate Change, and Tail Risks

The IMF Research Department held the 21st Jacques Polak Annual Research Conference on November 5-6, 2020. The event overcame the potential pitfalls of virtual delivery with engaging discussions under the theme of ["Living in the Extreme: Economics of Pandemics, Climate Change, and Tail Risks."](#) Treatments of the theme were revealed in sessions that covered challenges including those arising from the higher frequency of natural disasters and the ongoing COVID-19 pandemic, such as its effects on global supply chains and international trade, financial markets, cross-border flows, and the macroeconomy.

The Mundell-Fleming lecturer, Carmen Reinhart, laid out the recurring patterns of past debt and financial crises and drew parallels with the ongoing crisis. High-level policy discussions featuring Mark Carney and William Nordhaus (moderated by the IMF Managing Director) and Penny Goldberg and Paul Krugman (moderated by Gita Gopinath) focused on the national and international strategies for climate change mitigation and the international aspects of the COVID-19 policy response, respectively.



IMF RESEARCH

perspectives

Learn more about IMF research at
[IMF.org/external/research/](https://www.imf.org/external/research/)

Visit *IMF Economic Review*, the official research journal
of the IMF, at <http://bit.ly/Palgrave-IMFER>

Find IMF publications by visiting [IMF.org/pubs](https://www.imf.org/pubs)

View IMF research and data for free at [eLibrary.IMF.org](https://www.elibrary.imf.org)

Access the latest analysis and research from IMF staff
in response to the pandemic at [IMF.org/covid19](https://www.imf.org/covid19)

NEXT ISSUE: JUNE 2021