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Seven Finance and Trade Lessons from COVID-19 for Future Pandemics

Ruchir Agarwal and Gita Gopinath

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Seven Finance and Trade Lessons from COVID-19 for Future Pandemics

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ABSTRACT: Pandemics and epidemics pose risks to lives, societies, and economies, and their frequency is expected to increase as rising trade and increased human interaction with animals leads to the emergence of new diseases. The COVID-19 pandemic teaches us that we can and must be better prepared, with scope for much greater global coordination to address the financing, supply-chain, and trade barriers that amplified the pandemic's economic costs and contributed to the emergence of new variants. This paper draws seven early lessons from the COVID-19 pandemic that could inform future policy priorities and help shape a better global response to future crises.

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I. Introduction

Once a pandemic begins, the global challenge is to innovate and develop new lifesaving tools to fight the pathogen, produce these tools in large quantities, and equitably deliver them to all citizens. Given the global public goods nature of fighting pandemics these steps need multilateral coordination and financing. However, the global response to the COVID-19 pandemic has shown us that the world has faced significant challenges along each of these steps.

As of early 2022, we are now in the third year of the pandemic, and the health and economic losses continue to grow. More than 6 million people have died according to official estimates (with the true death toll likely exceeding 15 million [WHO 2022]), and in January 2022 the IMF *World Economic Outlook Update* estimated the cumulative output loss from the pandemic through 2024 to be about \$13.8 trillion (IMF 2022). Although the global targets identified in the IMF Pandemic Proposal (Agarwal and Gopinath 2021) were endorsed by multilateral institutions as part of the Multilateral Leaders Task Force and key stakeholders during the US Global COVID-19 Summit in 2021, progress toward the targets is insufficient. On vaccines, 86 countries had not met the 40 percent vaccination target by the end of 2021. And under current trends, more than 100 countries are unlikely to meet the 70 percent vaccination target by mid-2022 (Figure 1). On tests, the daily target was set at 1 per 1,000 people, and about 2 in 3 developing economies continue to test below this target despite the Omicron wave. Meanwhile, high-income countries are testing 70 times more than low-income countries. There are similar gaps in access to oxygen, treatments, and personal protective equipment.

Pandemics and epidemics will continue to pose systemic risks to the global economy. Even before the new coronavirus disease 2019 (COVID-19) pandemic, major pandemics—and epidemics such as plague, cholera, flu, severe acute respiratory syndrome coronavirus (SARS-CoV), and Middle East respiratory syndrome coronavirus (MERS-CoV)—had already afflicted humanity (Piret and Boivin 2021). And, as societies evolve, so will infectious diseases, with the frequency of pandemics expected to rise in coming decades (Marani and others 2021). The rise of trade and increased interaction with animals may lead to the emergence of new diseases, which could occasionally become pandemics—causing great harm to lives, societies, and economies.

The experience of COVID-19 teaches us that we can and must do better to be prepared for future pandemics and epidemics, with scope for much greater global coordination. While it is too early for a full accounting of the global response to the pandemic, in this paper we draw seven early lessons from the COVID-19 pandemic that could inform the global response in the future. This paper complements recent

work on financing for future pandemics and for the global commons (for example, G20 HLIP 2021; Pandemic Preparedness Partnership 2021; Agarwal, Farrar, Gopinath, Hatchett, and Sands 2022).

II. Seven Financing and Trade Lessons from COVID-19

The factors that have led to amplification of the economic costs of the pandemic contributed to the emergence of new variants can be classified into two broad categories: financing barriers and supply chain and trade barriers. In line with these broad categories, we list seven lessons that could help inform future policy priorities.

A. Lesson 1 (Rationale and Source of Financing): *Pandemics are a systemic risk issue, not solely a development issue. Donors need to make sizable financing available on a grant basis.*

The COVID-19 crisis has made it clear that pandemic policy is economic policy. Once a pandemic starts, there can be no durable end to the economic crisis without an end to the health crisis. In a pandemic, the global economic and health benefits from ensuring equitable and timely access to vaccines and other lifesaving tools can far exceed the cost (Ahuja and others 2021; Castillo and others 2021; Agarwal and Gopinath 2021). Ending the pandemic is therefore critical for global macroeconomic and financial stability. Indeed, during the COVID-19 pandemic, the IMF's projections and policy recommendations for the global economy have relied crucially on the relative success of the race against the virus.

Systemic risks posed by future pandemics and global health concerns should be more explicitly accounted for in economic analysis and surveillance. Since pandemics spill across country boundaries, pandemics and health system strengthening should be treated as a systemic risk issue for the macroeconomy and a global public good—not solely as a development issue.

This means that advanced economies must also allocate additional funding to fighting pandemics and health system strengthening in developing economies—and not be limited by the narrow budget constraints of official development assistance. Further, as the experience of COVID-19 has shown, many countries face a combination of higher spending to fight the pandemic and lower revenue because of containment measures. This combination hits low-income countries especially hard, given their limited fiscal resources. Even before the COVID-19 pandemic, about half of low-income developing countries were already in or at high risk of debt distress, and the pandemic exacerbated such pressure. Thus, given the likely limited fiscal space many developing economies face—and the massive global externalities of controlling global transmission of the disease during a pandemic—there is a strong case for sizable donor financing for the

pandemic response on a grant basis. Concessional financing from multilateral development banks can serve as a complementary resource stream to such grant financing. This was the principle underpinning the financing framework presented in the IMF Pandemic Proposal (Agarwal and Gopinath 2021) and the updated global strategy in Agarwal, Farrar, Gopinath, Hatchett, and Sands (2022) and will likely remain relevant in future pandemics.

B. Lesson 2 (Timing of Financing): *The time value of action is enormous during pandemics. We need prearranged financing that can be activated up-front on day zero of the pandemic.*

More than two years after the start of the pandemic, the rollout of COVID-19 vaccines and other tools continues to progress at two alarmingly different speeds, leading to a divergence in economic prospects. As of early 2022, the share of the population that has been fully vaccinated exceeds 70 percent for high-income countries, while it is less than 10 percent in Africa. Only seven African countries reached the 40 percent global vaccination target in 2021, and for many, the 70 percent target by mid-2022 seems increasingly impossible. The deep inequity in vaccination rates in part has to do with reliance on donor financing and imports. The global response to fight COVID-19 (as embodied by the Access to COVID-19 Tools [ACT] Accelerator and its agencies and the Africa Centres for Disease Control and Prevention) is still hamstrung by the lack both of sufficient and of timely funding. Even today—despite the strong economic and moral case and the risk of future mutations bringing the whole world back into the grip of the pandemic—we do not have sufficient financing to ensure that every citizen in the world has equitable access to lifesaving COVID-19 tools. While the international donor community has stepped up financial support significantly, the efforts have fallen short on both the timing and the size of support.

The path of the pandemic would have been very different and much less costly if sufficient and timely funding had been made available. For instance, it took COVAX more than 15 months since the start of the pandemic (that is, by June 2021) to raise \$10 billion to procure sufficient vaccines to cover 30 percent of developing economy needs, which delayed both their advance purchase agreements and in turn deliveries of vaccines (Figure 2). However, if the same amount of money had materialized one year earlier, the world would have been in a much better position to fight the pandemic with substantially less inequity.

Beyond the enormous immediate health and economic costs, the pandemic is likely to leave behind long-lasting social and economic losses, including as a result of its impact on various health and educational services (an impact that needs to be fully quantified). For instance, in the first year of the pandemic, losses from classroom closures amounted to as much as a quarter of the school year in advanced economies and up to half in emerging market and developing economies (IMF 2021). And such costs have continued to grow, even into the third year of the pandemic, with several schools closing again during the Omicron wave.

These broader social and economic costs of the pandemic make the role of early action and timely financing even more crucial.

Another paper (Agarwal and Reed 2022, forthcoming) studies contract-level data for vaccines and finds that ordering vaccines early on could have cut the delays in delivery by more than half. Faster deliveries translate into lives saved and faster recoveries. As discussed in that paper, a financier or a multilateral development bank could create a credit line to ensure timely and sufficient funding to procure vaccines, tests, and treatments at the onset of the next pandemic. Since donor funding is likely to materialize in due course, any credit risk of such a credit line is likely to be minimal, and in any case pales in comparison with the global returns from a better pandemic response. In this paper we focus on action on behalf of developing economies, but the speed of financing and up-front action matters for advanced economies as well.

C. Lesson 3 (Scope of Financing): *We cannot solve demand challenges by financing supply tools. We need financing for strengthening health systems ahead of the next pandemic.*

On vaccines, the global response to COVID-19 has sequentially faced three challenges. The year 2020 was the “year of the lab,” when the primary challenge was to develop vaccines and other medical tools through research and development. The year 2021 was the “year of the factory,” when the world faced the challenge to scale up the production of vaccines and other medical tools and to overcome various supply chain challenges (see Bown, forthcoming). And 2022 is turning out to be the “year of delivery,” with the world facing significant challenges in scaling up in-country delivery of vaccines. As Figure 3 illustrates, even though COVAX offers equal access to all developing economies, the eventual allocation and delivery of vaccines from COVAX end up being quite unequal—with several countries deferring or refusing vaccines in the very near term. During the current pandemic, while lack of predictable supplies was a problem during 2021, the lack of demand for vaccines and obstacles to getting shots into arms became the key barrier to reaching the COVID-19 vaccination targets by early 2022. The global response can do better next time. On the supply side, during the next pandemic, it will be important to ensure greater transparency of supply delivery schedules (to ensure predictability of supplies) and establish an effective mechanism to prevent hoarding of vaccines (including through swap arrangements between countries). Moreover, to reduce waste and promote more efficient allocation, donor countries should share vaccines well ahead of their expiration dates and without earmarking (Lazarus and others 2022).

On the demand side and regarding in-country delivery challenges, an ongoing significant barrier is likely to be health system capacity in developing economies. Greater focus and financing will strengthen health systems now (ahead of future health shocks), so that the countries have greater absorptive capacity to rapidly deploy critical lifesaving tools during future epidemics or pandemics. Without such investments,

simply shifting out the supply curve of medical tools—by subsidizing them or providing them for free—will end up running into absorptive capacity barriers and not tackle subnational inequity in access to tools. In addition, it would be useful to understand the drivers of vaccine hesitancy and ways to overcome it, which has proved a significant hurdle during the COVID-19 pandemic. This could include coordination of policy and planning, implementing communication strategies, social media monitoring, community engagement, monitoring and evaluation, building trust, and so forth.

D. Lesson 4 (Financing Frameworks): *Financing frameworks should explicitly account for downside risks. Moreover, a unified financing framework that identifies complementarities across health agendas will have high multipliers.*

SARS-CoV-2 turned out to be so highly mutated that within two years its properties (infectivity, virulence, and so forth) substantially differed from those of the original strain. Many global response strategies for COVID-19 did not, however, consider the possibility of such downside risks, leaving the world underprepared and underfinanced to tackle the pandemic. Failure to consider these downside risks also repeatedly led to broader optimism about a quick return to “normality,” catching the pandemic response off-guard every time a new variant emerged. A key lesson from the COVID-19 pandemic is that financing frameworks and global strategy in future pandemics should explicitly recognize the possibility of mutations and of severe downside risks. As part of this recognition, financing should be allocated up-front to address such risks. For instance, owing to such considerations, the IMF Pandemic Proposal released in May 2021 explicitly set aside about \$11 billion out of the \$50 billion financing package to insure against downside risks (for at-risk investments for vaccines, genomic surveillance, systemic supply chain risks, and the possibility of waning protection by some vaccines over time).

In addition, SARS-CoV-2 is now expected to remain in circulation for the long term, and further mutations of this virus remain a key risk for the world. Leveraging the complementarities between investments to fight existing diseases and investments to counter new threats, we can maximize the extent to which investments to prepare for future pandemics pay dividends even if such pandemics never materialize. And, given that pandemics are expensive and complex to address, the best outcomes may be achieved when they are avoided. From this perspective, investing in health systems will also have multipliers beyond the pandemic preparedness agenda, by strengthening health services (for example, routine immunization), addressing infectious and parasitic diseases, reducing child mortality, and advancing other development goals (Agarwal, Farrar, Gopinath, Hatchett, and Sands 2022). From this perspective, many of the actions to fight the tangible risk of new SARS-CoV-2 variants will be complementary to the broader pandemic preparedness agenda and will also benefit the universal health coverage agenda. A unified financing approach and quantifying the multipliers (bang for the buck) for spending on post-Omicron COVID-19 and

pandemic preparedness priorities thus may enable a better evidence-based coordinated global approach (see Agarwal, Farrar, Gopinath, Hatchett, and Sands 2022).

E. Lesson 5 (Research and Development): *R&D and knowledge about best practices is a global public good. Scaling up R&D rapidly is possible but requires greater public support.*

The COVID-19 pandemic has been one of the greatest challenges faced by modern science. Yet the global scientific community responded with unprecedented scale, developing vaccines, tests, and treatments at record speed—saving uncountable lives. Before the pandemic, the fastest a vaccine had ever been developed was in four years (for mumps); no vaccine yet existed for deadly pathogens identified decades ago, such as those causing malaria or Ebola. By the end of 2020, however, multiple vaccines had proved highly effective. Behind this unprecedented success lies a massive R&D effort. In April 2020, roughly as many new clinical trials were started for COVID-19 products as for all other diseases combined. By the end of 2020, more than 200 vaccine candidates at various stages of development were listed in the World Health Organization COVID-19 vaccine landscape. Agarwal and Gaule (2022) find that COVID-19 R&D was 4 to 26 times larger than expected under a variety of plausible assumptions for its market size. And public institutions, including universities and hospitals, were a key driver of the effort, accounting for 70 percent of COVID-19 trials. Moreover, early-stage incentives provided by governments appear to have been effective. The COVID-19 R&D response raises the possibility that global pharmaceutical innovation, including to fight future diseases, could be scaled up significantly. However, this may require greater public support for R&D as private incentives may be insufficient to respond early and effectively to a global pandemic.

In addition, it will be important to have an arrangement for technology transfer in place before the next pandemic occurs. Public sector support for R&D could also be designed with greater incentives for technology transfers to maximize the global benefits. Further, we need to continue upgrading our toolkit to handle new coronavirus variants and novel threats from pathogens with pandemic potential through R&D investment (including by developing novel drugs and a universal vaccine against coronaviruses). Similarly, genomic surveillance capabilities must be enhanced, especially in developing economies. Rapid efforts by the scientific teams in Botswana and South Africa to detect and sequence the Omicron variant taught us that strengthened genomic surveillance capacity in developing economies can have very high returns for the entire world. Their efforts allowed the world to be alerted to the Omicron threat at least five times faster than for any previous variant of concern.

F. Lesson 6 (Production): *Global supply chains can be subject to significant bottlenecks when supply is scarce and demand is high. Diversify and invest in surveillance of systemic supply chain risks.*

During 2021, vaccine manufacturers produced roughly three times the annual global supply of vaccines in a typical year. Such rapid scaling up posed substantial supply chain challenges, with shortages of raw materials shared among multiple vaccine candidates. Various manufacturers, including the Serum Institute of India (licensed to manufacture Novavax and AstraZeneca), experienced substantial delays. Some of these delays can be attributed to export restrictions placed by the United States as part of the Defense Production Act to secure its own vaccine supply chain (See Bown, forthcoming). In addition, in 2021, India delayed its vaccine exports to prioritize vaccinations at home. Furthermore, production and quality control problems caused several delays in production for several vaccines (for example J&J, Novavax, and others). Future improvements in quality control need to go hand in hand with capacity expansion and supply chain investments to make sure that vaccine production is reliable, and to mitigate systemic supply chain risk when production needs to be scaled up rapidly. A lesson from this experience is that contracting authorities should explicitly account for supply chain risks by diversifying their portfolio of vaccines and other medical tools. Diversifying the vaccine portfolio also helps with addressing the risk of new variants. In addition, predicting the nature and types of supply chain bottlenecks has proved difficult throughout this pandemic. Therefore, additional attention is needed on developing global surveillance of systemic supply chain risks for critical products such as vaccines. This could include developing contingency plans to handle downside scenarios. Contingency plans could be regularly updated and stress-tested through scenario planning—with the participation of multilateral agencies, vaccine developers, and key national governments. The contingency plans should also develop guidelines on how manufacturing capacity can be repurposed under different scenarios. In addition, an initial step to gain better oversight of systemic supply chain risks could involve developing a global database of critical raw materials and manufacturing capacity and utilization, perhaps coordinated by a multilateral agency such as the World Trade Organization (WTO) (see Agarwal and Gopinath 2021 for further discussion).

G. Lesson 7 (Cross-Border Flows): *Political economy constraints pose serious risks to the free movement of critical goods during pandemics. Regionalizing supply chains can help reduce these risks.*

The export data suggest that trade barriers and vaccine nationalism have been a serious constraint for equitable access to vaccines and medical tools during COVID-19 (Figure 4). Building health resilience in developing economies will be important to address the enduring impact of COVID-19 (if vaccines or prior infections do not provide lasting immunity post-Omicron) and to prepare for future pandemics. In this

context, the priority remains to strengthen research capacity and regional supply chains in developing economies while bolstering in-country health systems. This will not be easy. Vaccine and drug manufacturing is a sophisticated enterprise that requires specialized equipment, inputs, storage facilities, and skilled labor. Furthermore, if funding remains scarce, the benefits must be weighed against the risk of overinvesting in capacity; in some cases the funds may generate higher returns from being allocated for health system strengthening. In the near term, the focus should be on encouraging more voluntary licensing (for example, AstraZeneca licensing deals in Brazil and India during COVID-19) and on encouraging cross-company and cross-border partnerships to increase their manufacturing capacity. And over the medium term, some critical level of regional manufacturing capacity will be needed, in line with various ongoing initiatives to expand capacity in Africa. These efforts are important to ensure equitable access as crowding out of vaccine and drug supplies has tended to be at the expense of poor nations. These efforts can proceed in parallel with the ongoing WTO negotiations and discussions on the sharing of intellectual property for vaccines and lifesaving tools during pandemics. In addition, when preparing for future pandemics, there is scope to enhance coordination across countries when considering efforts to expand regional manufacturing capacity (for example, through the World Health Organization, WTO, and COVAX). The work of the COVAX manufacturing task force for COVID-19 will be a useful guide for future efforts in this area.

Beyond these seven lessons, a broader lesson from the COVID-19 pandemic is the critical importance of global collaboration and the need for better stewardship of global public goods. During the COVID-19 pandemic, the lack of an effective global and national architecture prevented the coordination and execution of actions that could have prevented the pandemic or at least reduced its scale. And countries that had effective mechanisms in place were more likely to have successful responses to COVID-19 than those that did not (Sirleaf and Clark 2021). As discussed further in Agarwal, Farrar, Gopinath, Hatchett, and Sands (2022), global collaboration and systems must be strengthened both to prevent health threats and to enable a faster and better response to future threats. This will require stronger multilateral institutions; rapid and adequate financing windows for global public goods; diversified regional manufacturing; and increased investment in surveillance, R&D, and health systems.

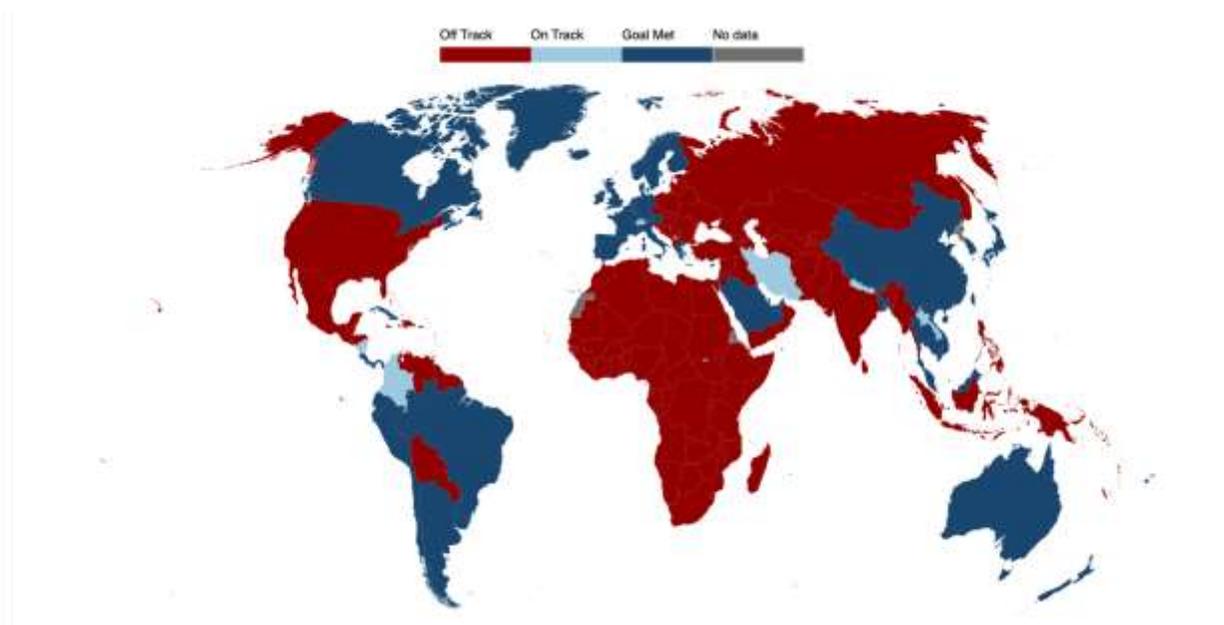
III. References

- Agarwal, R., and P. Gaule. 2022. "What Drives Innovation? Lessons from COVID-19 R&D." *Journal of Health Economics* 102591.
- Agarwal, R., G. Gopinath, J. Farrar, R. Hatchett, and P. Sands. 2022. "A Global Strategy to Manage the Long-Term Risks of COVID-19." IMF Working Paper 2022(068), International Monetary Fund, Washington, DC.
- Agarwal, R., and G. Gopinath. 2021. "A Proposal to End the COVID-19 Pandemic." IMF Staff Discussion Note 2021(004), International Monetary Fund, Washington, DC.
- Agarwal, R., and T. Reed. 2022. "Achieving Vaccine Equity with Financing Available on Day-Zero of the Next Pandemic." *Oxford Review of Economic Policy* (forthcoming).
- Ahuja, A., S. Athey, A. Baker, E. Budish, J. C. Castillo, R. Glennerster, S. Kominers, and others. 2021. "Preparing for a Pandemic: Accelerating Vaccine Availability." *AEA Papers and Proceedings* 111 (May).
- Bown, C. 2022c. "COVID-19 Vaccine Supply Chains and the Defense Production Act." *Oxford Review of Economic Policy* (forthcoming).
- Castillo, J. C., A. Ahuja, S. Athey, A. Baker, E. Budish, T. Chipty, R. Glennerster, and others. 2021. "Market Design to Accelerate COVID-19 Vaccine Supply." *Science* 371 (6534): 1107–09.
- G20 High Level Independent Panel (HLIP) on Financing the Global Commons for Pandemic Preparedness and Response. 2021. "A Global Deal for Our Pandemic Age."
- International Monetary Fund (IMF). 2021. *Fiscal Monitor*. Washington, DC, April.
- International Monetary Fund (IMF). 2022. *World Economic Outlook Update*. Washington, DC, January.
- Lazarus J. V., S. S. Abdool Karim, L. van Selm, J. Doran, C. Batista, Y. Ben Amor, M. Hellard, and others. 2022. "COVID-19 Vaccine Wastage in the Midst of Vaccine Inequity: Causes, Types and Practical Steps." *BMJ Global Health* 7 (4).
- Marani, M., G. G. Katul, W. K. Pan, and A. J. Parolari. 2021. "Intensity and Frequency of Extreme Novel Epidemics." *Proceedings of the National Academy of Sciences* 118 (35).
- Pandemic Preparedness Partnership. 2021. "100 Days Mission to Respond to Future Pandemic Threats: A Report to the G7." London.
- Piret, J., and G. Boivin. 2021. "Pandemics throughout history." *Frontiers in Microbiology* 3594.
- Sirleaf, E., and H. Clark. 2021. "Report of the Independent Panel for Pandemic Preparedness and Response: Making COVID-19 the Last Pandemic." *Lancet* 398 (10295).

World Health Organization (WHO). 2022. "Global Excess Deaths Associated with COVID-19: January 2020 – December 2021." Geneva.

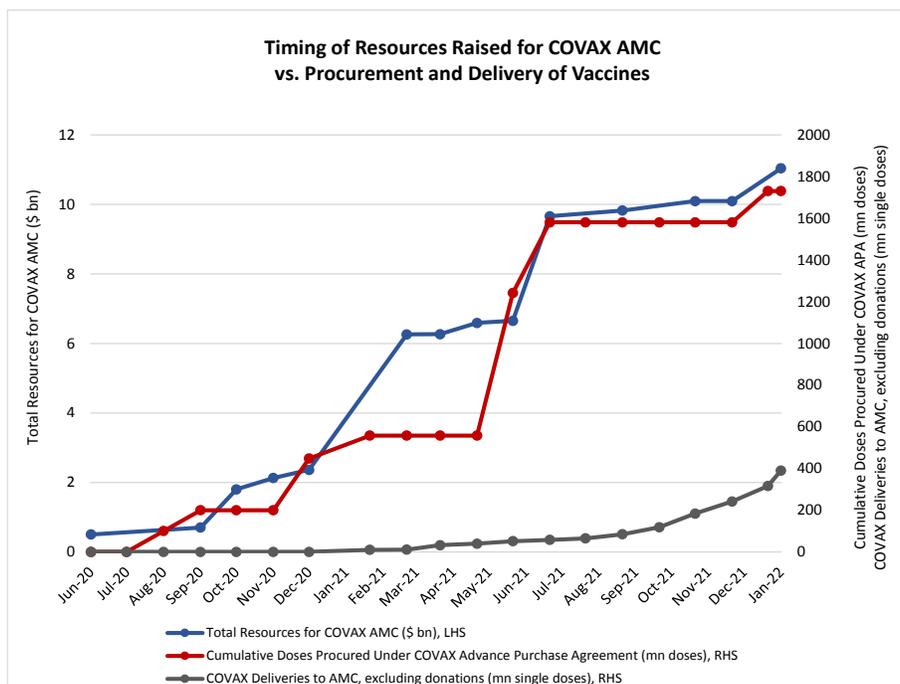
FIGURES

Figure 1: Progress toward the 70 Percent Vaccination Target by Mid-2022 as of April 2022



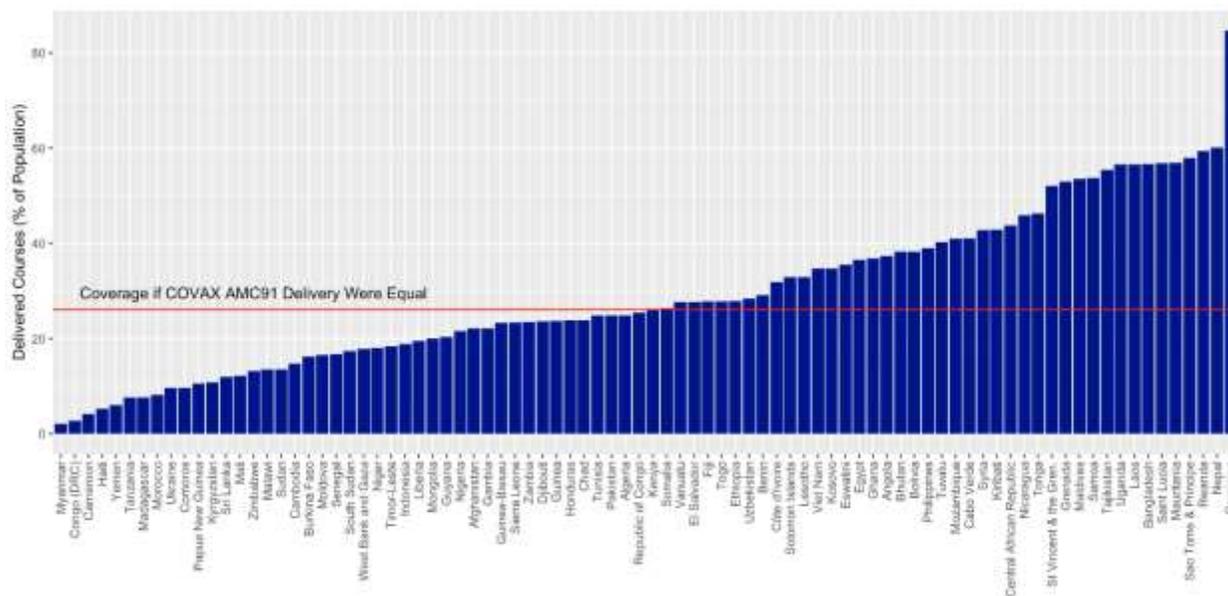
Source: IMF-WHO Vaccine Tracker based on COVID-19 Vaccine Delivery Partnership Information Hub, WHO, updated April 2022.

Figure 2: Timing of Donor Funding, Procurement, and Delivery of Vaccines to AMC Countries by COVAX (Percent)



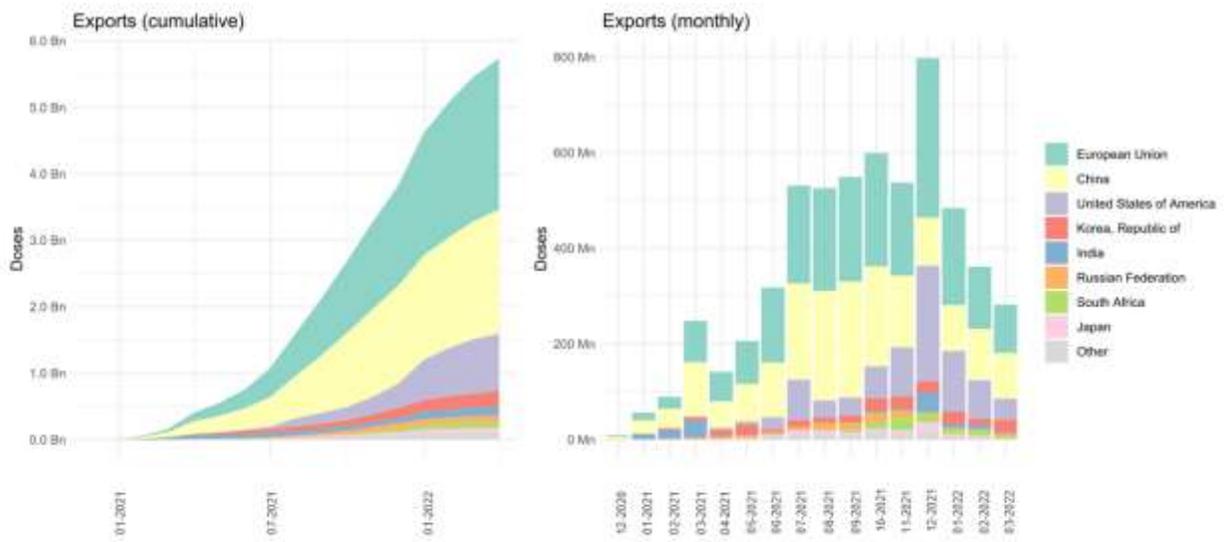
Source: Authors' calculations from publicly available information.
 Note: AMC = advance market commitment; APA = advance purchase agreement.

Figure 3: Vaccine Deliveries by COVAX as of April 2022



Source: IMF-WHO Vaccine Tracker.
 Note: The list includes 88 AMC91 countries that have been allocated doses from COVAX. Two countries are not vaccinating, and the Marshall Islands is covered through other mechanisms. Owing to its size, India has reduced access per a December 2020 board decision. A course equals one dose of J&J or two doses of all other vaccines. The AMC equal delivery calculation represents the coverage the AMC countries would have received if the total AMC doses had been delivered equally across the countries (that is, total courses delivered divided by population of the AMC countries represented here). AMC = advance market commitment.

Figure 4: Vaccine Exports by Producing Economy as of April 2022



Source: WTO-IMF Vaccine Export Tracker, updated April 2022.



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