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Avoiding Trillion-Dollar Delays

POOLED PANDEMIC FINANCING TO REDUCE GLOBAL LOSSES

Ruchir Agarwal

Abstract

The COVID-19 pandemic resulted in approximately $13.8 trillion in global economic losses between 2020 and 2024, with low- and middle-income countries (LMICs) shouldering nearly two-thirds of the burden. This paper examines why some countries experienced deeper economic impacts. Nations with prolonged lockdowns, heavy reliance on trade or tourism, or limited access to early vaccines, tests, and treatments suffered the most. One contributing factor was the absence of a coordinated global financing mechanism, which gave rise to a country-by-country model—requiring most governments to independently arrange funding and negotiate supply deals—thereby exacerbating inequities in access and slowing the overall pandemic response. For many poorer countries, affordable loans and guarantees arrived too late, often after initial production slots had been filled. I propose Day Zero Financing—a pre-approved, pooled liquidity line backed by multilateral development banks and donors—that would enable countries to swiftly access vaccines, tests, and treatments. While the mechanism need not be pre-funded in peacetime, a ready-to-activate framework with pre-agreed terms would allow for faster deployment of counter-cyclical resources when needed. Early, coordinated support of this kind could have significantly reduced economic damage and saved millions of lives, offering one of the most cost-effective public finance tools for future pandemics.

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Avoiding Trillion-Dollar Delays: Pooled Pandemic Financing to Reduce Global Losses

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Executive summary

The problem. COVID-19 imposed an estimated US$13.8 trillion in global output losses during 2020–2024, with low- and middle-income countries (LMICs) bearing nearly two-thirds of the burden. Science delivered tools at record speed, yet the world lacked cash on day zero and a way to buy at scale for everyone at once. The result was fragmented, slower, and less equitable access to vaccines, tests, and treatments—prolonging the health and economic crisis.

What explains the unequal economic damage. A cross-country analysis of 126 economies links cumulative GDP losses (2020–2024) to three factors:

- Lockdown stringency: A one-standard-deviation tighter lockdown is associated with ~7 percentage points more cumulative GDP loss.
- Structural exposure: Economies more dependent on tourism, trade, and natural-resource rents suffered larger losses; tourism-intensive countries were hit especially hard.
- Purchasing power: Before controlling for income, every extra month to reach 20% vaccination is associated with ~1.1 ppt. more GDP loss. Once GDP per capita is included, the vaccination-speed effect becomes insignificant. Richer countries—able to pre-pay and secure early deliveries—experienced ~7 ppts. lower losses per one standard deviation of income.

Diagnosis: The bottleneck **was** cash on day zero, not scientific know-how. During COVID-19, three financing architectures were tried:

- Country-by-country loans (e.g., World Bank's MPA) moved authorizations quickly but disbursed slowly due to safeguards and domestic approvals, leaving many LICs without timely liquidity; debt and price risk sat on sovereign balance sheets.
- Hybrid cost-sharing with COVAX pooled contracting but still hinged on each country's loan amendments and debt headroom, limiting uptake.
- Pooled grants (ACT-A/COVAX AMC) ultimately delivered scale and equity, but late and underfunded in 2020, missing the first production slots when speed mattered most.

Lesson: Timing beats design. Fragmented, borrower-by-borrower financing magnifies inequity; late generosity cannot buy early capacity. Pooled procurement works when cash is available upfront.

The proposal: Day-Zero Financing. Establish a pre-arranged, pooled liquidity line—backed by multilateral development banks (MDBs) with donor guarantees/pledges—that can be activated immediately when a pandemic threat is declared. It need not be pre-funded in peacetime; what must exist in advance are legal authorities, governance, and term sheets so funds can flow in days, not months.

How it would work.

- Ready-to-activate global line (order of US$20 billion scale to start) at one or more MDBs, deployable via direct MDB procurement, co-financing with countries, and/or a health consortium (e.g., ACT-A-type platform).
- At-risk advance purchase of promising countermeasures (vaccines/diagnostics/therapeutics) before authorization to secure early capacity and shorten the crisis.
- Risk management: Risk mitigation can be tailored to threat level, MDB capacity, and shareholder appetite, with at least three options that complement or substitute each other. (i) Binding donor pledges/guarantees at trigger; (ii) MDB guarantee/backstop structures, drawing on precedent; (iii) ex-ante provisioning/contingency playbooks to enable rapid drawdown without peacetime balance-sheet strain.
- Equitable allocation from day one, guided by epidemiology and need rather than fiscal space; national borrowing remains a complement for product tailoring, follow-on doses, and delivery systems.

Why it's positive-sum. Early pooled orders expand global supply by signaling demand in time for manufacturers to scale. Even if some doses are procured "at risk," the macro payoff of ending a pandemic sooner dwarfs portfolio losses—and benefits all countries by reducing mutation risk and accelerating recovery.

Expected impact. With day-zero liquidity and pooled procurement, countries—especially LMICs—would have secured earlier access, avoided the deepest GDP losses, and saved millions of lives. Looking ahead, Day-Zero Financing is among the highest-return public-finance tools for future pandemics: modest, fast commitments up front to avert trillion-dollar downstream losses.

Immediate policy actions.

- Mandate MDB(s) to design a standby pandemic liquidity facility with clear triggers, governance, and fiduciary safeguards.
- Pre-negotiate donor guarantee/pledge instruments and template APAs with manufacturers.
- Embed the facility in a coordinated platform (an ACT-A-like mechanism) with transparent allocation rules.
- Run readiness drills and publish a day-zero playbook so legal and operational steps are rehearsed before the next outbreak.

Bottom line. Pandemics behave like weakest-link problems. Without pooled, day-zero liquidity, even well-designed country loans arrive too late. Day-Zero Financing replaces a patchwork with a unified, rapid, and fair response—buying speed when it matters most and preventing trillion-dollar delays.

1. Introduction

Imagine a river in sudden flood. Each town along the bank rushes to build its own stretch of levee. Some walls rise quickly; others stall for lack of resources or permits. When the water arrives, it pours through the lowest gap and inundates every community downstream. Protection is only as strong as the weakest link. Pandemics behave the same way: where poorer nations finish their "levees" late—or not at all—the virus spills over, spreads through unprotected populations, generates new variants, and ultimately prolongs the global crisis. Until the barriers quickly form a continuous defence, no segment is truly secure.

The COVID-19 crisis exposed a collective-action failure. Science raced ahead—vaccines in months—but global coordination lagged, costing the world an estimated US$13.8 trillion in output from 2020–23.[1] Low- and middle-income countries (LMICs) bore nearly two-thirds of that loss, not for lack of science, but for lack of cash on day one.

Why did some economies suffer much more than others? Cross-country evidence in this paper points to three factors:

- Lockdown stringency mattered. A one standard deviation rise in the lockdown stringency is associated with 7 percentage points more cumulative GDP loss. In some cases, stricter restrictions protected public health but amplified the economic hit.
- Structural exposure mattered. Every additional 1 percentage point of (i) trade openness or (ii) natural-resource rents in GDP raises losses by 0.23 pp and 0.45 pp, respectively, while tourism-dependent economies fared even worse. Globally integrated sectors proved uniquely vulnerable to border closures and demand shocks.
- Purchasing power mattered most. Before controls, each extra month taken to vaccinate 20% of the population adds 1.1 pp to GDP loss; once GDP per capita enters the regression, the speed coefficient becomes insignificant. Countries that were one standard deviation richer than the mean endured 7 pp less loss overall. It was financial capacity—not just strategic foresight—that enabled countries to pre-pay manufacturers, secure early deliveries, and buffer economic losses.

These patterns converge on a single bottleneck: cash on day zero of a crisis. Under today's country-by-country procurement model, most governments must raise funds and negotiate supply contracts independently. Wealthier states can pre-commit billions; poorer ones queue and absorb deeper shocks. The lack of immediate liquidity also left several LMICs vulnerable to prolonged lockdowns, global disruptions, and the collapse of tourism or natural resource revenues, as they lacked the financial means to cushion economic fallout. Emergency loans and guarantees from the World Bank and other multilateral organizations provided support, but they did not deliver the immediate,

1 See Agarwal and Gopinath (2021).

large-scale liquidity that LMICs needed to secure medical countermeasures as quickly as high-income countries.

This paper argues for replacing that fragmented approach with Day Zero Financing: a pre-arranged, pooled liquidity line backed by multilateral development banks (MDBs) potentially with donor guarantees. The facility would enable an ACT-A-type mechanism—housed within a multilateral institution or coordinated among partners—to draw funds rapidly, procure vaccines, tests, and treatments at risk, and allocate them simultaneously across income groups.[2] Such upfront support could have helped avoid much of the economic damage, representing one of the most cost-effective public finance interventions available for future pandemics. National borrowing arrangements will still be useful—for tailoring product choices, funding follow-on doses, and strengthening delivery systems. But they are complements, not substitutes, for a pooled mechanism that bridges the gap between early needs and later financing flows. Without a Day Zero mechanism to provide pooled liquidity at the outset, even the best country-level loan arrangements will likely arrive too late to prevent the first—and costliest—wave of economic and human losses. By contrast, modest early commitments can prevent far greater downstream costs, delivering both speed and fairness.

This paper brings together cross-country evidence, lessons from pandemic financing models, and a forward-looking policy proposal. These three elements are designed to be complementary: the empirical analysis highlights where timely access mattered most, the retrospective review surfaces structural limitations in existing models, and the proposed Day Zero Financing framework responds to those gaps with a practical solution.

The paper proceeds as follows. Section 2 quantifies global GDP losses and their distribution. Section 2 also unpacks the vaccination-speed result, showing how income mediates economic outcomes. Section 3 reviews existing financing models and explores their limitations. Section 4 discusses the Day Zero Financing proposal and its projected benefits.

2. Analysis

2.1 Literature

This note contributes to and builds on the literature on the economic costs of COVID-19. Rowthorn and Maciejowski (2020) and Giordano et al. (2020) conduct cost-benefit analyses for the UK and Italy, respectively, examining the impacts of the disease and ensuing lockdown measures, while Andersen et al. (2020), Baker et al. (2020), Bursztyn, Rao, and Roth (2020), Chen, Qian, and Wen (2020), and Coibion, Gorodnichenko, and Weber (2020) quantify the broader economic effects.

2 The Access to COVID-19 Tools Accelerator (ACT-A) was a global platform launched in 2020 to accelerate the development, production, and equitable distribution of COVID-19 vaccines, diagnostics, and therapeutics. COVAX its vaccines pillar, pooled demand and donor financing to negotiate advance-purchase agreements with manufacturers.

In addition, Agarwal and Gopinath (2021), Sandmann et al. (2021), and Deb et al. (2021) examine the benefits of faster and more equitable access t o COVID-19 vaccines, tests, and treatments, while Yamin (2020) investigates various socio-economic aspects of the pandemic.

Another strand of literature examines resilience following major crises. Giannone, Lenza, and Reichlin (2011), Rose (2011), Rose and Spiegel (2010), Rose and Spiegel (2011), and Devereux and Dwyer (2016) study recoveries after the 2008 global financial crisis, arguing that trade and financial openness are significant drivers of output surprises. Recent research, including Maliszewska, Mattoo, and Mensbrugghe (2022), Furceri et al. (2021), Glocker and Piribauer (2021), and Islam (2021), investigates output losses due to the COVID-19 pandemic and explores their determinants. These studies generally find that income levels and the stringency of lockdown policies positively influence a country's output losses during the pandemic crisis.

This paper contributes to the literature by examining the gap between projected and actual GDP growth at the country level over 2020–2024—a measure that captures the realized economic impact of the pandemic relative to baseline expectations. By linking these outcomes to structural characteristics and vaccination speed within the same framework, we provide a cross-country perspective that complements existing studies focused on individual drivers or short-term indicators. We find that countries heavily reliant on natural resources, trade, and tourism experienced higher GDP losses due to COVID-19. In addition, lower-income countries and those with stricter lockdown measures tend to experience more significant GDP losses, consistent with findings in the existing literature.

A line of work focuses on how to finance rapid, globally equitable access to medical countermeasures. Agarwal and Gopinath (2021) show how at-risk, up-front funding for medical countermeasures could have shortened the pandemic dramatically, while Agarwal and Reed (2022) describe the mechanics of Day Zero financing that would make such funding available for the next outbreak. Agarwal (2024) discusses Day Zero liquidity as a global security imperative and details governance options for a pooled facility. These proposals emerged from lessons learned during COVID-19 response and policy coordination. Complementing these proposals, Glennerster et al. (2024) outline five reforms multilateral development banks can implement immediately to let their existing, country-based loan windows fund at-risk purchases—steps that remain consistent with, but do not substitute for, a fully centralized Day-Zero mechanism.

2.2 Data and descriptive statistics

GDP losses

Data on pandemic-induced 'GDP losses' were sourced from the IMF World Economic Outlook (WEO) database. This metric reflects the percentage drop in real GDP per capita from the 2019 baseline, capturing the total economic downturn from 2020 to 2024 due to the pandemic. The calculation of

GDP losses is based on the difference between the IMF's pre-pandemic forecasts made in Fall 2019 and the updated estimates from Fall 2021. This comparison aims to isolate the specific effects of COVID-19 on the global economy by contrasting initial economic expectations with the reality shaped by the pandemic. This method helps to exclude the influence of other significant external factors, such as the economic implications of the Russian invasion of Ukraine on February 24, 2022, which have subsequently affected global economic trends.

Pandemic-related variables

We collected COVID-19 vaccination data from Our World in Data. This tracker records key milestones like reaching 40% vaccination coverage and the initiation of vaccination efforts. From this data, we calculated the time required to reach 20%, 40%, and 60% vaccination thresholds.

Government response indices

Government responses data, including the "Containment and Health Index", "Stringency Index", "Economic Support Index", and "Government Response Index", were obtained from the OxCGRT database. This database records the implementation of pandemic response measures by governments and their timing. The data covers various policy responses enacted from 2020 to 2022, quantifying them on a scale to reflect the extent of government action. We calculate three-year averages of these indices to analyze their impact on countries' GDP losses. In the Appendix, we additionally explore the robustness of our findings by examining yearly indices and two-year averages.

The OxCGRT provides indices ranging from 0 to 100, indicating the level of government response across different dimensions. These responses include containment and closure policies, economic policies, health system policies, and vaccination policies. The "Government Response Index" aggregates all indicators, while the "Containment and Health Index" focuses on containment, closure, and health system policies. The "Stringency Index" considers these policies along with public information campaigns, and the "Economic Support Index" encompasses economic policies.

Country-specific characteristics

Finally, data on GDP per capita, inflation, trade, natural resources, and tourism dependency were obtained from the World Bank's World Development Indicator. This included information on real GDP per capita, real GDP, inflation rate, trade as a percentage of GDP, total natural resources rents as a percentage of GDP, and international tourism receipts as a percentage of total exports. We calculated tourism receipts as a percentage of real GDP to determine each country's dependence on tourism. We combine data from the UN Tourism database to fill in missing values for tourism dependency obtained from the World Bank database.

TABLE 1. Summary statistics of main variables

	Mean	Median	Std. Dev.	Min	Max	Obs
Cumulative losses in GDP, 2020–24 (%)	33.9	28.2	25.5	–2.2	132.4	126
Pandemic related variables						
Time to get 20% vaccinated (months)	16.7	16	4.8	10	36	126
Government response indices						
Containment index (Lockdown severity)	47.9	48.3	7.8	18.1	65.2	126
Stringency index	43.4	43.4	8.5	14.9	62.8	126
Economic support index	36.5	34.5	21.1	0	93.9	126
Government response index	46.5	46.7	8.0	17.7	66.1	126
Country-specific characteristics						
GDP per capita (2019, logged)	9.0	8.9	1.4	6.2	11.6	126
Tourism (%, GDP)	5.4	3.8	5.6	0.2	50.7	126
Trade (%, GDP)	84.2	80.7	36.1	26.5	150	126
Natural resources (%, GDP)	4.4	1.3	7.6	0	40.6	126

Notes: The table presents summary statistics for all observations. "Losses in GDP per capita" is calculated as cumulative percentage losses of real GDP per capita from 2020 to 2024, compared to that of 2019. "Tourism (%, GDP)" is calculated by the ratio of receipts of international tourism to the real GDP (in %). 'Trade (%, GDP)'' and "Natural resources (%, GDP)" are calculated as a percentage share of GDP. If these shares are higher than 150%, we substitute the variables with 150%. "Time to get 20% vaccinated" calculates months to get 20% of a country's total population vaccinated. There are 4 government indices obtained from OxCGRT, which measure government responses to the pandemic crisis.

Source: IMF WEO database, Oxford Coronavirus Government Response Tracker (OxCGRT), World Development Indicator.

Descriptive statistics

Table 1 presents descriptive statistics for the main regression variables. On average, cumulative GDP losses of 33.9% between 2020 and 2024 were observed across the sample countries. The range of GDP losses varies from –2.2% to 132.4%, with a standard deviation of 25.5%. The table also details the timeframe required to vaccinate 20% of the population, which spans from 10 to 36 months. On average, sample countries took approximately 16.7 months after the declaration of the pandemic to achieve a 20% vaccination rate. There are significant variations in government response indices, including containment, stringency, economic support, and overall government response. These indices show similar statistical characteristics, except for the Economic Support Index, which exhibits considerably more variation, with a standard deviation of 21.1.[3] There are significant variations in logged GDP per capita and tourism dependency, ranging from 6.2 to 11.6 and 0.2% to 50.7%, with standard deviations of 1.4 and 5.6%, respectively. Additionally, countries exhibit an average dependency of 84.2% on trade and 5.5% on natural resources, respectively, as a percentage of their real GDP.

2.3 Which countries suffered more?

We examine how the characteristics of each country influence its GDP losses due to the COVID-19 pandemic. A high Containment and Health Index indicates more strict government responses aimed at curbing the spread of the virus. Consequently, stricter restrictions imposed by the government

3 In the Appendix, we provide scatter plots illustrating close correlations among different government response indices.

might lead to higher economic losses due to the pandemic crisis. In addition, factors such as the time taken to vaccinate a certain portion of the population and a country's income level may also play a role in determining GDP losses.

Moreover, a country's reliance on tourism, trade, and natural resources can significantly impact its GDP losses, given the pandemic's harsh effects on these sectors. Many governments worldwide implemented travel restrictions, hindering the tourism industry's operations and exacerbating the economic challenges faced by countries heavily dependent on tourism. Similarly, countries with economies heavily reliant on trade and natural resources may have experienced greater economic impacts from COVID-19 compared to others.

To assess the impact of each potential factor, we run the following regression model:

$$Loss_i = \Gamma \cdot Char_i + \epsilon_i$$

where $Loss_i$ is the losses in real GDP per capita compared to 2019 GDP, accumulated from 2020 to 2024 due to the impact of COVID-19. $Char_i$ includes independent variables including Containment and Health Index, time taken to vaccinate 20% of the population, GDP per capita, tourism dependency, trade as a percentage of GDP, and natural resources as a percentage of GDP. We include the independent variables one by one and then together, to see the impact of each factor on a country's GDP losses following the pandemic crisis.

TABLE 2. Which countries suffered the most GDP losses due to COVID-19

	Cumulative losses in GDP per capita, 2020–24			
	(1)	(2)	(3)	(4)
Pandemic related variables				
Time to get 20% vaccinated (months)	1.11***	−0.36	−0.27	
	(0.39)	(0.69)	(0.53)	
Government response indices				
Containment index (Lockdown severity)	0.95***	0.90***	0.98***	1.02***
	(0.27)	(0.26)	(0.22)	(0.20)
Country-specific characteristics				
GDP per capita (logged)		−6.85***	−8.78***	−8.22***
		(2.82)	(1.70)	(1.17)
Tourism (%, GDP)			2.75***	2.74***
			(0.24)	(0.24)
Trade (%, GDP)			0.09**	0.09**
			(0.04)	(0.04)
Natural resources (%, GDP)			0.51***	0.50***
			(0.20)	(0.19)
Observation	126	126	126	126
R^2	0.09	0.15	0.54	0.54

Notes: Robust standard errors are in parenthesis. $^*p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Table 2 shows the impact of various country characteristics on GDP losses during the COVID-19 pandemic. From columns (1) to (4), we observe a significant and positive impact of the Containment and Health Index on GDP losses, suggesting that countries with stricter government policies, such as school closures, cancellation of public events, and other lockdowns, experienced greater losses in GDP. A one-unit increase in the index (i.e., a seventh of a standard deviation) corresponds to approximately a one percentage point increase in GDP losses.

The results suggest that the duration it took for each country to vaccinate 20% of its population did not significantly impact the country's GDP losses when controlling for GDP per capita. This may be due to the close relation between a country's vaccination speed and its income level, as higher-income countries typically possess greater capacity to secure and administer COVID-19 vaccines. Moreover, countries with higher GDP per capita experienced comparatively lower GDP losses attributable to COVID-19, as shown in the third row of the table. A country with one standard deviation higher GDP per capita experienced approximately 7 percentage points lower cumulative losses in GDP per capita from 2020 to 2024, based on column (2).

From columns (3) and (4), we observe positive and statistically significant coefficients on tourism dependency, indicating that countries with a higher reliance on tourism were more vulnerable to the pandemic crisis. This finding remains consistent both before and after including the variable of the time taken to vaccinate 20% of the population. Similarly, countries that are highly dependent on trade and natural resources were affected more by the pandemic crisis. Specifically, countries with one percentage point higher share of trade and natural resource rents per GDP experienced approximately 0.23 and 0.45 percentage points higher GDP losses, respectively.

3. Financing models used during the COVID-19 pandemic

The pandemic tested at least three financing architectures for procuring vaccines, tests, and treatments. Figure 1 summarises the cash and risk flows for three different architectures governments actually used in 2020–23. They differed on who provided liquidity, when it became spendable, and how debt or technology risk was shared—differences that help in part explain the wide gaps in roll-out speed and equity.

3.1 Country-by-country model—e.g., World Bank MPA (2020)

In early 2020, the World Bank faced intense pressure to make large-scale financing available quickly. On April 2, the Board approved an initial US$6 billion envelope for the Global COVID-19 Multiphase Programmatic Approach (MPA). Additional financing was approved in October, and the overall envelope for the health response was later expanded to US$20 billion—though only a portion of these funds was ultimately disbursed. The MPA enabled every client government, rich or poor,

to borrow for vaccines and related supplies under a common legal umbrella. In principle the design offered speed and flexibility; in practice, several operational features slowed delivery, especially for low-income borrowers. Further, this financing came from countries' existing IBRD and IDA allocations, carrying significant *opportunity costs* for other development priorities and representing a reallocation of, rather than an addition to, available resources.

Program mechanics. Each country prepared an MPA project (or "additional financing," AF) and used the funds to support vaccine procurement. Follow-on financings could ride on the same paperwork, a feature intended to shorten approval times.

Regulatory safeguards. Disbursements were allowed only for products that had national authorization, a World Health Organization emergency-use listing, and either one stringent regulatory-authority (SRA) approval or three SRAs in different regions. According to the Independent Evaluation Group (IEG) (World Bank 2022), this rule "limited the ability of project teams to respond quickly to vaccine plans … project teams could not procure non-approved vaccines, which limited collaboration in task forces to support vaccine deployment." Countries such as Djibouti, Honduras, the Philippines, and Tajikistan had roll-out plans ready but could not finance the vaccines they had identified because those products had not yet met the SRA filter. (The constraint noted by IEG could have reflected MPA-specific MPA-specific institutional decisions rather than formal procurement rules.)

Environmental and social requirements. The MPA projects had to comply with the Bank's new Environmental and Social Framework. The IEG (World Bank 2022) found that "the learning curve … was high, despite templates and extensive hand-holding; it was a labor-intensive process for staff and government who were already overwhelmed." Securing stakeholder consultations and safeguard specialists added weeks in several client countries.

Domestic approval lags. Even when Bank processes were complete, parliamentary or ministerial ratification often slowed release of funds. The IEG (World Bank 2022) notes that for Tajikistan, one of the earliest MPA borrowers, "the corporate framework for the global MPA delayed approval of the first MPA and AF." In settings with frequent cabinet turnovers or election calendars, the lag was longer.

Overall performance. Portfolio data show the MPA moved faster than conventional investment loans but "was slow in disbursing in the early weeks and months of the crisis compared with crisis instruments and development-policy financing." Several low-income countries recorded no MPA disbursement at all during the first year because domestic ratification could not be waived.

Moreover, because every loan sat on the sovereign balance sheet, governments also bore price and performance risk. High-income and upper-middle-income borrowers could pre-pay suppliers from national budgets and lock in early deliveries. Many low-income clients signed APAs only after production slots had been sold and COVAX donations had begun, widening the gap in vaccination

speed and economic recovery. Meanwhile, some countries with limited budgets preferred to wait and see how many doses they would receive through donations

3.2 Hybrid model—World Bank/COVAX cost-sharing (2021)

The July 26 2021 World Bank–COVAX cost-sharing arrangement was conceived as a mid-course correction. Twelve months earlier, the Bank had helped form the Access to COVID-19 Tools Accelerator (ACT-A) partnership and initially committed to co-convene its vaccine pillar, COVAX. But, as the IEG (World Bank 2022) records, by July 2020 "the World Bank decided not to co-convene COVAX and focused on country-level support through the health-systems pillar," concluding it lacked an "appropriate global-level instrument" to fund advance market commitments. In hindsight, IEG argues, "a global-level instrument that allowed for an advance market commitment could have helped increase the value added of the COVAX partnership and allowed low-income countries to access vaccines one year earlier." The cost-sharing facility was an attempt to fill that gap without building a new facility, following strong advocacy from key donor countries.[4]

Program design. COVAX aggregated demand and negotiated APAs. Any of the 92 AMC countries that wished to buy additional doses signed a side agreement and drew on an existing World Bank vaccine project. Upon receiving the country's request, the Bank issued a payment confirmation that allowed COVAX to place orders with manufacturers. They stressed that the mechanism would "unlock additional doses" by marrying COVAX's market power to "predictable financing" from the Bank.

Scale and scope. Up to 430 million doses—enough to vaccinate 250 million people—were offered for delivery between late-2021 and mid-2022. The partnership also promised transparency on prices and delivery windows, giving governments clearer signals for national roll-out plans.

Operational strengths and limits. Central contracting did remove the need for dozens of bilateral price negotiations, and borrowers with ready Board approvals could move fairly quickly. Yet liquidity still depended on each loan amendment clearing domestic procedures; IEG describes the additional processing time as "several weeks to a few months," again longest for low-income clients. Credit ceilings posed a second hurdle: some governments in debt distress hesitated to borrow for doses they hoped would be donated later. By December 2021 fewer than half of the AMC-92 countries had taken up the offer, and the largest orders came from fiscally stronger borrowers.

Risk allocation and equity. Price risk was pooled at COVAX level, but debt remained on national balance sheets. As a result, the mechanism did not alter the core inequity highlighted above: countries with limited borrowing headroom still waited, while those that could assume more debt secured earlier shipments.

4 COVAX originally also included a "self-financing" window intended for high-income countries to participate in pooled procurement alongside low- and middle-income countries. In practice, this track attracted limited uptake and was marked by a lack of transparency. Most HICs opted for bilateral deals instead, and COVAX's operational focus quickly shifted to the AMC window targeting LMICs.

3.3 Pooled aggregation model—ACT-A grants (2020)

On April 24 2020, eight organizations—WHO, Gavi, CEPI, The Global Fund, Unitaid, FIND, the Gates Foundation, and the World Bank Group—launched the Access to COVID-19 Tools Accelerator (ACT-A). ACT-A was a loose network of organizations structured around four pillars: vaccines (COVAX, co-led by WHO, Gavi, and CEPI, with UNICEF as the primary delivery partner), therapeutics, diagnostics, and health-system support.

Mandate. Its stated goal was to finance and allocate these tools to every country "regardless of income" once they became available (WHO 2024). ACT-A's first Investment Case (WHO 2020) estimated a need of US$31.3 billion for the subsequent 18 months. Only US$3.4 billion—about 11 percent—had been pledged by that date, leaving an immediate gap of US$27.9 billion.

Intended operating model. COVAX was intended to serve both high and low-income countries. However, because funds were to be raised as grants for low- and middle-income countries (LMICs), they would incur no debt or credit risk. With cash in hand, COVAX could have signed firm advance-purchase agreements "at risk," pooling both price and technology risk for all 92 AMC economies as well as self-financing participants.

Implementation reality. The lack of pre-committed cash proved decisive (Usher 2021). Throughout 2020, COVAX relied on option contracts while waiting for donor money, and manufacturers prioritized prepaid orders from high-income countries. The first COVAX shipment—600,000 doses to Ghana—did not leave the factory until February 24 2021, more than two months after the United States received its ten-millionth Pfizer dose. Funding eventually arrived, but cumulative ACT-A pledges did not exceed US$24 billion until mid-2023, long after early production capacity had been sold.

Results. A WHO two-year review (WHO 2022) credits ACT-A with delivering 1.4 billion vaccine doses to 145 countries, brokering large-scale oxygen deals, and rolling out 172 million rapid antigen tests—substantial achievements once money materialized. Nevertheless, the World Bank's Independent Evaluation Group concluded that "a global-level instrument that allowed for an advance market commitment could have helped low-income countries access vaccines one year earlier." In other words, ACT-A achieved debt-free equity after the fact but could not supply liquidity fast enough to secure first-round production slots, when economic payoffs were highest.

Take-away. Once funded, the pooled-grant model excelled across the board: it pooled risk, lowered prices, and delivered equitable access at global scale. Its voluntary-pledge structure, however, lacked

the pre-committed liquidity needed for speed, leaving low-income countries to wait through the most damaging phase of the pandemic.

3.4 Some lessons

The COVID-19 pandemic offers some lessons on financing:

Timing beats design. The World Bank's MPA and the cost-sharing facility moved large authorizations quickly, yet both were slowed by safeguard rules, loan amendments, and parliamentary ratification. ACT-A's grant pool eliminated debt for low-income countries but lacked cash on day zero. In every case, the absence of immediate liquidity—not the legal form—proved decisive.[5]

Fragmentation magnifies inequity. When financing depends on dozens of sovereign approvals, the fastest and wealthiest borrowers always secure earlier deliveries. That pattern was clear: credit-worthy middle-income countries drew first, while poorer clients waited or opted out.

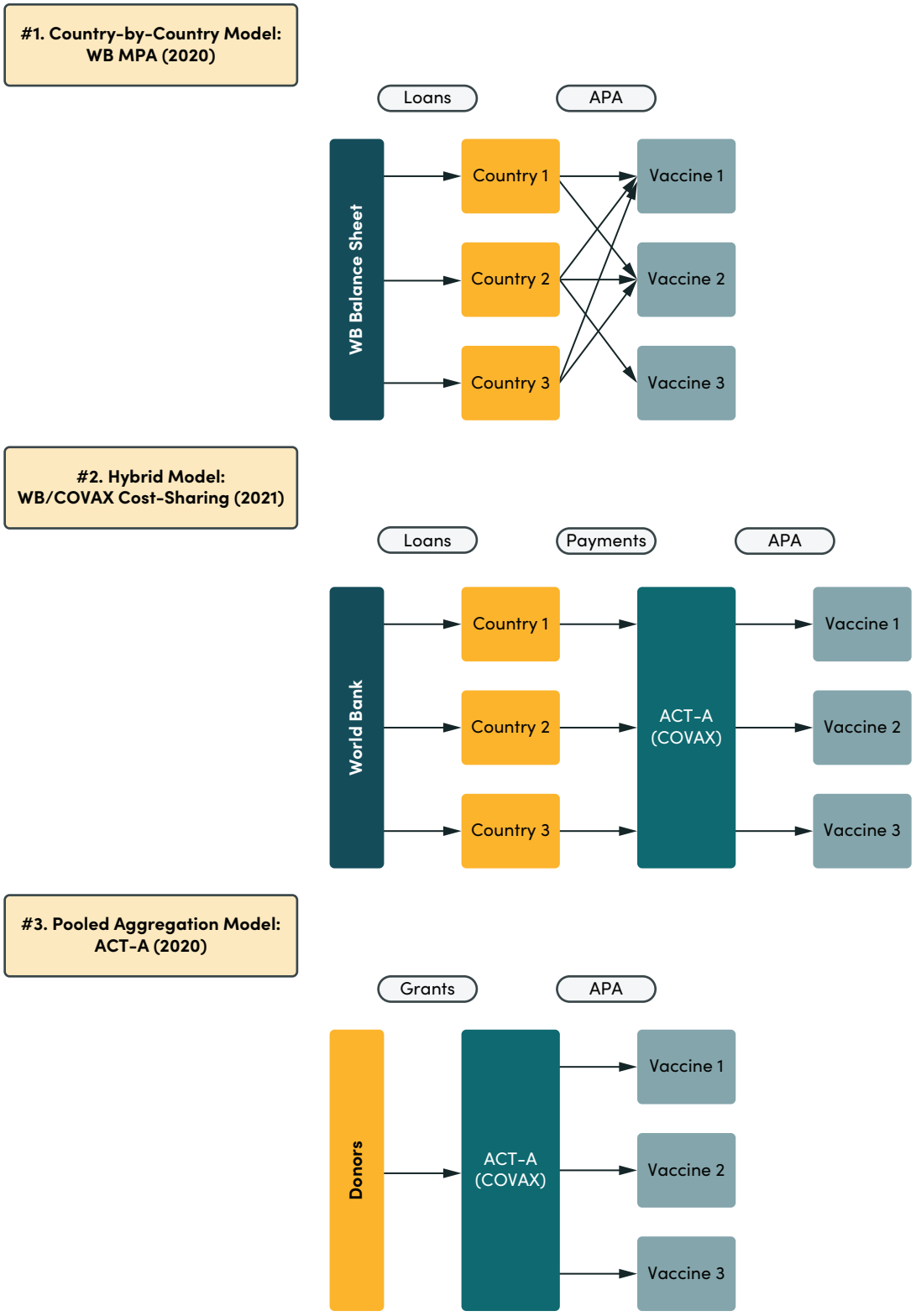
Late generosity cannot buy early capacity. Donor pledges eventually topped US$24 billion, yet most of that money arrived after early production slots were sold. The macroeconomic premium of first-wave access was therefore lost, particularly for low-income countries.

When funded, pooled-grant mechanisms deliver. The ACT-A experience showed that collective procurement can manage risk, secure better prices, and ensure fairer distribution—when cash is available upfront. The challenge wasn't the model, but the timing of funds.

These lessons point to a key structural gap: pooled procurement must be matched with pre-committed liquidity that can be drawn the moment a pandemic threat is declared. Day Zero Financing, discussed next, is designed to close that gap.

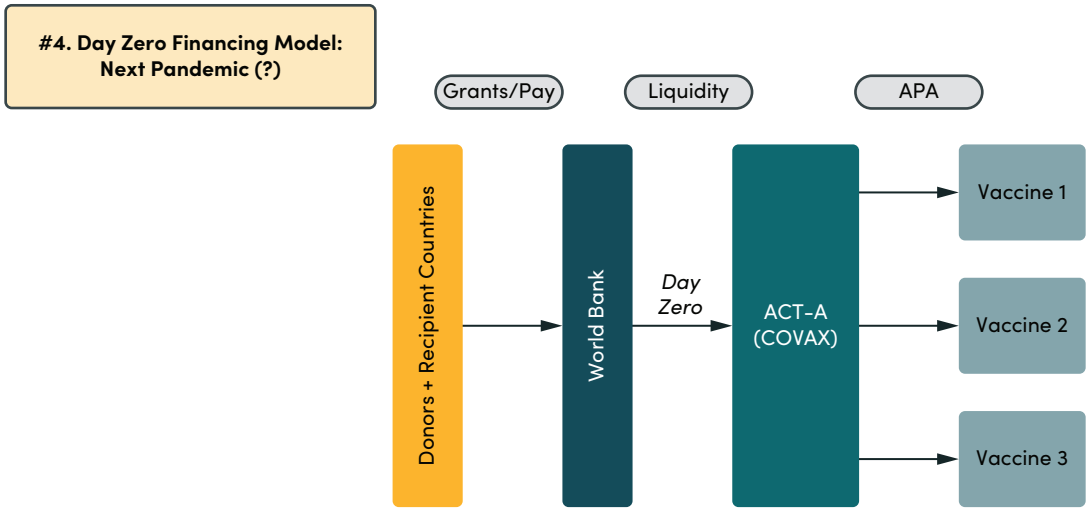
5 See Ann Danaiya Usher, "Soul Searching at the World Bank About How to Finance Response to the Next Pandemic," Development Today, Special Report, October 24, 2024. The article notes: "During the COVID pandemic, the World Bank, bound by its country-based model, was unable to put its considerable financial weight behind pooled procurement of vaccines for lower-income countries. Now, the Bank is doing some soul searching about how it could make 'Day Zero' financing available at the start of the next pandemic."

FIGURE 1. Financing models used during the COVID-19 pandemic



Notes: This figure is based on the original conceptualization developed by Laurin James. The model applies to all relevant countermeasures, including vaccines (depicted), tests, and treatments.

FIGURE 2. The proposed Day Zero financing mechanism



Note: The model applies to all relevant countermeasures, including vaccines (depicted), tests, and treatments.

4. Day Zero Financing: A global solution

4.1 How would it work?

Day Zero Financing is an integrative framework that connects three established building blocks—pooled procurement, MDB balance-sheet strength, and donor resources—into a single mechanism that ensures the immediate availability of financial resources at the onset of a pandemic (Figure 2). This approach addresses significant shortcomings observed in traditional country-by-country pandemic responses by establishing a more agile, coordinated, and equitable system for early intervention ('day zero'). While high-income countries may rely on domestic budgets or bilateral arrangements, Day Zero Financing can prioritize support for low- and middle-income countries (LMICs), as part of a globally coordinated response.

1. *A ready-to-activate global liquidity line*: In anticipation of future pandemics, a global liquidity line—comparable in scale to the World Bank's US$20 billion COVID-19 envelope—could be established with one or more multilateral development banks. The aim would be to provide rapid financing without requiring countries to negotiate support individually during a crisis. The resources could be deployed through a range of channels, including direct MDB procurement, co-financing with countries, or collaboration with a global health consortium, similar to the Access to COVID-19 Tools Accelerator (ACT-A). Collaboration through such a platform would require careful attention to governance, including clarity on roles, decision-making authority, and accountability—particularly when managing pooled funds at speed. The framework would be designed for flexibility. Activation would depend on the scale of the threat, available balance sheet space, and the willingness of shareholders or donors to share risk at the time of need.

2. *At-risk investments to expedite access*: Funds drawn from this facility can be deployed immediately for 'at-risk' advance-purchase agreements, securing promising vaccines, diagnostics, or therapeutics even while these interventions are still undergoing Phase III trials. The experience of COVID-19 demonstrated that hesitancy by development banks and governments to allocate funds prior to emergency authorization resulted in critical delays. The proposed financing approach aims to address this risk-aversion by emphasizing that early investments can significantly mitigate economic and humanitarian damage. While some medical countermeasures may ultimately fail, the financial risk could be absorbed by the facility or distributed across the portfolio. Past experience suggests that the benefits of rapid availability significantly outweigh the downside risks of acting early.
3. *Supported by Future Donor Pledges*: The first-best approach is a clear pre-crisis commitment from major donors and philanthropic institutions—ensuring that liquidity deployed at the onset of a pandemic can be reliably repaid. This would enable immediate financing without the delays typically associated with grant disbursement. When not feasible, an alternative would be to establish Day Zero–ready legal agreements, financial instruments, and governance frameworks that can be activated rapidly once a credible threat emerges. On Day Zero, donors could issue binding pledges or guarantees using pre-agreed mechanisms to unlock liquidity. Successful implementation would require clear legal commitments, robust governance structures, and transparent accountability to ensure donors fulfill their pledges. During COVID-19, G7 and EU countries ultimately provided over 80% of ACT-A's funding—once the stakes were recognized. Future responses can build on that experience by ensuring the infrastructure is in place to act decisively, even if formal pledges arrive in real time. In general, multilateral development banks taking on limited early exposure are likely to be backstopped through future capital increases, primarily by high-income shareholders—many of whom also serve as principal donors in global health and emergency response. Therefore, with appropriate governance arrangements, the primary constraint is political coordination—not financial capacity or accounting norms.
4. *Managing Credit Risk*: Addressing any residual credit risk effectively would be important for the viability and sustainability of Day Zero Financing. Three complementary approaches could be employed:
    a. Advance Securing of Donor Pledges: Obtaining legally binding pledges from donor countries and philanthropic entities in advance would significantly reduce residual credit risk. These commitments would act as financial collateral, allowing MDBs to confidently extend liquidity early, knowing repayments are formally guaranteed, even if actual disbursements occur over a longer timeline.
    b. MDB Backstop Mechanism (Guarantee Approach): As a precedent for donor-backed guarantees, the pneumococcal vaccine Advance Market Commitment (AMC) illustrates one way MDBs can manage default risk. In that case, donors pledged US$1.5 billion, and the World Bank guaranteed those commitments, charging a small premium (around 0.3%) to offset potential shortfalls. A similar mechanism could be adapted to

support pandemic response liquidity, allowing MDBs to provide early financing against donor pledges. This would effectively function as disaster insurance—enabling rapid action while spreading financial risk. While future capital replenishments cannot be assumed in normal times, they may be considered in the context of a global crisis where early MDB intervention helps avert far greater economic and humanitarian losses.

c. Ex-Ante Provisioning or Contingency Planning: MDBs could proactively assess and plan for potential credit losses ahead of crises, following forward-looking accounting principles. This could involve estimating donor default risks and designing financial buffers to enable rapid responses without relying solely on future contributions. A less demanding approach would emphasize operational readiness over formal provisioning—avoiding any balance sheet impact during peacetime unless the mechanism is triggered in a crisis. While second-best to formal pre-commitments, this approach would ensure a high degree of preparedness without tying up scarce resources for a benefit that may ultimately not be needed.

Collectively, these strategies would comprehensively mitigate financial risks, bolstering the reliability and resilience of Day Zero Financing.

5. *Ensuring Timely and Equitable Distribution*: Day Zero Financing aims to ensure rapid, equitable procurement and distribution of essential health resources based on global health priorities and real-time needs, rather than individual countries' financial capacities. Centralized coordination could significantly reduce logistical barriers and inequities like those observed during COVID-19, supporting greater global health equity from the earliest stages of future pandemics. National financing mechanisms would continue to play a complementary role, particularly in customizing responses to specific local conditions, funding subsequent doses of treatments or vaccines, and strengthening national healthcare and distribution infrastructure. These national-level efforts would enhance, rather than replace, the global financing mechanism.

4.2 Zero-sum or positive-sum?

A potential concern is whether early pooled financing would operate in a zero-sum—or even negative-sum—manner, by diverting limited supply away from wealthier countries or raising prices for all. While these concerns may apply in the very short term, they overlook a fundamental reality: supply is endogenous to demand. During COVID-19, there were multiple instances in which manufacturers signaled a willingness to expand production for low- and middle-income countries, often with short delivery timelines, if orders could be placed early. In some cases, they explicitly encouraged multilateral organizations and policymakers to secure demand for LMICs by specific deadlines to justify scaling capacity. However, because financing was not available, many of those orders were delayed—or never placed—resulting in missed opportunities to increase global supply. With sufficient early funding, aggregate demand can be consolidated and signaled in time to bring forward investment and regulatory readiness. Given the high supply elasticity of many medical

countermeasures and the enormous global benefits of ending a pandemic sooner or avoiding viral mutation, the overall dynamic is clearly positive-sum.

While some queuing is inevitable in the earliest phase of a crisis, a coordinated approach helps ensure that the queue is structured, equitable, and globally efficient—prioritizing early delivery to the most vulnerable and underfunded settings while preserving incentives for manufacturers to expand supply. By reducing fragmentation and delay, such a mechanism maximizes the chances of ending the pandemic faster, which ultimately benefits all countries—including those that may face modest delays in access early on—by minimizing global economic disruption, lowering the risk of viral mutation, and accelerating recovery.

4.3 Closing thoughts: Why a global approach is necessary

Under the current country-by-country model, every government must arrange financing, secure internal approvals, and negotiate its own contracts for vaccines, tests, and treatments. These steps take time—often months—so production slots go to the swiftest and wealthiest, while others wait. The result is slow deployment, fragmented demand that hampers large-scale manufacturing, and persistent inequity that leaves low- and middle-income countries (LMICs) exposed even as richer states move ahead.

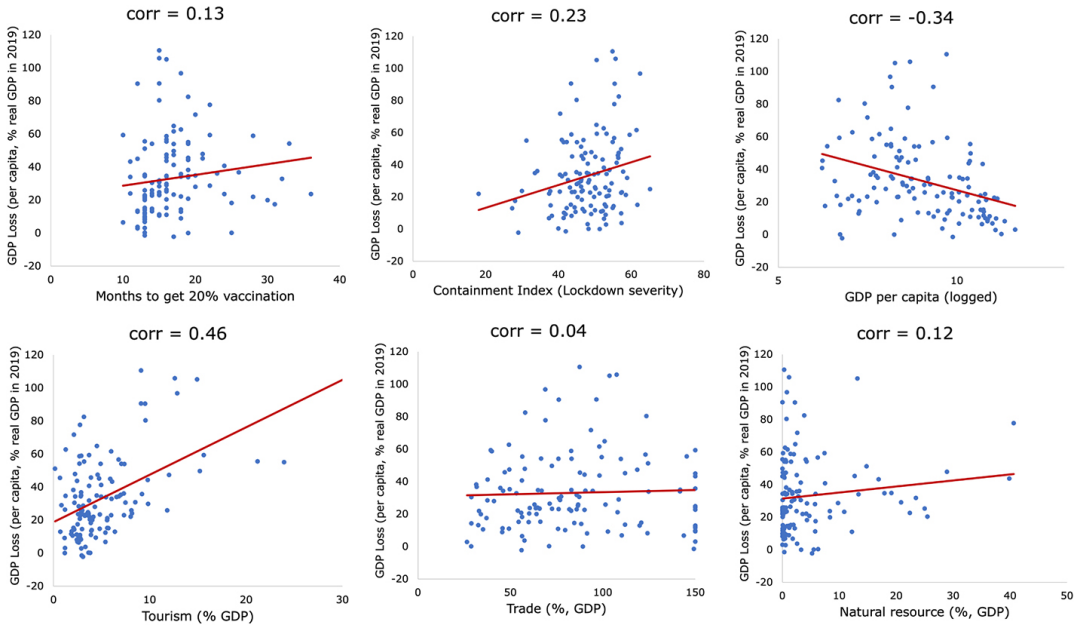
As described earlier, pandemics behave like floods: protection is only as strong as the weakest barrier. When some countries secure defenses early while others are left exposed, the virus finds the lowest gap—spilling over, generating new variants, and extending the crisis for all. Without coordinated, early investment, fragmented responses will continue to leave the entire system vulnerable.

A pooled Day Zero Financing facility replaces this patchwork with a unified front. By establishing a standing liquidity line—underwritten by multilateral development banks and backed by donor guarantees—funds become available the moment a public-health emergency is declared. Centralized procurement then pools price and technology risk, negotiates uniform contracts, and signals aggregate demand early, allowing manufacturers to scale capacity in time. Because funds are drawn immediately and deployed everywhere at once, Day Zero Financing delivers rapid, equitable access to countermeasures, closes the weakest links, and curbs the macroeconomic losses that reached an estimated US$13.8 trillion during COVID-19—two-thirds borne by LMICs.

National borrowing arrangements will still be useful—for tailoring product choices, funding additional doses, and strengthening delivery systems. But they are complements, not substitutes. Without a Day Zero mechanism with pooled liquidity at the outset, even the best country-level loan arrangements will likely arrive too late to prevent the first—and costliest—wave of economic and human losses. By contrast, modest up-front commitments can prevent far greater downstream costs, delivering both speed and fairness.

Appendix

FIGURE A1. Correlations between GDP losses and country characteristics



Notes: The figure shows the correlations between GDP losses in sample countries and various country characteristics, including time to achieve 20% population vaccination, containment index, GDP per capita, tourism, trade, and natural resource. Tourism, trade, and natural resource are calculated as the ratio of international tourism receipts, trade, and natural resource rents to real GDP in percentages. Outlier countries that experienced GDP gains more than 5% were excluded.
Source: IMF WEO database, Oxford Coronavirus Government Response Tracker (OxCGRT), World Development Indicator.

TABLE A1. Which countries suffered GDP losses due to COVID-19—stringency index

	Losses in GDP per capita			
	(1)	(2)	(3)	(4)
Pandemic related variables				
Time to get 20% vaccinated (months)	0.98***	−0.23	−0.04	
	(0.37)	(0.69)	(0.61)	
Government response indices				
Stringency index (Lockdown severity)	0.91***	0.75***	0.92***	0.91***
	(0.27)	(0.27)	(0.23)	(0.19)
Country-specific characteristics				
GDP per capita (logged)		−5.41***	−7.02***	−7.10***
		(2.83)	(1.81)	(1.08)
Tourism (%, GDP)			2.78***	2.78***
			(0.24)	(0.24)
Trade (%, GDP)			0.10**	0.10**
			(0.04)	(0.04)
Natural resources (%, GDP)			0.40**	0.40**
			(0.19)	(0.18)
Observation	126	126	126	126
R^2	0.10	0.14	0.54	0.54

TABLE A2. Which countries suffered GDP losses due to COVID-19—government response index

	Losses in GDP per capita			
	(1)	(2)	(3)	(4)
Pandemic related variables				
Time to get 20% vaccinated (months)	1.19***	−0.36	−0.26	
	(0.42)	(0.71)	(0.56)	
Government response indices				
Government Response index (Lockdown severity)	0.79***	0.83***	0.95***	0.99***
	(0.29)	(0.28)	(0.22)	(0.21)
Country-specific characteristics				
GDP per capita (logged)		−7.43***	−9.42***	−8.90***
		(2.81)	(1.72)	(1.19)
Tourism (%, GDP)			2.78***	2.78***
			(0.25)	(0.26)
Trade (%, GDP)			0.08*	0.08**
			(0.04)	(0.04)
Natural resources (%, GDP)			0.60***	0.59***
			(0.19)	(0.18)
Observation	126	126	126	126
R^2	0.06	0.14	0.53	0.53

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