



## Global Integration Is More Important than Ever to Contain the Economic and Health Fallout and Exit the COVID-19 Pandemic Crisis

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As the world faces its most significant health and economic crisis in almost one hundred years, international cooperation and global integration face their own watershed moment. Large developed economies cannot escape the fallout from isolationism but have greater resources to weather the storm. Developing countries that rely upon large external economies, essential supply chains including food and medicine, inflows of capital and visitors, and participation in international labor markets are particularly vulnerable to a nationalistic crisis response. Global problems require coordinated global solutions to prevent disease from leading to widespread famine and death and economic contraction from disproportionately harming the most vulnerable. Global integration remains essential to developing country efforts to deal with the pandemic and recovery. Crisis-induced nationalist measures can be expected to increase the severity and duration of the economic downturn. This brief highlights the relative vulnerability of developing countries to a fractured global crisis response and how making international cooperation and exchange more dependable and crisis-proof can reduce vulnerability.

### Concurrent Global Crises Facing Globalization

Global integration or globalization has been associated with the most peaceful, prosperous, and poverty-reducing period in modern history. Comparing the world in 2015 with 1970, foreign direct investment (FDI) flows were around 145 times higher, trade flows more than 50 times greater, and migration more than doubled. Alongside this, world GDP per capita increased 2.5 times, conflict deaths halved (after falling almost 90 percent to 2010, when trade and investment growth began to stagnate) and more than 1 billion people have been lifted out of extreme poverty (figure 1). While unpacking causality among these interrelationships has proven challenging and contentious—interested readers may wish to explore World Bank (2002); Goldin and Reinert (2006); Deyshappria (2018); O’Rourke (2019); Ravallion (2018); Amavilah, Asongu, and Andrés (2017)—globalization’s direct and indirect influence in expanding the economic opportunity set and tempering conflict incentives appears profound.

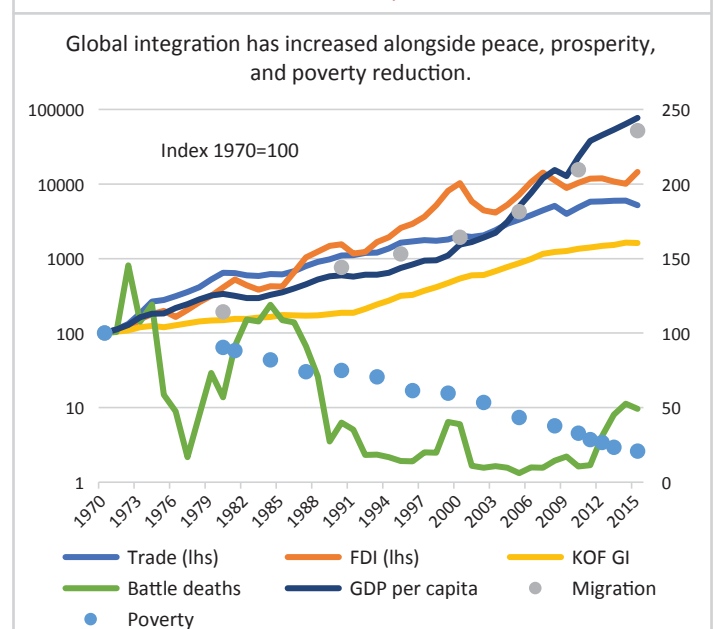
Globalization alone is not a silver bullet, however. Critics have highlighted adverse impacts on inequality (see, for example, Basco and Mestieri 2019); constraints on policy making in the public interest (Stiglitz 2002); and the need for an accompanying institutional environment that mitigates negative consequences (Rodrik 2012). The negative side effects of globalization have become more apparent in recent years amid rising inequality, the fallout from the global financial crisis, and shifts in the geopolitical world order. While most experts argue for more nuanced policy approaches that maximize and optimize the distribution of net benefits while mitigating potential drawbacks (see, for example, Bende-Nabende 2017), opponents argue that those drawbacks justify reducing international exposure.

Concurrent global crises—the US-China trade dispute and the COVID-19 pandemic—have brought these arguments to a head, heightening the threat to accrued and future gains from global integration. Trade and investment were shaken by the global financial crisis and have not returned to the rapid growth of the preceding period. Now global commerce and international cooperation more generally are facing a downturn whose severity will be largely determined by the degree to which policies are developed individually or collectively. Estimates already project a 13

percent to 32 percent drop in global trade and a 30 percent to 40 percent drop in FDI in 2020 (WTO 2020; UNCTAD 2020b).

The response to both the trade dispute and pandemic has come almost exclusively from individual countries, with little concrete action arising from multilateral forums. Individual country responses necessarily prioritize national and citizen interests, though not all do so at the expense of foreign persons or entities. Comprehensive monitoring of trade policy is unavailable for 2020, but in the 12 months to October 2019 trade restrictions increased by 27 percent, year on year, to historically high levels (WTO 2019). More recent efforts to track pandemic measures have found a

Figure 1. Increases in Trade, FDI, GDP per capita, Migration, and Globalization, and Decreases in Poverty and Battle Deaths, 1970–2015



Source: Author’s calculations using data sourced from Roser (2016); Ortiz-Ospina and Beltekian (2018); Gygli et al. (2019); UN (2020a); UNCTAD (2020a); and World Bank (2020a). Note: Index set to 1970=100. Trade, foreign direct investment (FDI) flows, and GDP per capita were indexed from US dollar data. KOF GI is the KOF Globalisation Index, a composite indicator of global integration. Battle deaths include interstate and civil conflicts, with the spike since 2012 driven by civil conflict. Migration is the change in the stock of persons living overseas.

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proliferation of export controls on critical supplies like medical equipment (WTO 2020). Investment policy monitoring covering the crisis period to early May 2020 indicates that some (mainly developing) countries are pursuing policy liberalization and investment incentive measures, while many (developed) countries are tightening approval mechanisms and nationalizing businesses (UNCTAD 2020c). Migration policies have experienced the largest shifts. More than 200 countries have imposed restrictions on migrant inflows, with many going further in limiting the access to income support, employment, food, and medical care for migrants already in their countries (IOM 2020). Several countries have gone further in limiting all international arrivals, effectively curtailing the rights of their own citizens to return home.

Pockets of international cooperation amid the pandemic exist, but most involve a country benefactor that is a geopolitical ally with its domestic situation under control, with the benevolence of nongovernmental organizations and individuals left to direct resources to where they are most needed. Criticism of China and the World Health Organization (WHO) for aspects of their initial handling has further distracted from and polarized efforts to contain the pandemic.

Nationalistic and populist policy responses are not new and have been growing since long before the current crisis (Bieber 2018; Copelovitch and Pevehouse 2019). Inward-looking policies are instinctive reactions to trade disputes and health crises—even those with a distinctly global nature. And while individual actions aimed at protecting one's country are important to addressing immediate local concerns, an exclusive and prolonged focus on national interests would be expected to worsen the global health and economic consequences. Every country doing so simultaneously represents the extreme but not unrealistic scenario in which essential supplies like medicines and protective equipment

are only available to producing countries and/or the highest bidders.

This Research & Policy Brief highlights the extensive economic integration that had occurred before the current crisis and the comparative exposure of individual developing economies to external shocks. It further explains why global cooperation and integration are essential to containing the economic and health fallout and ultimately exiting the crisis.

### Unwinding Extensive Economic Integration Would Be Costly, Including for Developing Countries

Calls to reduce dependence on the international economy or specific countries appear to misunderstand the already extensive degree of integration prevailing before the pandemic—and therefore the magnitude of the disruption and losses that unwinding could involve. They typically focus on large developed countries whose global integration is more readily associated with both prosperity and vulnerability (depending on the perspective). Less acknowledged are the many developing countries with high levels of global integration, with only a minority so self-sufficient or detached as to have little exposure to international shocks.

Box 1 offers a simple indicator of external exposure based on five dimensions: food imports, tourism, movements of people, capital, and trade. A traffic light system is used to highlight relative exposure by category, based on global values for the upper third, middle third, and lower third of countries/economies (red being the most exposed, and green the least exposed, with yellow in the middle). Two alternative weighted scores provide an aggregate measure of overall exposure. Table 1 provides the scores for 143 economies, including 96 developing economies, for which data are available.

#### Box 1. Measuring External Exposure across Developing and Developed Economies

Existing globalization indicators—most notably the KOF Globalisation Index (Gygli et al. 2019) and a recent adaptation from Huh and Park (2019)—provide a wealth of information on the multifaceted nature of globalization. Beyond basic factor flows, they include proxies for communications; informational, cultural, and political globalization; infrastructure connectivity; and policy measures such as international treaties. While all these indicators are important, in the context of the pandemic and the US-China trade dispute, a comparison of core economic integration metrics is of more immediate interest.

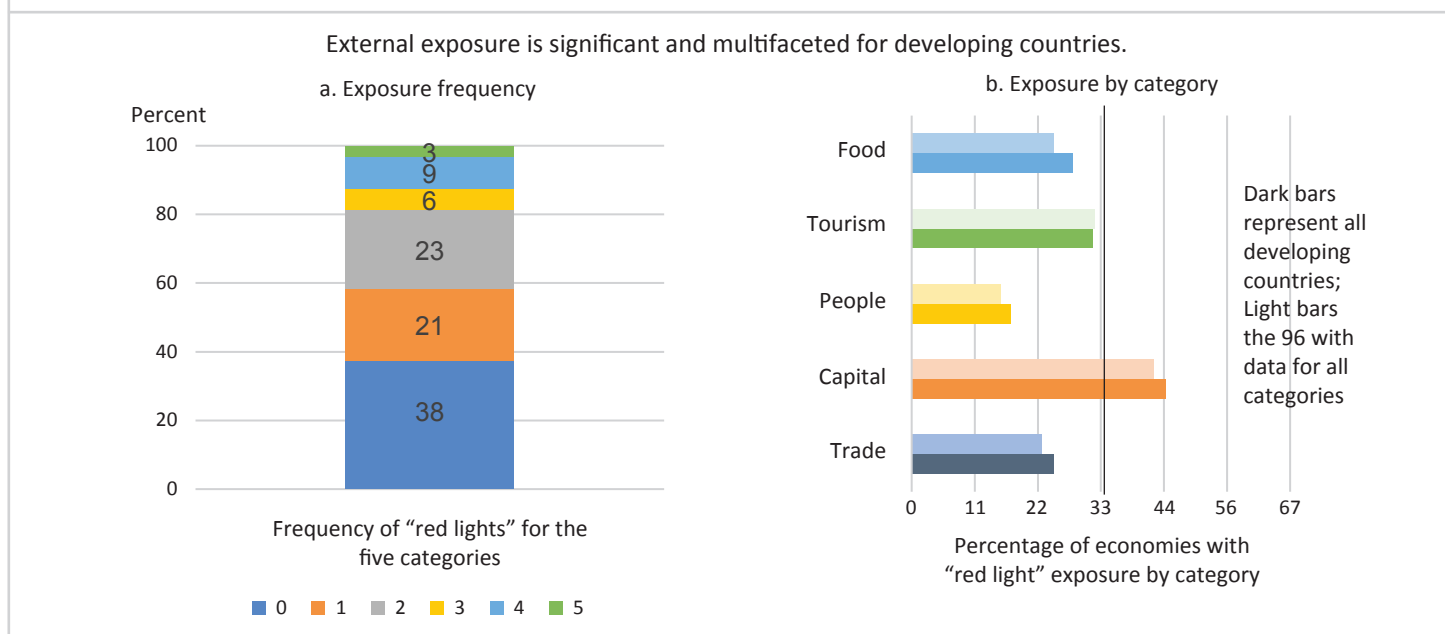
Trade (export and imports as a share of GDP) is an obvious starting point as a common and direct measure of exposure to international commerce. Likewise, capital movements (net foreign direct investment plus remittances as a share of GDP) indicate the extent of exposure to financial globalization, focusing on stable long-term capital flows rather than volatile portfolio flows. Migration is another core facet of globalization that, in the crisis context, is best considered from a bidirectional perspective. The migration (“people”) measure here combines the stock of immigrants hosted with the stock of emigrants overseas, recognizing that countries may simultaneously lose immigrant

workers and face challenges supporting emigrant citizens facing hardship at home or abroad.

Two additional dimensions are added because they are critical to the crisis context. Food security is particularly exposed to nationalistic/populist sentiments in the minority of food-exporting countries. Ramping up domestic production to compensate is simply not possible for most countries. The measure of net food imports as a proportion of domestic production is consequently included to measure the scale of exposure to food trade disruptions. In addition, tourism is perhaps the hardest hit sector as movement restrictions and widespread unemployment have eliminated most international travel. Tourism and travel's total contribution to GDP (as a percentage) is used here to indicate an economy's exposure to prolonged restrictions on travel.

Table 1 (located before the reference list below) presents these measures using the latest available data for 143 economies (141 countries plus the Chinese Special Administrative Regions of Hong Kong and Macao), with a traffic light system of highlights based on global terciles (with red indicating the highest values or greatest external exposure).The economies are ranked from most to least externally exposed, using min-max normalization and simple averaging of the five measures (“score”), as explained in the table notes.

Figure 2. Intensity of External Exposure Overall and by Category



Source: Author’s calculations from data sourced as per table 1 notes.

Note: Panel a tallies the frequency of “red lights” for the 96 developing economies with data for all five categories included in table 1. A 5 on this category means a high level of vulnerability in all five dimensions (food, tourism, people, capital, and trade). Panel b provides the percentage of economies with a “red light” vulnerability by category. This is provided for the larger sample of 132 developing economies for which at least some data are available (with the qualifying condition that GDP per capita data must also be available). The black vertical line marks the division between the first and second terciles.

As panel a of figure 2 shows, only around 36 percent of developing economies have no “red lights”. Of these, none are in the bottom tercile (that is, have green lights) across all categories. Around 18 percent have three or more red lights and thus exhibit significant relative exposure to international integration. Capital is the most common category for red lights and the only category for which developing economies are more vulnerable than developed economies, reflecting the fact that developing economies tend to be more reliant on foreign capital (including remittances). Developing economies are almost as likely to be among the most dependent on tourism but are somewhat less likely to be vulnerable in the net food import, movement of people, and trade categories.

Relative relationships tell only part of the story. Some 88 out of the 113 developing economies for which data are available are net food importers, suggesting that food may be a greater vulnerability in absolute terms (due to a higher concentration of net exporters). Of these, 52 (or 46 percent) have net imports exceeding 25 percent of domestic production levels, the loss of which would represent a substantial shock if supply chains were abruptly severed. This highlights the necessity of maintaining trade in food products—trade that has underpinned global production efficiencies and resilience to shocks and dramatically reduced poverty. Severe disruptions to supply chains will disproportionately affect those developing countries least able to increase domestic production, risking a wave of preventable illness and death that could rival the direct pandemic impact (FAO 2020a).

Extensive restrictions on international movements of people and additional mobility constraints within countries—together with the effect of the broader economic contraction on discretionary expenditure, including travel—are combining to hit the tourism sector harder than most. International tourist arrivals are predicted to decline by 58 percent to 78 percent globally in 2020, with arrivals down 57 percent in March (UNWTO 2020).

Tourism is a systemically important sector in many countries, supporting many downstream services businesses. Around 32 percent of developing economies are particularly vulnerable. For these economies, tourism represents more than 13 percent of GDP. For island nations and tourist hotspots throughout the developing world, tourism represents 20 percent to 40 percent of GDP (or higher in extreme cases). If hit with a projected 60 percent to 80 percent reduction in arrivals, these nations and locales face a shock greatly exceeding the estimated world average.

The potential calamity of indiscriminate restrictions (untargeted lockdowns and similar; see Loayza 2020) on people and capital movements is also evident in the data. Developing economies’ capital imports are especially vulnerable during a crisis as investors seek to relocate their funds to safe-haven countries and remitters (migrants) are among the most vulnerable to unemployment. Net capital imports represent more than 10 percent of GDP for 38 of the 96 economies and 5 percent or more for an additional 24, increasing their vulnerability by even more in absolute terms. And while some outliers—several small, commodity-rich economies—make developing countries as a whole seem relatively less vulnerable to movements of people, for about 30 percent of developing economies, a combination of immigrants hosted and emigrants overseas represents more than 10 percent of the population. The sudden loss of capital or displacement of migrant labor of this magnitude would have significant economic and social implications. While some of these losses are unavoidable as essential movement restrictions and low business and consumer confidence bite, further investment and migration barriers could significantly worsen matters.

Developing economies are slightly less vulnerable to overall trade disruptions than developed economies, with only 25 percent falling in the top global tercile. In absolute terms, however, the level of exposure is higher for trade than any other category, with the trade-to-GDP ratios of the top tercile of economies exceeding 101



periods of international disruption and have strong incentives to counter isolationist moves by bigger countries, but whether they can exert influence is another matter.

While the actions of bigger and more populous countries may exert greater influence, all national and subnational government policies fit within a global system of policies affecting international cooperation and decisions about factor mobility—a system that was built up over many decades (as shown in figure 1). Individual economies are not exempted from this system in a crisis context and excessively inward-looking crisis control measures will have counterproductive consequences during the postcrisis recovery. Prioritizing the health, jobs, and food supply of citizens and permanent residents is an understandable and instinctive approach of national governments, but it creates a prisoner's dilemma type of trade-off that makes everyone worse off—including the very people these policies prioritize. Deglobalization eliminates the specialization and scale economies that make the world economy many times larger than it would be if countries operated in silos, with no country set to benefit (Rogoff 2020).

The threat of deglobalization is particularly acute in a crisis, where essential supply considerations are heightened. If the minority of countries that are net food and medical supply exporters cut supplies to importers, the consequences would be dire. Even most net food exporters specialize in products for which they have a comparative advantage, with imports supplying welfare-enhancing diversity that would disappear with supply chains severed. Introducing additional barriers to international exchange would repeat the mistakes of the Great Depression, resulting in a more prolonged downturn globally that would harm businesses and jobs in the protectionist country (Eichengreen and Irwin 2009). Whether it be introducing tariffs or export bans, securitizing foreign investment approvals, or discriminatory treatment toward migrants, crisis-motivated restrictions encourage reciprocal action and a race to the bottom that leaves every country worse off.

In short, the external exposure of developing economies is high and differs little from that of developed economies. Developing economies are more exposed than developed economies to capital flight and about the same with respect to tourism. While they are relatively less exposed on food imports, movement of people, and trade, they are still vulnerable to significant shocks in absolute terms. A rise in protectionism globally would be damaging to developing and developed economies alike and expected to increase the severity and duration of the economic downturn.

### **Crisis Containment Is Practically Impossible at the National Level**

Neither the trade dispute nor the COVID-19 pandemic can be solved unilaterally by any country, and essentially no country can quarantine itself from their effects. Countries can make deals with the United States and China but cannot arrest the decline in confidence associated with great power rivalry. Small island nations may succeed in eliminating the virus but would struggle economically with the isolation necessary to remain virus-free.

While evidence of the trade dispute's impact is emerging and is now clouded by COVID-19, it has clearly affected more than just the United States and China. Every country/economy connected directly or indirectly to the world's largest economies and the global

value chains that service them is potentially affected. Indeed, evidence points to a large decrease in confidence having dwarfed any diversion of trade to individual third countries that may have hoped to benefit (see, for example, World Bank 2020b, 2020c). Uncertainty and unpredictable policy actions from global leaders harm the investment climate for everyone and individual countries cannot contain the damage.

The COVID-19 pandemic has affected at least 213 countries and territories (Worldometers 2020) and placed more than one-third of the global population under some form of lockdown. The economic fallout is difficult to forecast, but early attempts foresee contractions unparalleled since World War II—with developing countries expected to be most affected (World Bank 2020d; IMF 2020).

Pandemics do not respect national borders. On the contrary, they can create the perfect storm for undocumented migration as increased poverty and unemployment combine with heightened restrictions on formal migration (Helms and Leblang 2019). Incentives to migrate would be expected to increase further as the disparity between the responses of neighboring countries increases, creating situations where countries can become victims of their own success. Very few countries are invulnerable to this risk despite heightened border restrictions and reduced availability of transport. Developing countries with less robust borders—particularly middle-income countries across Asia, Africa, and South America—must work together with less developed neighbors to reduce the incentives for undocumented migration. Increased border controls, raids, and penalties may marginally stem the inflow, but evidence supporting such measures is weak—even in developed countries (see, for example, Cornelius 2004; Parrado 2012). Few borders are geographically defensible, and penalties only marginally alter overall incentives for migrants, agents, smugglers, employers, and regulators. Regional cooperation to contain the virus and mitigate economic impacts across regions would provide a more effective deterrent, together with individual country restraint in unwinding the formal migration pathways that discourage informal alternatives.

Much like country-level trade and investment barriers distort incentives and misallocate resources, national solutions to global crises undermine containment efforts and increase overall losses—costs borne in lives as much as money. The more developed countries focus solely on themselves, the greater the difficulties developing countries with limited resources to counter shocks will face in mounting an effective containment response. With the pandemic shifting its epicenter to developing countries, a global commitment to support mitigation efforts is increasingly vital.

This requires cooperation to promote the timely deployment of resources to countries when and where they need it most—no export bans, stockpiling, and bidding wars. It also involves rapid, transparent, and extensive information sharing regarding public health interventions, medical treatments, and their impacts—both successes and failures. Individual countries cannot be forced to follow best practice, but deficiencies in information sharing are evident in countries continuing to repeat the mistakes of early hotspots. Similarly, in the context of the trade dispute, collective measures are more likely to restore confidence and support a transition to a beneficial “new normal.”

## The Crisis Exit Strategy Requires Global Cooperation

While the exit strategy for both crises remains unclear, the quickest and least damaging way out involves global cooperation. With respect to the trade dispute, the rest of the world beyond the United States and China commands around 65 percent of global GDP (in purchasing power parity terms) (IMF 2020). These countries—which, according to the indicators presented in box 1, collectively have relatively higher external exposure than the United States and China—benefit from and rely upon the rules-based international order. While the United States and China may be the only countries technically capable of ending the trade dispute, the associated crisis afflicting international institutions and norms can largely be mitigated by cooperation among the rest. Harnessing “collective will” to reinforce and improve international governance in the absence of great power leadership will be extremely challenging, but both crises have highlighted the necessity of doing so (Huang and Smith 2020).

Most experts on the pandemic argue that an end to restrictions relies on increasingly sophisticated and better targeted public health interventions in the short term and the development and distribution of a vaccine or cure in the medium term (see, for example, Brown 2020). They argue there is no guarantee that widespread infection would deliver sustained immunity and the virus is too widespread to eliminate globally through public health interventions alone. Zero-sum national approaches may support temporary localized containment, but they run contrary to global containment and exit.

The international scientific and medical communities are leading by example—cooperating on an unprecedented scale to develop a vaccine or cure and share insights about treatment. These efforts are led by teams of experts transcending national and racial boundaries, with more than 100 candidates under development (WHO 2020). The overwhelming majority of candidates are being developed in and funded by a select group of developed countries, China, and India. Most countries simply lack the resources and expertise to develop their own.

Almost all developing countries (and many developed ones) are therefore relying on any successful vaccine or treatment being manufactured and distributed widely based on need and at low cost. The scale of this exercise is enormous and international forums are still working through safeguards to ensure a process that fits the global imperative. The recent Global Vaccine Summit provides an example of cooperative efforts and important commitments to ensure widespread and equal access to a successful vaccine (GAVI 2020).

With the economic fallout of the pandemic escalating and nationalism rising alongside it, the risks of selfish approaches corrupting these processes and backsliding on commitments is also increasing. One only has to go back to 2009 to find precedent, when a series of exclusive deals between the creator of a swine flu vaccine and a small group of developed countries hampered global distribution efforts, with developing countries left waiting (Sas 2020). The United States’ acquisition of Gilead’s entire Remdesivir production provides a stark, recent illustration of this concern (Mintzes and Hoen 2020). Developing countries are the most vulnerable to being left behind and this only adds to their dependence on major powers.

## The Possibility of New Opportunities for Cooperation and the Need for Global Solidarity

Global integration has brought peace and prosperity precisely because countries are more connected and mutually dependent on one another.

Developing economies are just as much part of the globalized world as developed economies, and, as the metrics in this brief indicate, many are more exposed to external disruptions. High external exposure scores highlight shared interests and opportunities for cooperation among a diverse range of developing countries that may not have ordinarily been apparent.

Countries exhibiting high external exposure scores are particularly vulnerable to a crisis mentality defaulting to nationalism. They face the daunting prospect of being cast adrift as less exposed countries turn inward. Less vulnerable countries should commit to maintaining vital supply lines and directing essential supplies to where crisis developments demand. Countries on both ends of the external exposure spectrum should refrain from introducing barriers to trade, investment, and movement of people that are inconsistent with strict objectives to mitigate the crisis.

To be clear, high external exposure scores evidence potential vulnerability, but are not inherently “bad”. As this brief stated at the outset, high levels of global integration have been beneficial in many ways.

Reducing vulnerability to external shocks is not about lowering exposure but making international cooperation and exchange more dependable and crisis-proof. It means developing and developed countries alike reinforcing and refining international governance mechanisms and norms to protect the vulnerable from the powerful. It requires the multitude of countries with common interests in maintaining and expanding the international exchange of goods, services, capital, and people to cooperate, including by developing more nuanced approaches that better balance interests across various dimensions (national and global; government and business; developing and developed country; growth and equity). Recent events have underscored the need to make international governance and cooperation more resilient to crises and better equipped to lead an effective global response.

Nationalistic government policies that undermine international cooperation and exchange are a significant threat to containing the economic and human cost of the crises and charting a timely exit that restores and builds on the precrisis environment. A united global effort is more important than ever to reinforce international governance frameworks and norms and avoid greater health and economic calamity. How this can be achieved practically—whether by leveraging existing international forums/groupings or developing new ones—is a legitimate question for countries to consider and quickly. This brief does not take a position on this matter, but simply notes that either approach requires adaptability and greater coordination among countries with common interests.

As the director-general of the World Health Organization, Tedros Adhanom Ghebreyesus, so passionately declared recently: “*My friends, make no mistake: The greatest threat we face now is not the virus itself. Rather, it’s the lack of leadership and solidarity at the global and national levels. ...We cannot defeat this pandemic as a divided world*” (Picheta 2020).

Table 1. External Exposure Metrics for 143 Developed and Developing Economies

Rank	Country	Food <sup>a</sup>	Tourism <sup>b</sup>	People <sup>c</sup>	Capital <sup>d</sup>	Trade <sup>e</sup>	Red	Score	Code
1	Macao SAR, China	2254.5	58.9	77.3	4.3	116.0	4	0.641	MAC
2	Hong Kong SAR, China	1888.3	16.5	47.0	26.9	376.5	5	0.624	HKG
3	Maldives	2025.0	75.1	13.5	10.2	146.3	4	0.543	MDV
4	Malta	210.8	26.9	44.4	34.5	268.8	5	0.453	MLT
5	Luxembourg	90.3	4.2	53.2	-5.0	387.1	3	0.401	LUX
6	Antigua & Bar.	235.7	52.4	52.5	9.9	90.2	4	0.391	ATG
7	Dominica	13.4	37.6	70.6	11.3	108.0	4	0.390	DMA
8	Barbados	290.9	41.2	41.7	5.9	82.9	3	0.334	BRB
9	Cabo Verde	296.3	44.4	19.5	17.3	117.0	4	0.331	CPV
10	Kuwait	396.4	6.1	74.1	0.0	100.5	2	0.331	KWT
11	Cyprus	167.4	23.1	30.6	22.9	145.3	5	0.320	CYP
12	Grenada	128.6	23.3	45.0	17.1	109.4	5	0.319	GRD
13	Ireland	45.9	6.0	35.9	17.0	211.5	3	0.306	IRL
14	Belize	-66.9	41.8	24.6	11.3	115.7	4	0.294	BLZ
15	Georgia	85.7	31.3	25.0	18.5	111.8	5	0.294	GEO
16	Montenegro	209.4	25.1	23.6	19.5	109.6	5	0.287	MNE
17	Jamaica	91.4	33.7	20.8	20.8	89.0	4	0.282	JAM
18	Jordan	109.4	19.7	36.2	12.8	90.2	4	0.271	JOR
19	Iceland	358.7	35.0	20.7	-1.7	91.3	3	0.268	ISL
20	Guyana	-10.6	7.0	31.9	39.0	82.6	2	0.264	GUY
21	Oman	139.4	6.8	46.2	8.0	102.8	3	0.264	OMN
22	Armenia	22.0	16.2	36.8	14.0	91.3	3	0.260	ARM
23	Lebanon	74.0	19.1	34.6	16.9	62.9	4	0.256	LBN
24	Congo, Rep.	107.6	4.1	9.3	38.4	154.9	3	0.255	COG
25	Cambodia	-6.2	31.6	2.6	18.9	124.9	3	0.244	KHM
26	Lesotho	109.6	13.7	9.3	27.7	128.0	4	0.244	LSO
27	Croatia	-4.9	25.1	22.9	8.2	101.9	3	0.242	HRV
28	Saudi Arabia	369.8	9.3	38.6	0.6	66.6	2	0.239	SAU
29	Estonia	-41.0	15.5	22.9	5.7	145.0	3	0.235	EST
30	Belarus	4.8	6.2	30.0	4.8	139.4	2	0.228	BLR
31	Slovenia	53.7	12.3	16.6	3.9	162.5	2	0.228	SVN
32	Mauritius	300.0	23.4	11.0	4.3	94.9	2	0.227	MUS
33	Namibia	93.5	14.1	5.0	1.6	83.7	2	0.225	MKD
34	Bosnia and Herzegovina	40.2	9.9	27.2	12.9	96.4	2	0.225	BIH
35	Vietnam	13.5	9.3	1.4	12.8	208.3	2	0.224	VNM
36	Portugal	59.4	17.8	27.0	3.5	87.0	3	0.223	PRT
37	El Salvador	90.3	10.4	19.9	22.3	77.5	2	0.221	SLV
38	Albania	17.3	26.3	8.0	17.6	77.1	2	0.217	ALB
39	Austria	27.5	14.6	25.5	1.6	107.8	3	0.217	AUT
40	Kyrgyz Rep.	13.8	4.1	11.3	35.0	101.1	1	0.216	KGZ
41	Mozambique	48.6	9.0	8.4	20.2	132.0	2	0.214	MOZ
42	Switzerland	101.8	9.2	33.7	-10.4	120.0	3	0.214	CHE
43	Latvia	-50.0	9.4	23.7	4.9	122.8	2	0.208	LVA
44	Kiribati	88.9	20.9	6.0	10.0	105.2	4	0.207	KIR
45	Malaysia	114.0	13.3	12.5	2.9	130.5	3	0.207	MYS
46	Serbia	-29.3	6.7	17.8	16.8	110.1	2	0.205	SRB
47	Honduras	-1.7	15.1	2.0	25.9	102.6	3	0.204	HND
48	Gambia	114.0	20.2	10.7	14.5	63.4	3	0.203	GMB
49	New Zealand	-23.2	17.9	30.5	1.3	56.4	2	0.203	NZL
50	Haiti	54.7	9.9	4.9	33.6	75.5	2	0.202	HTI
51	Belgium	73.3	5.6	20.3	-7.8	165.3	2	0.202	BEL
52	Ukraine	-56.6	6.0	23.9	13.1	99.0	2	0.202	UKR
53	Azerbaijan	20.3	15.1	18.8	5.6	92.0	1	0.201	AZE
54	Greece	7.5	20.2	21.3	2.1	72.5	2	0.201	GRC
55	Slovak Rep.	-31.0	6.4	5.9	4.4	190.2	1	0.198	SVK
56	Thailand	-36.5	22.1	5.7	4.1	123.3	2	0.198	THA
57	Bulgaria	7.9	11.3	11.2	5.6	131.3	1	0.195	BGR
58	Mongolia	33.7	11.3	1.4	18.3	122.9	2	0.194	MNG
59	Lithuania	-58.5	4.9	16.6	4.2	149.3	1	0.194	LTU
60	Tajikistan	23.8	8.0	8.7	32.0	56.6	1	0.190	TJK
61	Kazakhstan	-25.2	6.0	36.0	0.5	62.8	1	0.189	KAZ
62	Germany	8.9	10.7	19.2	4.7	88.7	0	0.187	DEU
63	Moldova	-31.3	3.3	18.1	18.8	84.3	1	0.187	MDA
64	Nicaragua	15.7	13.0	7.4	14.3	93.6	2	0.187	NIC

Rank	Country	Food <sup>a</sup>	Tourism <sup>b</sup>	People <sup>c</sup>	Capital <sup>d</sup>	Trade <sup>e</sup>	Red	Score	Code
65	Czech Rep.	-20.6	7.6	7.4	5.0	150.4	1	0.185	CZE
66	Israel	90.3	6.0	26.3	5.9	58.5	2	0.184	ISR
67	Australia	-55.9	11.1	31.2	4.4	43.2	1	0.184	AUS
68	Tunisia	47.0	14.4	4.5	7.3	111.0	2	0.183	TUN
69	Sweden	8.5	9.5	22.0	0.2	89.1	1	0.182	SWE
70	Morocco	22.9	18.6	5.1	8.9	88.0	2	0.182	MAR
71	Panama	47.3	14.6	7.5	10.0	87.6	2	0.182	PAN
72	Philippines	6.3	21.1	2.1	13.2	76.1	2	0.182	PHL
73	Spain	-1.7	14.9	16.1	3.7	67.5	1	0.176	ESP
74	Dominican Rep.	26.9	17.2	9.6	11.2	52.1	2	0.174	DOM
75	United Kingdom	43.8	10.6	19.8	3.0	61.8	0	0.173	GBR
76	Nepal	12.4	7.9	4.3	28.8	55.2	1	0.173	NPL
77	Denmark	-15.7	7.7	16.0	0.7	105.2	1	0.172	DNK
78	Canada	-37.4	6.5	23.9	2.8	66.2	1	0.168	CAN
79	Botswana	246.2	11.6	5.9	1.4	77.1	1	0.167	BWA
80	Norway	70.8	9.1	18.7	-1.4	71.1	1	0.167	NOR
81	Gabon	70.1	3.0	19.6	5.1	72.0	1	0.166	GAB
82	Lao PDR	-0.8	13.4	7.4	8.7	75.1	1	0.166	LAO
83	Italy	8.8	13.1	15.9	2.4	60.4	1	0.165	ITA
84	Mexico	12.7	16.1	4.3	6.1	80.4	1	0.165	MEX
85	N. Macedonia	8.1	6.8	27.0	7.8	133.2	2	0.162	NAM
86	Netherlands	82.3	5.2	17.6	-25.9	157.7	2	0.158	NLD
87	Senegal	93.7	10.1	4.0	13.6	57.9	2	0.158	SEN
88	Costa Rica	-60.8	13.1	9.7	5.5	67.0	1	0.155	CRI
89	France	-19.4	9.0	14.7	3.1	63.4	0	0.153	FRA
90	Uzbekistan	6.6	2.7	7.9	16.3	67.8	1	0.152	UZB
91	Sri Lanka	70.4	11.7	4.3	9.7	52.9	2	0.151	LKA
92	Rwanda	8.8	12.8	8.6	5.9	51.5	0	0.150	RWA
93	Madagascar	20.2	16.2	0.3	7.5	62.5	1	0.149	MDG
94	Poland	-13.1	4.5	5.7	4.1	107.7	1	0.149	POL
95	Turkey	-6.2	11.7	10.2	1.8	60.2	0	0.147	TUR
96	Eswatini	39.1	7.1	5.9	3.3	84.4	0	0.146	SWZ
97	Côte d'Ivoire	40.6	8.3	11.3	2.2	59.0	0	0.145	CIV
98	Togo	21.9	8.4	5.9	5.0	73.6	0	0.145	TGO
99	Romania	-19.2	5.4	6.6	6.0	86.5	0	0.145	ROU
100	Egypt	30.0	10.9	1.8	13.4	48.3	1	0.144	EGY
101	Finland	5.6	8.4	11.5	-3.5	77.9	0	0.143	FIN
102	Iraq	123.6	8.4	4.8	-1.8	79.9	1	0.142	IRQ
103	Mali	6.6	8.7	5.7	8.7	57.7	0	0.142	MLI
104	Ghana	24.9	6.2	2.8	9.9	71.7	1	0.141	GHA
105	Korea, Rep.	89.9	4.7	5.4	1.2	83.0	1	0.139	KOR
106	Guinea	20.4	5.3	3.7	3.5	90.6	0	0.139	GIN
107	Russia	-20.6	4.9	16.7	1.1	51.5	0	0.138	RUS
108	Chile	-1.4	10.5	7.6	2.1	57.5	0	0.137	CHL
109	South Africa	-6.4	9.0	7.7	1.8	59.5	0	0.134	ZAF
110	Guatemala	-15.0	8.1	2.4	13.2	45.8	1	0.133	GTM
111	Benin	94.9	5.5	5.3	2.4	61.8	1	0.132	BEN
112	United States	-11.5	7.8	15.9	1.3	27.5	0	0.131	USA
113	Zimbabwe	32.4	7.2	4.2	8.0	48.4	0	0.131	ZWE
114	Uganda	2.0	7.3	4.6	8.7	48.2	0	0.130	UGA
115	Peru	28.0	9.9	3.4	4.4	48.9	0	0.128	PER
116	Uruguay	-54.3	10.6	9.2	2.1	40.0	0	0.127	URY
117	Paraguay	-37.5	4.9	6.5	2.6	70.4	0	0.127	PRY
118	Malawi	2.2	7.6	2.1	4.0	65.3	0	0.126	MWI
119	Zambia	-5.9	7.3	1.4	1.9	75.7	0	0.125	ZMB
120	Bolivia	14.5	7.0	3.3	4.2	57.1	0	0.125	BOL
121	Algeria	78.2	6.8	2.7	1.9	58.0	1	0.124	DZA
122	Kenya	44.6	9.6	2.5	4.9	36.2	0	0.121	KEN
123	Sierra Leone	33.7	4.1	1.5	6.9	56.7	0	0.120	SLE
124	Niger	7.3	4.9	1.9	8.2	48.8	0	0.119	NER
125	Iran, Islamic Rep.	13.8	7.5	4.0	1.4	48.8	0	0.118	IRN
126	India	-3.3	9.4	0.9	4.4	43.4	0	0.116	IND
127	Colombia	26.4	5.8	4.3	5.4	36.8	0	0.116	COL
128	Hungary	-47.8	8.0	9.3	-38.8	165.5	1	0.116	HUN
129	Bangladesh	15.9	4.3	4.7	6.8	38.2	0	0.116	BGD



Rank	Country	Food <sup>a</sup>	Tourism <sup>b</sup>	People <sup>c</sup>	Capital <sup>d</sup>	Trade <sup>e</sup>	Red	Score	Code
130	Myanmar	-2.2	6.5	1.4	5.8	48.0	0	0.116	MMR
131	Argentina	-47.1	10.3	5.9	2.4	30.7	0	0.115	ARG
132	Pakistan	-9.3	7.4	3.0	7.5	28.5	0	0.113	PAK
133	Japan	114.7	6.8	2.4	0.6	36.6	1	0.113	JPN
134	Cameroon	11.2	7.2	2.4	2.8	43.0	0	0.112	CMR
135	China	1.6	11.1	0.4	1.9	38.2	0	0.112	CHN
136	Ecuador	-43.2	5.5	3.4	4.1	45.9	0	0.110	ECU
137	Ethiopia	6.1	6.7	2.6	4.5	31.2	0	0.108	ETH
138	Tanzania	3.7	9.2	1.2	2.5	32.2	0	0.108	TZA
139	Indonesia	8.7	5.8	0.7	2.9	43.0	0	0.105	IDN
140	Nigeria	10.0	5.0	0.8	6.6	33.0	0	0.105	NGA
141	Sudan	19.9	5.3	4.2	3.8	22.6	0	0.103	SDN
142	Brazil	-19.7	7.9	0.6	4.3	29.4	0	0.103	BRA
143	Angola	30.0	3.8	4.7	-6.1	52.3	0	0.100	AGO

Source: FAO 2020b; World Bank 2020a; UN 2020a.

Note: Developing (low- and middle-income) economies are in bold and blue; developed (high-income) economies are in purple. Migration data are as of June 30, 2019. The food import data are for 2017. All remaining data are for 2018 or the latest available year (2016 at the earliest). The table uses ISO (International Organization of Standardization) country codes.

Traffic light system by category:

Green represents countries with values in the bottom tercile for that category, determined using a broader global sample that includes countries for which not all indicators are available. Yellow represents the middle tercile, and red the top tercile (highest scores) for each category. Red therefore represents a higher level of external exposure than yellow and green, respectively.

Overall scores:

The overall score takes the simple mean of normalized scores for the five individual categories. That is, the scores for each of food, tourism, people, capital, and trade are converted to a range of 0 to 1 using the formula  $(\text{score} - \text{minimum}) / (\text{maximum} - \text{minimum})$ , and these five scores are averaged. This approach follows the standard mathematical approach when there is no conceptual reason to provide unequal weightings. Liechtenstein, as an extreme out-of-sample outlier, was excluded from the capital normalization for sample countries.

a. Food—The ratio of net imports over domestic production of cereals, meat, fruit, and vegetables (in volume, not value terms), expressed as a percentage. For example, Nigeria's net imports of food equate to 10 percent of its domestic production (FAO 2020b). This indicates a country's dependence on international supply chains for food.

b. Tourism—Tourism and travel total contribution to GDP as a percentage (World Bank 2020a). Tourism is among the sectors most affected by COVID-19 with internal and international travel restrictions in place and likely to persist.

c. People—Immigration and emigration stock as a percentage of population (UN 2020a). This aggregates the dependence of the domestic economy on migrants and the number of overseas citizens potentially vulnerable to hardship overseas.

d. Capital—Net foreign direct investment flows as a percentage of GDP plus remittances as a percentage of GDP (World Bank 2020a). This highlights capital inflow vulnerabilities from short-term flow disruptions.

e. Trade—Overall trade (exports and imports) as a percentage of GDP (World Bank 2020a). A common proxy for trade exposure.

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