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The Torrents of Spring The Role of Governance Capacity in the Developing World during the COVID-19 Pandemic

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This study offers a comprehensive analysis of how governance capacities in developing countries respond to the challenges that COVID-19 posed. We established a theoretical framework to delve into the multifaceted nature of governance capacities, exploring two distinct aspects of governance: the Weberian one, which focuses on material and organizational capacities, and the Tocquevillian one, which focuses on coordination and associational capacities. We examined these four governance dimensions to illustrate how these distinct skills influence the effectiveness of governance. Our analysis quantifies the impact of the COVID-19 pandemic using such metrics as confirmed cases and deaths. We employ standard and dynamic panel data methodologies to mitigate potential omitted variable bias. Our research findings indicate that countries with robust governance capacities, as assessed by the Bertelsmann Stiftung's Transformation Governance Index, are better equipped to respond effectively to pandemic crises. By applying several models and rigorous robustness tests, we demonstrate efficient resource utilization, the ability to guide and prioritize decision-making within the government, and commitment to cooperation and coordination with other nations and international organizations are the primary drivers of improved outcomes. Our findings remain robust even when controlling for relevant variables and employing estimation techniques that account for potential biases arising from unobservable confounding factors.

Keywords: State capacity; Covid-19; Global South; coordination; organizations.

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In the first pandemic year of COVID-19, what were the essential tools to deal with the highly infectious disease? A high per capita income? A well-established public health system? Less income inequality? Here we analyze the effects of governance capacities as determinants of responses to COVID-19 pandemics in the Global South.

On the last day of 2019, China warned the World Health Organization (WHO) about an outbreak of a virus disease of unknown cause and treatment. In the early months of 2020, the epidemic spread to the world. Chinese authorities' vigorous response drew initial praise (KAVANAGH, 2020). Pueyo (2020) points out that previous experience fighting the MERS-SARS epidemic in 2003 was associated with a better quality of response in Asian countries. Reaction from developed countries in the North Atlantic did not receive the same praise. Italy, France, Spain, and the USA have suffered more from the virus's spread, as deaths quickly exceeded China's numbers in the first months of the pandemic. In Latin America, responses in Brazil and Mexico have also been less effective than the average response of other Latin American countries.

Some studies analyzed the effects of politics in explaining government responses (CEPALUNI et al., 2022; CHEN et al., 2023; FERNANDES and FERNANDES, 2022; KAVANAGH and SINGH, 2020). However, much of the information about COVID-19 regards developed countries. Less is known about the responses by the health authorities outside Europe and North America. There is also less literature using a comprehensive comparative framework. Most of the work on the Global South responses to COVID-19 relies on small-N analysis (FONSECA et al., 2021; ZHOU, 2021). As far as we know, ours is one of the few studies trying to systematically understand the patterns of responses to COVID-19 from the underdeveloped and developing world.

In this paper, we uncover critical drivers for combating the disease in the Global South. In a newspaper article published in the first days of the pandemic, Fukuyama (2020) suggested that institutional capacity could be the most critical issue in combating the disease. We built on his insight and propose, that beyond institutional capabilities, governance has to do both with material and coordination capacities.

Our results show that the capacity to use resources efficiently and cooperation has to do with greater effectiveness in combating the pandemic and mitigating the spread of the new coronavirus. We highlight that the ability of the government to

increase trust within society relates to how the State is capable of coordinating behavior. In addition, we explore how international cooperation capabilities are also important. For example, the WHO and other international institutions have worked as a hub to help disseminate knowledge and best practice to the Global South (EKPENYONG and PACHECO, 2020), mostly by its regional health organizational partners (AMAYA and LOMBAERDE, 2021).

The paper is structured as follows. Section 02 overviews the literature and our multidimensional approach to governance capacities. Section 03 describes data and methods. Section 04 provides the results. Finally, the paper concludes with a discussion of our findings.

A multidimensional approach to governance capacities

Governance and State Capacity have been defined and classified in several ways and used interchangeably (AHMED, 2020). The concept has an inaccurate and ambiguous meaning (HENDRIX, 2010) and has been constantly debated (NASEEMULLAH, 2016). It involves a wide variety of activities (CINGOLANI, 2013) and has been incorporated into analyses in several research areas, such as administration (GUILLÉN and CAPRON, 2016), economics (DINCECCO and KATZ, 2016), sociology, political science/public policy (ROGERS and WELLER, 2014), comparative politics (FORTIN, 2012), and development studies (CINGOLANI, 2019).

Classical definitions of the concept see it as the State's ability to implement official goals, especially in the face of actual or potential opposition from social groups or recalcitrant socioeconomic circumstances (SKOCPOL, 1985). It can also be seen as the availability of administrative and financial resources to shape political interventions (BESLEY and PERSSON, 2014; PIERSON, 1995) or the institutions necessary to set goals, transform into policies and implement them (EVANS, 1992).

Fukuyama (2004) defined it as the State's ability to plan and execute policies and enforce laws cleanly and transparently. Political power enables the State to mobilize knowledge, institutions, and organizations that can implement policies (SKOCPOL and FINEGOLD, 1982). Most definitions see capacities as skills or faculties needed to promote policy effectiveness (GUILLÉN and CAPRON, 2016).

A broad perspective on capacity should go beyond the State's organizational features, the traditional and most widely used Weberian model (CINGOLANI et al., 2015). The wide variety of definitions conforms to the general expectations of policy analysts related to the power of policy formulation by State bureaucracies, even when using new categories and analyzing a more comprehensive range of skills. As a result, new definitions of the concept share the same ontology, establishing several categories that serve as a general structure for similar secondary attributes (GOMIDE et al., 2017).

The literature on capacity and governance shares an overlapping conceptual core and a common interest in explaining the State's role in supplying public policies. We propose that governance capacity comprises the skills and conditions the State needs to take action and implement decisions. The cooperation environment for coordinating activities, including organizational and procedural abilities for implementation and compliance, is also important. The collective ability to cooperate and coordinate behavior that promotes internal and international policy effectiveness is an essential dimension of governance that goes beyond the material and organizational elements of mainstream approaches to state capacities.

Besley and Persson (2014) indicate that State capacity has three fundamental dimensions: 01. the fiscal capacity related to the ability of the State to tax and borrow; 02. the legal capacity for regulating markets and coordinating behaviors in society toward compliance with the rule of law; and finally, 03. the collective capacity to coordinate behavior, inside the administration and within civil society to supply public goods and services.

The trichotomy that Besley and Persson (2014) proposed is insufficient for a complete understanding of State capacities because they do not separate the capacity to coordinate behavior without coercion from the material nature of the State. We propose that governance capabilities should be conceptually divided into two dimensions related to the Weberian (1978) and Tocquevillian (2003, 1981) faces of the State, separating its material and relational elements.

The Tocquevillian (2003, 1981) face of the State relates intrinsically to its associational abilities to promote mutual understanding and minimum acceptable objectives both inside and outside the administration. We define it as the collective capacity to coordinate behavior both inside and outside the administration. It is also related to the international sphere in a globalized world, since both the internal and

the international dimensions affect how political and social actors interact with each other.

In Besley and Persson (2014), the legal and collective capacity for coordinated behavior partly relates to a Tocquevillian (2003, 1981) understanding of state capacities. Coordination capacities are related to how different social and State actors interact with each other and to how institutions, politics, and policies facilitate the ability of the administration to deal with the national and international flows of policies and politics. In addition, international collaboration hubs may promote and advance countries' ability to implement policies and shape political interventions to transform society.

We consider the Tocquevillian dimension (2003) of governance capacities as the ability of actors to coordinate. As the French political philosopher proposed in 'Democracy in America' (2003), the capacity for the association - associative - is the main element guaranteeing freedom in the 19th Century USA. According to him in his analysis of the strength of American townships:

Every individual is, therefore, supposed to be as well-informed, as virtuous, and as strong as any of his fellow citizens. He obeys the government, not because he is inferior to the authorities which conduct it or that he is less capable than his neighbor of governing himself, but because he acknowledges the utility of an association with his fellow men and because he knows that no such association can exist without a regulating force. If he be a subject in all that concerns the mutual relations of citizens, he is free and responsible to God alone for all that concerns himself. Hence arises the maxim that everyone is the best and the sole judge of his own private interest and that society has no right to control a man's actions unless they are prejudicial to the common weal or unless the common weal demands his cooperation. This doctrine is universally admitted in the United States (TOCQUEVILLE, 2003, p. 61).

Furthermore, in his report on the American prison system, written in partnership with Gustav Beaumont, Tocqueville (1833) analyzes how a small group of correctional officers keep, approximately nine hundred prisoners, under control without instruments of coercion: "Because the keepers communicate freely with each other, act in concert, and have all the power of association; while the convicts separated from each other, by silence, have, in spite of their numerical force, all the weakness of isolation" (BEAUMONT and TOCQUEVILLE, 1833, p. 74).

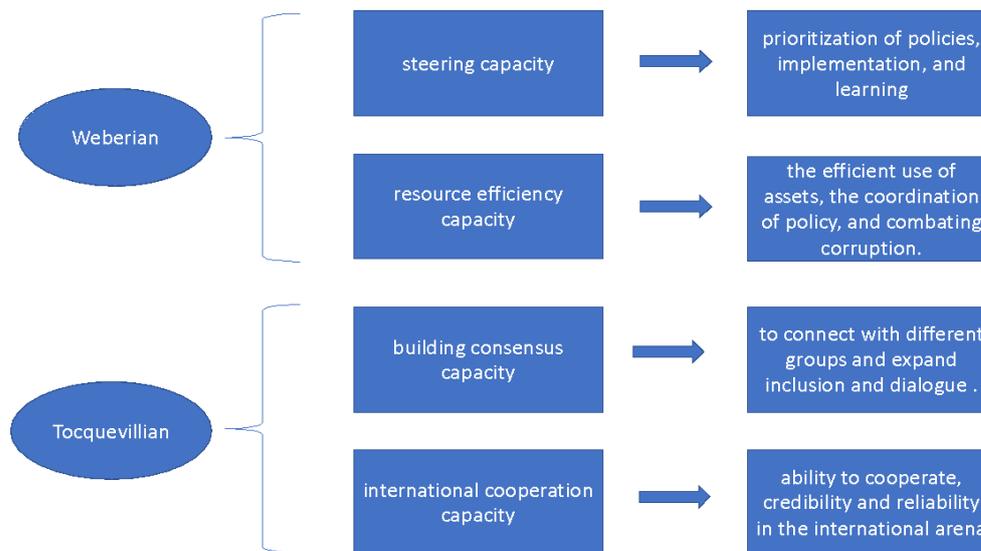
Jiborn (2006) proposes an analysis of the coordination in Tocqueville (2003, 1981), which indicates that one of the key elements in creating mechanisms of oppression is the strategy of preventing the dominated, or society, from coordinating, as proposed by Hardin (1995) and later developed in Olsson-Yaouzis (2010). Coordination would therefore be a fundamental mechanism for mobilization.

We also highlight the importance of more traditional Weberian (1978) governance capacities related to material resources such as budget and organizational abilities and specific skills developed by the bureaucracy to formulate and implement policies and other State tasks, traditionally more explored in the classical literature on State Capacities. The Weberian concept of state capacity is intrinsically linked to the quality of bureaucracies and procedural and organizational aspects of the State (CINGOLANI et al., 2015).

The material face of state capacity correlates more closely with the fiscal capacity that Besley and Persson (2011) proposed, as well as the formal elements of legal capacity. Conversely, those elements loosely correlate with the coordination framework proposed in a Tocquevillian conception (2003) of Governance Capacities.

Beyond the conceptual definition, there is also a concern with the validity and reliability of measuring State Capacity, in which governance is equally essential (AHMED, 2020; POVITKINA and BOLKVADZE, 2019). There is no broad consensus about the standards by which capacities can and should be evaluated (SAVOIA and SEN, 2012). One can usefully explore the existing measures of the quality of governance used in comparative research to capture different dimensions of capacity. Besides, it is essential to theoretically and empirically explore how the different dimensions of governance capacities may affect the State's response to the pandemic.

We propose that governance capacity may affect the State's ability to respond effectively to the COVID-19 crisis in four ways. The first two are related to the Weberian (1978) dimensions of governance capacities and the other two to a Tocquevillian (2003) understanding of Coordination Capacities. We show them in Figure 01.

Figure 01. The Weberian and Tocquevillian dimensions of state capacity diagram

Source: Elaborated by the authors.

First, the State's fiscal capacity to raise the necessary revenues without increasing taxation during intense economic turbulence and uncertainty affects emergency actions to deal with the pandemic. The State must be able to use its financial resources to prioritize, implement policies, and learn from mistakes. That can be called 'steering capacity' (SCHWARZ, 2020) or the State's fiscal capacity, according to Besley and Persson (2014). The policy effectiveness of COVID-19 responses is affected by access to national and international capital markets, through which states rapidly improve their capacity to finance the adaptation and expansion of their health systems and their virus dissemination tracing policies. Access to more significant revenues is critical for income support policies to adopt social isolation measures. That is because there is an urgent need to build income support networks for all citizens affected by the economic downturn during the crisis, mainly for the most vulnerable citizens, to improve compliance with 'stay-at-home' policies.

A second element is the State's Capacity to use scarce resources adequately so that it can respond to increasing demand on the health system to deal with COVID-19 without ignoring other fatal diseases. The ability to use scarce resources efficiently also affect income support policies, which reduces the leakage of resources to higher-status social groups. For improved protection for health professionals and workers, revenues must be collected rapidly and used with as few loopholes as possible. Again,

resources are only sufficient if used efficiently and rapidly. That is the 'resource efficiency' dimension of State Capacity.

A third Tocquevillian (2003) element that helps us understand the effects of governance capacity is its ability to regulate society and the economy more effectively by promoting compliance with lockdown policies. It is necessary to guarantee the compliance of economic and social actors with lockdown requirements that are against their short-term interests, which can only be done well with a solid capacity to regulate the economy and improve social capital. A trustworthy State and leadership must convince people to follow the rules, stay at home, or wear masks. That is the 'building internal consensus dimension'. For instance, Fernandes et al. (2024) have shown that blame avoidance by elected political authorities may jeopardize policy effectiveness, increase virus dissemination and lead to more deaths.

A fourth element is the capacity of states to obtain policy and technical support from the international community to formulate and carry out ready-made strategies. Given the complexity of the crisis, the COVID-19 pandemic requires states to learn quickly and exchange experiences with other nations. The ability to exchange experiences within the geographical region - which tends to be reached by the coronavirus at the same time - or to obtain financial and technical support from wealthier countries and international organizations may affect the State's ability to respond effectively to the disease. That is the 'international cooperation dimension', which our empirical analysis suggests is the primary driver of a better policy response in the Global South, at least for the first year of the pandemic. The role of civil society and its interaction with the State directly affect the State's ability to deal with the crisis since citizens' compliance with recommendations on social distancing and isolation is fundamental to the effectiveness of the policy response.

Brown and Susskind (2020) propose that controlling infectious diseases such as the COVID-19 pandemic requires international coordination in many ways and for many purposes - creating a vaccine, producing personal protective equipment, and finding new therapies and treatments. It helps with the supply of testing kits and ventilators. It is also vital to compile data on the behavior of the disease within the human body and in society, sharing expertise and strengthening links between countries and the World Health Organization (WHO), and even sharing the effect of policies to prevent the spread of the virus. According to the WHO, 30% of countries had

no COVID-19 national response plans in the initial phase of the pandemic, and only half had national infection prevention and control programs and water, sanitation, and hygiene standards in all healthcare facilities (USHER, 2020).

Uncertainty throughout the crisis demands from the State the ability to learn and coordinate behavior among many political and social stakeholders when implementing policies, correct direction, and adjusting actions. In order to do so, the State must collect and process information in real time, evaluate both successes and failures, and tailor policy responses to specific local conditions, which minimize both health and economic losses.

Kalinowski (2020) points out that State Capacity was the main driver of the successful initial responses in South Korea. Kandel et al. (2020) argue that health capacities are important to prevent, detect, and respond to outbreaks. It is necessary to build State Capacity and collaboration between countries to strengthen global readiness. González-Bustamante (2020), studying Argentina, Bolivia, Brazil, Chile, Colombia, Paraguay, Peru, and Uruguay, pointed out the capacity of the State for adequate assessment of pressures on the health system as a factor relevant to the rapid implementation of strategies to significantly reduce the growth of the disease. Gilbert et al. (2020) also pointed out that the management and control of COVID-19 from abroad rely heavily on the capacity of a country's health system.

In addition, coordinated responses from the State and civil society - as measured by governance indicators - are an essential tool to combat the pandemic because the collaboration between local citizens, community groups, and local and regional governments (MIAO et al., 2020) affects the delivery of community services.

Based on these points, we state our main hypothesis:

H: Greater Governance Capacity is positively related to better responses to COVID-19.

In addition to estimating the general effects of governance capacities on COVID-19 outcomes, we also explored which mechanisms proposed in the theoretical framework presented above are most relevant. We tested the four components of State Capacity that the BTI measured and verified which are most relevant to COVID-19 outcomes.

We deeply explored the multidimensional nature of the State Capacity framework. First, we tested whether the Tocquevillian (2003) and Weberian (1978)

dimensions affected the outcomes of COVID-19 or not. We tested each of the dimensions that BTI proposed that might be relevant to fight the disease: steering capacity, resource efficiency, internal consensus, and international cooperation.

Our results indicated that resource efficiency, steering capacity, and international cooperation are the main drivers of the effects of governance capacity on COVID-19. In addition, the results generally indicate that all governance dimensions affect COVID-19 results, with less consistent estimations for the internal consensus-building dimension, which points to situations in which division/consensus on the best State action against the spread of the virus does not have a consistent result on COVID-19. In the discussion section, we explore the theoretical significance of this result.

Data and methods

Dependent variables

In order to analyze country responses to the COVID-19 crisis, we used two variables: the number of deaths and confirmed cases after the first ten months of the crisis (January – November 2020). The primary data source for COVID-19 responses is the Oxford COVID-19 Government Response Tracker (OxCGRT) as of December 04, 2020 (HALE et al., 2020). We used the OxCGRT longitudinal database that covered daily updates of policy responses, confirmed cases, and deaths. Our main models are estimated using monthly and two-week aggregated data, since our main independent variable and other controls are constant over time.

We opted for this specific timeframe because, by December 2020, the COVID-19 pandemic had transitioned into a distinct phase, significantly influenced by nations' vaccination capabilities and the public policies enacted to ensure widespread immunization. At that moment, the circumstances in Global South countries had changed. Initially, implementing Non-Pharmaceutical Interventions (NPIs) demanded governance competencies related to coordination and organization. However, with the introduction of vaccines to the market, outcomes started to be shaped by a country's capacity to access them within the global market, which Global North countries predominantly control.

Independent variable

In order to analyze the relationship between capacities and the responses to the COVID-19 crisis, we used the capacities index that Donner et al. (2020) developed through the Bertelsmann Stiftung's Transformation Index (BTI) that evaluates the quality of governance, market economy, and political management for 129 developing and transitioning countries. The BTI is the first cross-national comparative index using self-collected data to measure governance quality comprehensively. Moreover, they offer a complex measurement framework that considers Weberian (1978) and Tocquevillian (2003) dimensions of governance capacities (TEORELL et al., 2020).

BTI defines governance as the performance, capacity, and accountability of political leadership, that is, political actors. They have the power and the responsibility to define or shape public policy in society. These actors include governments, political elites, and non-governmental organizations that are essential to social and political transformation.

Political leadership demonstrates good governance in BTI terms when it manages development and transformation effectively, uses resources efficiently, builds a broad consensus for reform, and cooperates with international partners (HARTMANN et al., 2020). The State's Governance Capacity consists of the four components highlighted in the previous section: 01. steering capacity; 02. resource efficiency; 03. building consensus, and 04. engagement in international cooperation (SCHWARZ, 2020).

In the steering capacity component, BTI considers the capacity for prioritization of policies, implementation, and learning. Resource efficiency considers the efficient use of assets, the coordination of policy, and combating corruption. These dimensions align with the indicators of administrative-technical capacity, intrinsically linked to the quality of public bureaucracies, a Weberian (1978) understanding of capacities. Such attributes play a central role in surveys that see capacities as the use of bureaucratic, organizational, and professional resources and the ability of governments to enforce their priorities.

Consensus-building and international cooperation are other components of BTI that assess both the willingness and the capacity of governments to connect with different groups of society, which expand inclusion and dialogue (HARTMANN et al.,

2018). These two dimensions align with the relational view of governance, based on inclusive and interactive negotiation between different parties within the national community and the international system through international cooperation to promote coherent policies. Both are strongly related to the Tocquevillian (2003) understanding of governance capacities.

In the international cooperation component, BTI highlights the ability of countries to cooperate with external organizations and neighboring states, as well as their credibility and reliability in the opinion of multilateral and international organizations, foreign governments and investors, bilateral and multilateral donors, and internationally active non-governmental organizations. As our results will highlight, these are significant factors in responding more effectively to the COVID-19 pandemic.

Overall, the Governance Index (GI) measures successes and setbacks on the road to better governance based on the rule of law and a socially responsible market economy. We use it as a proxy for governance capacities and a multidimensional approach that allows us to understand how each of its components can affect COVID-19 responses.

The GI ranks steering capacity, resource efficiency, consensus building, and international cooperation on a scale of 01 to 10 with data from 129 developing countries - 67 dictatorships and 62 democracies. In addition, the BTI project has data on Latin America and the Caribbean, Africa, Asia, and the Pacific, excluding Australia and New Zealand. We include a complete list of country names in an annex below.

As control variables, we use the Social Safety Net (SSN) from the same BTI project to handle the effects of network density for protection against social risks and poverty, as it represents a specific State's Capacity to deal directly with poverty. We also use a measure of GINI inequality in disposable income from Solt (2019) and a political regime dummy from Boix et al. (2018) to identify the effects of more challenging economic and political contexts when dealing with a crisis like the COVID-19 pandemic quickly and effectively. Finally, we also test if those variables interact with governance capacities on pandemic responses, but both interactions present null results.

As well as the Oxford COVID-19 Government Response Tracker (OxCGRT), we use the Policy Stringency Index (PS) measure for social distance as a critical control

variable. We also look for widely used control variables from World Bank Indicators, such as GDP per capita and GDP level (both at constant PPP values), population and the proportion of the elderly population (over 65), and the proportion of the urban population.

An important confounding variable to use in our study is an overall measure of the transparency level of governments in the Global South. The lower incidence of reported cases and deaths may result from under-reporting in non-transparent governments, the former being particularly problematic (LAU et al., 2021). Therefore, a measure of the overall level of transparency of governments helps to reduce the effects of under-reporting. That said, for a measure of country transparency, we use Williams's (2015) transparency index, which combines the transparency of information and accountability on a scale from 0 to 100. Finally, we use time-fixed effects for all panel specifications. Table 01 presents the complete descriptive data on dependent and independent variables.

Table 01. Descriptive data - Dependent and independent variables (monthly data)

	N	Mean	SD	Min	Max
Number of Deaths	1512	2,840.1	13,466.3	0.00	175,270
Log of Deaths	1512	4.00	3.16	0.00	12.07
Number of Cases	1512	109,940.3	578,737.5	0.00	9,571,559
Log of Confirmed	1512	7.31	4.14	0.00	16.07
Stringency Index	1411	50.07	29.10	0.00	100.00
Governance Index (BTI)	1533	5.42	1.78	1.25	9.15
Social Safety Net (BTI)	1533	5.00	2.04	1.00	10.00
Political Regime (Democracy)	1496	0.50	0.50	0.00	1.00
Gini Disposable Income	1508	40.25	7.58	23.2	65.00
GDP per Capita (Constant U\$ 2011 PPP)	1375	14,543.8	17118.0	660.3	112,531
GDP (Constant U\$ 2011 Billion PPP)	1528	603	2,270	2.99	22,500
Transparency	1496	51.6	12.3	11	78
Population (Millions)	1509	50.3	0,174	0.001	1,390
Urban Population (Share)	1509	56.13	21.58	13.03	100
Proportion of Elderly (Over 65)	1509	7.13	5.30	1.09	21.02

Source: Prepared by the authors' dataset.

Note: Descriptive statistics for cases with no missing values in the BTI Index.

Estimations techniques

We present a cross-section linear analysis as our COVID-19 response variables vary across time while the main independent ones do not. We consider total deaths and confirmed cases at the end date of our data collection and the mean measure of

stringency for the last six months (June, July, August, September, October, and November 2020). We use the natural logarithm of deaths and confirmed cases and a standard OLS regression.

In addition, we analyze our results with a monthly linear panel dataset, taking as additional control variables the lagged COVID-19 responses. For the death equations, we estimated models with and without lagged confirmed cases and Stringency Index (SI). We did it to reduce omitted-variable bias, but those variables can be conceptually considered bad control covariates since the effects of State Capacities can be channeled by the level of policy stringency and the number of cases. For the confirmed case equations, we do the same regarding the SI. The Stringency Index is a composite measure, a simple additive score of eight measures to promote social distance and another related to public information campaigns. The index aims to have a general cross-national measure of policy stringency that allows systematic comparisons across countries and varies between 0 and 100 (HALE et al., 2020).

Since omitted variable bias is still an ever-present problem in comparative studies (PRZEWORSKI, 2009), we re-estimated our model using two-weekly dynamic random-effects panel data, taking the lagged dependent variable as another control both for the death and for the confirmed case equations. We remove much of the variation from the model, including the lagged dependent variable and the year-fixed effects. This way, we have a very difficult scenario to find consistent and significant effects, being a tough test for the research hypothesis.

Finally, we test the effects of the four dimensions of governance capacities that the BTI Index proposed. To do that, we estimated the relations using each component as the unique measure of capacities. Next, we estimated all dimensions together to identify whether each one partially affected the results of COVID-19 independent of the effects of the other dimensions. Thus, we can explore the effective mechanisms that channel the effects of State Capacities since each dimension highlights different aspects of governance capacity and causal theories on COVID-19 results.

Results

Deaths and cases

Table 02 presents the effects of State Capacity on the overall deaths from and confirmed cases of COVID-19 in June, July, August, September, October, and November

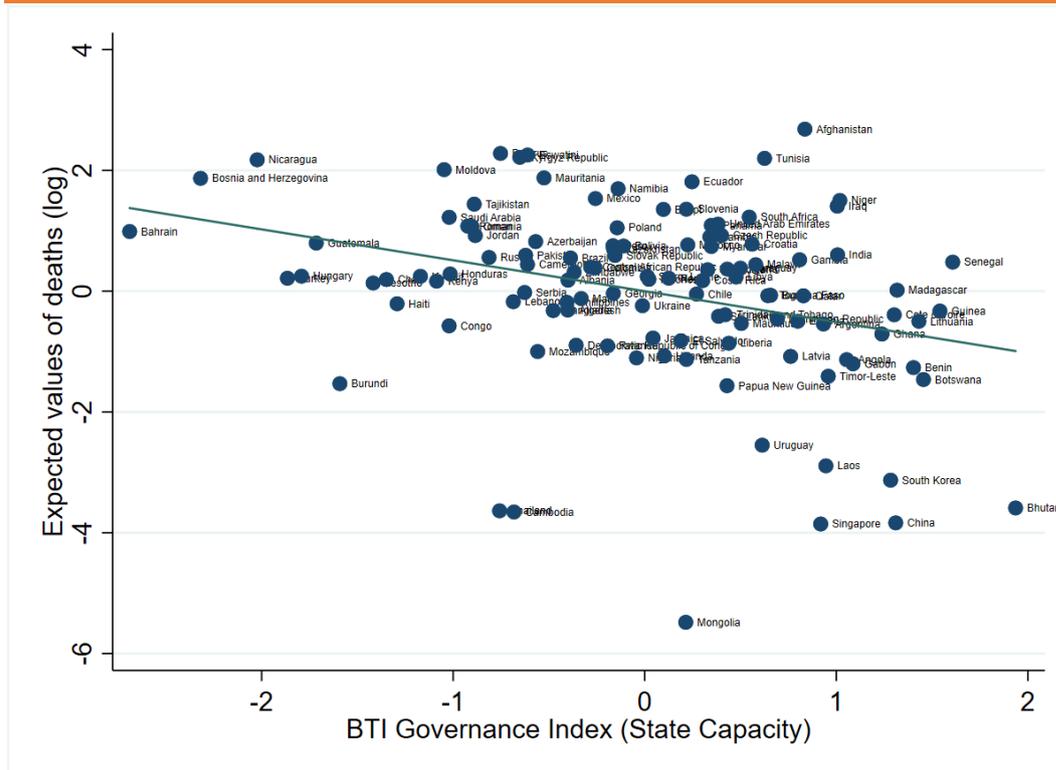
2020, in a cross-section analysis of the accumulated results for each month. All columns indicate that State Capacity negatively affects the number of deaths, resulting in an approximately 50% reduction in deaths and confirmed cases for a one-point increase in the BTI scale. It means that despite the effects of the overall level of stringency policies – measured as the mean stringency policy for the respective month – State Capacities still affect the COVID-19 results.

The policy stringency level also operates as an indicator of political will to combat COVID-19 since data takes as a measure decrees and policies proposed without measuring the effectiveness of enforcing policy and societal compliance. Figure 02 presents the partial-regression leverage, highlighting the countries above and below the expected deaths due to the actual State Capacity. It indicates a clear negative relation between GI and the log of deaths; however, there is much variation across the line, indicating that governance is one of the many factors that had impacted the outcome of the COVID-19 pandemic. We tried to reduce the possible effect of non-observable confounding factors by exploring the dataset's temporal dynamics.

In addition, Table 02 also presents an interesting finding related to the effects of stringency policies that correlate positively with COVID-19 results. Again, it is a classic example of self-selection bias, since in countries with worse COVID-19 results, the level of policy stringency can be higher.

Another striking result, confirming Cepaluni et al. (2022), is that democracy has a positive effect on death. Population size and the proportion of the urban population are also related to more deaths and confirmed cases. The level of transparency is positively related to the estimated number of cases, which indicates that low notification is an issue in the pandemic since it is difficult to know whether less transparent countries have fewer cases or under-report the information. Interestingly, transparency has no related effect on the reported number of deaths.

Figure 02. Expected values of deaths and state capacity



Source: Elaborated by the authors' dataset.

Note: Partial-regression leverage plot from the cross sectional OLS regression for November 2020 (Table 02, Column 06).

The panel analysis in Table 03 shows the statistical significance of the hypothesis that governance capacities relate negatively to COVID-19 results. We used the accumulated variable of COVID-19 deaths and cases again in the first three columns. Finally, in columns 04 to 06, we used the monthly number of deaths and cases. All six models showed a significant negative effect of State Capacity on COVID-19 responses.

We tested the effects of governance capacities on measures of deaths, controlling for the one-month-lagged number of cases (Columns 02 and 05) and without it (Columns 01 and 04). The covariate number of cases may be a bad control since the effects of governance capacities could be channeled by the reduction of dissemination of the virus as measured by the number of reported cases. The mediation effects could be confirmed because the average estimated effects of governance capacity were smaller when we control the lagged number of cases. However, our findings indicated that even when we controlled the past dissemination of the virus, State Capacities still substantially reduced deaths. As we proposed, governance capacities also affected deaths related to the strength of the health system and its fiscal capacities, besides compliance with measures promoting social isolation.

Table 02. Cross-sectional models for deaths and cases

	Log Deaths						Log Confirmed Cases					
	June	July	Aug.	Sept.	Oct.	Nov.	June	July	Aug.	Sept.	Oct.	Nov.
Stringency Index	0.03	0.05	0.07	0.07	0.08	0.08	0.04	0.06	0.07	0.07	0.07	0.07
	0.02*	0.02***	0.01****	0.01****	0.01****	0.01****	0.02***	0.01****	0.01****	0.01****	0.01****	0.01****
Governance Index	-0.52	-0.54	-0.51	-0.49	-0.50	-0.51	-0.46	-0.49	-0.43	-0.43	-0.42	-0.42
	0.16***	0.16****	0.15***	0.14****	0.14****	0.15****	0.15***	0.14***	0.13***	0.13****	0.13***	0.13***
Social Safety Net	0.15	0.21	0.22	0.17	0.22	0.27	0.30	0.32	0.26	0.24	0.27	0.28
	0.19	0.19	0.19	0.17	0.17	0.18	0.18*	0.17*	0.16	0.15	0.15*	0.16*
Gini Disp. Income	-0.02	-0.00	0.02	0.02	0.01	0.00	-0.02	0.00	0.01	0.01	-0.00	-0.00
	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Democracy	0.88	1.01	0.94	0.91	0.79	0.62	0.16	0.38	0.43	0.33	0.22	0.16
	0.41**	0.42**	0.41**	0.38**	0.37**	0.39	0.39	0.38	0.35	0.33	0.34	0.34
Log GDP	-0.11	-0.27	-0.36	-0.31	-0.41	-0.45	-0.05	-0.12	-0.07	-0.07	-0.10	-0.13
	0.29	0.29	0.28	0.26	0.26	0.27	0.27	0.26	0.24	0.23	0.23	0.23
Log Population	1.17	1.23	1.29	1.24	1.32	1.34	1.00	0.99	0.88	0.87	0.88	0.88
	0.29****	0.29****	0.28****	0.26****	0.26****	0.27****	0.27****	0.26****	0.25****	0.23****	0.24****	0.24****
Transparency	0.05	0.04	0.04	0.04	0.04	0.04	0.06	0.05	0.05	0.05	0.05	0.05
	0.03*	0.03	0.03	0.02	0.02	0.02*	0.02**	0.02**	0.02**	0.02**	0.02**	0.02**
Share Urban Pop.	0.03	0.03	0.05	0.07	0.09	0.13	-0.06	-0.05	-0.03	-0.00	0.04	0.07
	0.05	0.05	0.05	0.04	0.04**	0.04***	0.04	0.04	0.04	0.04	0.04	0.04*
Share Elderly Pop.	0.05	0.05	0.05	0.04	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	0.01****	0.01****	0.01****	0.01****	0.01****	0.01****	0.01****	0.01****	0.01****	0.01****	0.01****	0.01****
Constant	-16.23	-14.71	-14.20	-14.20	-13.24	-12.59	-11.90	-10.64	-10.51	-9.96	-9.02	-8.14
	2.96****	3.05****	2.94****	2.73****	2.71****	2.80****	2.81****	2.72****	2.55****	2.39****	2.45****	2.47***
R ²	0.68	0.67	0.68	0.72	0.74	0.73	0.68	0.68	0.71	0.74	0.74	0.74
N	115	115	115	115	115	115	115	115	115	115	115	115

Source: Elaborated by the authors' dataset.

Note 01: * p<0.1; ** p<0.05; *** p<0.01; **** p<0.001.

Note 02: Standard cross-sectional linear models with the cumulative logarithm of total cases and deaths from June to November as the dependent variable.

As seen in Table 03, an increase of 01 point on the BTI scale would reduce the accumulated number of deaths by 30% and the monthly deaths by 36%. When we took out the effects of governance capacity on promoting social isolation (the number of confirmed cases serving as a proxy), there was still a substantive death reduction of 16% on the accumulated number of deaths and 22% on the monthly measure. The effects on the accumulated cases were about 23% and 29% in the monthly cases count.

Table 03. Panel random effects models for deaths and cases

	Log Deaths		Log Cases	Log of Monthly Deaths		Log of Monthly Cases
Lagged Stringency Index	0.04 (0.00)****	0.00 (0.00)*	0.03 (0.00)****	0.04 (0.00)****	0.00 0.00	0.03 (0.00)****
Lagged log cases		0.71 (0.02)****				
Lagged Log Monthly Cases					0.63 (0.02)****	
Governance Index	-0.36 (0.11)****	-0.16 (0.07)**	-0.29 (0.10)***	-0.45 (0.11)****	-0.24 (0.09)***	-0.37 (0.12)***
Social Safety Net	0.15 0.13	-0.03 0.08	0.22 (0.11)**	0.17 0.13	-0.02 0.10	0.22 (0.14)*
Gini Disp. Income	-0.00 0.02	0.01 0.01	-0.01 0.01	-0.01 0.02	-0.00 0.01	-0.01 0.02
Democracy	0.69 (0.28)**	0.78 (0.18)****	0.00 0.26	1.05 (0.30)****	1.06 (0.23)****	0.33 0.31
Log GDP	-0.11 0.18	-0.14 0.12	0.16 0.17	-0.06 0.20	0.03 0.15	0.10 0.20
Log Population	0.98 (0.19)****	0.48 (0.13)****	0.68 (0.18)****	0.78 (0.21)****	0.30 (0.16)*	0.68 (0.21)***
Transparency	0.03 0.02	0.00 0.01	0.04 (0.02)**	0.03 (0.02)*	0.01 0.01	0.05 (0.02)**
Share Urban Pop.	0.03 (0.01)****	0.02 (0.00)****	0.03 (0.01)****	0.03 (0.01)****	0.01 (0.01)**	0.04 (0.01)****
Share Elderly Pop.	0.07 (0.03)**	0.06 (0.02)****	0.00 (0.03)	0.03 (0.03)	0.03 (0.03)	0.00 (0.04)
Constant	-16.22 (2.03)****	-5.31 (1.35)****	-17.91 (1.86)****	-13.52 (2.18)****	-4.84 (1.69)***	-16.76 (2.26)****
N	1150	1150	1150	1147	1032	1150

Source: Elaborated by the authors' dataset.

Note 01: * p<0.1; ** p<0.05; *** p<0.01; **** p<0.001.

Note 02: Standard panel linear random effects models with the cumulative logarithm of total cases and deaths at December 04, 2020, and the monthly count of cases and deaths.

Once again, we find a positive association between the level of policy stringency and COVID-19 results and a positive effect of democracy on deaths, population size, and the share of the urban population in both measures. The transparency is related only to more cases and not deaths, which indicates that non-

reporting bias is worse in tracking the number of cases but less relevant to the actual number of deaths.

For a robustness check, we re-estimated the models of Table 03 using a dynamic random effect panel analysis with one and two-lagged dependent variables as a proxy for omitted variables using a two-weekly dataset. The empirical scenario is against our hypothesis, as we capture most of the effects with the lagged dependent variables. However, our findings corroborated the main argument in Table 04. Even when we reduce the possible variation with a twice-lagged dependent variable as a proxy for omitted variables (Columns 03 and 04), State Capacities still have a significant effect. We estimated it close to 06% in the accumulated deaths and about 03% in cases. However, we find more uncertainty for the latter.

Table 04. Dynamic panel models for deaths and cases

	Log deaths				Log cases	
Lagged Log Deaths	0.92 (0.01)****	0.80 (0.02)****	1.38 (0.03)****	1.30 (0.03)****		
2.Lagged Log Deaths			-0.52 (0.03)****	-0.49 (0.03)****		
Lagged Log Cases		0.20 (0.03)****		0.08 (0.02)****	0.97 (0.02)****	1.36 (0.04)****
2.Lagged Log Cases						-0.41 (0.03)****
Lagged Stringency Index					0.00 0.000	-0.00 (0.00)**
2.Lagged Stringency Index	0.01 (0.00)***	0.00 (0.00)**	0.01 (0.00)****	0.00 (0.00)***		
Governance Index	-0.06 (0.02)****	-0.04 (0.01)***	-0.07 (0.01)****	-0.06 (0.01)****	-0.03 (0.01)**	-0.02 0.02
Social Safety Net	0.02	-0.00	0.02	0.01	0.01	-0.01
Gini Disp. Income	0.02	0.02	0.01	0.01	0.02	0.02
Democracy	0.01	0.01	0.00	0.00	-0.00	-0.00
Log GDP	0.09 (0.04)**	0.17 (0.04)****	0.12 (0.03)****	0.15 (0.03)****	0.04	0.04
Log Population	-0.03	-0.08 (0.03)***	-0.02	-0.04	0.01	0.04
Transparency	0.03	0.11 (0.03)****	0.02 (0.02)****	0.02* (0.02)****	0.02 (0.03)*	0.03
Share Elderly Pop.	0.14 (0.03)****	0.11 (0.03)****	0.16 (0.02)****	0.15 (0.02)****	0.05 (0.03)*	0.03
Share Urban Pop.	0.00	0.00	0.01 (0.00)**	0.00 (0.00)*	0.00 (0.00)**	0.00
Constant	0.02 (0.01)**	0.02 (0.01)**	0.01 (0.01)**	0.01 (0.01)**	-0.00	-0.00
N	0.00 (0.00)****	0.00 (0.00)****	0.01 (0.00)****	0.00 (0.00)****	0.00 (0.00)****	0.00 (0.00)****
	-1.92 (0.48)****	-0.69 (0.43)**	-1.49 (0.41)****	-1.67 (0.32)***	0.00	-0.70 0.56
	2,360	2,360	2,242	2,242	2,360	2,242

Source: Elaborated by the authors' dataset.

Note 01: * p<0.1; ** p<0.05; *** p<0.01; **** p0.001.

Note 02: Dynamic system GMM linear panel models with the cumulative logarithm of total cases and deaths at December 04, 2020.

It is noteworthy to see in the specification of columns 02 and 04 in Table 04 that the number of lagged-confirmed cases is significant, but much smaller than the estimated effect in Table 03. It only slightly reduces the effect of the BTI index any further. It may seem strange, since the number of cases is clearly closely related to the number of deaths, mediating a share of the effect of State Capacities on the latter, as the capacity to reduce the dissemination of the coronavirus mediated the reduction in the number of deaths. Our findings indicate the robustness of our empirical strategy in dealing with the ever-present omitted variable bias in comparative research, being a very conservative estimate and highlighting the importance of governance capacity in the international struggle against COVID-19.

Once more, we find that democracy is positively associated with the number of deaths and confirmed cases. Transparency is only slightly co-related with the number of deaths and confirmed cases, indicating that the empirical strategy to eliminate omitted variable bias in our analysis reduces the effects of underreporting. Finally, population size, urban population share, and population over 65 years old are other important determinants of deaths.

The different dimensions of governance capacities

As we have mentioned, the concept of governance capacity varies widely. Because of that, we took advantage of the multidimensional nature of the indicator that BTI developed to explore how the four dimensions of the index behave. We analyzed both separately and together the dimensions of 01. steering capacity, 02. resource efficiency, 03. building consensus, and 04. engagement in international cooperation. In the Upper Panel A of Table 05, we present the analysis of each dimension being the proxy measure for governance capacities. In this way, each coefficient results from a specific model estimation using one dimension to measure capacities. In the Lower Panel of the Table 05, we present the conjoint analysis where all four dimensions race against each other to identify whether each has a partial effect that is still meaningful on the number of deaths and cases by COVID-19.

Table 05. Effects of the dimensions of state capacity on COVID-19 deaths and cases

State Capacity	OLS Deaths	PANEL Deaths	OLS Confirmed	PANEL Confirmed	PANEL Monthly Deaths	PANEL Monthly Confirmed
PANEL A: Specific Models of Governance Capacity Dimensions						
Steering Capacity	-0.40 (0.15)***	-0.10 (0.07)*	-0.34 (0.13)**	-0.25 (0.10)**	-0.14 (0.09)*	-0.30 (0.12)**
Resource Efficiency	-0.52 (0.14)****	-0.24 (0.06)****	-0.30 (0.13)**	-0.14 0.10	-0.33 (0.08)****	-0.26 (0.12)**
Building Consensus	-0.24 (0.11)**	-0.05 0.05	-0.24 (0.10)**	-0.20 (0.07)***	-0.08 0.07	-0.22 (0.09)**
International Cooperation	-0.45 (0.12)****	-0.13 (0.06)**	-0.40 (0.11)****	-0.28 (0.08)****	-0.21 (0.07)***	-0.35 (0.10)****
PANEL B: Conjoint Models of Governance Capacity Dimensions						
Steering Capacity	-0.00 0.23	0.06 0.11	-0.03 0.20	-0.05 0.15	0.13 0.13	-0.04 0.19
Resource Efficiency	-0.29 0.20	-0.27 (0.09)**	0.06 0.18	0.19 0.14	-0.34 (0.12)***	0.06 0.17
Building Consensus	0.15 0.17	0.07 0.08	0.06 0.15	-0.01 0.12	0.09 -0.15	0.05 0.14
International Cooperation	-0.40 (0.22)*	-0.07 0.10	-0.48 (0.20)**	-0.35 (0.15)**	0.13 0.13	-0.41 (0.18)**

Source: Elaborated by the authors' dataset.

Note 01: * p<0.1; ** p<0.05; *** p<0.01; **** p<0.001.

Note 02: Standard cross-section and panel linear random effects models with the cumulative logarithm of total cases and deaths on December 04, 2020, and the monthly count of cases and deaths.

Note 03: All controls of Table 02 (OLS - November) and Table 03 (PD).

In the Superior Panel A of Table 05, we re-estimate the cross-section and panel models presenting the four State Capacity dimensions as the concept's single measure. An overall assessment indicates that all four dimensions have some relevant effect on COVID-19 results. However, two of them stand out.

We found evidence that resource efficiency and engagement in international cooperation are the two main dimensions that affect responses to COVID-19, both in terms of size and in reducing statistical uncertainty. That result suggests that, for COVID-19 at least, the ability to manage resources and cooperate with other countries is key.

It aligns with theoretical expectations, especially concerning the international dimension in combating COVID-19. On this last point, the response that the pandemic requires, at least partially, suggests that countries that share information in international cooperation are better positioned to respond to COVID-19. Another

significant variable in most models was the subdimension of 'steering capacity'. Its effects were significant in all models at p-values of 0.1.

Interestingly, the ability to produce consensus has zero effect on several models (Columns 02 and 03) of COVID-19, which may indicate the need for greater government decision-making capacity and less sharing of responsibility with other actors with the power of veto. Future studies should analyze how the concentration of decision-making can facilitate the response to COVID-19.

The inferior Panel B of Table 05 presents a deeper analysis of the multidimensionality of the Governance Capacity concept. We found that the most robust dimension among all those pointed out in our theoretical framework is the dimension of international cooperation capacity. The effects of the efficient use of resources in the panel models are also important in explaining COVID-19 deaths.

However, the estimated effects are substantively uninteresting because of the strong multicollinearity between the dimensions of 0.78 and 0.89. On the other hand, the robustness of the effects of international cooperation draws our attention. Furthermore, it underlines the capacity of the Global South country to bring new forms of action to face the pandemic from international partners as one of the crucial variables to understand the response capacity of each country. That result is significant since most of those countries are not prepared to confront the speed of the virus, nor do they have the tools to understand its dynamics in a short period.

Discussion and conclusion

Our findings indicate that State Capacities affect countries' response to the pandemic, as measured by the BTI governance index, as suggested by Fukuyama (2020). They also reinforce the empirical validity of previous more qualitative approaches (GONZÁLEZ-BUSTAMANTE, 2020). The COVID-19 pandemic is a threat to all countries in the world. Those who have not been affected need to expand their capacity to investigate new cases to prevent the virus from entering the country and spreading. Those countries affected need to contain the spread of the virus, prepare the health system to deal with increased demand for care and strengthen institutions of social protection to mitigate the economic effects of the crisis.

We sought to understand how capabilities, regardless of the effects of political and economic development and internal inequalities, affect the effectiveness of society's response to the urgency of the pandemic.

Structures to facilitate the management, efficient use of resources, and steering capacities reduce the number of deaths and cases and positively impact policies designed to ensure social distancing. This relationship persists when we control for the existence of a primary social protection network for the poorest since this network is not associated with emergency responses such as to COVID-19, but with structural problems in society, greater inequality within countries, and the difficulties and pressures that exist under democratic regimes, as proposed by Cepaluni et al. (2022).

According to Fukuyama (2008) and Acemoglu (2008), State Capacities are crucial for economic and political development. Our research indicates that they are also crucial to combat health emergencies effectively. The Weberian (1978) and Tocquevillian (2003) dimensions of State Capacities require both the construction of solid bureaucracies and the capacity to apply the law to all - that is, to ensure the rule of law over the State's entire territory and population. In the current international situation, we need data to verify the effective implementation of policies to encourage social isolation, protect income, and expand the capacity of health systems, which would impact the practical effect of Tocquevillian (2003) State Capacities on the pandemic.

The effects found are robust for different specifications and even when modifying dependent variables when analyzing the results for deaths and accumulated and monthly cases. In general, results indicate that State Capacity increase within the scale that the BTI proposed affects the expected deaths from 6% to as much as 50%.

The current health crisis demonstrates the urgent need to strengthen the fundamental structures of health and social protection systems regarding physical and institutional infrastructure and personnel capacity, taking into account its Weberian determinants. Many countries throughout the pandemic - especially during the first months - suffered from a lack of health professionals, personal protective equipment, hospital infrastructure, and emergency equipment.

However, the State cannot build capacity usually within the response time that the pandemic requires. We learn from the pandemic that countries must be ready for

health emergencies by creating solid institutional capacities to support adaptable, flexible responses to economic, health, and social demands.

We must build a solid and effective State that can concentrate and deploy power when necessary to protect communities, provide essential public services, and keep public order during emergencies. The point is that those State Capacities are not anti-democratic since they can help advance horizontal and vertical accountability and effectively maintain the rule of law. They can also sustain a more robust general State Capacity in the long run, as Acemoglu et al. (2016) proposed.

It is worth highlighting the capacity for international cooperation included in our results as part of the State's Capacity, which many previous analyses have not included. The ability to negotiate with other international actors and agents outside the national territory or with other nations – a Tocquevillian (2003) capacity of the State - is also essential, as the pandemic crisis demonstrates.

Finally, we must understand the connections between policy stringency and death and case results to advance the research agenda on State Capacities and pandemic responses. We must also understand how emergency healthcare capacity is affected by other State Capacities and how political trust in government moderates those relations. Despite State Capacities, anecdotal evidence from media coverage in Brazil and the United States indicates that social trust could dramatically affect COVID-19 responses.

Considering the situation of developing countries is essential, both in geographic and in human terms. Some developing countries rely heavily on foreign development aid and need help to keep their finances solvent while struggling with the damage from corruption, which is more significant now since the response to the virus creates new opportunities to exploit inadequate regulation and transparency. It is crucial to consider this in developing countries since State Capacity depends to a large extent on these aspects.

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