Democracy, State Capacity, and COVID-19 Related School Closures

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Abstract

This paper investigates the institutional determinants of the timing of COVID-19 related school closures around the world, focusing on the role of democracy and administrative state capacity. Relying foremost on Cox proportional hazard models of up to 166 countries observed daily between February and April of 2020, the paper finds that other things being equal, democratic countries tended to implement school closures quicker than those with a more authoritarian regime, while countries with higher government effectiveness tended to take longer than those with less effective state apparatuses. A supplementary analysis that distinguishes between the two democratic dimensions of contestation and participation indicates that it is the existence of fair and competitive elections that prompts democratic leaders to respond more rapidly. Lastly, auxiliary evidence indicates that demography and family systems may also help determine countries' pandemic responses.

Keywords: coronavirus disease 2019 (COVID-19), democracy, administrative state capacity, school closures, survival analysis, Cox models

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Introduction

The recent weeks have seen governments across the world respond rapidly and with unprecedentedly disruptive measures to address the spread of coronavirus disease 2019 (COVID-19), including non-pharmaceutical interventions such as school closures, travel restrictions, curfews and quarantines. Yet, there is also considerable variation in terms of the timing and stringency of countries' response strategies (Hale and Webster 2020). As questions about how to understand and handle the pandemic and its aftermath now surge on the research agendas across academic disciplines, a key task for political scientists will be to explain why different governments responded the way they did.

Although it is still too early for any all-encompassing analysis of the crisis responses around the world, it is possible to analyze one non-pharmaceutical measure that has already been remarkably widely implemented and for which comprehensive and comparable data is already available (UNESCO 2020), namely school closures. As shown by the data reported in Figure 1 for 178 countries enjoying at least some degree of functional and/or formal sovereignty, the four weeks that followed after COVID-19 related school closures occurred in China and Hong Kong on February 16 saw a striking 112 additional countries following suit. After two more weeks the growth leveled of, as a total of 167 countries had implemented a localized or national school closure. Although 11 countries had still not seen a school closure by April 7, it is clear that we have already witnessed the vast majority of potential initial closure decisions.

The widespread implementation of school closures may not come as a surprise, given that they may help slow the spread of the virus by increasing social distancing and the likelihood that exposed individuals develop their symptoms while not in school (CDC 2020; Jackson et al. 2013; WHO 2019). However, depending on when and for long they are implemented, school closures may also put older relatives at higher risk, have detrimental effects on student performance and well-being, and decrease the workforce in health care and other important capacities as more parents stay home with children (Brown et al. 2011; CDC 2020). Thus, given that the timing of school closures appears be of critical importance for their outcomes, and that political and institutional factors have previously been found to influence how governments respond to pandemics and other crises (Salajan et al. 2020), it is of interest to investigate whether such factors also systematically mattered for the timing of countries' decisions to implement school closures in response to COVID-19. Besides being of interest in their own right, the results from such an investigation may also serve to inform scholars' expectations when analyzing other types of pandemic interventions going forward.

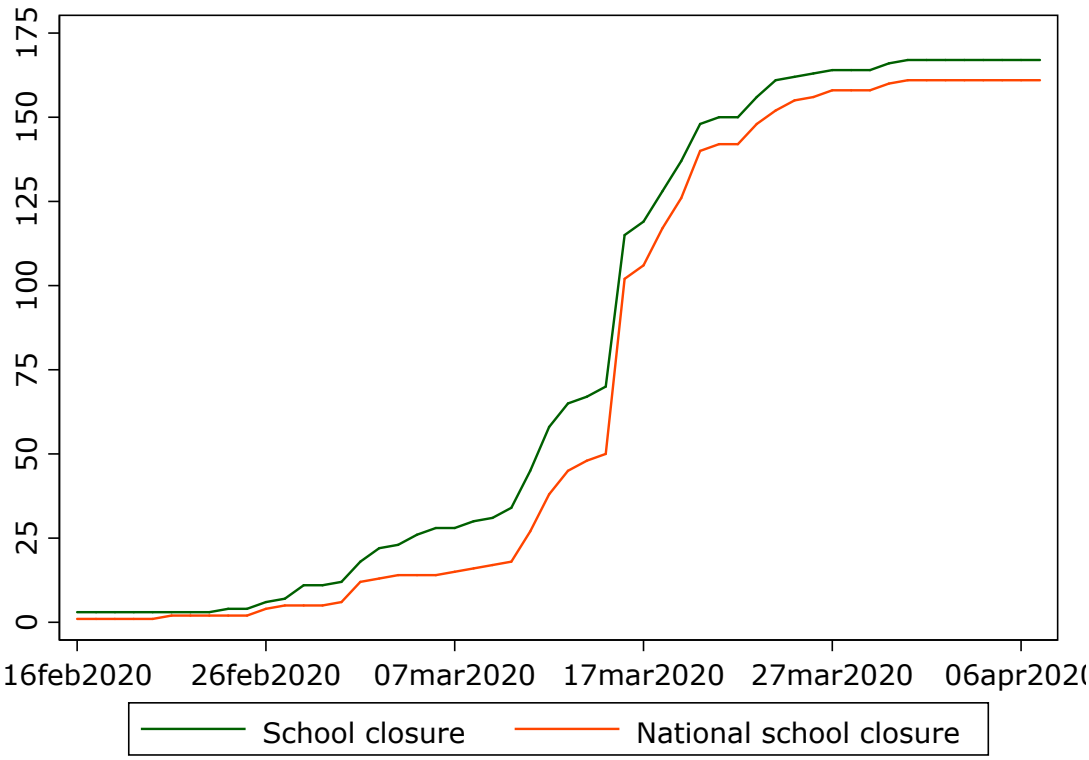

Figure 1: National and localized school closures caused by COVID-19 between February 16 and April 7, 2020. Includes 178 countries. Source: UNESCO (2020).

Democracy, State Capacity, and the Timing of School Closures: Theoretical Considerations

This paper focuses on two institutional factors of longstanding interest to social scientists, which have also been brought up in the nascent conversation on COVID-19, namely democracy and administrative state capacity (e.g., Fukuyama 2020). For neither of them it is clear from previous research whether we should expect it to make countries more likely to adopt a *precautionary* strategy, through which the entire population is led to make sacrifices for the sake of vulnerable individuals—which in this case would imply a rapid school closure—or a more *proportional* strategy, where school closures are postponed in favor of less disruptive measures, such as interventions to isolate individuals that are vulnerable or infected (Baekkeskov and Rubin 2014).

Democracy

Consider first democracy, which is commonly conceived as the extent to which rulers and the policy choices they make are responsive to citizens, as achieved through fair and competitive elections combined with wide suffrage and extensive political involvement (Dahl 1971; Miller 2015). On the one hand, according to a political

survival logic (de Mesquita Bruce et al. 2003), leaders in democratic countries should be more likely to quickly adopt a precautionary strategy in times of national crisis, especially in cases where an election is imminent. Existing crisis management research points to two reasons (Baekkeskov 2016). First, democratically accountable leaders should have stronger incentives to respond promptly to avoid the threat of electorally harmful blame, whether from the opposition or the mass media (Baekkeskov and Rubin 2014; Besley and Burgess 2002). Second, democratic governments have been found to use emergencies as an opportunity to demonstrate their value to contested constituencies (Healy and Malhotra 2009; Reeves 2011). Furthermore, in democratic countries the freedom of expression improves the quality of information available to governments, which may enable a quicker crisis response (Kahn 2005; Persson and Povitkina 2017). In addition, to the extent that a more rapid response indeed reflects a greater commitment to public health, we should expect democracies to act faster as they tend to put higher priority on safeguarding the population's well-being (Besley and Kudamatsu 2006; Cronert and Hadenius forthcoming).

However, there are also arguments for why we should expect a null or even negative effect of democracy on the timing of school closures. To begin with, authoritarian regimes may also be worried about the possible damage that a slow or unnoticeable crisis response could do to popular support for the government, especially considering that such damage may simultaneously challenge the legitimacy of the entire political regime (Baekkeskov and Rubin 2017). It is furthermore possible that a measure as disruptive as a school closure is more difficult to enact in a democratic country where a larger share of the population—many of whom will be personally and immediately affected by the measure—are able to have a say in politics, whether individually or through civil associations. For a formal argument along these lines, applied to the case of mass vaccination, see Ahlskog (2017). Lastly, given that we should expect a higher degree of public deliberation on pandemic response policy in democracies (Baekkeskov and Öberg 2017), we should perhaps also expect that it takes longer for democratic governments to decide on their preferred strategy.

Administrative State Capacity

It is also not obvious what impact to expect of administrative state capacity, by which we typically refer to the extent to which competent, efficient and impartial administrative agencies enable the state to take action in an appropriate and effective manner (Bäck and Hadenius 2008; Cronert and Hadenius forthcoming). On the one hand, drawing on earlier research about the importance of government effectiveness for a successful response to natural disasters as well as pandemics, one might expect that high state capacity enables countries to prepare for and implement school closures more rapidly (DSB 2011; Kahn 2005; Persson and Povitkina 2017; Raschky 2008).

On the other hand, it is possible that countries with more well-functioning state agencies also have a larger set of policy tools available for consideration, and thus are in a better position to suspend drastic precautionary measures like

school closures longer in favor of a more proportional strategy with less disruptive initial responses. Such a reasoning was, for instance, provided by the Singaporean minister of education when explaining the government's decision to keep schools open: "We still have options. We are not like many countries, where they are forced into sudden school closures" (Teng and Davie 2020).

This is not to suggest that epidemiologists and other experts at the national public health agencies cannot make different judgments about the appropriateness of different strategies (cf. Baekkeskov 2016). The point is simply that when such agencies are able to exert more influence on governments' pandemic responses, we should expect decisions about school closures to be guided relatively more by criteria related to necessity and proportionality than by a presumed political pressure for a precautionary response (for evidence on the prominence of necessity and proportionality considerations in public health officials' decisions on school closures during the 2009 H1N1 influenza outbreak in the US, see Kayman et al. 2015).

Lastly, another way in which the existence of a competent and effective administrative apparatus may lead to later school closures is by making it possible for political leaders to shield themselves from potential blame for a slow response, by shifting the responsibility for the strategy to the certified expertise (Baekkeskov and Öberg 2017). The Swedish response to COVID-19 may illustrate this mechanism. When other European democracies began closing schools in early March, the powerful Public Health Agency defended the country's deviating strategy with reference to the large disruptions and to the importance of timing, while government representatives made it "somewhat of a mantra" to state that they were following the agency's recommendations (Rothschild 2020). On March 18, Sweden enacted a partial national closure, only affecting upper secondary schools and universities (UNESCO 2020).

Empirical Analysis

In the following, I investigate the role of democracy and administrative state capacity in determining the timing of COVID-19 related school closures around the world. This is done first by means of a simple graphical illustration, and second by means of regression analyses in a survival analysis (event history) framework. In the interest of making these analyses as comprehensive as possible, efforts have been made to include all countries that enjoy at least some degree of functional and/or formal sovereignty as defined by the Varieties of Democracy (V-Dem) Institute (Coppedge et al. 2020). Out of these 179 countries, 10 (5.5 %) must be excluded altogether since they lack the essential data on COVID-19 cases reported by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University[1] (CSSE 2020).

To enable a meaningful comparison of timing, we need to define a common starting point for the analyses. To reconcile comparability and inclusiveness, I

[1]These are the Comoros, Lesotho, North Korea, Solomon Islands, Somaliland, Tajikistan, Turkmenistan, Vanuatu, and Zanzibar.

have chosen two different starting points. For the graphical analysis, the point of reference is the day of the first confirmed case of COVID-19, as reported by the CSSE (2020)[2]. However, given that a considerable number of countries closed schools already before having their first confirmed case, this starting point is inappropriate for the survival analyses. To include as many countries as possible in these analyses, their starting point for all countries is February 16, the day that school closures where implemented in China and Hong Kong (UNESCO 2020). Accordingly, omitting these two countries as well as Mongolia where a school closure was implemented already on January 27, this set of analyses includes at most 166 countries, 159 of which had implemented a school closure by April 7 when the period of observation ends.

Key Variables

To measure a country's level of democracy in 2019, I primarily rely on the electoral democracy index provided by the V-Dem Institute, which is based on sub-indices that measure freedom of association, clean elections, freedom of expression, elected officials, and suffrage (Coppedge et al. 2020). As an indicator of administrative state capacity, I use the Worldwide Governance Indicators' (WGI) 2018 estimate of government effectiveness, which considers the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies (Kaufmann et al. 2011). In a robustness check with fewer countries, I use the 2019 Freedom House/Imputed Polity level of democracy indicator (Freedom House 2019) and the 2016 ICRG indicator of quality of government (PRS Group 2019; Teorell et al. 2020). All four indicators are transformed to range between 0 and 10.

Data on daily incidents of school closures are retrieved from UNESCO (2020), while daily data on logged confirmed cases of COVID-19 come from the CSSE (2020). A number of additional control variables are included in the various models and are discussed subsequently. See the Appendix for details regarding definitions and sources.

Descriptive Evidence

Let us begin by considering some graphical descriptive evidence. For all countries except China, Figure 2 plots the number of days between the country's closure (or April 7 for right censored observations) and the day of the first confirmed case against the country's government effectiveness rating. The color and shape of the markers indicate whether the country has a below-median (red circles) or above-median (green triangles) democracy rating.

Two observations can be made from the two lines that represent quadratic predictions fitted to the two subsets of the data. First, the positive slopes show

[2]When CSSE's data begin on January 22, China, Japan, United States, South Korea, and Thailand already had confirmed cases. For these countries, January 22 is thus used as the date of the first confirmed case.

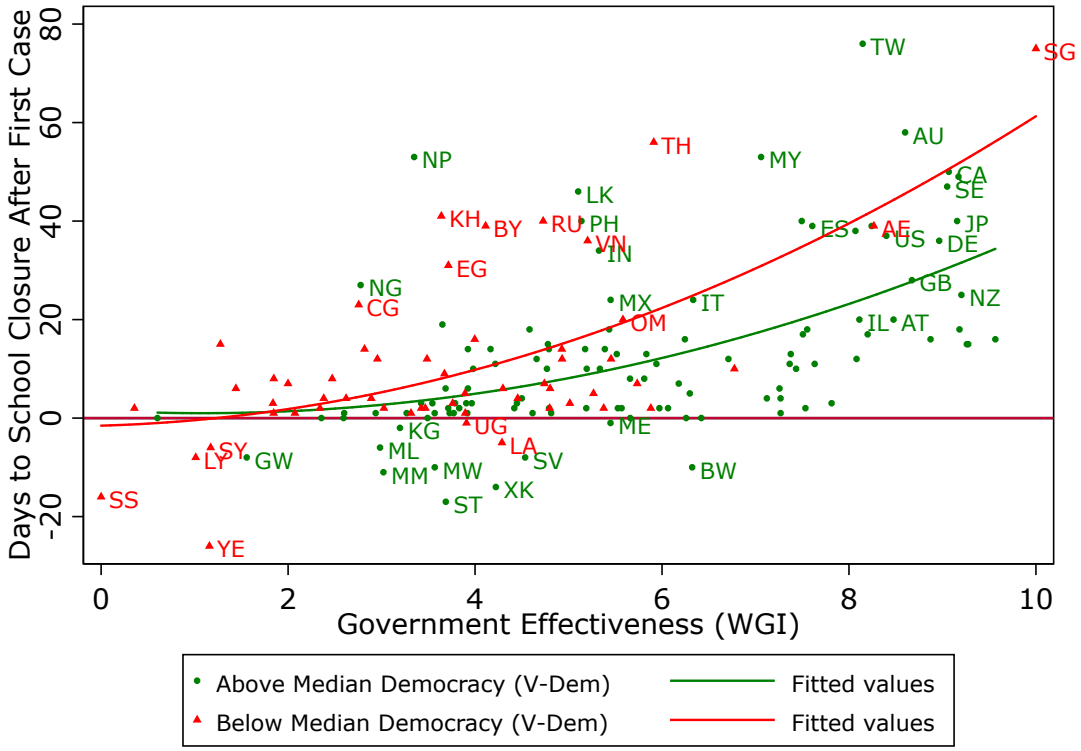

Figure 2: Y-axis: Days to school closure or right censoring (April 7) after the first confirmed case (or after January 22 in the cases of Japan, United States, South Korea, and Thailand). X-axis: Government effectiveness (WGI). Red circles denote below-median democracy (V-Dem) and green triangles denote above-median democracy. Includes 166 countries (excluding China, Hong Kong and Mongolia). The red and green lines represent quadratic predictions for the two subsets.

a clear positive relationship between administrative state capacity and time to school closure. Second, judging from the positive difference between the red and the green line at most values of government effectiveness, it appears that less democratic countries tended to implement school closures somewhat later than more democratic countries.

Cox Proportional Hazard Models

The cue from the graphical exercise above is that democracies appears to have implemented school closures more quickly than more authoritarian countries as a response to the spread of COVID-19, while countries with more effective governments tended to take longer than those with more limited state capacity. As it turns out, similar results are retrieved from the survival analyses that are summarized in Figures 3 and 4 and reported in full in the Appendix, Table 1.

These analyses are based on the Cox proportional hazards model, which unlike parametric duration models does not require an assumption about the shape of

the baseline hazard. The data are structured as country-date panels, beginning for each country on February 16 and ending on the day of the first school closure event or on April 7. Exploratory analyses indicate that no country-specific frailties are needed, but for the proportional hazard assumption to be satisfied the observations are stratified by the day of the country's first confirmed case of COVID-19 to account for the fact that those hit later by the pandemic have a higher baseline hazard of school closure.

The baseline Cox model applies the V-Dem Institute's democracy index and the WGI government effectiveness indicator as the key independent variables. As controls, it includes the daily (logged) number of confirmed domestic COVID-19 cases as well as six region dummies based on the World Bank's categorization, which serve to absorb regional shocks such as different exposures to the pandemic. It furthermore adds a measure of (logged) GDP per capita, which is correlated with both democracy and state capacity and was found positively associated with state-level implementation of social distancing policies in one of the first studies on the timing of COVID-19 responses among US states (Adolph et al. 2020). Lastly, the baseline model adds a time-varying dummy indicating country-specific weekend days, considering that a school closure should be much more likely to begin on a working day.

The results from the baseline model (A) indicate that other things being equal, democratic countries are likely to implement school closures sooner than those with a more authoritarian regime. The hazard ratios reported in Figure 3 indicate that an increase in democracy by one unit (on a 0–10 scale) is associated with an increase in the relative risk of school closure of around 17 percent. As to administrative state capacity, a one unit increase in the WGI indicator is associated with a 19 percent lower relative risk of school closure. Both results are statistically significant at conventional levels. There is furthermore a significant positive relationship between confirmed COVID-19 cases and the relative risk of school closures, while the association of GDP per capita is negative and insignificant.

Model (B) includes a number of additional control variables, which may be correlated with democracy and state capacity, and which may also affect the time to school closure. The first is a measure of the population health (healthy life expectancy), which may reduce the urgency of precautionary measures. The second is the share of the population aged 0-14 and is meant to capture that a larger youth population might make a school closure costlier and more difficult to implement. The third is a measure of urbanization, which might make school closures both more urgent and easier to implement. The fourth variable is meant to capture the core features of a country's family system, and measures the proportion of its current population whose ancestors resided in nuclear or stem families, rather than polygamous or community families (Giuliano and Nunn 2018). In countries with a tradition of nuclear and stem families, households tend to be smaller (Rijpma and Carmichael 2016), people report more freedom of choice within the family (Rijpma and Carmichael 2016), pre-primary and primary school enrollment tends to be higher (Teorell et al. 2020), and retirement ages tend to be higher. All these are factors that may make school closures more costly to implement and sustain, but

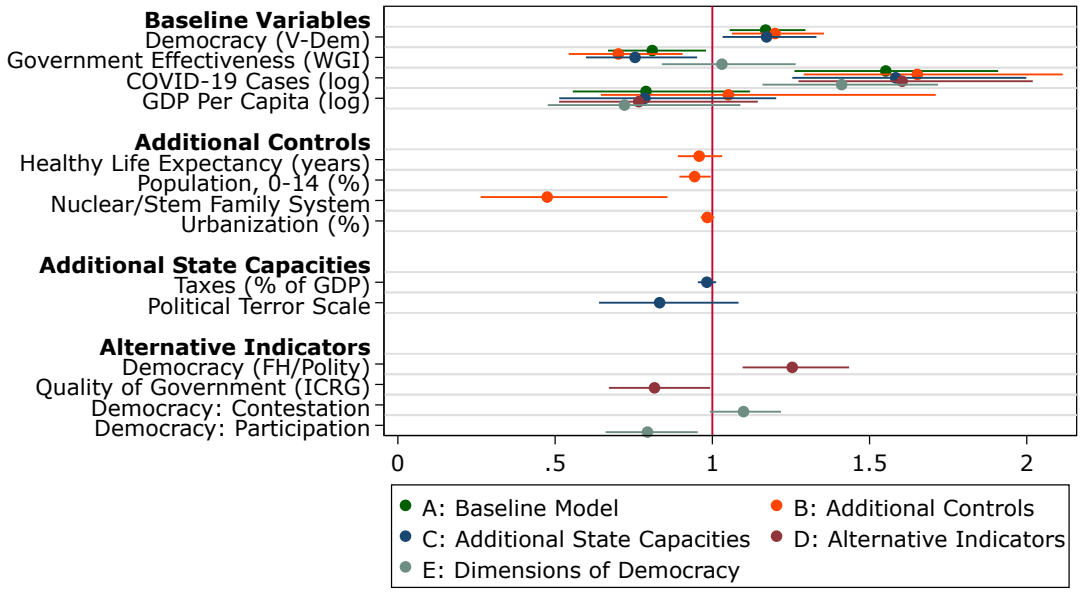

Figure 3: Hazard ratio estimates and 95% confidence intervals from pooled Cox models of school closures between February 16 and April 7, 2020. Observations are stratified on date of first confirmed COVID-19 case. Robust standard errors are applied. All models also include a set of region indicators as well as an indicator of weekend days. Number of observations/countries included: A: 4855/166, B: 4556/157, C: 4216/146, D: 3845/134 E: 4356/149. For full model output, see the Appendix, Table 1.

since reliable data is lacking for a sufficiently large number of countries, I instead rely on this family system based proxy.

The results from model (B) indicate that a younger population and a nuclear or stem family system are indeed associated with a significantly lower relative risk of school closure. However, since including these control variables reduces the sample size by 9 countries while increasing the coefficients for both democracy and state capacity, I retain the more encompassing and conservative baseline model as my preferred specification.

Acknowledging that state capacity is a multi-dimensional concept, model (C) adds two indicators commonly used to capture the extractive (fiscal) and coercive capacities of the state respectively (Hanson 2018). The first is a measure of taxes (including social contributions) as share of GDP and the second is the Political Terror Scale, an index of violations of physical integrity rights carried out by states or their agents (Gibney et al. 2019; Teorell et al. 2020). While the coefficients for both variables are negative, neither is statistically significant and the results from the baseline model are intact.

Lastly, model (D) substitutes the baseline democracy and administrative state capacity measures for the 2019 Freedom House/Imputed Polity level of democracy indicator (Freedom House 2019) and the 2016 ICRG indicator of quality of government (PRS Group 2019). The sample is reduced by 30 countries, but the baseline

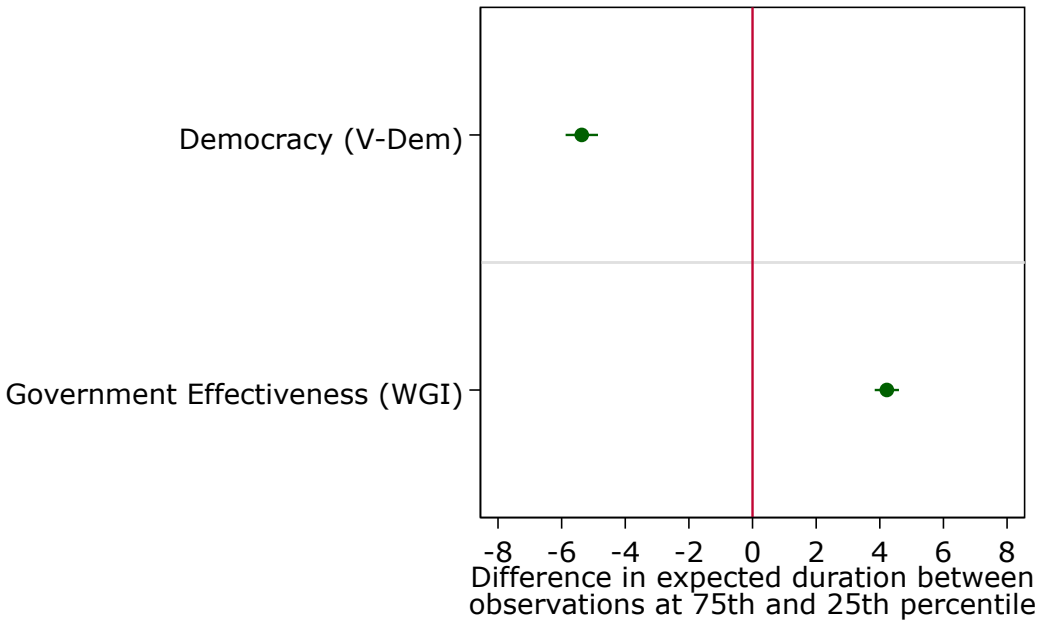

Figure 4: Expected change in time to school closure, by institutional factor. Estimates of average marginal effects obtained by post-estimation simulation from the baseline model (A) using the nonparametric step-function version of the Cox ED procedure (Kropko and Harden 2020). Standard errors are bootstrapped by country with 200 iterations. For full model output, see the Appendix, Table 1.

results remain.

Substantive Interpretation of the Baseline Model

To help interpret the baseline model in policy-relevant terms, Figure 4 reports the marginal changes in expected time to school closure given a change in democracy or state capacity from the 25th to the 75th percentile respectively, estimated using the Cox ED procedure (Kropko and Harden 2020). These estimates indicate that such an increase in the level of democracy—roughly equivalent to a change from that of Turkey to that of Chile—corresponds to a reduction in the average expected time to school closure by approximately 5.4 days. A change in government effectiveness of an equivalent size—i.e., from that of Egypt to that of Italy—is associated with an increase in expected duration of around 4.2 days. These estimates can be compared to the average expected time to school closure of 36 days after February 16.

Which Aspect of Democracy Expedites Response?

As discussed above, democracy is a multi-faceted concept, the full realization of which is commonly seen as requiring both a high degree of electoral contestation

and a high degree of popular participation (Dahl 1971; Miller 2015). In an effort to elucidate which of these two characteristics of democracies that drives their quicker response, I conduct a supplementary analysis which substitutes the V-Dem democracy indicator for the two indicators of contestation and participation developed by Miller (2015). Two shortcomings of these indicators should be noted upfront: they are only available for 149 countries and for no later years than 2003/2004, which means that they are likely marred by some inaccuracy. As reported in Figure 3, the model in question (E) indicates that it is the presence of free, fair and contested elections that increases the relative risk of school closures, although the coefficient does not quite reach statistical significance (p=0.071). Interestingly, extensive participation—measured by suffrage and voter turnout—is instead *negatively* associated with the relative risk of school closures. It should be noted that in this model the effect of government effectiveness disappears, at least partly as a consequence of the depressed sample.

To illustrate the substantive implication of these results, I estimate the expected time to school closure for three fictive regime types: a closed authoritarian regime with relatively low (25th percentile) values on both dimensions (similar to Egypt), a democratic regime with high (75th percentile) values on both dimensions (e.g., South Korea), and an electoral authoritarian regime with low contestation but high participation (e.g., Belarus).[3] The estimated differences between the closed authoritarian regime and the two others are reported in Figure 5. These suggest that while the democratic regime is expected to take two days *less* to close its schools, the electoral authoritarian regime is expected to take two days *more*.

The diverging responses to COVID-19 by the neighbouring countries Poland and Belarus are consistent with these results. In Poland, in which a relatively competitive presidential election is scheduled for May 10, 2020, the government quickly adopted a precautionary strategy, including a school closure and a lock-down within two weeks after the first confirmed case. Possibly out of concern that the incumbent president Duda's re-election prospects will deteriorate if the election were to be postponed until a later stage of the pandemic aftermath, the governing party has insisted on conducting the election as soon as possible (The Associated Press 2020). By contrast, in Belarus where elections are inclusive but non-competitive, long-time president Lukashenko has rejected any precautionary measure to tackle COVID-19—including school closures—despite facing a presidential election in August 2020 (Karmanau 2020).

Concluding Remarks

This paper has investigated how two institutional factors—democracy and administrative state capacity—help determine the varying timing of countries' implementation of school closures as a response to the spread of COVID-19 in the spring of 2020.

Overall, the evidence from Cox proportional hazard models of up to 166

[3]No countries today combine high contestation with low participation.

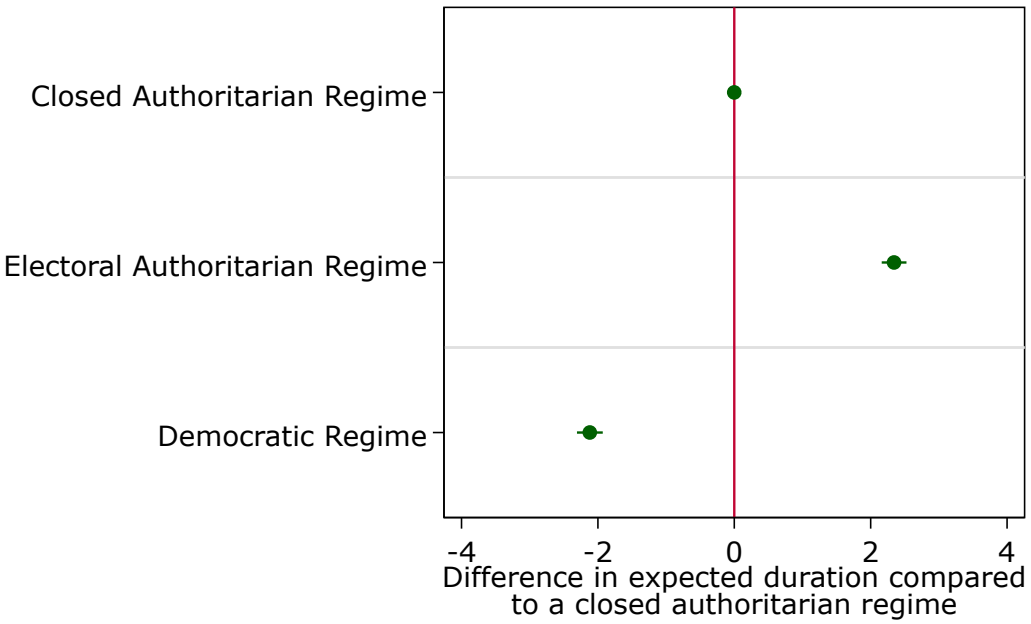

Figure 5: Expected difference in time to school closures, by regime type. Estimates of average marginal effects obtained by post-estimation simulation from model (E) using the nonparametric step-function version of the Cox ED procedure (Kropko and Harden 2020). Standard errors are bootstrapped by country with 200 iterations. For full model output, see the Appendix, Table 1.

countries indicates that a higher level of democracy in a country is associated with a several days' shorter time to school closure, whereas a higher level of state capacity is associated with a more delayed implementation. In addition, auxiliary evidence suggests that factors related to demography and family systems may also help determine countries' pandemic responses and may deserve more attention in future analyses of COVID-19 interventions.

A few caveats are warranted here. First, although including up to 94 percent of all formally and/or functionally sovereign countries, the analyses leave out a few countries for which no data on COVID-19 cases are reported. Second, among countries that do report cases, the quality of the information is likely to vary in a non-random manner. This might affect the results in various ways, given the importance of the case-related variable in all models. In an attempt to assess the sensitivity of my results to this issue, I have conducted a supplementary analysis which assumes a two-day delay of the first COVID-19 case in each of the 10 percent least democratic countries and found that the results remain intact (see the Appendix, Table 1, model F). Third, I want to underscore that the analyses reported here are not intended to evaluate, nor do they say anything about, the appropriateness or effectiveness of any particular school closure strategy.

Lastly, it should be emphasized that school closure is only one among many types of government responses to COVID-19, and it is not clear how the patterns observed here travel to other types of more or less precautionary and disruptive

measures. As more data become available—for instance through the Oxford COVID-19 Government Response Tracker (Hale and Webster 2020)—comparing different types of responses will be a crucial research endeavor. Given that the findings herein suggest that different aspects of democracy and state capacity may be differently related to the pandemic response, it appears crucial that future theoretical and empirical work involving these concepts makes sure to take their multi-dimensionality to heart.

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Appendix

Variables and Data

- *School closures (daily):* Data (February 16–April 7, 2020) from UNESCO (2020) Dichotomous variable based on both localized and national measures. A school closure for UNESCO non-member Kosovo registered on March 12.

- *Confirmed cases of COVID-19 (daily):* Data (January 22–April 7, 2020) from the CSSE (2020) at Johns Hopkins University. Computed as ln(1 + cases).

- *Democracy (V-Dem) (2019):* The Varieties of Democracy Institute's electoral democracy index, which measures to what extent the ideal of electoral democracy in its fullest sense is achieved, and measures when suffrage is extensive; political and civil society organizations can operate freely; elections are clean and not marred by fraud or systematic irregularities; and elections affect the composition of the chief executive of the country. Rescaled to 0–10. Source: Coppedge et al. (2020).

- *Government effectiveness (WGI) (2018):* A composite measure that considers the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies. Rescaled to 0–10. Source: Worldwide Governance Indicators (Kaufmann et al. 2011), retrieved from Teorell et al. (2020).

- *Democracy (Freedom House/Imputed Polity) (2019):* Scale ranges from 0-10 where 0 is least democratic and 10 most democratic. Average of Freedom House is transformed to a scale 0-10 and Polity is transformed to a scale 0-10. These variables are averaged into fh_polity2. The imputed version has imputed values for countries where data on Polity is missing by regressing Polity on the average Freedom House measure. Source: Freedom House (2019), retrieved from Teorell et al. (2020).

- *Quality of government (ICRG) (2016):* The mean value of the ICRG variables Corruption, Law and Order and Bureaucracy Quality, scaled 0-10. Higher values indicate higher quality of government. Source: PRS Group (2019) retrieved from Teorell et al. (2020).

- *Healthy life expectancy (2016):* Healthy life expectancy (HALE) at birth (years). Source: World Health Organization, retrieved from Teorell et al. (2020).

- *Population, ages 0-14 (2016):* Population ages 0-14 as a percentage of the total population. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship. Source: The World Bank's World Development Indicators, retrieved from Teorell et al. (2020).

- *Weekend*: A dummy for days that are not working days, as listed on Wikipedia. Saturday–Sunday is assumed if information is missing.

- *GDP per capita (logged)*: Measured in in current US dollars. Source: The World Bank's World Development Indicators, retrieved primarily from Teorell et al. (2020).

- *Urbanization (2016):* Urban population (% of total population). Refers to people living in urban areas as defined by national statistical offices. The data are collected and smoothed by United Nations Population Division. Source: The World Bank's World Development Indicators, retrieved from Teorell et al. (2020).

- *Nuclear/stem family system*: Defined based on Rijpma and Carmichael (2016) as the proportion of a country's contemporary population whose ancestors resided in nuclear or stem families, rather than polygamous or community families, divided by 1 less the share for which data is missing. Computed using variables *v8_grp1–v8_grp9* in the etnhnographic database provided by Giuliano and Nunn (2018).

- *Taxes (% of GDP)*: Taxes including social contributions. Source: The ICTD/UNU-WIDER Government Revenue Dataset (ICTD/UNU-WIDER 2019), retrieved from Teorell et al. (2020).

- *Political Terror Scale*: Measures violations of physical integrity rights carried out by states or their agents. Based on the U.S. State Department Country Reports on Human Rights Practices. Ordinal variable with five scale steps. Source: Gibney et al. (2019), retrieved from Teorell et al. (2020).

- *Democratic Contestation*: Index that captures the extent and fairness of electoral competition between parties and distinct interests. Pertains to 2004, although for ten countries, values for 2003 are used. Source: Miller (2015).

- *Democratic Participation*: Index that captures the extent of popular electoral involvement across the citizenry. Pertains to 2004. Source: Miller (2015).

Table 1: Cox proportional hazard models of time to school closure.

	(A)	(B)	(C)	(D)	(E)	(F)
Democracy (V-Dem)	0.157***	0.182***	0.159**			0.126**
	(0.052)	(0.062)	(0.065)			(0.058)
Government Effectiveness (WGI)	-0.212**	-0.355***	-0.282**		0.030	-0.208**
	(0.098)	(0.130)	(0.118)		(0.105)	(0.097)
Europe & Central Asia	1.408***	1.204**	1.367***	2.042***	1.408***	1.270***
	(0.436)	(0.490)	(0.452)	(0.610)	(0.397)	(0.390)
The Americas	0.511	0.892	0.085	1.309**	0.760*	0.243
	(0.442)	(0.592)	(0.424)	(0.602)	(0.425)	(0.389)
Middle East & North Africa	1.733***	1.708***	1.085**	2.786***	1.151**	1.342***
	(0.435)	(0.527)	(0.447)	(0.636)	(0.448)	(0.452)
South Asia	1.094*	1.071	0.967*	1.996**	0.888	0.942
	(0.597)	(0.769)	(0.580)	(1.001)	(0.548)	(0.602)
Sub-Saharan Africa	-0.314	-0.165	-0.719*	-0.030	-0.434	-0.639
	(0.425)	(0.472)	(0.403)	(0.550)	(0.405)	(0.403)
COVID-19 Cases (log)	0.439***	0.502***	0.460***	0.472***	0.344***	0.406***
	(0.106)	(0.126)	(0.119)	(0.117)	(0.100)	(0.102)
GDP Per Capita (log)	-0.237	0.050	-0.241	-0.266	-0.328	-0.296
	(0.178)	(0.249)	(0.217)	(0.205)	(0.211)	(0.182)
Weekend	-2.368***	-2.734***	-2.235***	-37.306	-1.869***	-1.563***
	(0.448)	(0.526)	(0.554)	(.)	(0.499)	(0.567)
Healthy Life Expectancy (years)		-0.043				
		(0.037)				
Population, 0-14 (%)		-0.058**				
		(0.027)				
Nuclear/Stem Family System		-0.744**				
		(0.301)				
Urbanization (%)		-0.016				
		(0.011)				
Taxes (% of GDP)			-0.017			
			(0.015)			
Political Terror Scale			-0.183			
			(0.134)			
Democracy (FH/Polity)				0.227***		
				(0.069)		
Quality of Government (ICRG)				-0.203**		
				(0.100)		
Democracy: Contestation					0.095*	
					(0.052)	
Democracy: Participation					-0.231**	
					(0.094)	
Countries	166	157	146	134	149	166
Observations	4855	4556	4216	3919	4356	4855
AIC	296.741	275.892	254.396	208.303	254.619	307.052
BIC	361.619	365.831	330.556	264.765	324.791	371.929

Coefficient estimates and 95% confidence intervals from pooled Cox models of school closures between February 16 and April 7, 2020. Observations are stratified on date of first confirmed COVID-19 case. For a description of models A-E, see the main text. Model F replicates model A but assumes that the ten percent countries with the lowest democracy score registered their first case two days earlier. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.