

Precaution and Proportionality in Pandemic Politics: Democracy, State Capacity, and COVID-19 Related School Closures Around the World

Supplementary Material for Online Publication

Variables and data

School Closures

Daily data (January 28–April 7, 2020). Dichotomous variable based on the first day with ordered or advised school closures, typically set to the first working day after announcement, or the day of announcement in cases where ongoing school breaks were extended. See the main text for details, and Table S6 for a list of closure dates for the 173 countries included in the study. Primary sources: UNESCO (2021), Hale et al. (2021).

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, 2019)

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).

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 (ICRG2016)

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).

Democracy: Competition (Vanhanen, 2019)

Portrays the electoral success of smaller parties, that is, the percentage of votes gained by the smaller parties in parliamentary and/or presidential elections. Calculated in most cases by subtracting from 100 the percentage of votes won by the largest party in parliamentary elections or by the party of the winning candidate in presidential elections. Pertains to 2018, although for seven countries, values for 2017 are used. Rescaled to 0–10. Source: Vanhanen (2019).

Democracy: Participation (Vanhanen, 2019)

Portrays the voting turnout in each election, and is calculated in most cases as the percentage of the total population who actually voted in the election. In the case of indirect elections, only votes cast in the final election are taken into account. Pertains to 2018. Rescaled to 0–10. Source: Vanhanen (2019).

Democracy: Competition (Polity IV)

Based on the Variable Competitiveness of Participation (PARCOMP), which refers to the extent to which alternative preferences for policy and leadership can be pursued in the political arena. Originally a five-category scale is used to code this dimension, which has here been multiplied by two. Polities for which the regulation of participation variable below is coded as unregulated or in transition are omitted. Pertains to 2018. Source: Marshall & Jaggers (2020).

Democracy: Participation (Polity IV)

Based on the variable Regulation of Participation (PARREG), which captures the extent to which there are binding rules on when, whether, and how political preferences are expressed. Originally a five-category scale is used to code this dimension, which has here been multiplied by two. Pertains to 2018. Source: Marshall & Jaggers (2020).

Bureaucratic Professionalism (2015)

Index of professionalism (Professional Public Administration) based on country experts' average assessments on four survey items: 1) *When recruiting public sector employees, the skills and merits of the applicants decide who gets the job*, 2) *When recruiting public sector employees, the political connections of the applicants decide who gets the job* 3) *The top political leadership hires and fires senior public officials*, and 4) *Senior public officials are recruited from within the ranks of the public sector*. Original measures ranges 0–7, rescaled to 0–10. Source: Dahlström et al. (2015).

Bureaucratic Policy Influence

Measure based on country experts' average assessment of how often the following two phenomena occur: *When preparing policy proposals, both public sector employees and politicians are involved*, and *When implementing policies, both public sector employees and politicians are involved*. Original variables range from 0 (Hardly ever) to 7 (Almost always), rescaled here to 0–10. The overall Bureaucratic Policy Influence indicator is computed by subtracting the indicator on politicians' involvement in policy implementation from the indicator on the bureaucracy's involvement in preparing policy proposals. Similar results

appear for an alternative version that only considers the bureaucracy's involvement in preparing policy proposals. Source: Dahlström et al. (2015).

COVID-19 Cases (log)

Daily data (January 22–April 7, 2020) on cumulative confirmed cases retrieved from Johns Hopkins University (Dong et al. 2020). Computed as $\ln(1 + \text{cases})$; results are insensitive to replacing 1 by a smaller number. Five countries had confirmed cases already before these data start on January 22—China, Japan, South Korea, Thailand and the United States. For these, the date of the first case is retrieved from various newspaper reports.

Regional Spread of COVID-19 (%)

Based on daily data (January 28–April 7, 2020) on confirmed cases retrieved from Johns Hopkins University (Dong et al. 2020). Computed for each country and day as the proportion of countries in the region—excluding the country itself—with one or more reported cases of COVID-19. Seven regions are considered: East Asia and the Pacific, South Asia, Caucasus and Central Asia, Europe, Middle East and North Africa, Sub-Saharan Africa, and the Americas.

Weekend

A dummy for days that are not working days, as listed on Wikipedia (2020) for different countries. Saturday–Sunday is assumed if information is missing.

GDP Per Capita (log)

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

Hospital Beds Per 1,000 People

Online dataset. Latest available observation based on data from the World Health Organization, supplemented by country data. Source: The World Bank's World Development Indicators.

Population, 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).

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, (Teorell et al. 2020).

Nuclear/Stem Family System

Defined based on Rijkma 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 database provided by Giuliano and Nunn (2018).

Taxes (% of GDP)

Taxes including social contributions. Is intended to capture states' extractive (fiscal) capacity in model I, Table S3. 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. Is intended to capture states' coercive capacity in model I, Table S3. Source: Gibney et al. (2019), retrieved from Teorell et al. (2020).

Political Constraints Index V (Henisz, 2017)

An index measuring the feasibility of policy change, i.e. the extent to which a change in the preferences of any one political actor may lead to a change in government policy. Considers the number of independent branches of government with veto power over policy change, the extent of party alignment across branches of government, the extent of preference heterogeneity within each legislative branch, as well as the judiciary and sub-federal entities. Ranges theoretically from 0 to 1. Pertains to 2016.

Presidentialism

Indicates political systems with unelected executives, with presidents who are elected directly or by an electoral college in cases where there is no prime minister, as well as systems with both a president a prime minister that fulfill certain criteria. Source: Scartascini et al. (2018).

Division of Power Index

Index that measures the strength of subnational-level governments. High scores characterize countries in which both local and regional governments are elected and able to operate without restrictions from unelected actors at the local or regional level, with the exception of judicial bodies. Pertains to 2019. Source: Coppedge et al. (2021).

Other Domestic Containment Measures

Data derived from Hale et al. (2021) – without any cross-checking or validation – on the first date of implementation for each of six domestic containment measures: *Workplace closing* (C2), *Cancel public events* (C3), *Restrictions on gatherings* (C4), *Close public transport* (C5), *Stay at home requirements* (C6), and *Restrictions on internal movement* (C7). Both required and recommended measures are considered, including both targeted and general ones.

Less-Disruptive Health Measures

Data derived from Hale et al. (2021) – without any cross-checking or validation – on the first date of implementation for four different health measures: *coordinated public information campaign* (H1, score 2), *testing of anyone showing Covid-19 symptoms* (H2, score 2+), *comprehensive contact tracing; done for all identified cases* (H3, score 2), and *at least recommended isolation, hygiene, and visitor restriction measures in LTCFs and/or elderly people to stay at home* (H8, score 1+). Both targeted and general measures are considered.

Summary statistics

Table S1: Summary statistics for the country-date dataset used in the analyses.

Variable	Mean	Std. Dev	Min	Max	Obs.
School Closures	0.021	0.143	0	1	8081
Democracy (V-Dem)	5.278	2.455	0.15	9.1	8081
Government Effectiveness (WGI)	4.977	2.183	0	10	8081
Democracy (FH/Polity)	6.458	2.955	0	10	7997
Quality of Government (ICRG)	5.252	2.13	0.833	9.722	6297
Competition (Vanhanen)	6.585	2.976	0	10	7937
Participation (Vanhanen)	5.468	2.388	0	10	7937
Competition (Polity IV)	7.147	2.252	2	10	7091
Participation (Polity IV)	6.327	2.265	2	10	7387
Bureaucratic Professionalism	5.507	1.371	2.857	8.843	5285
Bureaucratic Policy Influence	0.080	1.069	-2.857	2.794	5327
Weekend	0.271	0.444	0	1	8081
COVID-19 Cases (log(n+1))	0.622	1.348	0	8.606	8081
Regional Spread of COVID-19 (%)	28.50	28.93	0	100	8081
GDP Per Capita (log)	8.427	1.474	5.642	11.53	8081
Hospital Beds (Per 1,000 People)	2.715	2.309	0.1	13.4	7977
Population, 0-14 (%)	28.83	11.05	12.29	50.16	7931
Urbanization (%)	57.94	22.67	12.39	100	7931
Nuclear/Stem Family System	0.448	0.44	0	1	7790
Taxes (% of GDP)	21.83	10.69	1.07	50.81	7172
Political Terror Scale	2.528	1.181	1	5	7959
Political Constraints Index V	0.463	0.287	0	0.893	7291
Presidentialism	0.604	0.489	0	1	7800
Division of Power Index	0.508	0.33	0	0.996	8081

Supplementary Figures

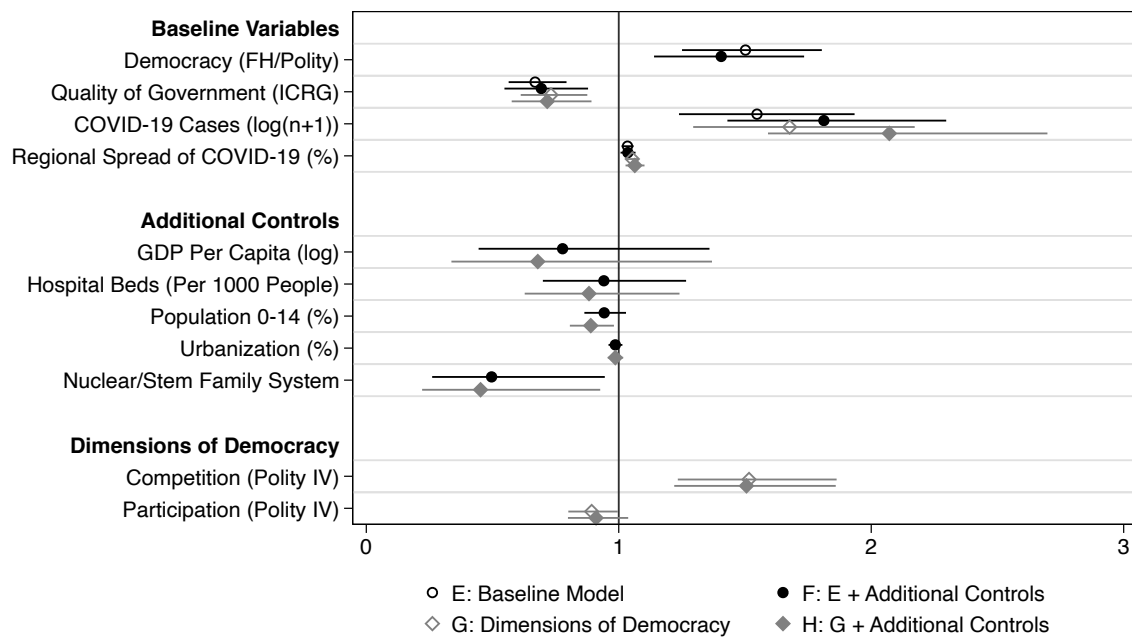


Figure S1: Hazard ratio estimates from Cox models using alternative variables. Note: 95% confidence intervals based on robust standard errors clustered by country. Observations are stratified on date of first confirmed COVID-19 case. All models include a set of region indicators and an indicator of weekend days. Full model output is in Table S3.

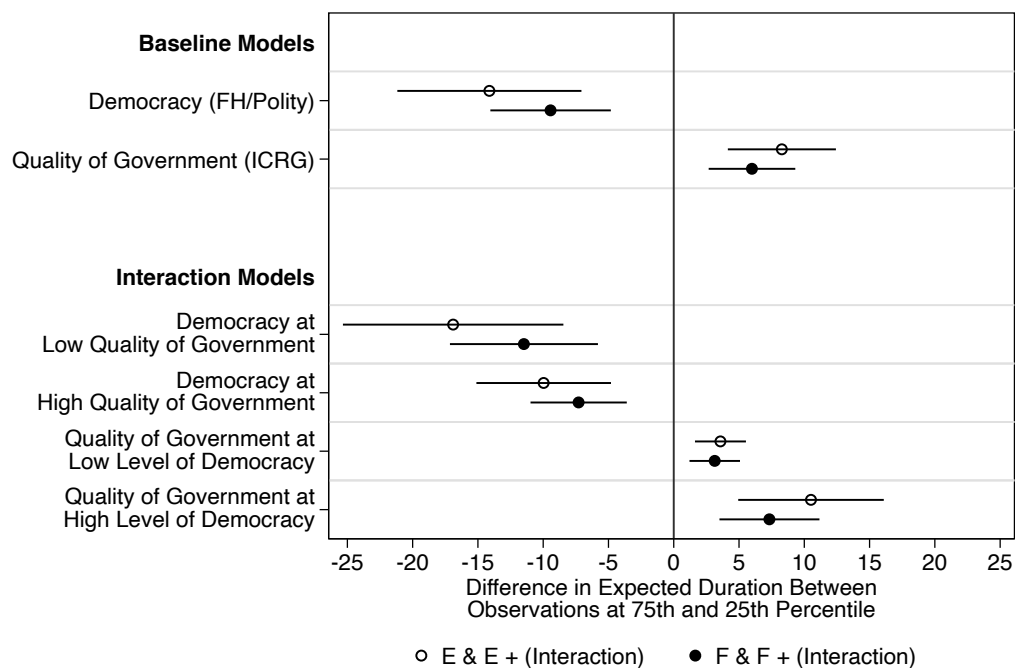


Figure S2: Marginal effects on expected time to school closure using alternative variables. Note: High and low levels are the 25th and 75th percentiles respectively. 95% confidence intervals based on standard errors bootstrapped by country with 200 iterations. E+ (Interaction) and F+ (Interaction) replicate models E and F but add an interaction between democracy and government effectiveness. Full model output is in Table S3.

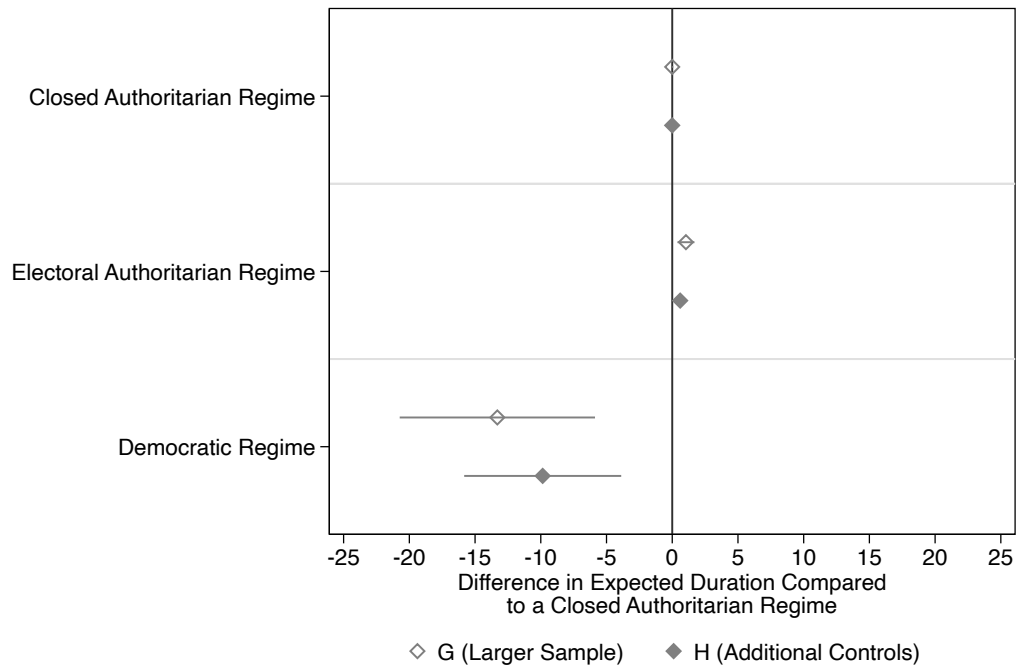


Figure S3: Expected difference in time to school closures, by regime type based on Polity IV. *Note:* Estimates of average marginal effects obtained by post-estimation simulation from models G and H using the nonparametric step-function version of the Cox ED procedure (Kropko and Harden, 2020). Standard errors are bootstrapped by country with 200 iterations. For Full model output is in Table S3.

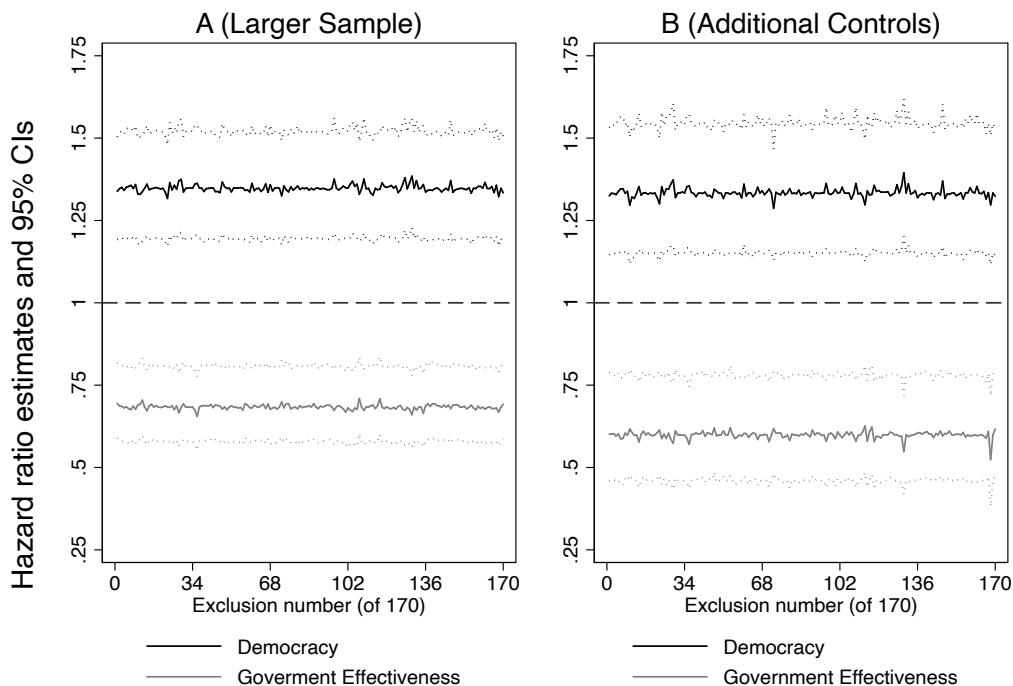


Figure S4: Results from 170 versions of models A and B excluding one country at a time.

Model output

Table S2 reports the output for models A–D that are presented in Figure 3 in the article. Table S3-S5 reports a set of robustness checks (models E–S), as detailed in the Supplementary analyses section of the study.

Table S2: Cox Proportional hazards models of time to school closures (A–D)

	(A)	(A+)	(B)	(B+)	(C)	(D)
Democracy (V-Dem)	1.348*** (0.083)	1.785*** (0.218)	1.333*** (0.100)	1.618*** (0.214)		
Government Effectiveness (WGI)	0.683*** (0.058)	0.912 (0.136)	0.599*** (0.080)	0.719* (0.133)	0.898 (0.063)	0.795** (0.086)
Democracy # Gov't Effectiveness		0.946** (0.021)		0.962* (0.022)		
East Asia & Pacific (<i>ref. cat.</i>)						
Europe	0.810 (0.392)	0.917 (0.496)	0.668 (0.406)	0.864 (0.543)	0.755 (0.343)	0.681 (0.372)
The Americas	0.548* (0.196)	0.560 (0.217)	0.555 (0.283)	0.540 (0.275)	1.010 (0.327)	0.917 (0.435)
Middle East & North Africa	4.769*** (2.241)	4.381*** (2.137)	3.348** (1.865)	3.138** (1.790)	4.989*** (2.983)	2.854 (2.046)
South Asia	0.621 (0.380)	0.690 (0.445)	0.571 (0.374)	0.636 (0.430)	0.794 (0.486)	0.772 (0.498)
Sub-Saharan Africa	1.406 (0.516)	1.523 (0.594)	2.354 (1.664)	2.240 (1.519)	1.978* (0.748)	3.076* (1.868)
Caucasus & Central Asia	6.329*** (4.081)	5.470** (3.765)	6.428*** (4.622)	6.832*** (4.988)	6.152*** (3.803)	6.865*** (4.767)
Weekend	0.066*** (0.056)	0.060** (0.069)	0.055*** (0.036)	0.057*** (0.042)	0.085* (0.111)	0.078*** (0.065)
COVID-19 Cases (log)	1.494*** (0.135)	1.633*** (0.146)	1.679*** (0.188)	1.720*** (0.199)	1.369*** (0.121)	1.564*** (0.175)
Regional Spread of COVID-19 (%)	1.029*** (0.010)	1.030*** (0.011)	1.026* (0.014)	1.024* (0.014)	1.023** (0.010)	1.021 (0.013)
GDP Per Capita (log)			0.835 (0.189)	0.917 (0.205)		0.808 (0.170)
Hospital Beds (Per 1,000 People)			0.858* (0.076)	0.833** (0.078)		0.844** (0.069)
Population, 0–14 (%)			0.897*** (0.029)	0.903*** (0.029)		0.885*** (0.029)
Urbanization (%)			0.994 (0.010)	0.993 (0.010)		0.994 (0.009)
Nuclear/Stem Family System			0.558** (0.155)	0.585* (0.161)		0.512** (0.153)
Competition (Vanhanen)					1.164*** (0.057)	1.172*** (0.067)
Participation (Vanhanen)					1.045 (0.061)	0.963 (0.069)
Observations	8081	8081	7724	7724	7937	7717
AIC	277.744	276.396	260.496	261.268	279.328	264.855
BIC	354.714	360.363	371.729	379.454	363.079	383.026

Coefficient estimates and 95% confidence intervals from pooled Cox models of school closures between January 28 and April 7, 2020. Observations are stratified on date of first confirmed COVID-19 case. Robust standard errors in parentheses, clustered by country. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table S3: Cox Proportional hazards models of time to school closures (E–H)

	(E)	(E+)	(F)	(F+)	(G)	(H)
Democracy (FH/Polity)	1.502*** (0.140)	1.868*** (0.241)	1.406*** (0.151)	1.665*** (0.265)		
Quality of Government (ICRG)	0.669*** (0.058)	0.980 (0.203)	0.693*** (0.084)	0.904 (0.210)	0.732*** (0.067)	0.717*** (0.080)
Democracy # Quality of Gov't		0.953** (0.022)		0.966 (0.025)		
East Asia & Pacific (<i>ref. cat.</i>)						
Europe	1.459 (0.760)	1.536 (0.836)	1.441 (1.173)	1.739 (1.427)	1.354 (0.795)	1.244 (1.200)
The Americas	1.225 (0.447)	1.224 (0.464)	1.707 (0.923)	1.598 (0.876)	2.029* (0.776)	3.586* (2.366)
Middle East & North Africa	22.16*** (16.104)	17.18*** (12.894)	19.03*** (16.507)	16.32*** (14.626)	16.61*** (12.935)	21.41*** (19.363)
South Asia	1.675 (1.645)	1.507 (1.458)	0.752 (0.941)	0.756 (0.914)	2.071 (2.128)	1.031 (1.485)
Sub-Saharan Africa	2.371* (1.161)	2.477** (1.138)	2.618 (2.188)	2.272 (1.826)	6.893*** (3.255)	21.1*** (16.803)
Caucasus & Central Asia	17.14*** (16.81)	17.06*** (17.08)	12.83** (14.966)	14.58** (17.33)	10.77*** (7.569)	16.10** (20.13)
Weekend	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000*** (0.000)	0.00*** (0.000)
COVID-19 Cases (log)	1.548*** (0.176)	1.632*** (0.183)	1.813*** (0.219)	1.855*** (0.241)	1.677*** (0.221)	2.072*** (0.279)
Regional Spread of COVID-19	1.035*** (0.012)	1.036*** (0.013)	1.036** (0.015)	1.037** (0.015)	1.054*** (0.013)	1.064*** (0.019)
GDP Per Capita (log)			0.778 (0.222)	0.771 (0.216)		0.679 (0.243)
Hospital Beds (Per 1,000 People)			0.941 (0.143)	0.938 (0.143)		0.882 (0.153)
Population, 0–14 (%)			0.943 (0.042)	0.958 (0.044)		0.889** (0.044)
Urbanization (%)			0.987 (0.014)	0.990 (0.015)		0.987 (0.016)
Nuclear/Stem Family System			0.496** (0.163)	0.524* (0.173)		0.453** (0.165)
Competition (Polity)					1.516*** (0.159)	1.506*** (0.162)
Participation (Polity)					0.893** (0.050)	0.910 (0.061)
Observations	6297	6297	6242	6242	5899	5844
AIC	185.592	185.992	185.627	184.995	180.111	175.492
BIC	259.818	266.966	293.452	292.820	260.302	288.936

Coefficient estimates and 95% confidence intervals from pooled Cox models of school closures between January 28 and April 7, 2020. Observations are stratified on date of first confirmed COVID-19 case. Robust standard errors in parentheses, clustered by country. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table S4: Cox Proportional hazards models of time to school closures (I–L)

	(I)	(I+)	(J)	(J+)	(K)	(L)
Democracy (V-Dem)	1.264*** (0.107)	1.211 (0.271)	1.326*** (0.107)	0.895 (0.293)	1.332*** (0.101)	1.275*** (0.103)
Bureaucratic Professionalism	0.763* (0.113)	0.921 (0.287)	0.818 (0.146)	0.582 (0.295)		
Bureaucratic Policy Influence	0.633*** (0.089)	2.256** (0.884)	0.725** (0.095)	2.589** (1.020)		
Democracy # Professionalism		0.977 (0.041)		1.057 (0.065)		
Democracy # Policy Influence		0.821*** (0.045)		0.809*** (0.047)		
Government Effectiveness (WGI)					0.672*** (0.072)	0.628*** (0.084)
Taxes (% of GDP)					0.997 (0.018)	0.997 (0.021)
Political Terror Scale					0.923 (0.132)	0.897 (0.141)
East Asia & Pacific (<i>ref. cat.</i>)						
Europe	1.557 (0.984)	1.579 (1.028)	3.002 (2.300)	3.152 (2.236)	1.090 (0.584)	0.967 (0.689)
The Americas	0.696 (0.389)	0.857 (0.426)	0.749 (0.562)	0.702 (0.374)	0.590 (0.231)	0.707 (0.388)
Middle East & North Africa	2.253 (1.690)	2.216 (1.670)	2.886 (2.239)	2.843 (2.147)	3.482*** (1.638)	2.802* (1.591)
South Asia	0.753 (0.605)	0.311 (0.324)	0.499 (0.588)	0.162 (0.208)	0.804 (0.531)	0.727 (0.523)
Sub-Saharan Africa	2.056 (1.548)	4.863** (3.325)	2.006 (2.671)	2.813 (3.422)	0.960 (0.387)	1.791 (1.343)
Caucasus & Central Asia	12.16*** (9.698)	10.79*** (9.014)	23.44*** (21.071)	25.48*** (19.737)	7.08*** (5.108)	6.448** (5.106)
Weekend	0.300 (.)	0.358 (.)	0.491 (.)	1.000 (.)	0.067*** (0.062)	0.050*** (0.037)
COVID-19 Cases (log)	1.281** (0.139)	1.784*** (0.250)	1.715*** (0.257)	2.183*** (0.398)	1.471*** (0.141)	1.808*** (0.244)
Regional Spread of COVID-19	1.019 (0.015)	1.017 (0.018)	1.015 (0.026)	1.012 (0.023)	1.018* (0.010)	1.019 (0.016)
GDP Per Capita (log)			0.322*** (0.112)	0.336*** (0.115)		0.708 (0.178)
Hospital Beds (Per 1,000 People)			0.857 (0.089)	0.822* (0.091)		0.822** (0.080)
Population, 0–14 (%)			0.905* (0.050)	0.928 (0.063)		0.885*** (0.029)
Urbanization (%)			1.012 (0.018)	1.008 (0.020)		0.992 (0.010)
Nuclear/Stem Family System			0.867 (0.298)	0.739 (0.289)		0.490** (0.141)
Observations	5228	5228	5011	5011	7134	7036
AIC	159.262	147.500	146.843	143.470	244.066	233.558
BIC	231.442	232.803	251.153	260.819	333.411	357.016

Coefficient estimates and 95% confidence intervals from pooled Cox models of school closures between January 28 and April 7, 2020. Observations are stratified on date of first confirmed COVID-19 case. Robust standard errors in parentheses, clustered by country. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table S5: Cox Proportional hazards models of time to school closures (M–S)

	(M)	(N)	(O)	(P)	(Q)	(R)	(S)
Democracy (V-Dem)	1.338*** (0.101)	1.359*** (0.089)	1.341*** (0.082)	1.254*** (0.079)	1.294*** (0.095)	1.435*** (0.091)	1.341*** (0.089)
Gov't Effectiveness	0.674*** (0.069)	0.654*** (0.058)	0.686*** (0.058)	0.736*** (0.062)	0.607*** (0.080)	0.694*** (0.063)	0.657*** (0.093)
Political Constraints	1.088 (0.413)						
Presidentialism		0.721 (0.188)					
Division of Power			1.319 (0.392)				
East Asia & Pacific (<i>ref. cat.</i>)							
Europe	0.983 (0.467)	0.678 (0.337)	0.819 (0.398)	0.133*** (0.086)	0.116*** (0.085)	0.734 (0.321)	0.829 (0.502)
The Americas	0.614 (0.242)	0.666 (0.235)	0.539* (0.191)	0.207*** (0.101)	0.191*** (0.114)	0.398*** (0.132)	0.486* (0.203)
Middle East & N.Africa	4.690*** (2.472)	5.063*** (2.370)	5.156*** (2.567)	1.874 (1.050)	1.756 (1.009)	3.089*** (1.197)	2.572* (1.262)
South Asia	0.747 (0.457)	0.624 (0.362)	0.636 (0.405)	0.076*** (0.054)	0.071*** (0.054)	0.682 (0.405)	0.696 (0.418)
Sub-Saharan Africa	0.891 (0.440)	1.751 (0.614)	1.412 (0.504)	1.095 (0.391)	1.613 (0.814)	1.211 (0.421)	1.468 (0.798)
Caucasus & Cent. Asia	29.53*** (33.831)	9.721*** (6.785)	6.907*** (4.555)	1.920 (1.326)	2.705 (1.910)	8.791*** (6.767)	9.589*** (7.691)
Weekend	0.060*** (0.045)	0.069*** (0.062)	0.063*** (0.055)	0.067*** (0.061)	0.052*** (0.036)	0.127*** (0.065)	0.067*** (0.040)
COVID-19 Cases (log)	1.624*** (0.189)	1.545*** (0.148)	1.483*** (0.137)	1.177* (0.101)	1.304** (0.153)	1.419*** (0.147)	1.613*** (0.178)
Regional Spread of COVID-19 (%)	1.024** (0.011)	1.029*** (0.010)	1.029*** (0.010)	1.059*** (0.015)	1.051*** (0.017)	1.034*** (0.009)	1.020* (0.012)
GDP Per Capita (log)					0.962 (0.211)		0.827 (0.188)
Hospital Beds (Per 1,000 People)					0.814** (0.070)		0.867* (0.071)
Population, 0–14 (%)					0.901*** (0.026)		0.907*** (0.028)
Urbanization (%)					0.989 (0.009)		0.990 (0.011)
Nuclear/Stem Family System					0.671 (0.196)		0.623* (0.156)
Observations	7291	7800	8081	8370	8013	8081	7724
AIC	234.219	260.395	279.398	279.095	263.205	260.954	246.494
BIC	316.952	343.937	363.366	356.452	375.027	337.924	357.728

Coefficient estimates and 95% confidence intervals from pooled Cox models of school closures between January 28 and April 7, 2020. Observations are stratified on date of first confirmed COVID-19 case. Robust standard errors in parentheses, clustered by country. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Country-wise list of key variables

Table S6: Data on key variables for 173 countries.

Country	First case confirmed	First closure	First nation-wide closure	Cases at first closure	Democracy	Government effectiveness
Afghanistan	24 Feb	3 Mar	14 Mar	5	3.46	2.11
Albania	9 Mar	9 Mar	9 Mar	2	4.94	5.12
Algeria	25 Feb	12 Mar	12 Mar	24	2.92	4.14
Angola	20 Mar	24 Mar	24 Mar	3	3.62	2.86
Argentina	3 Mar	16 Mar	16 Mar	56	7.77	5.06
Armenia	1 Mar	2 Mar	2 Mar	1	7.99	5.10
Australia	26 Jan	24 Mar		2044	8.36	8.61
Austria	25 Feb	16 Mar	16 Mar	1018	8.49	8.44
Azerbaijan	1 Mar	3 Mar	3 Mar	3	1.96	4.95
Bahrain	24 Feb	26 Feb	26 Feb	33	1.18	5.89
Bangladesh	8 Mar	16 Mar	16 Mar	8	2.61	3.67
Barbados	17 Mar	19 Mar	19 Mar	5	7.85	6.60
Belarus	28 Feb	4 Apr	4 Apr	440	2.55	4.86
Belgium	4 Feb	13 Mar	13 Mar	559	8.89	7.46
Benin	16 Mar	30 Mar	30 Mar	6	5.02	4.30
Bhutan	6 Mar	6 Mar	18 Mar	1	5.49	5.92
Bolivia	11 Mar	12 Mar	12 Mar	2	5.61	3.75
Bosnia and Herzeg.	5 Mar	11 Mar	11 Mar	7	5.27	3.89
Botswana	30 Mar	20 Mar	20 Mar	0	6.69	6.17
Brazil	26 Feb	12 Mar	25 Mar	52	6.93	4.85
Bulgaria	8 Mar	9 Mar	9 Mar	4	6.14	5.97
Burkina Faso	10 Mar	16 Mar	16 Mar	15	7.09	3.62
Burma	27 Mar	16 Mar	24 Mar	0	4.33	2.79
Burundi	31 Mar	1 Apr	1 Apr	2	1.59	2.41
Cabo Verde	20 Mar	23 Mar	23 Mar	3	7.68	5.87
Cambodia	27 Jan	7 Mar	16 Mar	1	1.99	4.01
Cameroon	6 Mar	18 Mar	18 Mar	10	2.92	3.51
Canada	26 Jan	16 Mar		450	8.53	8.95
Central African Rep.	15 Mar	30 Mar	30 Mar	3	3.84	1.51
Chad	19 Mar	19 Mar	19 Mar	1	2.69	1.89
Chile	23 Feb	16 Mar	16 Mar	182	8.13	7.52
China	22 Jan	27 Jan	27 Jan	2869	0.75	6.36
Colombia	6 Mar	16 Mar	16 Mar	57	6.28	5.40
Comoros	30 Apr	20 Mar	20 Mar	0	3.94	1.68
Congo (Brazzaville)	15 Mar	21 Mar	21 Mar	3	2.4	2.28
Congo (Kinshasa)	11 Mar	19 Mar	19 Mar	14	3.49	1.77
Costa Rica	6 Mar	16 Mar	16 Mar	35	8.99	6.15
Cote d'Ivoire	11 Mar	17 Mar	17 Mar	5	5.36	4.21

Croatia	25 Feb	13 Mar	13 Mar	32	7.32	6.12
Cuba	12 Mar	24 Mar	24 Mar	48	1.84	4.88
Cyprus	9 Mar	13 Mar	13 Mar	14	8.6	7.37
Czechia	1 Mar	11 Mar	11 Mar	91	8.03	7.14
Denmark	27 Feb	13 Mar	16 Mar	804	9.1	9.39
Djibouti	18 Mar	20 Mar	20 Mar	1	2.57	3.72
Dominican Republic	1 Mar	19 Mar	19 Mar	34	5.21	4.48
Ecuador	1 Mar	13 Mar	13 Mar	17	6.49	4.39
Egypt	14 Feb	15 Mar	15 Mar	110	1.8	4.34
El Salvador	19 Mar	12 Mar	12 Mar	0	6.44	4.25
Equatorial Guinea	15 Mar	16 Mar	16 Mar	1	1.82	2.38
Eritrea	21 Mar	27 Mar	27 Mar	6	0.7	1.49
Estonia	27 Feb	16 Mar	16 Mar	205	8.94	7.76
Eswatini	14 Mar	18 Mar	18 Mar	1	1.35	3.80
Ethiopia	13 Mar	16 Mar	16 Mar	5	3.44	3.89
Fiji	19 Mar	20 Mar	20 Mar	1	4.04	5.68
Finland	29 Jan	18 Mar	18 Mar	336	8.76	9.38
France	24 Jan	3 Mar	16 Mar	212	8.77	8.21
Gabon	14 Mar	16 Mar	16 Mar	1	3.85	3.33
Gambia	17 Mar	18 Mar	18 Mar	1	5.32	3.90
Georgia	26 Feb	2 Mar	2 Mar	3	6.44	7.02
Germany	27 Jan	26 Feb		27	8.83	8.64
Ghana	14 Mar	16 Mar	16 Mar	6	6.99	4.80
Greece	26 Feb	5 Mar	11 Mar	31	8.62	6.12
Guatemala	14 Mar	16 Mar	16 Mar	2	5.86	3.80
Guinea	13 Mar	27 Mar	27 Mar	8	4.19	3.58
Guinea Bissau	25 Mar	17 Mar	17 Mar	0	5.33	2.01
Guyana	12 Mar	16 Mar	16 Mar	4	6.44	4.42
Haiti	20 Mar	20 Mar	20 Mar	2	4.22	0.94
Honduras	11 Mar	12 Mar	12 Mar	2	3.74	3.94
Hong Kong	23 Jan	27 Jan	16 Feb	8	3.1	8.97
Hungary	4 Mar	16 Mar	16 Mar	39	4.65	6.31
Iceland	28 Feb	16 Mar	16 Mar	180	8.56	8.50
India	30 Jan	5 Mar	18 Mar	30	4.76	5.62
Indonesia	2 Mar	16 Mar	16 Mar	134	6.14	5.64
Iran	19 Feb	26 Feb	26 Feb	139	2.08	4.06
Iraq	24 Feb	25 Feb	27 Feb	1	3.81	2.39
Ireland	Feb 29	12 Mar	12 Mar	43	8.78	7.99
Israel	21 Feb	13 Mar	13 Mar	112	6.97	8.08
Italy	31 Jan	24 Feb	5 Mar	229	8.6	6.24
Jamaica	11 Mar	13 Mar	13 Mar	8	8.06	6.31
Japan	16 Jan	2 Mar	2 Mar	278	8.23	8.64
Jordan	3 Mar	15 Mar	15 Mar	8	2.7	5.46

Kazakhstan	13 Mar	16 Mar	16 Mar	10	2.35	5.51
Kenya	13 Mar	16 Mar	16 Mar	3	4.59	4.43
Korea, South	20 Jan	2 Mar	2 Mar	4335	8.54	8.19
Kosovo	14 Mar	12 Mar	12 Mar	0	6.09	4.50
Kuwait	24 Feb	1 Mar	1 Mar	45	3.16	5.29
Kyrgyzstan	18 Mar	16 Mar	16 Mar	0	4.3	3.79
Laos	24 Mar	19 Mar	18 Mar	0	1.23	3.57
Latvia	2 Mar	13 Mar	13 Mar	17	8.28	7.61
Lebanon	21 Feb	Feb 29	Feb 29	4	4.45	3.46
Lesotho	13 May	19 Mar	19 Mar	0	6.3	3.47
Liberia	17 Mar	16 Mar	16 Mar	0	6.09	2.30
Libya	24 Mar	15 Mar	15 Mar	0	2.71	1.13
Lithuania	Feb 29	13 Mar	13 Mar	4	8.27	7.48
Luxembourg	Feb 29	16 Mar	16 Mar	77	8.69	8.96
Madagascar	20 Mar	21 Mar	21 Mar	3	4.87	2.80
Malawi	2 Apr	23 Mar	23 Mar	0	4.76	3.64
Malaysia	25 Jan	18 Mar	18 Mar	790	4.46	7.38
Maldives	8 Mar	11 Mar	11 Mar	8	5.01	4.83
Mali	25 Mar	19 Mar	19 Mar	0	4.89	2.99
Malta	7 Mar	13 Mar	13 Mar	12	7.68	7.08
Mauritania	14 Mar	16 Mar	16 Mar	1	4.03	4.18
Mauritius	18 Mar	19 Mar	19 Mar	3	8.22	7.11
Mexico	28 Feb	23 Mar	23 Mar	367	6.71	4.91
Moldova	8 Mar	11 Mar	11 Mar	3	6.02	4.43
Mongolia	10 Mar	27 Jan	27 Jan	0	6.45	4.83
Montenegro	17 Mar	16 Mar	16 Mar	0	4.48	5.58
Morocco	2 Mar	16 Mar	16 Mar	29	2.88	4.99
Mozambique	22 Mar	23 Mar	23 Mar	1	3.97	3.49
Namibia	14 Mar	16 Mar	16 Mar	2	6.88	5.45
Nepal	25 Jan	19 Mar	19 Mar	1	5.81	3.01
Netherlands	27 Feb	16 Mar	16 Mar	1416	8.76	9.09
New Zealand	19 Mar	24 Mar	24 Mar	155	8.96	8.82
Nicaragua	10 Nov			6	2.35	3.60
Niger	20 Mar	20 Mar	20 Mar	1	5.2	3.53
Nigeria	28 Feb	23 Mar	23 Mar	40	5.24	2.92
North Macedonia	26 Feb	11 Mar	11 Mar	7	6.18	5.24
Norway	26 Feb	12 Mar	12 Mar	702	8.95	9.23
Oman	24 Feb	15 Mar	15 Mar	22	1.79	5.80
Pakistan	25 Feb	27 Feb	13 Mar	2	3.7	3.80
Panama	10 Mar	12 Mar	12 Mar	11	7.64	5.39
Papua New Guinea	20 Mar	23 Mar	23 Mar	1	4.16	3.52
Paraguay	8 Mar	11 Mar	11 Mar	5	5.9	4.10
Peru	6 Mar	16 Mar	16 Mar	86	7.82	5.10

Philippines	30 Jan	10 Mar	16 Mar	33	4.65	5.36
Poland	4 Mar	16 Mar	16 Mar	177	6.84	6.54
Portugal	2 Mar	5 Mar	16 Mar	8	8.87	7.72
Qatar	Feb 29	10 Mar	10 Mar	24	0.81	6.76
Romania	26 Feb	11 Mar	11 Mar	45	6.85	4.65
Russia	31 Jan	16 Mar	19 Mar	90	2.66	5.57
Rwanda	14 Mar	16 Mar	16 Mar	5	2.17	5.64
Sao Tome & Principe	6 Apr	17 Mar	20 Mar	0	7.02	3.91
Saudi Arabia	2 Mar	9 Mar	9 Mar	15	0.15	5.90
Senegal	2 Mar	16 Mar	16 Mar	24	7.34	5.13
Serbia	6 Mar	16 Mar	16 Mar	55	3.55	5.29
Seychelles	15 Mar	16 Mar	23 Mar	8	5.56	6.36
Sierra Leone	31 Mar	31 Mar	31 Mar	1	5.71	2.84
Singapore	23 Jan	7 Apr	3 Apr	1481	3.89	10.00
Slovakia	6 Mar	10 Mar	16 Mar	7	8.32	6.69
Slovenia	5 Mar	16 Mar	16 Mar	253	8.05	7.56
Solomon Islands	12 Oct	20 Mar	31 Mar	0	6.28	3.11
Somalia	16 Mar	18 Mar	18 Mar	1	1.56	0.46
South Africa	5 Mar	18 Mar	18 Mar	116	7.14	6.03
South Sudan	5 Apr	20 Mar	20 Mar	0	1.78	0.00
Spain	1 Feb	11 Mar	16 Mar	2277	8.77	7.38
Sri Lanka	27 Jan	13 Mar	13 Mar	6	5.9	5.00
Sudan	14 Mar	15 Mar	15 Mar	1	2.16	1.78
Suriname	14 Mar	16 Mar	16 Mar	1	7.66	3.98
Sweden	1 Feb	18 Mar	18 Mar	1410	9.01	9.16
Switzerland	25 Feb	16 Mar	16 Mar	2200	8.96	9.42
Syria	22 Mar	15 Mar	15 Mar	0	1.38	1.59
Taiwan	22 Jan	2 Feb	2 Feb	10	8.29	8.32
Tanzania	16 Mar	18 Mar	18 Mar	3	4.14	3.37
Thailand	13 Jan	18 Mar	18 Mar	212	2	6.01
Timor Leste	22 Mar	23 Mar	23 Mar	1	6.77	3.35
Togo	6 Mar	20 Mar	20 Mar	9	3.79	3.28
Trinidad and Tobago	14 Mar	14 Mar	14 Mar	2	7.55	5.46
Tunisia	4 Mar	12 Mar	12 Mar	7	7.35	5.03
Turkey	11 Mar	16 Mar	16 Mar	18	2.79	5.35
Uganda	21 Mar	20 Mar	20 Mar	0	3.02	4.00
Ukraine	3 Mar	12 Mar	12 Mar	1	4.94	4.61
United Arab Emirates	29 Jan	8 Mar	8 Mar	45	0.96	8.19
United Kingdom	31 Jan	18 Mar	23 Mar	5468	8.73	8.32
Uruguay	13 Mar	15 Mar	15 Mar	8	8.89	6.74
United States	20 Jan	5 Mar		184	8.16	8.43
Uzbekistan	15 Mar	16 Mar	16 Mar	6	1.95	4.15
Vanuatu	28 Feb	1 Mar	1 Mar	0	7.56	4.08

Venezuela	14 Mar	16 Mar	16 Mar	17	2.09	1.70
Vietnam	23 Jan	3 Feb	15 Feb	8	2.18	5.33
West Bank and Gaza	5 Mar	6 Mar	6 Mar	7	2.75	3.66
Yemen	10 Apr	16 Mar	16 Mar	0	1.16	0.37
Zambia	18 Mar	20 Mar	20 Mar	2	3.42	3.80
Zimbabwe	20 Mar	24 Mar	24 Mar	3	2.97	2.67

Sources:

First case: Dong et al. (2020), except for China, Japan, South Korea, Thailand and United States, for which the date was retrieved from newspaper reports.

Closures: Based primarily on UNESCO (2021) and Hale et al. (2021). In cases where the two sources disagree, an independent opinion has been formed based on the original sources, Cheng et al. (2021) and various newspaper reports.

Cases at first closure: Dong et al. (2020).

Democracy (scores for 2019): Coppedge et al. (2021).

Government effectiveness (scores for 2019): Kaufmann et al. (2011).

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