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Covid-19 and Legislative Activity: A Cross-National Study

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Abstract: Insufficient attention has been given to studying a vital organ jeopardized by covid-19: legislatures. Legislatures across the globe have been shut down or limited due to covid-19. In a comprehensive multidisciplinary study, exploring legislatures across 159 countries, we show that there is no causal relation between the severity of covid-19 and limitations on legislatures' operation. This suggests that legislatures are at risk of being shut down either due to unfounded fear from covid-19 or as an excuse for silencing legislatures. We find that legislatures in healthy democracies are relatively immune to this risk, while those in frail democracies and authoritarian regimes are more at risk of becoming casualties of covid-19. In partially free countries, the use of technology can mitigate this risk.

One Sentence Summary: Study of legislatures under covid-19 reveals: limitations on legislatures are not determined by severity of covid-19, but by health of democracy.

Keywords: Covid-19; Coronavirus; parliaments; legislatures; legislative activity.

Introduction

Leading scientific and medical journals are paying increasing attention to multidisciplinary research aimed at helping policymakers deal with covid-19 (*1-7*), by providing sound evidence about the effectiveness of various policy measures and control strategies (*4-6, 8, 9*), as well as the possible negative impacts of such measures, and ways to mitigate them (*10-13*). Still missing is research about how covid-19 (and measures for controlling it) is affecting the operation of policymaking institutions, and particularly legislatures – the most vital organ of democracy. Covid-19 and social distancing measures are particularly challenging for legislatures, because the very nature of these institutions, known also as congresses, assemblies or parliaments, is to assemble many representatives together (*14*). Recent estimates suggest that two billion people live now in countries whose legislature was shut or limited due to the pandemic (*15*). And while legislatures are struggling to adapt to life under the threat of covid-19 and social distancing requirements, leaders around the world are seizing extraordinarily broad emergency powers in the name of waging war on the coronavirus. This has led many to fear not only for the wellbeing of legislatures, but for the health of democracy itself (*16*).

In this context, we present the most comprehensive study to date on the operation of legislatures under the covid-19 pandemic – covering all 159 countries with a population of over 1,000,000. The aim of our multidisciplinary, cross-national study is to assess whether the spread of the novel coronavirus 2019 (SARS-Cov-2) has been associated with a decline of legislative activity, whether this decline differs across democratic and non-democratic countries, and whether this decline can be mitigated by using technology that allows legislatures to operate while maintaining social distancing.

Methods

For our outcome measures, parliamentary activity and adoption of technological solutions, we generated a novel comprehensive database that captures the operation of

parliaments from March 23rd until April 6th 2020, covering all 159 countries with a population of over 1,000,000 (Covid-19 and Parliaments dataset). To assure the comprehensiveness and quality of our database, we generated it using three different methods. The first was reaching out to an extensive network of leading academic experts on parliaments, which yielded information from 169 experts (see appendix 1). They were asked to complete a substantive report about the current operation of their legislature, and at the next stage to answer a short survey assessing the legislative activity and technological solutions' usage in their country of expertise (see appendix 2). The second method was collecting multiple comparative reports from international and national parliamentary research centers about parliamentary activity in various countries during the same period (see appendix 3). The third method was collecting reports from many hundreds of daily newspaper articles and entries in legislature's websites (either in English, Spanish, French or Hebrew, or using Google Translate) with information pertaining to the legislature's functioning in each of our countries' sample. The integration of these three sources of data was conducted by the first two authors. All authors participated in data and result verification.

For our control variables, we collected data from established databases (see appendix 4 for details). To allow comparisons between countries, for the variable relating to the country's burden of the epidemic, we used the number of deaths per million in each country on April 10th. We used mortality, since this measure is less affected by testing availability and policies (*17*), but at any rate, we checked and found that replacing mortality with morbidity produced similar results. Since we expected democratic countries to maintain parliamentary activity, something that non-democratic countries may be reluctant to do, we controlled for the regime type. We used the Freedom House Index (FHI), which divides countries into three categories: free, partially free, and not free. FHI is one of the most widely applied indices in comparative research on political regimes and democratization (*18*). Yet, as all indices measuring democracy raise conceptual and methodological issues (*19*), we tested FHI with an

alternative index, V-Dem Liberal Democracy Index, and found them sufficiently interchangeable for our study. For each of the countries we also controlled for additional political variables (populism, number of parliament members, strength of parliament); and public health related variables (population density, median population age, and medical spending per capita). Finally, due to the fact that more technological countries may mitigate the crisis' effect on parliamentary activity by adopting measures like video conferencing, we use IP addresses per capita as a predictor of a nation's technological capacity.

The primary outcome measure was parliamentary functioning, using a novel index we developed. Our Parliamentary Activity Index (ParlAct Index) measures the level of parliamentary activity on a 10-point scale, where 1 indicates that parliament is completely closed and 10 indicates it is functioning fully. The secondary outcome measure was parliamentary use of technological solutions during this period (ParlTech). For this measure we also developed a novel 4-point scale, where 1 indicates that no special technological solutions were adopted and 4 indicates the use of technological solutions such as videoconferencing and remote voting in lieu of physical presence (see appendix 2).

To test the reliability of our new indices, two coders were independently asked to determine both outcome measures for each country, based on the information in our Covid-19 and Parliaments dataset (without seeing the scores from the experts' survey of course). Intercoder reliability calculated using Krippendorff's alpha was at $\alpha = 0.81$. Realizing that no index can fully capture the nuances of reality, we allowed respondents in our expert survey to choose an in-between score (e.g., 3.5) and followed a similar method in our coding.

The association between ParlAct and ParlTech with mortality was assessed using multivariate OLS regression. We estimated the sensitivity of the results to the choice of statistical technique by additional estimating ordered logistic regression using the same dependent variables and multinomial regression models, where the dependent variables were replaced with categorical variables. In the multinomial models we distinguished between

parliaments that stopped operating, those whose operation was hampered but continued operating and those experiencing limited change. For the technology variable, we distinguished between those adopting no technological measures to assist with the operation of parliament, those adopting limited measures and those whose operation was greatly aided by technological measures.

These additional models produced results that were similar to those presented below. Hence, for ease of interpretation we present below the results from the OLS regressions. Results were also similar when we used morbidity as an independent variable instead of mortality. All statistical analyses were performed with the use of the STATA 16® statistical package. We dealt with the occurrence of missing values for some of the variables by using multiple imputation, assuming a multivariate normal distribution. In the presentation below all tests are two-tailed and P values of less than .05 were considered to indicate statistical significance. We additionally present effects sizes ($\eta 2$) for each variable to assist in interpreting its substantive importance. Since the situation is dynamic in many countries, it is important to emphasize that our results present the situation during the period of 23.3-6.4, 2020.

Results

Table 1 presents descriptive statistics for our outcome measures, parliamentary activity (ParlAct) and adoption of technological solutions (ParlTech) and for the main control variables used in the analysis. Anticipating the potential for differences in the association between mortality with the two outcome measures by the type of political regime in the country, we present the descriptive information for all country groups together, as well as distinguishing among countries that are not free, partially free, and fully free democracies (using Freedom House Index (FHI)).

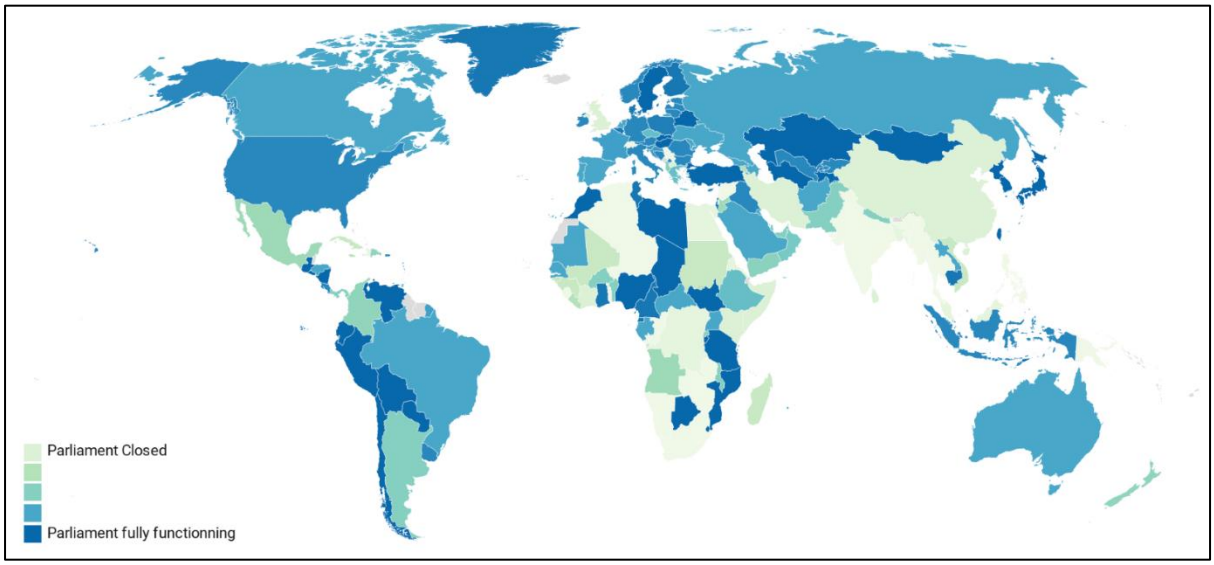
Table 1. Means (and Standard Deviations in Parentheses) for the Study Variables.

	All	Not Free	Partially Free	Free
ParlAct	6.554	6.508	5.316	7.880
	(3.423)	(3.534)	(3.529)	(2.700)
ParlTech	1.705	1.475	1.414	2.216
	(1.022)	(1.014)	(0.808)	(1.049)
FHI	54.057	18.020	52.660	88.203
	(30.176)	(11.482)	(11.214)	(8.605)
Populist	0.113	0.102	0.089	0.148
	(0.318)	(0.306)	(0.288)	(0.359)
# of parliament members	287.648	350.551	221.643	299.019
	(307.300)	(433.183)	(154.689)	(279.908)
Strength of parliament	0.492	0.322	0.476	0.663
	(0.199)	(0.171)	(0.136)	(0.123)
Median age	29.433	25.012	25.821	37.189
	(9.110)	(6.888)	(7.618)	(7.145)
Population density	200.050	148.388	296.625	146.778
	(693.833)	(340.948)	(1113.583)	(166.653)
Death per million	14.518	1.952	2.000	38.902
	(48.368)	(7.333)	(3.717)	(77.420)
Medical spending per capita	1.033	0.271	0.261	2.526
	(1.804)	(0.357)	(0.417)	(2.443)
# if IP addresses in country	425.019	85.241	106.261	1063.900
	(768.638)	(123.161)	(187.322)	(1039.784)
N	159	49	56	54

Source: Covid-19 and Parliaments dataset.

Several important findings are notable in table 1 and Fig. 1. Generally, for all countries, the majority of parliaments have remained functioning or partially functioning (Fig. 1).

Fig. 1. Parliamentary Activity Index (ParlAct Index)



Countries have also generally adopted modest technological tools in assisting their work. Partially free countries have noticeably lower ParlAct scores. By contrast, when looking at mortality, we see that fully free countries have so far experienced the greatest impact of the pandemic. The table also documents notable differences in the strength of parliament, as well as common predicators of mortality, such as median age and medical spending per capita.

Table 2 presents our initial assessment of the association between mortality and both ParlAct and ParlTech. The table contains results from two models. In the first model, mortality is measured continuously, whereas in the second model, we use a categorical measure for mortality in order to check for potential non-linearity in the association.

The first main result presented in table 2 is that mortality is not associated in a statistically significant manner with ParlAct, as is apparent in both models. A second notable finding is that when we use ParlTech as a predictor for ParlAct, ParlTech is strongly and statistically significantly associated with ParlAct ($P<.001$). A standard-deviation increase in ParlTech (i.e., 1.7) is associated with more than a 1.5 category increase in ParlAct, according to the results from model 2. Thirdly, mortality is weakly associated with ParlTech. Specifically, in model 1 the association between mortality and ParlTech is not statistically significant. In model 2 there is a statistically significant differences in ParlTech only for countries in the 3rd quartile of mortality ($P<.01$), suggesting that association is not linear. We turn to table 3 as a potential explanation for these outcomes.

Table 2. Estimates from OLS Regression Models Predicting Parliament Activity (ParlAct) and Use of Technology (ParlTech).

	Model 1				Model 2			
	ParlAct		ParlTech		ParlAct		ParlTech	
	Coefficient	η2 a	Coefficient	η2 a	Coefficient	η2 a	Coefficient	η2 a
Deaths per million	0.000 (0.006) [-0.12,0.013]	0.000	0.000 (0.002) [-0.03,0.004]	0.000				
Deaths 2nd Quartile					-1.006 (0.764) [-2.518,0.506]	0.016	-0.116 (0.227) [-0.565,0.334]	0.085
Deaths 3rd Quartile					-1.298 (0.863) [-3.005,0.409]		0.668** (0.251) [0.171,1.165]	
Deaths 4th Quartile					-2.348* (1.104) [-4.532,-0.163]		0.367 (0.333) [-0.293,1.026]	
ParlTech	0.960*** (0.280) [0.406,1.514]	0.101			1.026*** (0.290) [0.452,1.600]	0.097		
FHI	-0.022 (0.016) [-0.054,0.011]	0.021	0.007 (0.005) [-0.002,0.017]	0.018	-0.020 (0.016) [-0.052,0.012]	0.020	0.006 (0.005) [-0.004,0.015]	0.013
# of parliament members	-0.002* (0.001) [-0.004,-0.000]	0.044	-0.000 (0.000) [-0.001,0.000]	0.020	-0.002* (0.001) [-0.004,-0.000]	0.046	-0.000 (0.000) [-0.001,0.000]	0.025
Strength of parliament	2.156 (2.381) [-2.558,6.870]	0.007	-0.374 (0.731) [-1.821,1.073]	0.003	2.686 (2.393) [-2.054,7.426]	0.011	-0.219 (0.722) [-1.650,1.212]	0.002
Populist	-0.095 (0.878) [-1.830,1.640]	0.000	0.079 (0.267) [-0.449,0.607]	0.000	0.035 (0.868) [-1.679,1.750]	0.000	0.031 (0.257) [-0.477,0.539]	0.000
Population density * 1,000	0.185 (0.377) [-0.559,0.930]		-0.133 (0.114) [-0.359,0.093]	0.009	0.189 (0.380) [-0.563,0.941]	0.002	-0.178 (0.112) [-0.399,0.043]	0.018
Median age	0.078 (0.045) [-0.010,0.167]	0.019	0.040** (0.014) [0.013,0.067]	0.067	0.117* (0.047) [0.023,0.210]	0.028	0.024 (0.014) [-0.004,0.052]	0.029
Medical spending per capita * 1,000	0.163 (0.200) [-0.233,0.559]	0.009			0.253 (0.206) [-0.155,0.661]	0.017		
# of IP addresses in country * 1,000,000			-0.129 (0.141) [-0.408,0.151]	0.010			-0.072 (0.145) [-0.358,0.214]	0.004
Constant	3.184** (1.077) [1.054,5.314]		0.510 (0.328) [-0.138,1.158]		2.611* (1.154) [0.328,4.893]		0.751* (0.337) [0.085,1.418]	
N	159		159		159		159	

Source: Covid-19 and Parliaments dataset. Notes: * p<0.05, ** p<0.01, *** p<0.001.
Effects size was calculated for OLS models not correcting for the occurrence of missing values, because such calculation is not feasible.

Table 3 presents results from models that replicated model 1 in table 2 while distinguishing among countries that are not free, partially free, and fully free democracies. The results show that ParlTech, but not mortality, is differentially associated with ParlAct, depending on the degree to which the countries have free democracies. Importantly, mortality is not statistically associated with ParlAct for all three types of regimes. Although the effect size for countries that are not free (at .12) is higher than that for partially free and free countries, the effect is not significant (P>.05). ParlTech, by contrast, is associated with ParlAct only for countries that are partially free. For these countries, the effect size is substantial (.16) and the impact is positive (P<.01), showing that a standard deviation increase in ParlTech is associated with 2.89 change in ParlAct, which is quite substantial considering the mean for partially free countries (5.3). For free democratic countries, neither mortality nor ParlTech are associated with ParlAct.

In additional models, we replicated the results presented in tables 2 and 3 while assessing the impact of additional confounders, including replacing FHI with V-Dem Liberal Democracy Index. We also estimated a seemingly unrelated regression model, where ParlAct and ParlTech were assumed to be correlated. These models produced results that were similar to those reported above.

Table 3. Estimates from OLS Regression Models by Freedom House Score Predicting Parliament Activity (ParlAct) and Use of Technology (ParlTech).

	Not free				**Partially free**				**Free**			
	ParlAct	η2 a	ParlTech	η2 a	ParlAct	η2 a	ParlTech	η2 a	ParlAct	η2 a	ParlTech	η2 a
Deaths per million	-0.113	0.127	-0.014	0.014	-0.169	0.020	0.084	0.113	0.003	0.011	0.001	0.009
	(0.070)		(0.021)		(0.178)		(0.044)		(0.005)		(0.002)	
	[-0.255,0.029]		[-0.057,0.029]		[-0.531,0.192]		[-0.006,0.174]		[-0.008,0.014]		[-0.003,0.006]	
ParlTech	0.299	0.002			1.711**	0.164			0.493	0.040		
	(0.542)				(0.626)				(0.407)			
	[-0.803,1.402]				[0.445,2.977]				[-0.329,1.314]			
# of parliament members	-0.003*	0.219	-0.001	0.088	-0.000	0.000	0.001	0.033	-0.003*	0.077	-0.000	0.017
	(0.001)		(0.000)		(0.003)		(0.001)		(0.001)		(0.001)	
	[-0.006,-0.001]		[-0.001,0.000]		[-0.007,0.007]		[-0.001,0.002]		[-0.006,-0.000]		[-0.001,0.001]	
Strength of parliament	4.900	0.110	0.292	0.002	2.488	0.007	0.778	0.001	-3.543	0.023	-0.430	0.001
	(3.072)		(0.900)		(5.336)		(1.338)		(3.795)		(1.409)	
	[-1.342,11.141]		[-1.533,2.118]		[-8.289,13.265]		[-1.934,3.490]		[-11.209,4.122]		[-3.277,2.416]	
Population density * 1,000	0.507	0.019	0.210	0.036	-0.547	0.015	0.038	0.000	-2.157	0.033	-2.947***	0.209
	(1.633)		(0.477)		(0.697)		(0.176)		(2.477)		(0.808)	
	[-2.816,3.830]		[-0.757,1.178]		[-1.951,0.857]		[-0.318,0.394]		[-7.152,2.838]		[-4.577,-1.318]	
Median age	0.154	0.062	0.033	0.036	-0.006	0.000	-0.007	0.000	0.148	0.073	0.066*	0.118
	(0.095)		(0.031)		(0.111)		(0.028)		(0.076)		(0.027)	
	[-0.038,0.346]		[-0.030,0.096]		[-0.229,0.217]		[-0.064,0.050]		[-0.005,0.301]		[0.012,0.120]	
Medical spending per capita * 1,000	-1.461	0.000	-0.391	0.004	3.844	0.069	0.611	0.034	-0.064	0.002	-0.148	0.027
	(2.024)		(0.886)		(2.213)		(1.070)		(0.175)		(0.135)	
	[-5.718,2.796]		[-2.334,1.551]		[-0.620,8.309]		[-1.596,2.818]		[-0.416,0.289]		[-0.421,0.125]	
# of IP addresses in country * 1,000,000			2.676	0.011			-2.067	0.054			0.081	0.001
			(2.596)				(2.207)				(0.316)	
			[-2.824,8.176]				[-6.585,2.452]				[-0.555,0.717]	
Constant	2.254		0.660		1.380		0.919		4.885*		0.827	
	(2.233)		(0.749)		(2.303)		(0.578)		(2.249)		(0.846)	
	[-2.273,6.780]		[-0.871,2.192]		[-3.274,6.034]		[-0.249,2.087]		[0.351,9.419]		[-0.880,2.534]	
N	49		49		56		56		54		54	
R-sq	0.361		0.221		0.251		0.175		0.278		0.329	

Source: Covid-19 and Parliaments dataset. Notes: * p<0.05, ** p<0.01, *** p<0.001.
a. Effects size was calculated for OLS models not correcting for the occurrence of missing values, because such calculation is not feasible.

Discussion

The most important and surprising finding, which challenges what we might expect, is that there is no apparent relation between the severity of the disease and the decision to close parliament or limit its operation. The model in table 3 indicates that saliency of the health crisis is not statistically significant for any of the three groups of countries (only in the not-free category the direction is as expected, albeit still not statistically significant). In fact, the majority of the most severely inflicted democracies (e.g. Belgium, France, Germany, Italy, Spain, and the United States), kept legislative business as usual or close to it. In contrast, in countries like Gambia and Zambia, parliaments were suspended indefinitely, barely a day after confirming the first cases of the virus (*20, 21*); while the prime minister of Lesotho, under investigation for murdering his wife, used the pandemic to shut down parliament for three months, despite having no covid-19 cases in the country (*22*). Our findings suggest that parliaments may be shut down too quickly, without a sufficiently rational, evidence-based risk assessment that will ensure that the extreme measure of closing parliament is a necessary and proportional response to the severity of the health risk. This conclusion fits theoretical risk-perception scholarship that argues that covid-19 embodies many of the characteristics that are likely to lead to errors in reasoning and miscalculations (*23-25*). In some countries, legislatures are mostly endangered by inadvertent flawed risk perceptions and rash decision making. In other countries, there is also a risk that covid-19 would be merely an excuse for leaders with autocratic tendencies to silence parliament. This leads to our second major finding.

Our second important finding is that the impact of covid-19 on the functioning of parliament is highly dependent on the state of democracy. The group of 54 fully free democracies on FHI also performs best in our ParlAct index, with a mean score of 7.9. Parliaments in most of these countries were relatively immune to covid-19. In fact, the model presented in table 3 indicates that none of the independent variables considered are statistically significant for this group. This null finding means that the parliaments' reaction is not

dependant on the saliency of the health crisis nor is it generally contingent on the use of technology. Another noticeable finding is that, within this group, in the most advanced democracies, almost all parliaments are working as usual. In 17 of the top 20 countries from the FHI, parliaments are working as usual.

Parliaments in the 56 intermediary countries that are ranked "partially free" by FHI, appear to have suffered the most from the covid-19 crisis (mean ParlAct score of 5.3). This is not surprising, as these are the most vulnerable legislatures. On the one hand, they do not enjoy the safeguards of established or fully free democracies. On the other hand, they tend to pose a greater constraint on their executives than in fully autocratic regimes, and may be the last institution standing in the way of leaders with autocratic tendencies from dismantling democracy. The Serbian President, for example, in violation of the constitution, proclaimed an open-ended state of emergency and suspended Parliament, while seizing extraordinarily broad powers (*26*).

An interesting finding within the group of "partially free" countries (such as Albania, Bolivia, Indonesia and Ukraine, among others), was the capacity of these legislatures to operate through technological means (ParlTech), which constitutes a key factor in maintaining at least partial parliamentary operation.

The results for the 49 countries in the "not free" category of FHI are perhaps most surprising, as their legislatures are significantly more active (mean ParlAct score of 6.5) than in partially free countries. This may be explained by two possible explanations. One explanation may be that leaders in these countries tend to be less transparent about the state of covid-19 in their country or even deny its existence (*27*), and suspending parliament would entail admitting a dire health situation. For example, in Turkmenistan, its dictator not only kept parliament up and running but even banned any use, in conversation or print, of the word "coronavirus" (*28*). Another explanation is that dictatorial or quasi-dictatorial leaders in many of these countries are not constrained by their weak legislatures. Being no threat to their

leadership, these rulers may grant such parliaments the permission to continue business as usual. Yet, even within the "not free" group, there are some countries in which the mere existence of a legislature may be a source of constraint. This explains why some leaders embraced the opportunity afforded by the health crisis to restrict parliamentary functioning, and why legislatures in this category are still significantly less active than in free countries.

Our findings therefore make an important contribution to the growing academic interest, and raising global concern, on the question of whether (and how) Covid-19 endangers democracy (*29, 30*). While this is the most comprehensive study of world countries' parliamentary functioning during a health crisis, the very fluid nature of the covid-19 crisis limits our ability to foresee what will be the final effect of this pandemic on parliaments across the world. Nevertheless, our data does capture the actual reaction of most countries to this calamity. Future studies will tell which, if and when, world parliaments regain their functionality.

Our findings suggest similarities between the way covid-19 affects patients and its effects on parliaments. Covid-19 carries with it a risk of morbidity and mortality to patients, especially older individuals with comorbid conditions, but is often benign or even asymptomatic to young healthy people (*31, 32*). We find that parliaments seem to be affected in a similar manner. In healthy democracies, parliaments seem relatively unaffected by the pandemic, while parliaments in frail democracies are particularly at risk. There is growing awareness in the medical community that people's health is at risk not only from covid-19, but also from fear of covid-19, which dissuades patients from seeking required medical treatment for other illnesses (*33, 34*). Similarly, parliaments' operation is jeopardized by covid-19, but they are also at risk of being casualties of the fear from covid-19. As the research community is playing an increasingly important role in promoting evidence-based policymaking in the fight against covid-19, it can also help ensure that parliaments are limited only to the extent that rational risk assessments require.

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