Good Democratic Governance Can Combat COVID-19[*]

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Abstract

Some scholars argue that democracy is in crisis during the COVID-19 pandemic. However, successful cases such as New Zealand and Taiwan are often overlooked in these studies. These countries are often considered to have higher levels of government effectiveness. Using cross-national data from 148 countries, this study analyzed the impact of government effectiveness and its relationship with political regimes. The results revealed that democratic countries with higher government effectiveness can reduce COVID-19 cases and deaths. This study suggests that democratic countries need not give up freedom and need to improve government effectiveness to combat COVID-19.

1. Introduction

Some scholars argue that democracy is in crisis during the COVID-19 pandemic. Some say that democratic countries face a trade-off between freedom and health (Alsan et al., 2020; Norheim et al., 2021; Thomson and Ip, 2020). Recent studies also reveal that democratic countries suffer from more COVID-19 deaths than authoritarian states (Cepaluni et al., 2020; Cheibub et al., 2020; Frey et al., 2020). However, some other studies object to these views, and the advantages in authoritarian countries are only superficial (Cassan and Steenvoort, 2020; Annaka, 2021; Badman et al., 2021).

Although this problem is a subject of heated debates, only a little attention is paid to a considerable variation of COVID-19 deaths among democratic countries. In Figure 1, the left-hand side graph plots the total number of COVID-19 deaths per 1 million (as of December 31, 2020) on the vertical axis, as reported by the John Hopkins University (2020), and the level of Polity2 in 2018 (latest) on the horizontal axis from the Polity V Project (Marshall et al., 2020). The population data were obtained from World Bank. The latter codes democracy levels from -10 (most autocratic) to 10 (most democratic). The correlation coefficient between the two variables is 0.3885 (p <0.001). Using an alternative measure of political regimes makes the relationship more apparent. The right-hand side graph illustrates the relationship by using the multiplicative

polyarchy index (MPI) in 2019 (latest) from the Varieties of Democracy (V-Dem) Project

(Coppedge et al., 2020). The latter codes democracy levels from low to high (0–1)

(Coppedge et al., 2020). The correlation coefficient between these two variables is 0.4823

(p <0.001). These moderate, positive relationships appear to support the argument that

democratic governments are disadvantaged in coping with the current pandemic, at least
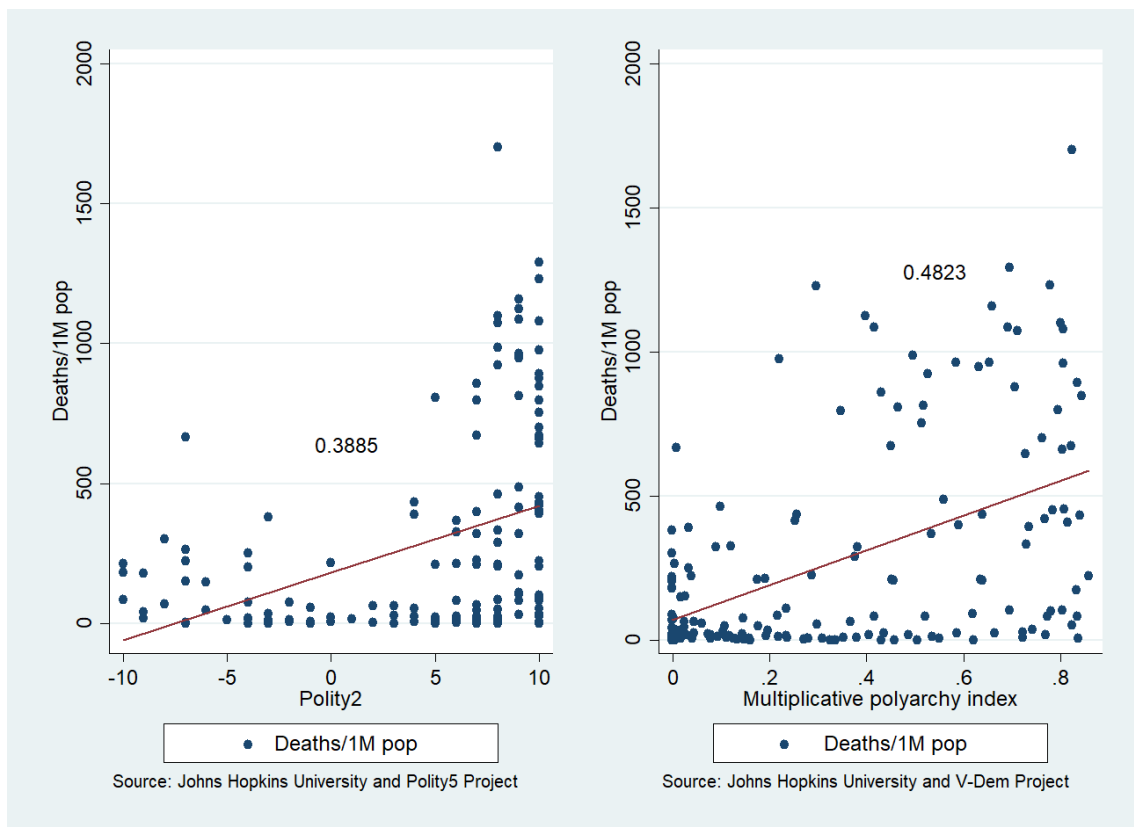
nominally.

Figure 1: Relationship between Polity2 and MPI and number of COVID-19 deaths

However, there is a significant variance in democratic countries. Several democratic countries are under 500 deaths per 1 million population, and many of them have over 500 deaths. Even in democracies, countries such as Taiwan and New Zealand seem to be relatively successful in combating COVID-19 by the end of 2020. These countries are islands, but the United Kingdom, which has suffered severely from the pandemic, is also an island. Once the virus invades a country, it cannot usually combat the pandemic simply by taking advantage of being an island.

Taiwan and New Zealand are being praised for their governing and bureaucratic capability. Previous research has reported that government effectiveness is negatively correlated with COVID-19 deaths (Liang et al., 2020; Serikbayeva et al., 2020). Combating COVID-19 requires a tremendous amount of information related to the issue. Government effectiveness varies among nations; democratic countries tend to have more effective governments. However, this is not always the case; the correlation coefficient between Polity2 and government effectiveness, obtained from the World Bank, is only 0.3796. We find inefficient governments among democracies and efficient governments among authoritarian states. Then, we cannot straightforwardly conclude that "democracy suffers." As the cases of Taiwan and New Zealand show, democratic governments with higher government effectiveness can combat COVID-19.

In addition, a study shows that democratic countries with a higher quality of government tend to have fewer people affected by natural disasters (Persson and Povitkina, 2017). The current situation of the pandemic is like a natural disaster. We can naturally expect that the same is true for this pandemic. Then this study analyzes the interaction effects of democracy and government effectiveness on COVID-19. It argues that democracy is not a determinant of the higher number of COVID-19 deaths but conditions the effects of government effectiveness on fatalities. This suggests that effective democratic governments can reduce COVID-19 cases and deaths.

2. Analysis

2.1. Model

Using cross-sectional data, this section analyzes the interaction effect between political regimes and government effectiveness on COVID-19 deaths. It estimates the following specifications:

$$COVID\ death_i = \alpha + \beta_1 Political\ Regimes_i$$
$$+ \beta_2 Governance_i + \beta_3 (Political\ Regimes_i$$
$$\times Governance_i) + \beta'_4 X_i + \varepsilon_i$$

COVID death is the total number of COVID-19 deaths (as of December 31, 2020).

Political Regimes indicates Polity2 Score or MPI, and *Governance* represents government effectiveness. *X* is a vector of controls. ε is an error term. *i* represents each country.

The total number of deaths is obtained from the John Hopkins University. Daily data available elsewhere cannot be utilized because almost all other necessary covariates, such as GDP per capita, are yearly data. This study constructs cross-national data on 148 countries, obtaining political regime variables from the Polity Project and V-Dem Project. Government effectiveness, GDP per capita, total population, population density, and population ratio age 65 and above are taken from the World Bank. The latest available yearly data (2019) for all variables are used (except for population density (2018)). Government effectiveness attempts to capture "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies." (Kaufmann et al. 2010: 223). It is already employed by the studies which analyzed the relationship between state capacity and Covid-19 (Liang et al., 2020; Serikbayeva et al., 2020). The estimation model includes both the latitude and longitude obtained from John Hopkins University, which captures

geographic characteristics, such as humidity and cultural factors, such as high awareness

of mask usage and preventive behavior affecting the severity of COVID-19 deaths as well

as any remaining regionally specific effects. Finally, the model includes the days since

the first confirmed case to capture the linear trends of the infection.

For estimation, negative binomial regression with robust standard errors and log

transformation of the dependent variables for ordinary least squares (OLS) (Appendix 1

and 2) are applied, considering the skewed distribution of the dependent variable. The

control variables (except for latitude, longitude, and days since the first confirmed case)

are logged due to their skewed distributions. Model goodness of fit was assessed using

the Akaike information criterion (AIC) and the Bayesian information criterion (BIC)

based on Lindsey (2014) and Gluzmann et al. (2015). However, note that the key variables,

such as the political regime variables, are included in the estimations, regardless of AIC

and BIC assessment. Descriptive statistics are provided in Appendix 1.

First, the analyses do not include positive cases as a control because these are

strongly correlated with deaths; positive cases must precede all deaths. The correlation

coefficient is 0.8128 (p <0.001). If positive cases are included in the estimations, these

capture most of the effects of other variables on deaths. After running the regression

without the positive case variable, it is included as a control. This difference can tell us what effects the included independent variables may have.

2.2. Results

The results of the negative binomial regression without positive cases as a control are reported in Table 1. Models 1 and 2 analyze the relationship between Polity2 and deaths, and Models 3 and 4 analyze that between MPI and deaths. Models 2 and 4 include the interaction terms between political regime variables and government effectiveness. These models reveal that the political regime itself consistently does not matter in terms of COVID-19 deaths. On the other hand, GDP per capita is consistently positive and statistically significant. Models 1 and 3 indicate that government effectiveness is negatively correlated with the number of deaths and is statistically significant without the interaction terms. Models 2 and 4 report that the interaction terms are negatively associated with the number of deaths and are statistically significant.

Figure 4 illustrates the marginal effects of government effectiveness on the number of deaths conditioned by the level of political regime variables based on Models 2 and 4. These graphs show the downward trends of the dependent variable as the level of political regime variables is higher, although the line is almost flat after reaching some

level of democracy. They also reveal that all statistically significant plots are under zero on the Y-axis. These results indicate that effective democratic governments tend to have fewer COVID-19 deaths.

Table 1: Determinants of COVID-19 Deaths (Negative Binomial Regression)

VARIABLES	(1) NB Death cases	(2) NB Death cases	(3) NB Death cases	(4) NB Death cases
Polity2	-0.00143	-0.0169		
	(0.0244)	(0.0254)		
MPI			-0.997	-0.303
			(0.659)	(0.747)
Government Effectiveness	-0.533**	-0.248	-0.407*	-0.0240
	(0.237)	(0.261)	(0.235)	(0.249)
Polity2 $\times$ Government Effectiveness		-0.0602**		
		(0.0245)		
MPI $\times$ Government Effectiveness				-1.370***
				(0.367)
GDP per capita (log)	0.649***	0.635***	0.621***	0.711***
	(0.161)	(0.148)	(0.139)	(0.135)
Total Population (log)	1.069***	1.074***	1.055***	1.079***
	(0.0771)	(0.0801)	(0.0763)	(0.0785)
Population Density (log)	-0.0267	-0.0176	-0.0187	-0.0328
	(0.0843)	(0.0795)	(0.0862)	(0.0807)
Age 65 and above (ratio)	0.717***	0.974***	0.952***	0.899***
	(0.236)	(0.267)	(0.216)	(0.231)
Latitude	0.0124**	0.0103*	0.00969	0.0132**
	(0.00596)	(0.00592)	(0.00608)	(0.00582)
Longitude	-0.0122***	-0.0117***	-0.0133***	-0.0119***
	(0.00232)	(0.00230)	(0.00248)	(0.00233)
Days since the first confirmed case	0.00539	0.00340	0.00544	0.00248

	(0.00713)	(0.00718)	(0.00712)	(0.00719)
Constant	-18.44***	-18.15***	-18.05***	-18.28***
	(2.134)	(2.102)	(2.112)	(2.082)
AIC	2535.293	2531.343	2552.234	2543.688
BIC	2568.187	2567.228	2585.203	2579.655
Observations	147	147	148	148

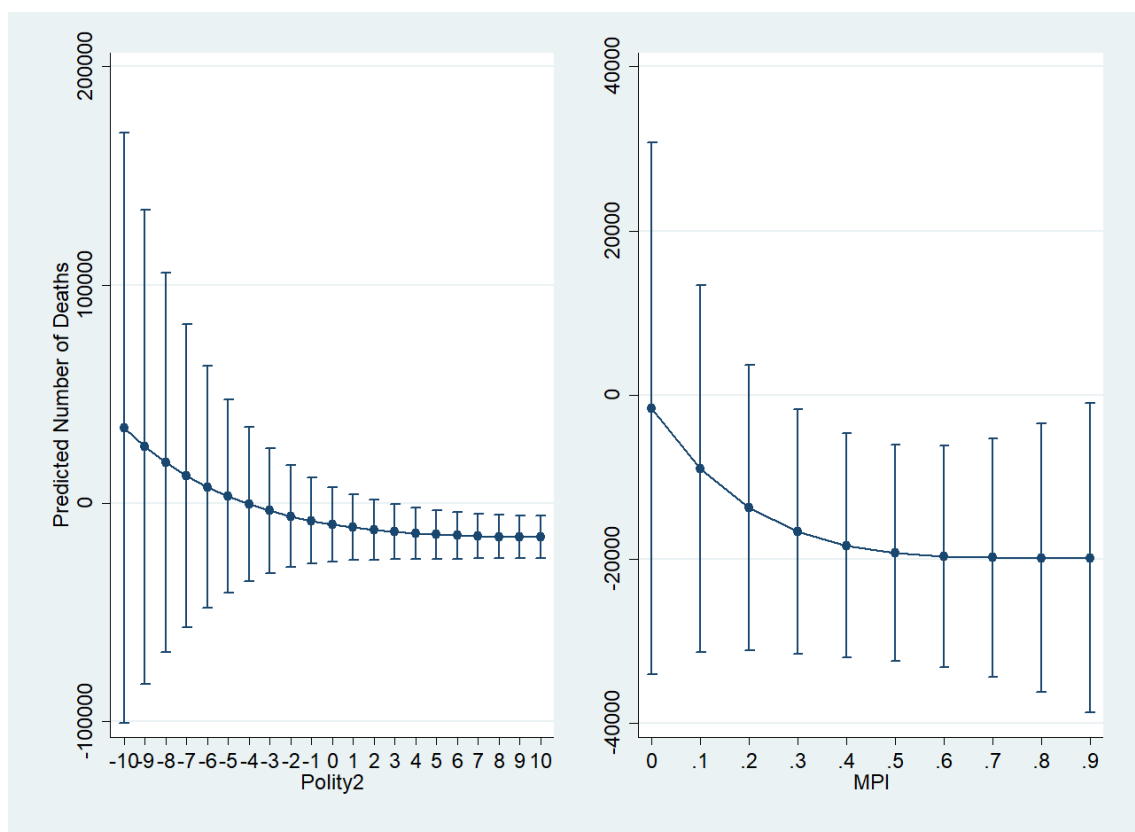Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure 4: Average Marginal Effects of Government Effectiveness on Deaths (95% CIs)

Table 2 shows that the political regime variables in Models 5 to 8 are not statistically significant. However, after controlling for positive cases, the coefficients of

some variables drastically change. For example, GDP per capita in all these models is no longer significant. This should mean that positive cases capture the prevalence of the disease. Prosperous countries are likely to have a higher number of positive cases, but, naturally, prosperity does not matter in terms of deaths after controlling for these positive cases. In addition, it is also quite natural that after controlling for these positive cases, the sign of interaction term coefficients between political regime variables and government effectiveness in Models 6 and 8 is positive because the effect of the latter should be captured as a reducing one on positive cases.

This relationship is illustrated in Figure 5. Both graphs show the marginal effects of government effectiveness on the number of deaths conditioned by the level of political regime variables based on Models 6 and 8, respectively. The plots in both graphs are upward. Nevertheless, all predicted values are significantly below zero. This implies a considerable reduction in the impact of government effectiveness on COVID-19 deaths.

Table 2: Determinants of COVID-19 Deaths with Positive Cases as a Control

	(5)	(6)	(7)	(8)
	NB	NB	NB	NB
VARIABLES	Death cases	Death cases	Death cases	Death cases
Polity2	0.00660	0.00869		
	(0.0120)	(0.0113)		
MPI			0.596*	0.361
			(0.312)	(0.309)
Government Effectiveness	-0.474***	-0.590***	-0.571***	-0.679***
	(0.155)	(0.172)	(0.158)	(0.193)
Polity2 × Government Effectiveness		0.0302**		
		(0.0129)		
MPI × Government Effectiveness				0.425*
				(0.247)
GDP per capita (log)	0.127	0.0967	0.118	0.0687
	(0.110)	(0.0994)	(0.103)	(0.0873)
Total Population (log)	0.314***	0.288***	0.305***	0.271***
	(0.0639)	(0.0571)	(0.0632)	(0.0562)
Population Density (log)	-0.0700	-0.0598	-0.0710*	-0.0629
	(0.0431)	(0.0407)	(0.0420)	(0.0415)
Age 65 and above (ratio)	0.475***	0.366***	0.404***	0.405***
	(0.114)	(0.120)	(0.107)	(0.106)
Latitude	0.00122	0.000817	0.00190	0.000485
	(0.00278)	(0.00250)	(0.00279)	(0.00260)
Longitude	-0.00413***	-0.00428***	-0.00335***	-0.00371***
	(0.000946)	(0.000910)	(0.000970)	(0.000978)
Days since the first confirmed case	-0.00521	-0.00319	-0.00445	-0.00283
	(0.00548)	(0.00483)	(0.00535)	(0.00481)
Confirmed Cases (log)	0.882***	0.908***	0.897***	0.925***
	(0.0428)	(0.0386)	(0.0406)	(0.0372)
Constant	-7.911***	-8.043***	-8.162***	-7.984***
	(1.264)	(1.229)	(1.216)	(1.200)
AIC	2310.704	2305.24	2324.679	2322.122
BIC	2346.59	2344.116	2360.645	2361.086
Observations	147	147	148	148
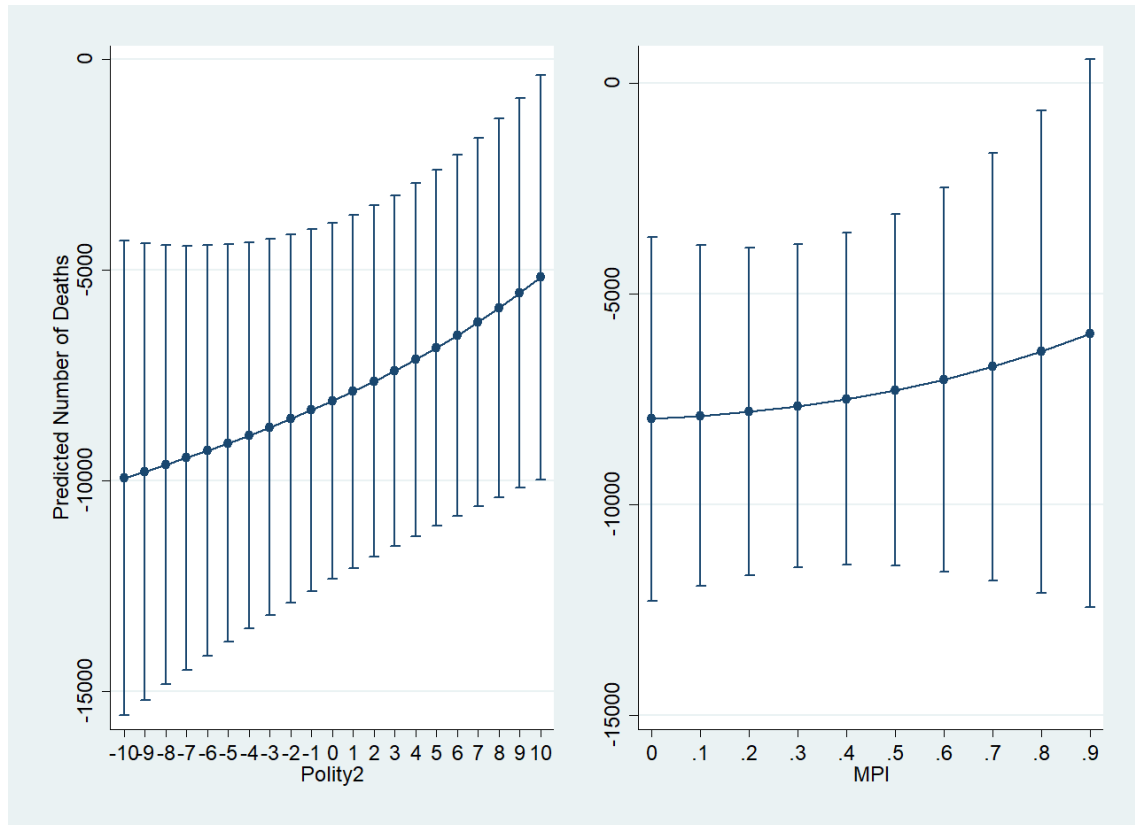
Figure 5: Average Marginal Effects of Government Effectiveness on Deaths with

Positive Cases as a Control (95% CIs)

The analysis of positive cases of COVID-19 is reported in Table 3. Except for

Model 11, the political regime variables are not statistically significant. The MPI in Model

11 is statistically significant, but the sign of the coefficient is negative. Government

effectiveness in Models 9 and 11 is not statistically significant. However, the interaction

terms in Models 10 and 12 are statistically significant and negative, as expected. GDP per

capita in Models 9 to 12 is robustly significant, as expected.

The marginal effects of government effectiveness on the number of positive

cases conditioned by the level of political regime variables based on Models 10 and 12,

respectively, are illustrated in Figure 6. The plots in both graphs show the downward

trends of the dependent variable as the level of political regime variables is higher,

although the line is almost flat after reaching some level of democracy. However, almost

all predicted values are below zero. The effect is significant, even though the interaction

term between Polity2 and government effectiveness appears to be relatively small.

The above results consistently show that the political regime variables are not

statistically significant. On the other hand, democratic countries with good governance

can reduce COVID-19 cases and deaths. GDP per capita is directly correlated with cases

and indirectly correlated with fatalities. Almost all the OLS results in Appendixes 2 and

3 are identical to those above.

Table 3: Determinants of COVID-19 Positive Cases

VARIABLES	(9) NB Confirmed Cases	(10) NB Confirmed Cases	(11) NB Confirmed Cases	(12) NB Confirmed Cases
Polity2	-0.00310	-0.0220		
	(0.0206)	(0.0213)		
MPI			-1.238**	-0.327
			(0.586)	(0.665)
Government Effectiveness	-0.276	0.184	-0.108	0.423*
	(0.217)	(0.229)	(0.228)	(0.233)
Polity2 × Government Effectiveness		-0.0935***		
		(0.0200)		
MPI × Government Effectiveness				-1.825***
				(0.327)
GDP per capita (log)	0.699***	0.681***	0.656***	0.761***
	(0.151)	(0.135)	(0.132)	(0.119)
Total Population (log)	0.912***	0.933***	0.885***	0.930***
	(0.0714)	(0.0712)	(0.0739)	(0.0691)
Population Density (log)	0.0545	0.0506	0.0544	0.0283
	(0.0718)	(0.0682)	(0.0756)	(0.0696)
Age 65 and above (ratio)	0.318	0.680***	0.571***	0.521**
	(0.212)	(0.232)	(0.198)	(0.203)
Latitude	0.0139**	0.0118**	0.0101*	0.0158***
	(0.00562)	(0.00540)	(0.00589)	(0.00527)
Longitude	-0.00882***	-0.00816***	-0.0103***	-0.00886***
	(0.00257)	(0.00248)	(0.00273)	(0.00235)
Days since the first confirmed case	0.00822	0.00232	0.00922	0.00328
	(0.00652)	(0.00630)	(0.00710)	(0.00655)
Constant	-12.75***	-11.59***	-12.20***	-12.03***
	(2.040)	(1.931)	(2.100)	(1.916)
AIC	3738.707	3724.254	3759.499	3740.976
BIC	3771.602	3760.14	3792.468	3776.943
Observations	147	147	148	148

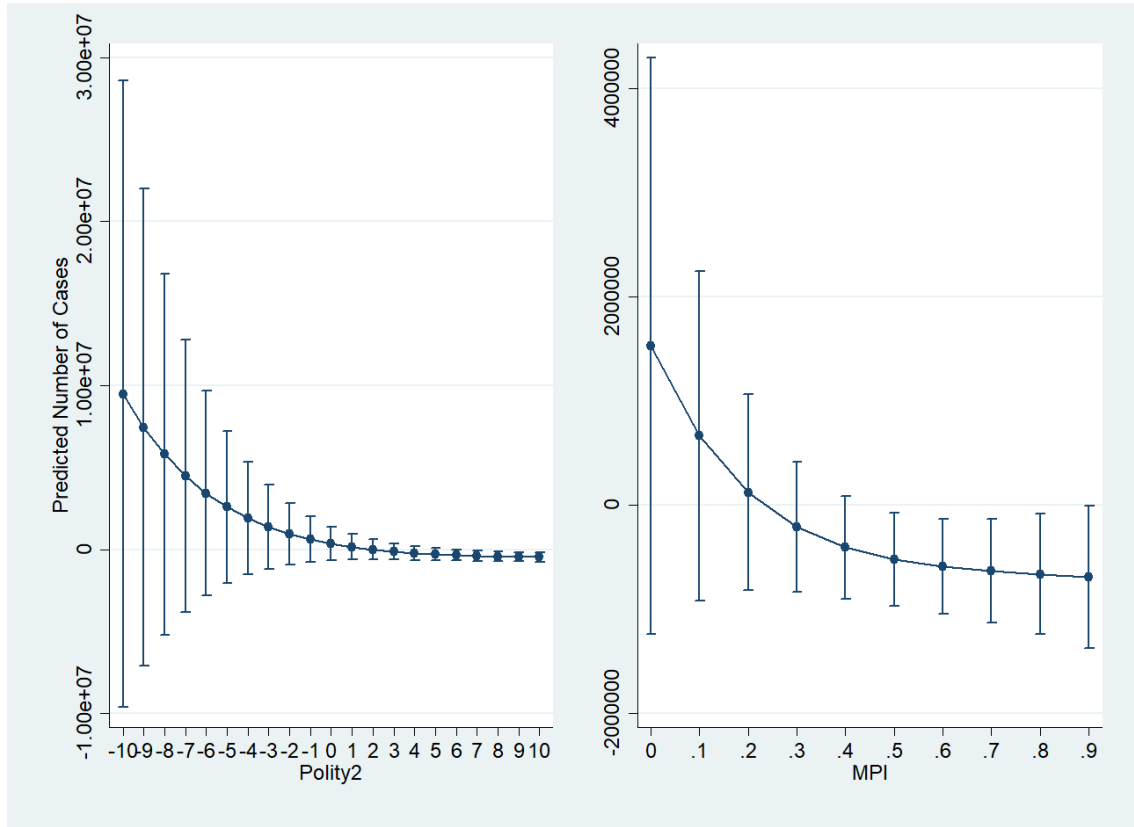Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure 6: Average Marginal Effects of Government Effectiveness on Cases (95% CIs)

3. Discussion

The current study demonstrates that government effectiveness is an essential factor in reducing COVID-19 cases and deaths. This result strongly supports the findings of Liang et al. (2020) and Serikbayeva et al. (2020). However, the former does not consider the effect of political regimes. The latter uses the Freedom House score only to define democracy, not paying attention to the interaction effects of democracy and government

effectiveness on Covid-19. On the other hand, this study analyzes the interaction effects using the Polity Project and V-Dem Project data and reports that good democratic governance can significantly reduce COVID-19 cases and deaths. These results truly contribute to the literature.

Also, the aforementioned results refute the arguments for the advantages of authoritarian countries (Cepaluni et al., 2020; Cheibub et al., 2020; Frey et al., 2020). Even though the above analyses are based on reported data susceptible to manipulation, which seems advantageous for authoritarian countries (Adiguzel et al., 2020; Kapoor et al., 2020; Annaka, 2021; Badman et al. 2021), this study does not find the advantage of authoritarian countries after controlling for other factors that may affect COVID-19 cases and deaths.

4.   Conclusion

Scholars have argued that democracy is in crisis during the COVID-19 pandemic. Some say that democratic countries face a trade-off between freedom and health. Recent studies have also revealed that democratic countries suffer from more COVID-19 deaths than authoritarian states. However, these studies often overlook successful cases such as New Zealand and Taiwan. These countries are often considered to have higher levels of

government effectiveness. This study analyzed the impact of government effectiveness and its relationship with political regimes. The results revealed that democratic countries with higher government effectiveness can reduce COVID-19 cases and deaths. In addition, political regimes are not correlated with COVID-19 cases and deaths at the conventional level after controlling for other factors. This study suggests that democratic countries do not need to reduce social freedoms and needs to improve government effectiveness to combat COVID-19.

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19

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Appendix 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Confirmed Deaths	148	12220.11	38128.79	0	351932
Confirmed Deaths per 1M pop (log)	144	4.4333	2.1006	-1.7519	7.4386
Confirmed Cases	148	558188.3	1989659	41	2.01E+07
Confirmed Cases 1M pop (log)	148	8.4152	2.1657	1.7437	11.2236
Polity2	147	4.5306	5.9695	-10	10
MPI	148	0.3614	0.2976	0	0.8580
Government Effectiveness	148	-0.0054	0.9753	-2.2794	2.2211
GDP per capita (log)	148	8.6499	1.4774	5.3379	11.6179
Total Population (log)	148	16.3822	1.5224	13.2176	21.0581
Population Density (log)	148	4.2510	1.3679	0.7109	8.9813
Age 65 and above Ratio (log)	148	1.9301	0.7788	0.1454	3.3323
Latitude	148	19.5041	25.3300	-40.9006	61.9241
Longitude	148	21.9166	57.9347	-102.5528	178.0650
Days since First Confirmed Case	148	304.3041	20.4153	233	345

Appendix 2: Determinants of COVID-19 Deaths (OLS)

VARIABLES	(1) OLS Death per 1M (log)	(2) OLS Death per 1M (log)	(3) OLS Death per 1M (log)	(4) OLS Death per 1M (log)	(5) OLS Death per 1M (log)	(6) OLS Death per 1M (log)	(7) OLS Death per 1M (log)	(8) OLS Death per 1M (log)
Polity2	0.00969	0.00708			0.00294	0.00524		
	(0.0339)	(0.0351)			(0.0172)	(0.0166)		
MPI			-0.453	0.0805			0.334	0.134
			(0.759)	(0.886)			(0.449)	(0.471)
Government Effectiveness	-0.825***	-0.671**	-0.743***	-0.431	-0.461***	-0.599***	-0.521***	-0.643***
	(0.247)	(0.281)	(0.273)	(0.309)	(0.147)	(0.186)	(0.165)	(0.216)
Polity2 × Government Effectiveness		-0.0309				0.0295		
		(0.0264)				(0.0181)		
MPI × Government Effectiveness				-1.021**				0.423
				(0.496)				(0.362)
GDP per capita (log)	0.890***	0.880***	0.865***	0.889***	0.0189	0.00516	0.0175	-0.0160
	(0.174)	(0.172)	(0.161)	(0.153)	(0.102)	(0.102)	(0.0953)	(0.102)
Population Density (log)	0.0109	-0.00649	0.00133	-0.0197	-0.0599	-0.0452	-0.0567	-0.0496
	(0.105)	(0.110)	(0.104)	(0.112)	(0.0672)	(0.0632)	(0.0670)	(0.0661)
Age 65 and above (ratio)	0.697**	0.794**	0.860***	0.854***	0.570***	0.475***	0.529***	0.522***
	(0.310)	(0.324)	(0.269)	(0.270)	(0.155)	(0.157)	(0.139)	(0.135)
Latitude	0.0151**	0.0155**	0.0141**	0.0168**	-0.000197	-0.000984	0.000144	-0.00135
	(0.00666)	(0.00683)	(0.00651)	(0.00721)	(0.00417)	(0.00387)	(0.00411)	(0.00423)
Longitude	-0.0140***	-0.0139***	-0.0148***	-0.0139***	-0.00441***	-0.00431***	-0.00394***	-0.00404***
	(0.00231)	(0.00236)	(0.00240)	(0.00267)	(0.00128)	(0.00128)	(0.00138)	(0.00141)
Days since the first confirmed case	0.000893	-0.00102	-0.000495	-0.00233	0.00603	0.00800**	0.00667*	0.00763*
	(0.00726)	(0.00714)	(0.00754)	(0.00730)	(0.00385)	(0.00394)	(0.00398)	(0.00399)
Confirmed Cases 1M pop (log)					0.878***	0.902***	0.885***	0.910***

25

					(0.0524)	(0.0554)	(0.0525)	(0.0584)
Constant	-5.040**	-4.420*	-4.419*	-4.032*	-5.844***	-6.457***	-6.137***	-6.346***
	(2.427)	(2.381)	(2.492)	(2.396)	(1.364)	(1.414)	(1.388)	(1.431)
R-squared	0.613	0.617	0.616	0.630	0.897	0.900	0.899	0.901
AIC	498.7693	499.2131	501.4029	498.123	311.6392	308.5403	311.8046	310.7135
BIC	525.4349	528.8416	528.1312	527.8212	341.2677	341.1316	341.5028	343.3814
Observations	143	143	144	144	143	143	144	144

Robust standard errors in
parentheses
*** p<0.01,
** p<0.05, *
p<0.1

Appendix 3: Determinants of COVID-19 Cases (OLS)

VARIABLES	(9) OLS Confirmed per 1M (log)	(10) OLS Confirmed per 1M (log)	(11) OLS Confirmed per 1M (log)	(12) OLS Confirmed per 1M (log)
Polity2	0.0219	0.0129		
	(0.0324)	(0.0341)		
MPI			-0.884	-0.128
			(0.692)	(0.752)
Government Effectiveness	-0.426*	-0.0499	-0.230	0.257
	(0.249)	(0.276)	(0.276)	(0.288)
Polity2 × Government Effectiveness		-0.0752***		
		(0.0252)		
MPI × Government Effectiveness				-1.586***
				(0.388)
GDP per capita (log)	1.057***	1.027***	0.995***	1.035***
	(0.171)	(0.169)	(0.157)	(0.150)
Population Density (log)	0.104	0.0600	0.0851	0.0525
	(0.0838)	(0.0822)	(0.0793)	(0.0766)
Age 65 and above (ratio)	0.0315	0.278	0.344	0.343
	(0.283)	(0.302)	(0.239)	(0.226)
Latitude	0.0180***	0.0189***	0.0157***	0.0198***
	(0.00533)	(0.00531)	(0.00505)	(0.00519)
Longitude	-0.0124***	-0.0121***	-0.0140***	-0.0128***
	(0.00207)	(0.00207)	(0.00223)	(0.00228)
Days since the first confirmed case	-0.00526	-0.00961	-0.00822	-0.0106
	(0.00838)	(0.00797)	(0.00910)	(0.00851)
Constant	0.182	1.647	1.604	2.056
	(2.635)	(2.512)	(2.757)	(2.590)
R-squared	0.617	0.640	0.621	0.652
AIC	520.3403	513.1445	522.2325	511.328
BIC	547.2542	543.0489	549.2074	541.3001

Observations	147	147	148	148

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, *

p<0.1