Good Democratic Governance Can Combat COVID-19

Excess Mortality Analysis[*]

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Susumu Annaka[†]

Abstract

Some scholars argue that democratic countries are in crisis during the COVID-19 pandemic and authoritarian countries tend to combat COVID-19. However, these studies are usually based on reported data susceptible to manipulation and often overlook successful cases such as New Zealand and Taiwan, which are considered to have higher levels of government effectiveness. Using excess mortality data from 78 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 excess mortality associated with COVID-19. 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).

In Figure 1, the upper left 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 multiplicative polyarchy index (MPI) in 2019 on the horizontal axis from the Varieties of Democracy (V-Dem) Project (Coppedge et al., 2020). The population data were obtained from World Bank. The latter codes democracy levels from low to high (0-1) (Coppedge et al., 2020). The upper right graph illustrates the relationship by using the level of Polity2 in 2018 from the Polity V Project (Marshall et al., 2020). The latter codes democracy levels from -10 (most autocratic) to 10 (most democratic). The bottom left graph shows the relationship by using the level of Democracy Index in 2019 from the Economist Intelligence Unit (EIU) (Economist Intelligence Unit, 2020). The latter codes democracy levels from 0 (most autocratic) to 10 (most democratic). The correlation coefficient between the political regime variables and deaths is 0.3~0.5 (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.
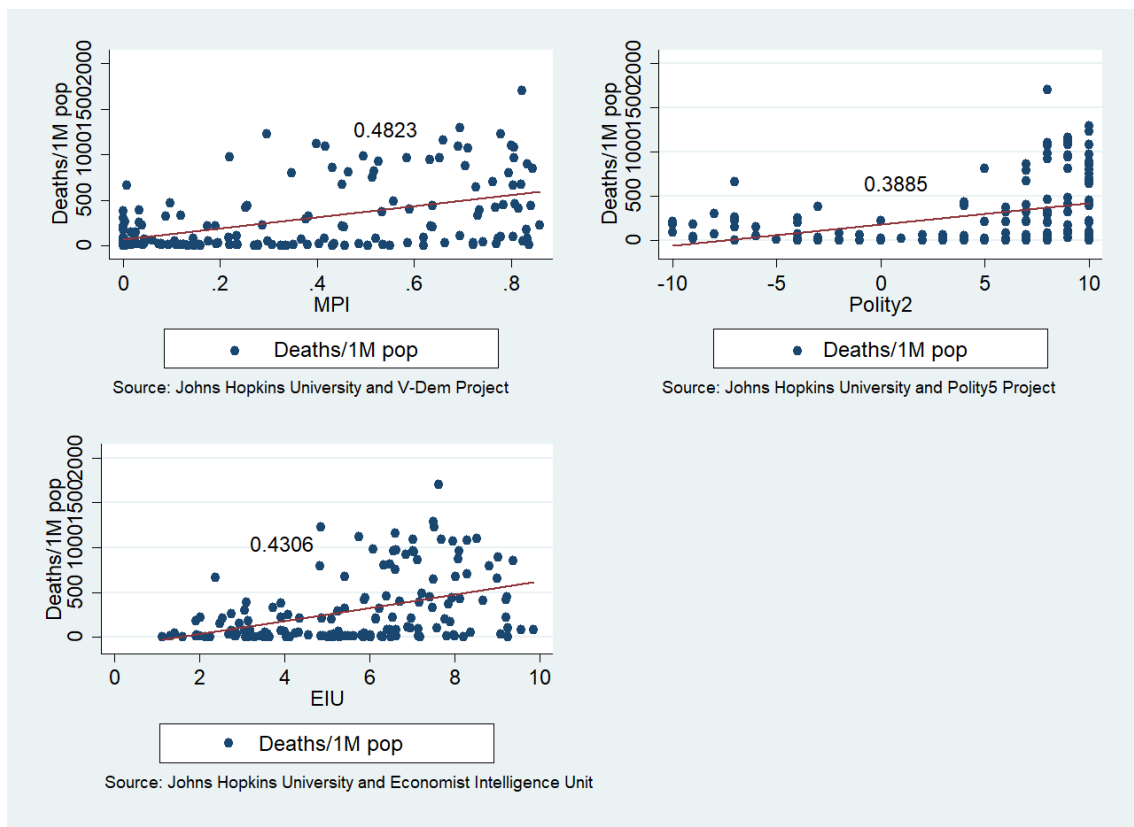

Figure 1: Relationship between political regime variables and number of COVID-19 deaths

However, the numbers of COVID-19 cases and deaths are based on government data and can be manipulated, especially in authoritarian countries (Adiguzel et al., 2020;

Kapoor et al., 2020). A study says that the positive correlation between political regime and COVID-19 deaths is not found after controlling for other factors, including data transparency (Annaka 2021). The World Health Organization (WHO) argues that only excess mortality can make "true" death estimation possible (WHO, 2021). Excess mortality has an advantage in estimating accurate mortality because "In encompassing deaths from all causes, excess mortality overcomes the variation between countries in reporting and testing of COVID-19 and in the misclassification of the cause of death on death certificates. Under the assumption that the incidence of other diseases remains steady over time, then excess deaths can be viewed as those caused both directly and indirectly by COVID-19 and gives a summary measure of the 'whole system' impact." (Beaney et al., 2020: 330). The research which utilizes excess mortality even argues for the advantage in democratic countries (Badman et al., 2021; Jain et al., 2021).

And 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; it is true that the correlation coefficient between MPI and EIU and government effectiveness, obtained from the World Bank, is relatively high (0.6657 and 0.7273, respectively), but the correlation coefficient between Polity2 and it 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 Taiwan and New Zealand cases show, democratic governments with higher government effectiveness may 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 using excess mortality. 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 excess mortality due to COVID-19.

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:

$$COVID\ excess\ mortality_i = \alpha + \beta_1 Political\ Regimes_i$$

$$+ \beta_2 Governance_i + \beta_3(Political\ Regimes_i$$

$$\times Governance_i) + \beta'_4 X_i + \varepsilon_i$$

COVID excess mortality is excess mortality per 100000 population. *Political Regimes* indicates MPI, Polity2 score, or EIU democracy index, and *governance* represents government effectiveness. X is a vector of controls. ε is an error term. *i* represents each country.

The excess mortality data are obtained from Karlinsky and Kobak (2021). The sample size of the data is relatively small, and only 78 countries are included in the analyses below. The data dates vary across countries. These are somewhat problematic, but previous research uses these data (Badman et al., 2021; Jain et al., 2021). And the present study conducts additional analyses to consider this problem in the discussion part. All the countries and data dates are listed in Appendix 2. Political regime variables are obtained from the Polity Project, V-Dem Project, and Economist Intelligent Unit. Government effectiveness, population density, population ratio age 65 and above, GDP per capita are taken from the World Bank. The 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). The scores range from -2.5 (weak) to 2.5 (strong). 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

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awareness of mask usage and preventive behavior affecting the severity of COVID-19 deaths as well as any remaining regionally specific effects.

For estimation, ordinary least squares (OLS) with robust standard errors are applied. The control variables (except for latitude and longitude) 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.

2.2. Results

Models 1, 2, and 3 in Table 1 analyze the relationship between MPI and excess mortality, and Models 4, 5, and 6 take Polity2, and Models 7, 8, and 9 take EIU as independent variables. Models 1, 4, and 7 are without government effectiveness. Models 1 and 7 show that MPI and EIU are negatively correlated with excess mortality and statistically significant. Polity2 in Model 4 is also but not significant. However, all the political regime variables in Models 2, 5, and 8, including government effectiveness, are not statistically significant at the conventional level. On the other hand, government effectiveness is

negatively associated with excess mortality and is consistently statistically significant. Models 3, 6, and 8 include the interaction terms between the political regime variables and government effectiveness. These models reveal that the interaction terms are negatively associated with excess mortality and are robustly statistically significant.

Figure 2 illustrates the effects of government effectiveness on predicted excess mortality conditioned by each MPI level based on Model 3. These graphs show an apparent reducing impact of higher government effectiveness on the predicted excess mortality as the political regime variables are higher. When countries are most democratic, and their government effectiveness is above 1.5, the predicted excess mortality is negative in all the figures.

Figure 3 shows the effects of government effectiveness on predicted excess mortality conditioned by each Polity2 level based on Model 6. Figure 4 displays those of government effectiveness on predicted excess mortality conditioned by each EIU level based on Model 9. These results indicate that effective democratic governments tend to have lower excess mortality associated with COVID-19.

Table 1: Determinants of Excess Mortality

VARIABLES	(1) EM per 100k	(2) EM per 100k	(3) EM per 100k	(4) EM per 100k	(5) EM per 100k	(6) EM per 100k	(7) EM per 100k	(8) EM per 100k	(9) EM per 100k
MPI	-180.3**	-122.8*	-30.57						
	(74.68)	(73.36)	(100.1)						
Polity2				-1.740	-0.0749	0.710			
				(3.200)	(3.351)	(3.489)			
EIU							-29.85**	-16.76	-9.993
							(11.85)	(12.68)	(13.24)
Government effectiveness		-98.19***	-14.59		-119.7***	-59.07*		-91.30***	89.96
		(26.84)	(39.03)		(30.40)	(29.74)		(29.12)	(56.14)
MPI×Effectiveness			-151.6**						
			(60.27)						
Polity2×Effectiveness						-7.783***			
						(2.314)			
EIU×Effectiveness									-23.90***
									(7.072)
Ratio over age 65 (log)	118.7***	126.1***	115.9***	87.47**	104.5***	115.1***	126.2***	124.0***	114.1***
	(33.10)	(31.29)	(32.93)	(39.47)	(38.19)	(38.20)	(34.26)	(33.40)	(32.57)
Population density (log)	-10.49	-7.544	-13.38	-8.671	-5.630	-12.84	-9.162	-6.700	-12.97
	(8.466)	(7.484)	(8.803)	(9.591)	(8.815)	(9.397)	(7.372)	(7.389)	(7.961)
GDP per capita (log)	-25.25*	28.40	20.56	-46.74***	25.65	18.82	-21.13	23.72	16.87
	(13.82)	(18.96)	(19.03)	(14.16)	(20.89)	(18.78)	(14.01)	(19.30)	(18.91)
Latitude	0.254	0.148	0.646	0.530	0.352	0.609	0.0120	0.0717	0.434
	(0.490)	(0.494)	(0.554)	(0.548)	(0.551)	(0.577)	(0.523)	(0.541)	(0.574)
Longitude	-0.833***	-0.606***	-0.556***	-0.646***	-0.419*	-0.422*	-0.737***	-0.536**	-0.526**
	(0.203)	(0.198)	(0.208)	(0.224)	(0.219)	(0.221)	(0.200)	(0.209)	(0.215)
Constant	225.5*	-292.7	-208.4	408.1***	-280.1	-214.6	275.2***	-199.9	-120.8
	(113.8)	(178.3)	(196.0)	(102.2)	(191.6)	(189.2)	(93.62)	(180.1)	(186.8)
Observations	78	78	78	77	77	77	78	78	78
R-squared	0.311	0.370	0.417	0.249	0.338	0.379	0.318	0.362	0.427
AIC	967.2361	962.2581	958.2915	961.6744	953.968	951.0179	966.4627	963.3081	956.9074
BIC	983.7331	981.1118	979.5019	978.0811	972.7185	972.1122	982.9597	982.1617	978.1178

Robust Standard errors in parentheses   *** p<0.01, ** p<0.05, * p<0.1
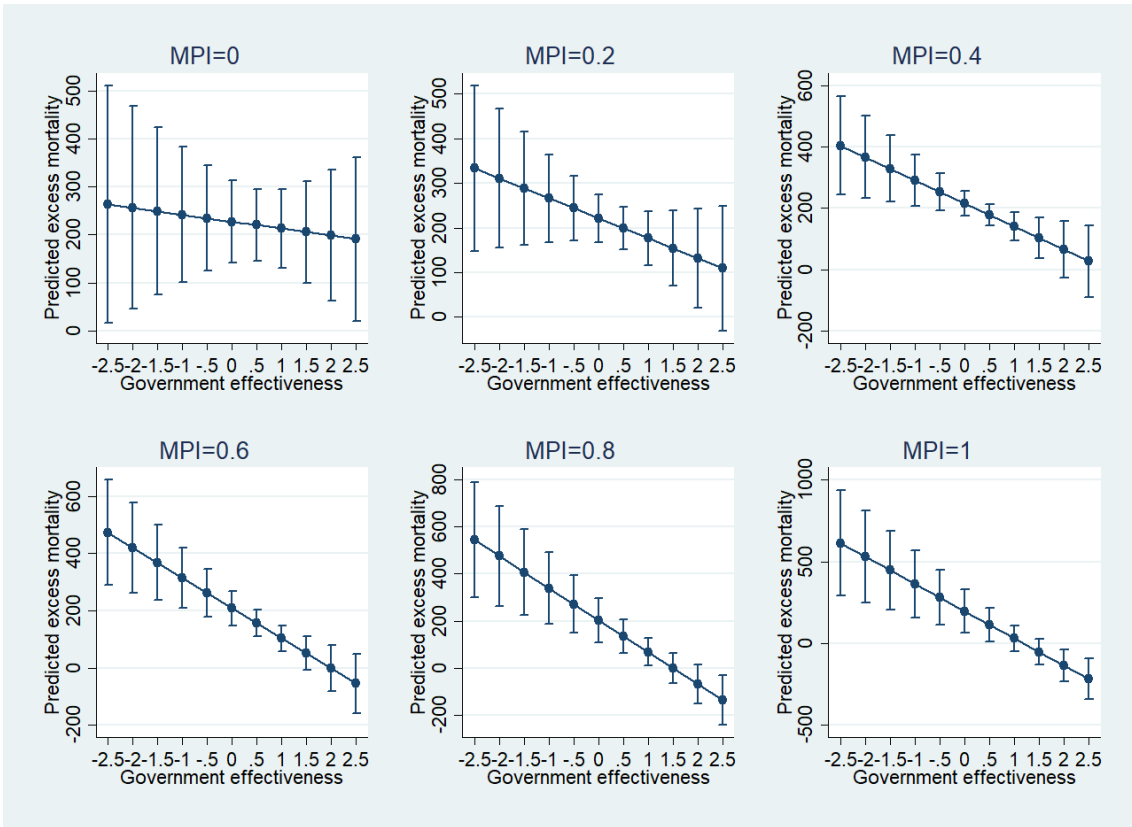
Figure 2: Interaction Effects between MPI and Government Effectiveness on Predicted
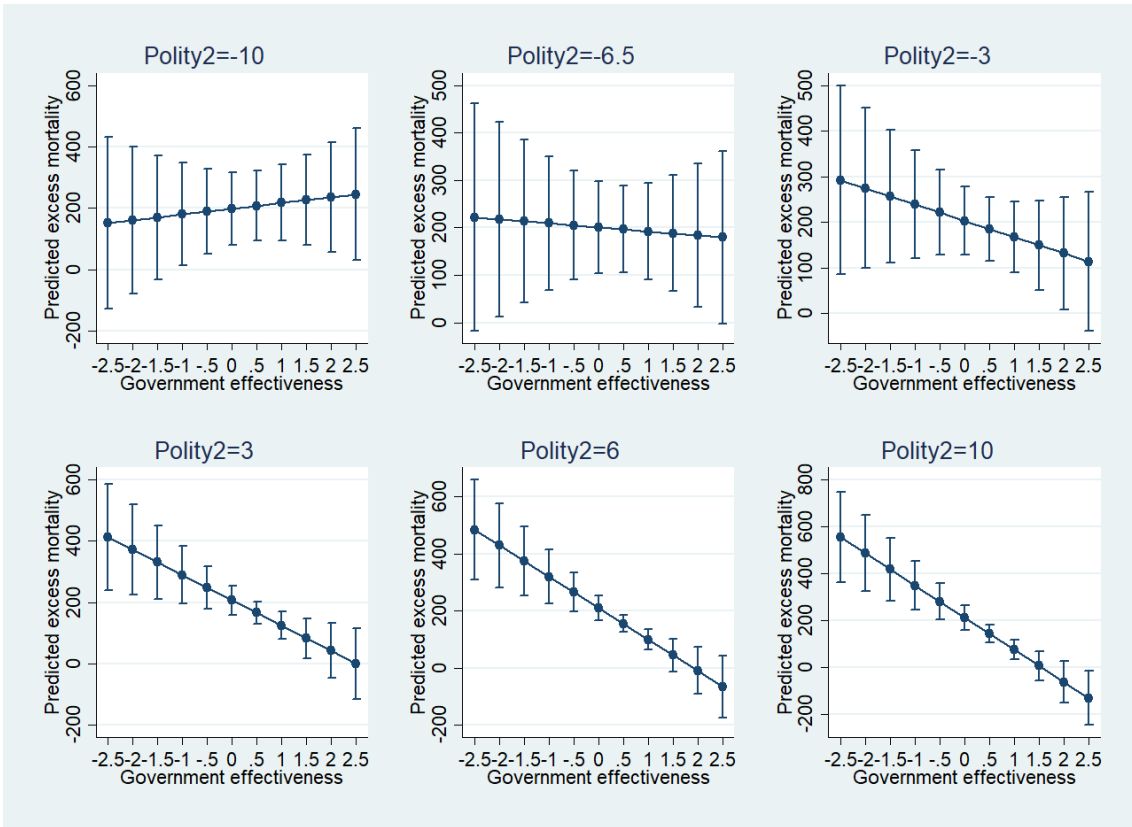
Excess Mortality (95% CIs)

Figure 3: Interaction Effects between Polity2 and Government Effectiveness on
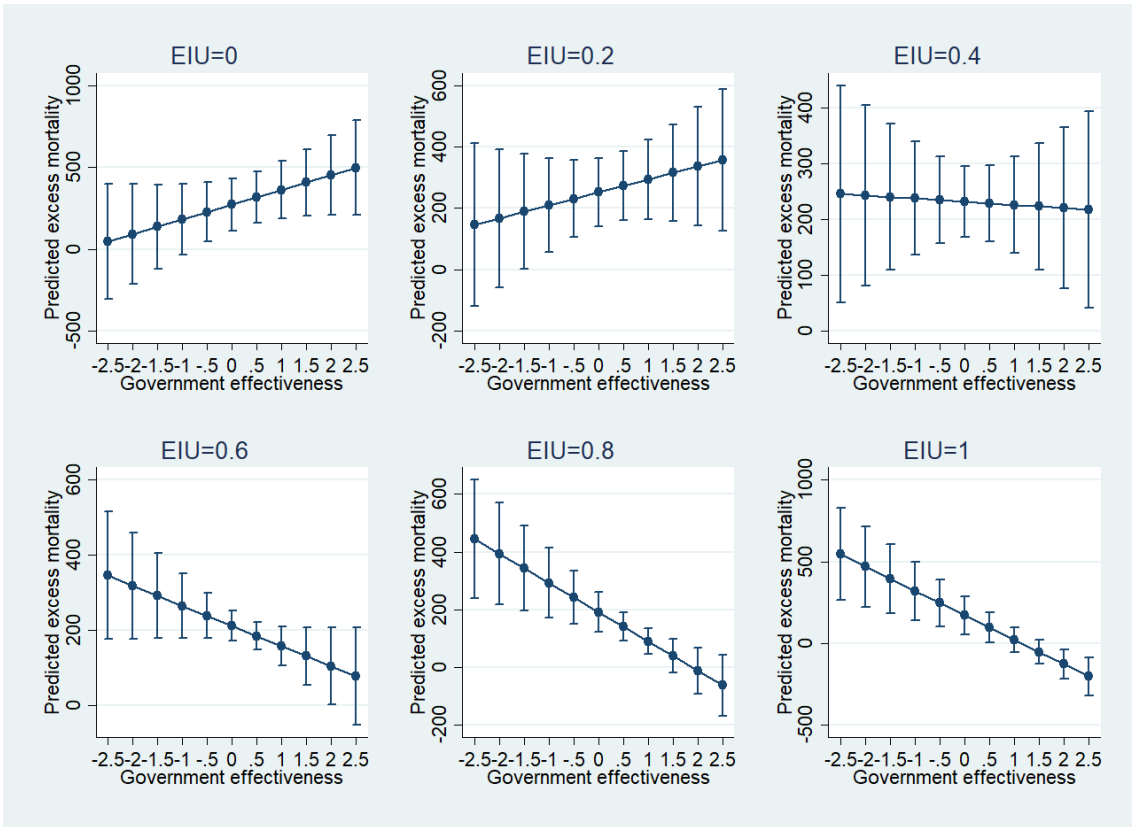
Predicted Excess Mortality (95% CIs)

Figure 4: Interaction Effects between EIU and Government Effectiveness on Predicted

Excess Mortality (95% CIs)

3. Discussion

The current study demonstrates that government effectiveness is an essential factor in

reducing excess mortality. 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. And also, both of them use the reported numbers of COVID-19 deaths, not excess mortality.

On the other hand, Badman et al. (2021) and Jain et al. (2021) utilize excess mortality instead of the reported numbers. However, the former only looks at the correlation between the variables and does not consider other factors such as demographic and geographic ones. The latter does include various variables in analysis but does not analyze the interaction between political regimes and government characteristics. And all the studies above do not use the V-Dem data, a new gold-standard political regime variable.

This study analyzes the interaction between political regimes and government effectiveness using excess mortality and the V-Dem data and reports that good democratic governance can significantly reduce excess mortality. These results genuinely contribute to the literature.

There are some limitations of this study paper, of course. For example, the above analyses use three political regime variables as independent variables. However, the number of observations is relatively small mainly because of the missing values of excess mortality, the dependent variable, although the excess mortality data seem much more reliable than the reported number of deaths. Especially, this study does not include such

cases as China and India, which have not reported excess mortality yet. China has been

regarded to succeed in combating COVID-19, and, on the other hand, India has been in a

catastrophic situation. These problems may lead to some bias. Then this study applies the

two-step Heckman estimation for coping with this problem as much as possible. In the

first step, this technique predicts selection from the sample, the number of available

excess mortality in this study, and in the second step, uses this information to adjust the

OLS estimation to explain excess mortality (Hansson and Olofsdotter, 2013). The

additional estimation for Models 3, 6, and 9 in Table 1 above are in Appendix 3. Appendix

4 displays the effects of the interaction on predicted excess mortality based on Model 1

in Appendix 3. Appendix 5 is based on Model 2 in Appendix 3. Appendix 6 is based on

Model 3 in Appendix 3. They are almost identical to the main results above. These

additional analyses strongly support the main results.

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 are often based on the reported numbers of

COVID-19 deaths, not excess mortality, and 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 excess mortality due to COVID-19.

This study suggests that democratic countries do not need to reduce social freedoms and

needs to improve government effectiveness to combat COVID-19. But the observations

are relatively small due to the missing data on excess mortality. This should be corrected

in future research when the data are available.

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Appendix 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Excess Mortality per 100000 Population	78	135.90	132.2182	-60	590
Polity2	78	0.5112	0.2970	0	1
MPI	77	6.6494	5.4695	-10	10
EIU	78	6.6895	1.9946	1.93	9.87
Government Effectiveness	78	0.5542	0.8493	-1.0490	2.2211
Population Density (log)	78	2.4699	0.5931	0.4208	3.3323
Age 65 and above Ratio (log)	78	4.3048	1.3200	0.7109	8.9813
GDP per capita (log)	78	9.5508	1.1212	7.0178	11.6179
Latitude	78	29.1895	27.6936	-40.9006	61.9241
Longitude	78	14.2067	62.5216	-102.5528	174.8860

Appendix 2: Countries and Dates

Country	Data until	Country	Data until	Country	Data until
Albania	31-Mar-21	Ireland	31-May-21	Singapore	31-Mar-21
Argentina	31-Dec-20	Israel	30-May-21	Slovakia	16-May-21
Australia	28-Mar-21	Italy	4-Apr-21	Slovenia	23-May-21
Austria	13-Jun-21	Jamaica	30-Nov-20	South Africa	27-Jun-21
Azerbaijan	28-Feb-21	Japan	30-Apr-21	South Korea	2-May-21
Belarus	30-Jun-20	Kazakhstan	30-Apr-21	Spain	20-Jun-21
Belgium	13-Jun-21	Kyrgyzstan	30-Apr-21	Sweden	6-Jun-21
Bolivia	31-May-21	Latvia	13-Jun-21	Switzerland	6-Jun-21
Bosnia	31-Mar-21	Lebanon	30-Apr-21	Tajikistan	31-Dec-20
Brazil	31-May-21	Lithuania	20-Jun-21	Thailand	30-Jun-21
Bulgaria	20-Jun-21	Luxembourg	6-Jun-21	Tunisia	14-Feb-21
Canada	7-Mar-21	Malaysia	31-Mar-21	Ukraine	30-Apr-21
Chile	13-Jun-21	Mauritius	30-Apr-21	United Kingdom	13-Jun-21
Colombia	9-May-21	Mexico	23-May-21	United States	6-Jun-21
Costa Rica	31-Dec-20	Moldova	31-Mar-21	Uruguay	31-Dec-20
Croatia	30-May-21	Mongolia	31-May-21	Uzbekistan	31-Mar-21
Cyprus	9-May-21	Netherlands	20-Jun-21		
Czechia	23-May-21	New Zealand	6-Jun-21		
Denmark	20-Jun-21	Nicaragua	31-Aug-20		
Ecuador	20-Jun-21	Norway	20-Jun-21		
Egypt	30-Nov-20	Oman	31-May-21		
El Salvador	31-Aug-20	Panama	30-Apr-21		
Estonia	27-Jun-21	Paraguay	31-May-21		
Finland	13-Jun-21	Peru	27-Jun-21		
France	13-Jun-21	Philippines	31-Dec-20		
Georgia	31-Dec-20	Poland	13-Jun-21		
Germany	20-Jun-21	Portugal	6-Jun-21		
Greece	2-May-21	Qatar	30-Apr-21		
Guatemala	27-Dec-20	Romania	25-Apr-21		
Hungary	30-May-21	Russia	30-Apr-21		
Iran	21-Sep-20	Serbia	31-May-21		

Appendix 3: Heckman two-step Estimation

| VARIABLES	(1) EM per 100k	(1) Select	(2) EM per 100k	(2) Select	(3) EM per 100k	(3) Select
MPI	-6.931	0.364				
	(81.66)	(0.895)				
Polity2			0.856	0.0184		
			(3.063)	(0.0308)		
EIU					-12.30	-0.0181
					(14.04)	(0.123)
Governemnt effectiveness	18.11	0.450	-48.23	0.480	156.5	0.519
	(54.53)	(0.384)	(47.97)	(0.368)	(99.58)	(0.396)
MPI×Effectiveness	-209.0***					
	(73.93)					
Polity2×Effectiveness			-9.120**			
			(3.957)			
EIU×Effectiveness					-31.89***	
					(11.18)	
Population ratio over age 65 (log)	182.0***	1.185***	149.0**	1.140***	195.1***	1.261***
	(59.25)	(0.316)	(61.37)	(0.323)	(73.76)	(0.331)
Population density (log)	-16.94*	-0.0865	-14.64	-0.0884	-16.63	-0.0940
	(10.21)	(0.111)	(10.21)	(0.110)	(11.63)	(0.109)
GDP per capita (log)	29.32	0.265	22.70	0.291	27.58	0.244
	(26.09)	(0.214)	(26.45)	(0.224)	(30.17)	(0.215)
Latitude	0.849	0.0155*	0.668	0.0157*	0.503	0.0134
	(0.584)	(0.00845)	(0.520)	(0.00830)	(0.657)	(0.00859)
Longitude	-0.649**	-0.00364	-0.467**	-0.00364	-0.671**	-0.00420
	(0.255)	(0.00284)	(0.229)	(0.00271)	(0.293)	(0.00270)
Lambda	117.6		56.33		136.1	
	(86.47)		(85.41)		(102.6)	
Constant	-486.6	-4.232**	-346.7	-4.319**	-432.5	-3.903*
	(322.2)	(2.083)	(312.3)	(2.109)	(371.5)	(2.180)
Observations	148	148	147	147	147	147

Standard errors in parentheses

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

Appendix 4: Predicted Excess Mortality of the Interaction Terms between MPI and

Government Effectiveness from Heckman two-step Estimation (95% CIs)
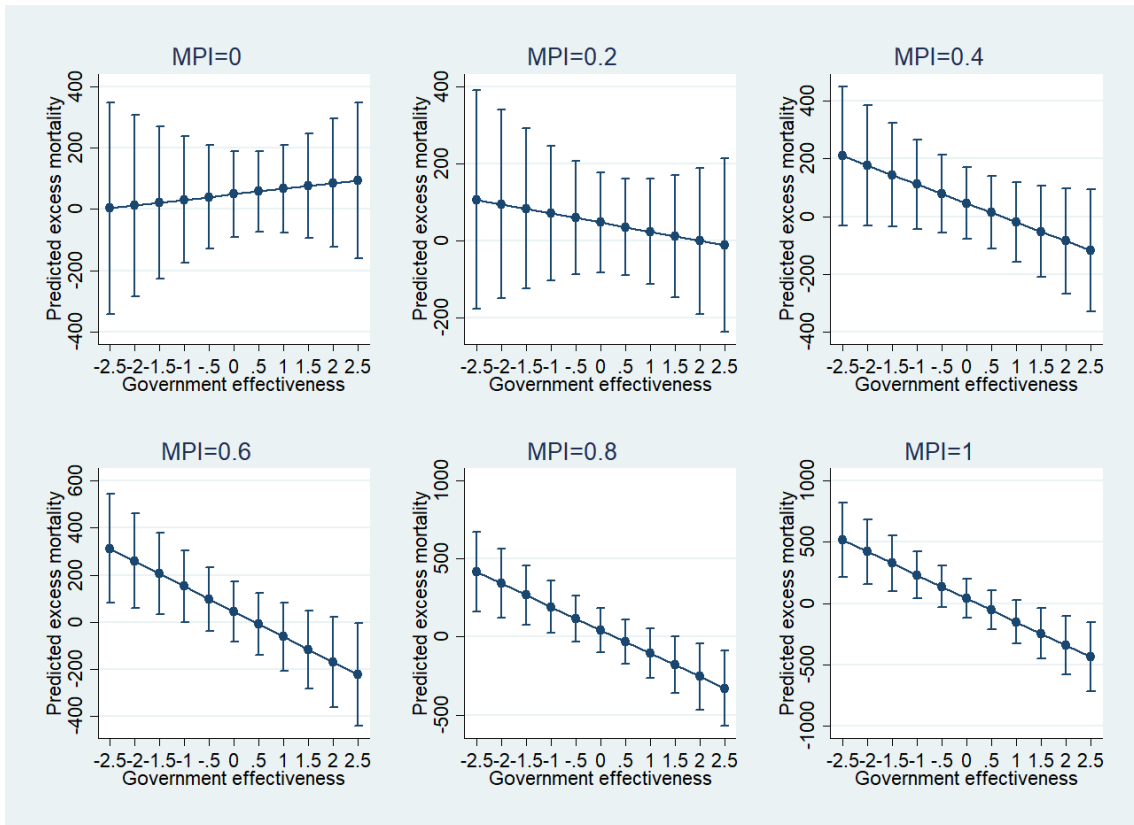
Appendix 5: Predicted Excess Mortality of the Interaction Terms between Polity2 and

Government Effectiveness from Heckman two-step Estimation (95% CIs)
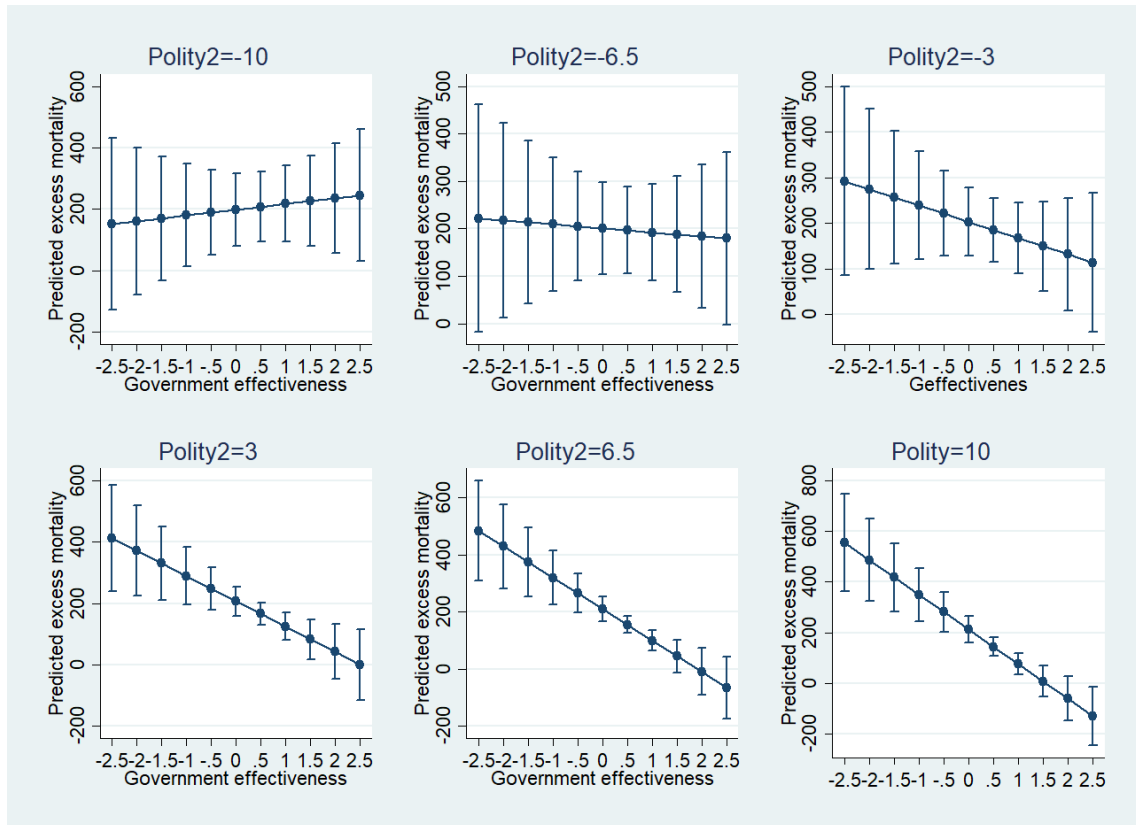
Appendix 6: Predicted Excess Mortality of the Interaction Terms between EIU and

Government Effectiveness from Heckman two-step Estimation (95% CIs)