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An early assessment on democracy and the Covid-19 Pandemic: The importance of urbanization, life expectancy, and inequality.

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Agradecimento à orgão de fomento:
There aren't any.

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INTRODUCTION

The World Health Organization (WHO) notified the world of the emergence of Coronavirus disease 2019 (Covid-19) early in 2020. Thenceforth, countries worldwide have struggled to create strategies for preventing, diagnosing, and treating the disease. The Covid-19 pandemic has been challenging governments and their public policies in virtually every country worldwide (Ren, 2020). The various studies that have appeared have supported an explicit multi-causal nature of the pandemic and its relationships with different contexts, showing that the phenomenon goes far beyond medical and biological issues. The number of infected and dead has been the most commonly used indicator worldwide to measure the success of countries in managing the Covid-19 crisis. (Cepaluni et al., 2020).

Carvalho, Pires, and Xavier (2020) concluded that low-income populations are more vulnerable to complications and need to be hospitalized if the coronavirus contaminates them. Ribeiro et al. (2021), in a study with data from the city of São Paulo on social inequality and mortality by Covid-19, came to a similar conclusion, showing that the heterogeneity of morbidity from Covid-19 is often associated with country health structures and social inequality within a country. In other words, the already existing structural inequalities in the country have aggravated the situation in Brazil.

Oki (2020) revealed that the number of infections and deaths might be related to political and administrative factors, such as corruption and government information policy. The study found a negative association between the percentage of infected people and the level of corruption in the country. However, no association can be verified between the levels of corruption and the number of deaths, making it possible to believe, probably, that this information can be distorted, as it has shown by Aslund (2020) in a comparative study between Russia, Ukraine, and Belarus. Fong & Law (2020) verified the importance of the behavior of local political leaders through a comparative study between the neighboring cities of Vancouver (Canadá) e Seatle (USA).

Other studies analyzed the impact of political regimes, especially democracy and authoritarianism, in combating the Covid-19 pandemic. For example, Cepaluni et al. (2020) argue that democratic societies have a higher number of deaths associated with the virus than less democratic ones. However, Tharoor (2021) does not believe that the political regime *per se* impacts fighting against the pandemic. According to him, some characteristics of leaders, such as populism and right-wing nationalists, are more relevant.

RESEARCH PROBLEM AND OBJECTIVE

Understanding the different ways in which countries responded to the challenges posed by the pandemic requires crossing the boundaries of the silos of theoretical disciplines, minimizing the risks of recycling extremely restricted theories, valid in specific contexts, but not generalizable, or, otherwise, very broad and imprecise approaches that underestimate the importance of local institutions (Greer et al., 2020)

Many of what has been theoretically debated, historically and empirically supported mechanisms have not worked as expected, making room for further inquiries (Kavanagh & Singh, 2020) about the effectiveness of policies for the public health sector and also about the capacity of different political regimes to decide on necessary urgency measures to mitigate the

spread of the coronavirus (Adolph et al., 2020) and to ensure the effectiveness of the measures adopted (Greer et al. 2020).

The present research focused on how democratic states dealt with Covid-19, seeking to understand how the differences between these democracies affected the containment of infections and deaths caused by the coronavirus. The concept of democracy varies over time and across different disciplines, but most definitions include elements that refer to the idea of popular sovereignty (Wilkinson, 2005). Democracy exists when the will of the majority is assimilated as the will of all, taking the free manifestation of the people as the primary source of legitimization of the authority of the rulers (Rosanvallon, 2000). In liberal democratic regimes, some members of society are chosen to lead the state, exercising government functions, with the responsibility to ensure that the general will – or the collective interest – outweighs particular interests. From this point of view, the politicians who run the government and the employees who provide services to citizens are agents of society, acting under and by a delegation from it (Przerworski, 1998).

While we recognize that the direction of the relationship between democracy and the Covid-19 pandemic fight goes both ways, in this article, we focus on how democratic states affected the Covid-19 outcomes. This work starts from the hypothesis that the relationship between democracy and the results of Covid-19 is more complex than a direct relationship, a conclusion proposed by Cepaluni (Cepaluni et al., 2020). Given that there are conditioning factors for the relationship between Covid-19 "outcomes" and the level of democracy in a country, it is coherent to analyze the variables of this concept and the possible existence of an indirect relationship composed of variables such as total population, urbanization and life expectancy (Diez Roux et al., 2020; Hamidi et al., 2020; Shams et al., 2020). Based on the researches of Lima (2020), the present work aimed to deepen the investigation of the relationships between three variables of the level of democracy - namely: urbanization, life expectancy, socio-economic inequality, aspects that were shown to be relevant in several studies (Diez Roux et al. 2020; Hamidi, Sabouri, and Ewing 2020; Shams, Haleem, and Javaid 2020) – and the results regarding the Covid-19 pandemic, expressed through the evolution in the number of infected and death in the countries studied.

THEORETICAL FOUNDATION

Extreme inequality – within and between countries – has been a persistent problem around the world. However, despite the efforts to implement policies to reduce absolute poverty, verified in the last decades, they did not effectively mitigate inequalities (Rosanvallon, 2011).

Inequality has played an essential role in Covid-19's containment capacity in different countries. Factors such as GDP per capita, the form of urbanization, and life expectancy, whose impacts can be seen in the effects of the pandemic, are related to internal (difference between socio-economic classes within a country) and external inequality (differences from one country to another). Internally, while higher classes managed to transfer their work activities to the virtual environment, lower-class workers suffer to maintain their occupation, expose themselves to more risks and depend on government emergency aid (Ferreira et al., 2020; Perales, 2020; Rosário, 2020; Stiegler & Bouchard, 2020; Wallace et al., 2020).

From an international point of view, developed countries had more access to tests, treatments, and vaccines. However, in post-colonial countries, the state's capacity to respond to the pandemic is limited (Seekings & Nattrass, 2020). Indeed, in those countries where postcolonialism intersects with a neoliberal anocracy, most health institutions are private and

unevenly distributed over the national territory, making the situation worse (Ferreira et al., 2020; Seekings & Nattrass, 2020).

In its World Development Indicators, the World Bank defines urbanization as the number of "people living in urban areas according to official national statistics" (World Bank, 2021). However, the consequences of this urbanization are contextual. For example, in North America and Europe, urbanization generally means greater proximity to essential services such as health, sanitary, and education. Nevertheless, in most countries in a post-colonial context, this is not necessarily a reality, leading to high population density in places without sanitation or health care (Ferreira et al., 2020; Wallace et al., 2020) make it difficult to preventive measures.

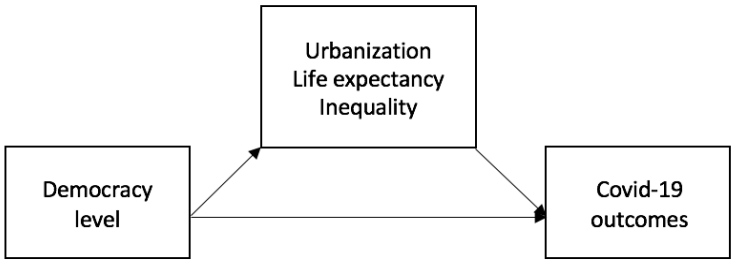
A newborn's life expectancy, on the other hand, refers to the number of years it would likely to live if the conditions of mortality at birth remained the same during its lifetime (World Bank 2021). Although the data from the Development Indicators show a worldwide trend towards an increase in life expectancy, the difference between developed and developing countries shows the conditions of inequality in the world. While high-GDP countries have an average life expectancy of 81 years, low-GDP countries have 18 fewer years of life (average 63 years). Thus, it is possible to think that, as age is one of the comorbidity factors of Covid-19, countries where there is a prevalence of young people in the population may have had lower mortality in the pandemic, as was the case in African countries (Hardy & Flori, 2021).

METHOD

Argument, Sample, and Data Collection

Graph 1 states our arguments that the relationship between democracy and Covid-19 results depends on different country contexts. It shows both the direct relationship that democracy can have with Covid-19 results and the relationship dependent on democracy with urbanization, life expectancy, inequalities, and the Covid-19 effects.

Figure 1 - Interactions between Political Regime, Country Context Variables and Covid-19 Outcomes



Source: Elaborated by the authors.

Our dataset comprises 150 countries based on the availability of data on Covid-19 from the Tracker of the University of John Hopkins.

Table 1 - Dependent variables, description, and sources

Dependent variables	Description	Source
(ln)Confirmed	Logarithm of the number of confirmed Covid-19 cases	Tracker of University John Hopkins
(ln)Deaths	Logarithm of the number of confirmed Covid-19 deaths	Tracker of University John Hopkins
Death_100kpop	Covid-19 deaths/100'000 habitants	Tracker of University John Hopkins
(ln)Case_fatality	Case fatality - number of Covid-19 deaths in relation to Covid-19 infections	Tracker of University John Hopkins

Source: Elaborated by the authors.

To operationalize our main independent variable democracy, we use *polyarchy* from the V-dem project. Polyarchy measures to what extent the ideal of electoral democracy in its fullest sense is achieved in a country (Coppedge et al., 2021). The variable takes values between 0-10 (0 = lowest democracy level, 10 = highest democracy level). Additional to *polyarchy*, we test our model with democracy variables from the Freedom House project. Here the range of values is between 0 and 100, where 100 means the highest democracy level and 0 the lowest level (Repucci, 2021). Our second important independent variables that are used as interactions with the democracy variables are:

Independent variables		Description	Source
(Ln) Urbanization		Logarithm of the urban population defined as the number of people living in urban areas	World Bank
Life expectancy		Indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth where to stay the same throughout its life	World Bank
Inequality			
	Access to basic public services distributed by socio-economic position	Measures the extent to which public services, such as order and security, primary education, clean water, and healthcare are distributed equally according to socioeconomic position. The higher the value, more equal the access to public services.	(Coppedge et al. 2020)
	Access to basic public services distributed by social group	Measures the extent to which public services, such as order and security, primary education, clean water and healthcare, are equally distributed across social groups. The higher the value, more equal the access to public services.	(Coppedge et al. 2020)

Source: Elaborated by the authors.

The following control variables are included: GDP per capita, GDP growth (Gassebner et al., 2013; Hamidi et al., 2020), regional variables classified by the World Bank given the different

Covid-19 outcomes across different regions (Aalbers et al., 2020; Aguilera, 2020), country size (Hamidi, Sabouri and Ewing, 2020), life expectancy (Gerring et al., 2012; Shams et al., 2020).

Measures

We apply an ordinary least squares (OLS) regression with robust standard and estimate the following model, where y represents the different Covid-19 outcome values, summarized in Table 1. X in the equation below stands for "urbanization", "life expectancy", and different "inequality" variables, and $_i$ represents the countries. We estimate models with all Covid-19 outcome variables and different interactions between democracy and urbanization, life expectancy, and inequality.

$$Y_i = \alpha + \beta_2 * X_i * democracy\ level_i + \beta_3 * controls_i + \varepsilon_i$$

RESULTS AND ANALYSIS

Urbanization

The results show a relevant interaction effect between democracy and the level of urbanization, and the Covid-19 outcomes measured as Covid-19 confirmed infections, total deaths, and deaths per 100'000 habitants. Models with democracy measures as *polyarchy* or *Freedom House* both suggest that democracies with higher urbanization rates have worse Covid-19 outcomes in terms of infection rate and deaths, and democracies with lower urbanization rates have better Covid-19 results. This is visualized in the following graph. On the y-axis are visualized "Covid-19 outcomes" while the superior part of the axis indicates worse outcomes such as higher infection rates and higher death rates. In comparison, the downward side of the axis represents better outcomes – lower infection and death rates (see Table 1). These findings confirm our previously formulated theoretical elaborations.

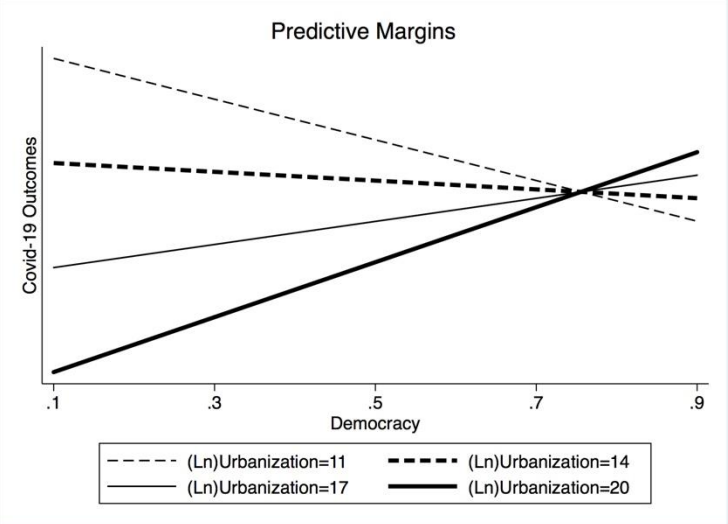


Figure 2 – Interaction Effects between Democracy and Urbanization and Covid-19 Outcomes

	(1) ln_confirmed_covid	(2) ln_confirmed_covid	(3) ln_deaths_covid	(4) ln_deaths_covid	(5) deaths100k_covid	(6) deaths100k_covid
Polyarchy	**-24.13*** **		**-8.504**		**-304.4** **	
	(7.446)		**(5.196)**		**(122.2)**	
Freedom House		**-0.217*** **		**-0.0784***		**-2.416** **
		(0.0700)		**(0.0426)**		**(0.947)**
Freedom House*Urbanization (ln)		**0.0143*** **		**0.00613** **		**0.186*** **
		(0.00426)		**(0.00267)**		**(0.0604)**
Polyarchy*Urbanization (ln)	**1.577*** **		**0.638***		**23.08*** **	
	(0.442)		**(0.325)**		**(7.764)**	
Urbanization (ln)	0.0861	0.102	0.530**	0.517**	-6.954	-5.294
	(0.390)	(0.404)	(0.226)	(0.218)	(5.276)	(4.433)
East Asia and Pacific	-2.310***	-2.343***	-2.395***	-2.394***	-58.01***	-60.95***
	(0.598)	(0.595)	(0.750)	(0.761)	(11.17)	(11.30)
Europe and Central Asia	-0.0380	-0.0847	0.400	0.393	24.22**	22.02*
	(0.559)	(0.559)	(0.623)	(0.624)	(10.81)	(11.17)
Middle East and North Africa	0.180	0.217	0.522	0.648	-12.66	-15.82
	(0.562)	(0.557)	(0.539)	(0.563)	(9.744)	(10.28)
North America	-0.953	-1.046	0.345	0.241	-5.560	-4.889
	(0.626)	(0.655)	(0.958)	(0.903)	(22.93)	(25.11)
South Asia	-1.101	-1.440	0.320	0.204	-40.11***	-46.14***
	(1.300)	(1.320)	(0.545)	(0.552)	(10.16)	(11.58)
Sub-Saharan Africa	-1.542*	-1.687*	-0.871	-0.988	-28.12***	-31.83***
	(0.854)	(0.866)	(0.638)	(0.647)	(10.23)	(10.49)
Life expectancy	0.0328	0.0264	0.00441	-0.00749	0.300	0.128
	(0.0824)	(0.0831)	(0.0413)	(0.0413)	(0.653)	(0.671)
Country size (ln)	0.0548	0.0556	0.0386	0.0437	-1.822	-1.774
	(0.164)	(0.165)	(0.0903)	(0.0896)	(1.842)	(1.861)
GDP per capita (ln)	0.565	0.528	0.487*	0.450*	8.736**	7.970**
	(0.431)	(0.422)	(0.277)	(0.270)	(3.925)	(3.938)
Health Equality	-0.221	-0.214	-0.286	-0.291*	-5.906*	-5.250
	(0.269)	(0.270)	(0.176)	(0.174)	(3.286)	(3.311)
Constant	1.363	1.844	-7.181	-6.013	48.80	46.61
	(6.088)	(6.208)	(4.917)	(5.045)	(88.72)	(80.42)
N	150	150	150	150	150	150
R^2	0.503	0.508	0.569	0.579	0.622	0.612

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 1 –Urbanization

Life expectancy

Life expectancy is statistically significant when it comes to case fatality of Covid-19 which measures the number of Covid-19 deaths in relation to Covid-19 infections. This is visualized in Figure 3. Democracies with higher life expectancy experience a positive relationship with cases fatality of Covid-19, while democracies with medium/lower levels in life expectancy see a negative relationship with Covid-19 case fatality rather. This is in line with epidemiological studies that showed an exponential relationship between age and the infection fatality rate for Covid-19 (Levin et al., 2020). However, for all other Covid-19 outcomes, neither democracy nor life expectancy explains the variation across different Covid-19 outcomes (Table 2).

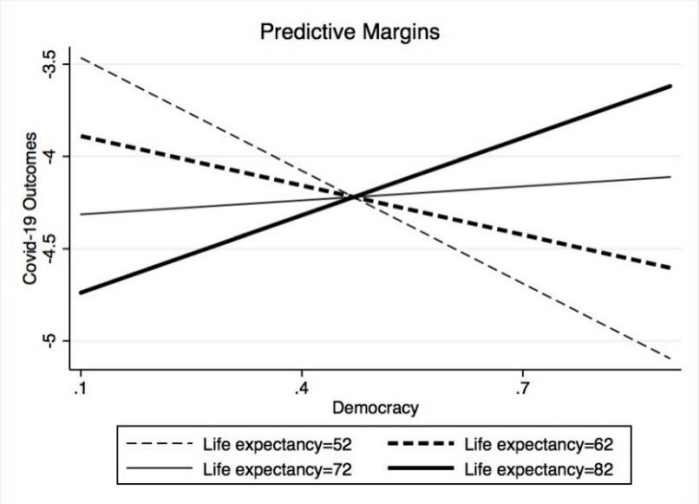


Figure 3 – Interaction Effects between Democracy and Life Expectancy and Covid-19 Outcomes

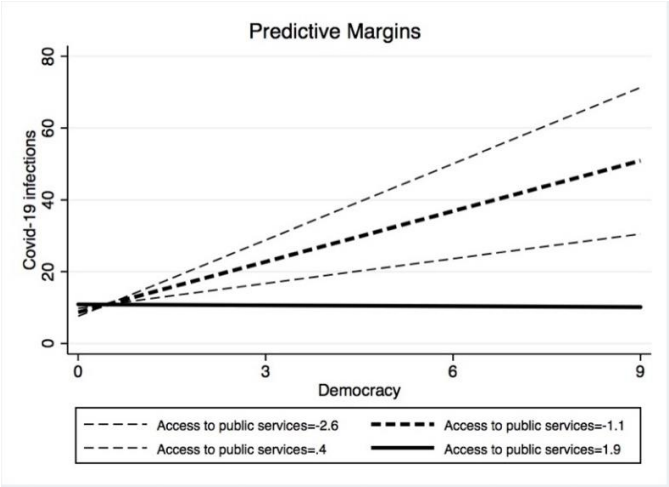
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ln_confirmed_covid	ln_confirmed_covid	ln_deaths_covid	ln_deaths_covid	deaths100k_covid	deaths100k_covid	ln_casefatality_covid	ln_casefatality_covid
Polyarchy	**4.289**		**-1.243**		**8.181**		**-4.579**	
	(11.21)		**(7.510)**		**(136.8)**		**(2.946)**	
Freedom House		**0.0572**		**0.0190**		**-0.0888**		**-0.0297**
		(0.0824)		**(0.0478)**		**(0.886)**		**(0.0209)**
Polyarchy*Life expectancy	**-0.0449**		**0.0383**		**0.722**		**0.0733***	
	(0.146)		**(0.0994)**		**(1.837)**		**(0.0388)**	
Freedom House*Life expectancy		**-0.000657**		**-0.0000110**		**0.00813**		**0.000499***
		(0.00109)		**(0.000658)**		**(0.0125)**		**(0.000283)**
Life expectancy	0.0263	0.0335	-0.0278	-0.0187	-0.519	-0.660	-0.0393	-0.0277
	(0.111)	(0.101)	(0.0666)	(0.0539)	(1.169)	(0.931)	(0.0263)	(0.0238)
East Asia and Pacific	-2.471***	-2.490***	-2.480***	-2.462***	-60.85***	-63.19***	-0.367	-0.386*
	(0.594)	(0.591)	(0.756)	(0.764)	(10.48)	(10.67)	(0.228)	(0.233)
Europe and Central Asia	-0.0650	-0.0591	0.348	0.384	22.83*	21.14*	-0.0953	-0.110
	(0.563)	(0.563)	(0.622)	(0.620)	(11.61)	(11.81)	(0.154)	(0.155)
Middle East and North Africa	0.140	0.104	0.520	0.621	-12.90	-15.94	-0.191	-0.246
	(0.575)	(0.562)	(0.536)	(0.565)	(10.58)	(11.04)	(0.198)	(0.205)
North America	0.190	0.222	0.756	0.747	9.910	9.327	-0.335	-0.330
	(0.661)	(0.671)	(0.866)	(0.858)	(25.34)	(26.80)	(0.258)	(0.251)
South Asia	-1.397	-1.413	0.180	0.215	-44.95***	-45.87***	-0.872***	-0.871***
	(1.284)	(1.283)	(0.545)	(0.542)	(10.84)	(11.88)	(0.265)	(0.260)
Sub-Saharan Africa	-1.711**	-1.731**	-0.976	-1.025	-31.48***	-33.53***	-0.546***	-0.559***
	(0.861)	(0.873)	(0.647)	(0.648)	(11.04)	(11.25)	(0.198)	(0.208)
Urbanization (ln)	1.027***	1.023***	0.915***	0.914***	6.922**	6.803**	0.0653	0.0635
	(0.248)	(0.248)	(0.137)	(0.136)	(2.893)	(2.896)	(0.0473)	(0.0476)
Country size (ln)	0.0154	0.0211	0.0160	0.0254	-2.562	-2.439	0.0464	0.0486
	(0.167)	(0.165)	(0.0912)	(0.0904)	(1.984)	(1.999)	(0.0356)	(0.0356)
GDP per capita (ln)	0.634	0.633	0.512*	0.490*	9.680**	9.022**	-0.230**	-0.241**
	(0.462)	(0.457)	(0.284)	(0.277)	(4.342)	(4.264)	(0.0982)	(0.101)
Health Equality	-0.205	-0.192	-0.284	-0.288	-5.790*	-5.339	-0.0701	-0.0643
	(0.268)	(0.269)	(0.178)	(0.179)	(3.355)	(3.393)	(0.0645)	(0.0647)
Constant	-13.30*	-13.77**	-10.87**	-11.62***	-111.1	-89.23	-0.795	-1.488
	(7.085)	(6.162)	(5.076)	(4.073)	(84.28)	(67.41)	(2.109)	(1.880)
N	150	150	150	150	150	150	149	149
R^2	0.467	0.469	0.560	0.567	0.588	0.582	0.319	0.301

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 2 –Life Expectancy

Inequalities - Access to Public Services Distributed by Socio-Economic Group

The regressions show that the democracy and Covid-19 outcomes in terms of Covid-19 infections and Covid-19 deaths per 100’000 habitants are moderated by access to basic public services such as security, primary education, and clean water and healthcare. Furthermore, the more exclusive the public service is towards socio-economically vulnerable groups, the stronger the positive relationship between democracy and Covid-19 infections and deaths per 100’000 habitants. (Table 3).



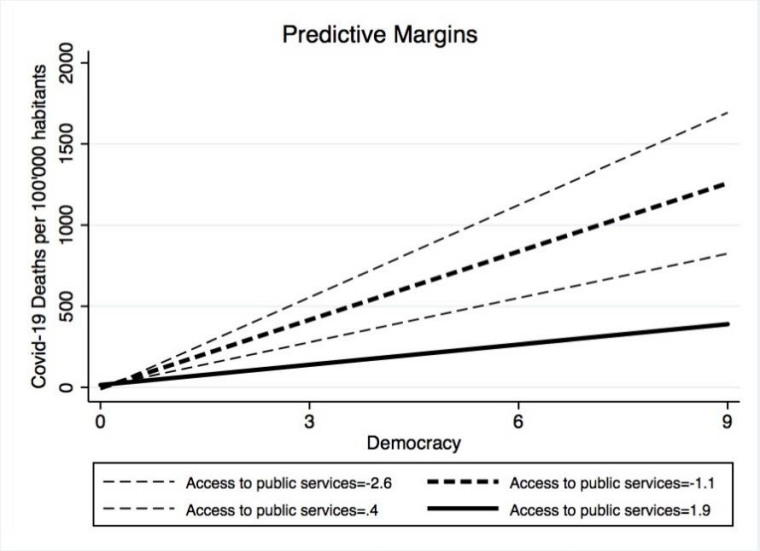


Figure 3 – Interaction Effects between Democracy and Access to Public Services by Socio-Economic Group.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ln_confirmed_covid	ln_confirmed_covid	ln_deaths_covid	ln_deaths_covid	deaths100k_covid	deaths100k_covid	ln_casefatality_covid	ln_casefatality_covid
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Sub-Saharan Africa	-1.711**	-1.731**	-0.976	-1.025	-31.48***	-33.53***	-0.546***	-0.559***
	(0.861)	(0.873)	(0.647)	(0.648)	(11.04)	(11.25)	(0.198)	(0.208)
Urbanization (ln)	1.027***	1.023***	0.915***	0.914***	6.922**	6.803**	0.0653	0.0635
	(0.248)	(0.248)	(0.137)	(0.136)	(2.893)	(2.896)	(0.0473)	(0.0476)
Country size (ln)	0.0154	0.0211	0.0160	0.0254	-2.562	-2.439	0.0464	0.0486
	(0.167)	(0.165)	(0.0912)	(0.0904)	(1.984)	(1.999)	(0.0356)	(0.0356)
GDP per capita (ln)	0.634	0.633	0.512*	0.490*	9.680**	9.022**	-0.230**	-0.241**
	(0.462)	(0.457)	(0.284)	(0.277)	(4.342)	(4.264)	(0.0982)	(0.101)
Health Equality	-0.205	-0.192	-0.284	-0.288	-5.790*	-5.339	-0.0701	-0.0643
	(0.268)	(0.269)	(0.178)	(0.179)	(3.355)	(3.393)	(0.0645)	(0.0647)
Constant	-13.30*	-13.77**	-10.87**	-11.62***	-111.1	-89.23	-0.795	-1.488
	(7.085)	(6.162)	(5.076)	(4.073)	(84.28)	(67.41)	(2.109)	(1.880)
N	150	150	150	150	150	150	149	149
R^2	0.467	0.469	0.560	0.567	0.588	0.582	0.319	0.301

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 3 - Inequalities - Access to Basic Public Services Distributed by Socio-Economic Group

Access to public services distributed across social group

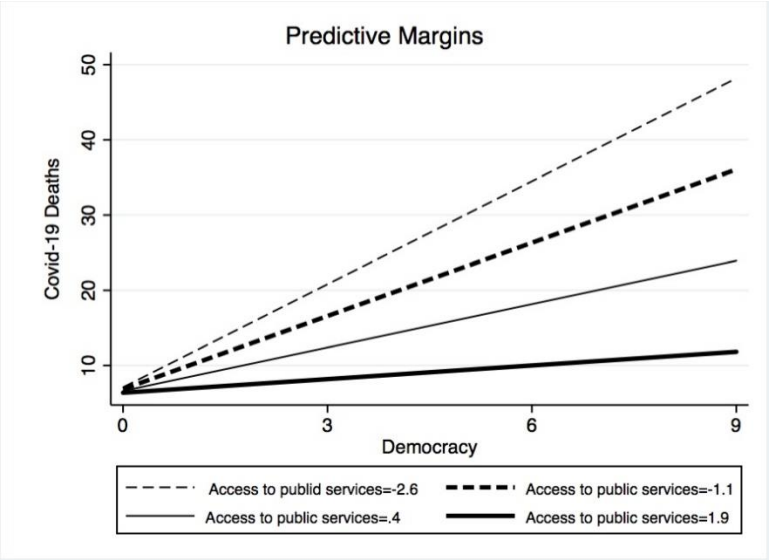

Figure 4 - I Interaction Effects between Democracy and Access to Public Services Across Social Groups

Our second inequality variable provides similar results. Figure 4 illustrates that the larger the exclusion of essential public services, the stronger the positive relationship between democracy and the number of Covid-19 deaths. Regarding the Covid-19 case fatality rate, the results in Table 4 demonstrate that the democracy variables become insignificant and the variable "access to basic public services across social groups" becomes a better explanatory variable for the variation of the Covid-19 case fatality rates.

	(1) ln_confirmed_covid	(2) ln_confirmed_covid	(3) ln_deaths_covid	(4) ln_deaths_covid	(5) deaths100k_covid	(6) deaths100k_covid	(7) ln_casefatality_covid	(8) ln_casefatality_covid
Polyarchy	**3.372****		**2.277****		**117.5*****		**0.412**	
	(1.633)		**(0.890)**		**(19.46)**		**(0.438)**	
Freedom House		**0.0227***		**0.0230*****		**0.769*****		**0.00304**
		(0.0134)		**(0.00631)**		**(0.167)**		**(0.00356)**
Polyarchy*Access to public services across social groups	**-1.516**		**-0.880***		**-34.62*****		**0.280**	
	(0.946)		**(0.494)**		**(12.49)**		**(0.226)**	
Freedom House*Access to public services across social groups		**-0.00908**		**-0.00634***		**-0.169**		**0.00226**
		(0.00753)		**(0.00378)**		**(0.106)**		**(0.00169)**
Access to public services across social groups	**0.485**	**0.178**	**-0.162**	**-0.310**	**8.154**	**-1.090**	**-0.266***	**-0.244***
	(0.656)	**(0.608)**	**(0.317)**	**(0.295)**	**(7.427)**	**(7.106)**	**(0.153)**	**(0.132)**
East Asia and Pacific	-2.770***	-2.925***	-2.303***	-2.223**	-43.28***	-49.72***	-0.222	-0.238
	(0.790)	(0.794)	(0.803)	(0.860)	(11.92)	(12.57)	(0.269)	(0.270)
Europe and Central Asia	0.138	0.0191	1.435**	1.457**	41.99***	37.42***	0.0412	0.0247
	(0.551)	(0.550)	(0.690)	(0.699)	(11.96)	(13.15)	(0.173)	(0.180)
Middle East and North Africa	0.622	0.429	0.934*	1.068*	-1.118	-9.684	-0.198	-0.251
	(0.559)	(0.517)	(0.560)	(0.613)	(10.52)	(11.94)	(0.204)	(0.217)
North America	0.236	0.124	1.777*	1.755*	33.04	29.08	-0.305	-0.303
	(0.720)	(0.704)	(0.942)	(0.954)	(22.43)	(25.57)	(0.290)	(0.286)
South Asia	-1.310	-1.466	1.034	1.011	-35.16***	-39.54***	-0.735**	-0.725**
	(1.159)	(1.251)	(0.668)	(0.673)	(12.29)	(13.81)	(0.287)	(0.289)
Sub-Saharan Africa	-2.118*	-2.198**	0.490	0.393	-22.57*	-24.24*	-0.360*	-0.345
	(1.082)	(1.067)	(0.687)	(0.680)	(13.33)	(13.83)	(0.207)	(0.210)
Urbanization (ln)	1.042***	1.031***	0.869***	0.860***	6.648*	6.232*	0.101*	0.100*
	(0.220)	(0.226)	(0.151)	(0.152)	(3.478)	(3.557)	(0.0565)	(0.0558)
Life expectancy	-0.0613	-0.0689	0.0939**	0.0744*	0.334	0.287	0.0190	0.0220
	(0.0804)	(0.0816)	(0.0429)	(0.0427)	(0.991)	(1.009)	(0.0201)	(0.0202)
Country size (ln)	0.0866	0.0887	0.117	0.122	-1.905	-1.772	0.0488	0.0485
	(0.159)	(0.163)	(0.0957)	(0.0971)	(2.433)	(2.485)	(0.0440)	(0.0441)
GDP per capita (ln)	0.898**	0.936**	0.390*	0.402*	6.713	7.657*	-0.208*	-0.212*
	(0.429)	(0.420)	(0.216)	(0.209)	(4.649)	(4.532)	(0.112)	(0.115)
Constant	-11.31**	-10.40*	-19.75***	-18.44***	-177.6***	-156.9**	-5.721***	-5.829***
	(5.496)	(5.744)	(3.326)	(3.422)	(66.19)	(70.01)	(1.217)	(1.225)
N	112	112	112	112	112	112	111	111
R^2	0.559	0.553	0.647	0.654	0.625	0.597	0.352	0.340

Standard errors in parentheses
* p<0.10, ** p<0.05, *** p<0.01

Table 4 - Inequalities - Access to Public Services Distributed Across Social Groups

DISCUSSION AND CONCLUSION

General arguments that try to establish a correlation or even a relationship between democracy and Covid-19 outcomes are misleading. We believe that the claimed relationship depends on the estimation model, which kind of interaction variables in terms of the country context is utilized, and how Covid-19 outcomes are operationalized. Our results indicate that urbanization rate moderates the relationship between the democracy level and the Covid-19 confirmed infections, the Covid-19 deaths per 100'000 habitants, where democracies with higher urbanization rates have higher levels in Covid-19 infects and deaths per 100'000 habitants. In comparison, democracies with lower urbanization rates tend to experience the opposite relationship. For Covid-19 case fatality, the results indicate a positive relationship between a higher level of life expectancy and democracy and a negative relationship between lower overall life expectancy and democracy levels.

Moreover, inequality plays an additional important role when it comes to assessing the Covid-19 outcomes. Different models show that democracies with exclusive public service related to order and security, clean water, primary education, and healthcare do worse when it comes to different Covid-19 outcomes. Some models even show (see Tables 4 and 5) that exclusive public service explain better the variation in case fatality of Covid-19 than the political regime. This is in line with claims published by Patel et al. (2020) who contradict the often claimed phrase "Covid-19 does not discriminate" by arguing that socio-economic factors increase the exposure to Covid-19 as economically disadvantaged people live in overcrowded accommodations, financially poorer people are often employed in occupations that are "essential" and thus were not able to work from home and therefore were more exposed to the virus. Finally, socio-economically disadvantaged people have less access to healthcare facilities and have more health risk factors that increase the susceptibility to Covid-19 mortality (Patel et al., 2020).

Moreover, one might not forget that there are issues with the data reliability relating to Covid-19 cases and deaths. Some countries, especially in the post-colonial context, lack the resources of mass testing and reporting the Covid-19 death numbers (Seekings & Nattrass, 2020). Additionally, non-democracies are less transparent (Kavanagh & Singh, 2020) than democratic regimes, which might lead to an underreporting of Covid-19 cases and deaths in non-democracies and thus make the cross-country comparison between "Covid-19 outcomes" more susceptible to inaccuracy.

Finally, public health is not only about Covid-19 and includes different kinds of diseases that need to be given equal attention (Venkatesan, 2020). Because some models show that democracies have higher levels in Covid-19 deaths per 100'000 habitants, this does not mean that democracies are less able to deal with pandemics or other public health-related issues. In fact, data suggest that there is a robust conditional correlation between life expectancy and democracy. Data furthermore show that overall health policies interventions are superior in democracies (Besley & Kudamatsu, 2006). But democracies with exclusive basic public services in terms of health, sanitation, and education have much potential to improve.

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