

Is Democracy Really the Best Medicine? - How different regimes react to pandemics⁴

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Pandemics are nothing new to humans. From the Plague of Justinian to the current Covid-19, the world has seen all sorts of contagious diseases. But do different political regimes react differently? We argue that the political regime has no major influence. More specifically: democratic and autocratic regimes have similar performances in taking action to combat the disease. The reasoning for this, however, vary. We do believe that the volatility is higher within the authoritarian group. To test this hypothesis, we will conduct a survival analysis, having the adoption of a strict social isolation policy as the event of interest. We will control for institutional variables, such as the presence of local governments; and for other social variables, such as population density. We will also take in consideration previous experience with SARS. Our findings corroborate our hypothesis. The difference between the two types of regime is not statistically significant. The economy, however, seems to play small role: The wealthier the country is, the longer it takes to adopt restriction measures.

Keywords: pandemics, democracy, dictatorship.

A democracia é realmente o melhor remédio? Como regimes diferentes reagem à pandemia

Pandemias não são novidades para a raça humana. Da praga de Justiniano à atual Covid-19, o mundo viu todo tipo de doenças contagiosas. Mas diferentes regimes políticos reagem de maneira diferente? Nós argumentamos que regimes políticos não têm grande influência. Mais especificamente: regimes democráticos e autocráticos possuem performance similar no que diz respeito às ações de combate à doença. O raciocínio para isso, no entanto, varia. Para testar a nossa hipótese, nos conduzimos uma análise de sobrevivência, tendo a adoção de medidas restritivas de isolamento social como variável de interesse. Controlaremos por variáveis institucionais, como a presença de governos locais; e por outras variáveis sociais, como

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densidade populacional. Também levaremos em consideração a experiência anterior com a Sars. Nossos resultados corroboram nossa hipótese. A diferença entre regimes não é estatisticamente significativa. A economia, no entanto, parece desempenhar um pequeno papel: quanto mais rico o país é, mais tempo ele toma para adotar medidas de restrição.

Palavras-chave: pandemia, democracia, ditadura.

¿Es la democracia realmente la mejor medicina? Cómo reaccionan los diferentes regímenes ante la pandemia

Las pandemias no son nada nuevo para la raza humana. Desde la plaga de Justiniano hasta el actual Covid-19, el mundo ha visto todo tipo de enfermedades contagiosas. ¿Pero los diferentes regímenes políticos reaccionan de manera diferente? Argumentamos que el régimen político no tiene una influencia importante. Más específicamente: los regímenes democráticos y autocráticos tienen desempeños similares al tomar medidas para combatir la enfermedad. El razonamiento para esto, sin embargo, varía. Creemos que la volatilidad es mayor dentro del grupo autoritario. Para probar estas hipótesis, llevaremos a cabo un análisis de supervivencia, teniendo la adopción de una política estricta de aislamiento social como evento de interés. Controlaremos las variables institucionales, como la presencia de gobiernos locales; y para otras variables sociales, como la densidad de población. También tendremos en cuenta la experiencia previa con Sars. Nuestros hallazgos corroboran nuestra hipótesis. La diferencia entre los dos tipos de régimen no es estadísticamente significativa. Sin embargo, la economía parece desempeñar un papel pequeño: cuanto más rico es el país, más tiempo lleva adoptar medidas de restricción.

Palabras clave: pandemia, democracia, dictadura.

Introduction

Are democratic governments more prone to react to pandemics accordingly? The traditional literature points to a positive response, mainly based on two theories: (1) that democratic leaders are more sensitive to the public opinion; and (2) that democratic countries are in average wealthier than authoritarian ones. So, with the outbreak of the novel coronavirus –the Covid-19 – that took the world by surprise in the turning of the year 2019 to 2020, should we expect democracy to have a better performance than dictatorships?

When considering the influence of public opinion and continuous threat of the next election cycle, a lack of action may be considered a death sentence to incumbents all over the democratic world. Having the means to combat the illness, we expect democratic leaders to have more energetic attitudes towards combating the pandemic.

We agree with the “response-to-the-public” hypothesis for democracies. Our disagreement is with the reasoning regarding authoritarian governments. We do not believe that authoritarian countries will, necessarily, have a bad performance. They may lack the electoral incentive, but their path to action is free, with few-to-none veto players. They can establish unpopular policies such as a complete lockdown.

Considering the above, we believe that performance is not significantly different in the democratic and authoritarian worlds. The difference is in the reasoning behind their reaction. While democratic leaders act to surpass opponents to get the policies approved (in order to gather public support for the next election); authoritarian leaders are not necessarily very keen in helping their citizens, but they do it anyway because the political costs are very low.

It is important to present upfront a shortcoming of our research design. Given that the Covid-19 is still ongoing and given its wave-like movement through regions of the world, the data will likely be biased. Our effort analyzes the relationship between political regimes and the pandemics response considering the numbers consolidated in June 30th, 2020.

This paper is divided in the following sections: first we will present the debate over the benefits of certain regime types and what the explanations for them are; next, we will present a descriptive analyze of the pandemic; then we will present the data and detailed design of our survival model; and in the following section we will present the results. In the conclusion, we point to a research agenda that can be drawn from our findings.

Social Distancing as an Effective Measure

It has been seven months since the Wuhan Municipal Health Commission reported cases of viral pneumonia in 27 patients, where in 7 of these cases there was a considerable worsening (CHENG & SHAN, 2020). There are now 19,000,000 people infected around the world and more than 700,000 dead³³. In early March 2020, the World Health Organization (WHO) declared that Covid-19 should be characterized as a pandemic³⁴. Since then, several study groups and pharmaceutical companies have been deployed to find a remedy that can combat Covid-19. A race in search of a vaccine that can prevent the novel coronavirus from being contracting has already been tested in at least 21 humans³⁵.

But, until we neither find the cure for Covid-19 nor an effective vaccine is developed, what to do to prevent it? Although studies are running faster than have been seen before to try to identify the best way to deal with this virus, there is still no verdict on what the fully effective measure against it is. However, previous experience with epidemics and pandemics of infections with influenza viruses allow us to direct a common path for governments to respond to this type of problem (GLASS et al, 2006; Fong et al, 2020). In this sense, agencies such as WHO and the Center for Disease Control and Prevention (CDC) suggest three main actions: recommending the use of masks, conducting mass testing, and practicing social isolation. Similar actions were taken during the Spanish flu pandemic, for example (MARKEL et al, 2008).

Conventional wisdom suggests that infections by the influenza virus are transmitted mainly by close contact and, in this sense, social isolation measures aim to decrease the level of contact and, consequently, the risk of virus transmission (FONG et al, 2020). This is an action that has been taken for a long time, and used as an important tool in combating past epidemics, such as the Spanish flu (YU et al, 2017). In the novel coronavirus pandemic, although still to a limited extent, empirical evidence suggests that of such measures, social isolation is the most effective in preventing the spread of the disease (MAHTANI et al, 2020).

Evidence from the United Kingdom shows that social distance measures imposed by the government reduced the growth rate of infections by 5% after five days of adoption, with the number increasing to 6.8% from the sixth to the fifteenth day of social distancing and 9% up to 20 days of adoption (COURTEMANCHE et al, 2020). Using daily data on cases of novel coronavirus infections and synthetic control techniques, Friedson et al (2020) assess the impact of the Shelter-in-Place Order (SIPO) of the North American state of California on the number of infected

³³ Data available at Worldometers. Accessed in August 5th 2020, 20h50 (GTM+3). For more information, see: <https://www.worldometers.info/coronavirus/>

³⁴ <https://www.who.int/news-room/detail/29-06-2020-covidtimeline>

³⁵ Watanabe (2020).

individuals and identifies a decrease from 125.5 to 219.7 per 100,000 inhabitants, after a month of movement restriction. Evidence for SIPO adopted in 40 states and the District of Columbia shows that after three weeks of compliance with the order, cases of infection with Covid-19 have dropped by 44% (DAVE et al, 2020).

Despite this, the adoption of social distance policies is not trivial. The implementation of this kind of action generates costs for the government. The response to the crisis is mediated by voter concerns about this type of restriction, ranging from safety in the workplace to the economic pressure it would generate on families (BAUM et al, 2009). In the Covid-19 pandemic, in particular, we are experiencing some politicization. The denial of government officials, including Bolsonaro, Trump, and Daniel Ortega, ended up leading the population to a polarization regarding the Covid-19 threat. Public opinion surveys demonstrate party polarization regarding these restrictions (BADGER & QUEALY, 2020; ALLCOTT et al, 2020). Besides, empirical evidence for the adoption of social distance measures for US states shows that those where the number of supporters of President Donald Trump was higher took longer to adopt policies of social isolation (ADOLPH et al, 2020).

Thus, it is reasonable to think that in the Covid-19 pandemic, government officials have incentives and, consequently, different actions to deal with the spread of the novel coronavirus. It is in this framework that our work is inserted. More specifically, we seek to understand whether differences between political regimes generate different actions to contain the pandemic. The next section discusses this.

Types of Regime and their outputs

The global intuition regarding autocracies and democracies is that the latter will deliver the best social outcomes to its citizens (PRZEWORSKI ET AL., 2000; BOIX, 2003; BUENO DE MESQUITA ET AL., 2003; ACEMOGLU & ROBINSON, 2006). As stated by Sen (1999), no famine took place in a democratic country in the 20th century. The literature has also shown that democracy walks hand-in-hand with wealth (PRZEWORSKI & LIMONGI, 1997) and does instigate economic growth (ACEMOGLU ET AL., 2019). Finally, social spending seems to be higher in democracies (MELTZER & RICHARDS, 1981; KAUFMAN & SEGURA-UBIERGO, 2001; AVELINO, BROWN & HUNTER, 2005), meaning a thicker channel of public investment in health care.

The impact that the democratic regime has on health has also been studied. Ruger (2005) stated that citizens should act as agents of change and that the state's action should be evaluated "in terms of their effectiveness in expanding individual freedom" (RUGER, 2005, p. 300). Looking

specifically to China, the author goes on to argue that the country failed respond promptly to the 2003 Severe Acute Respiratory Syndrome (SARS) crisis and that the government's control of the media had a harmful effect in controlling the virus³⁶.

Control of the media is one of the most cited problems when dealing with authoritarian regimes (EGOROV, GURIEV & SONIN, 2009). But lack of a free press is not the only negative effect of an autocracy. Just to survive, authoritarian regimes resort to repression and co-optation (FRANTZ, 2018). This entails a series of behavior that can diminish civil liberties (DAHL, 1971). The consequences of having an authoritarian regime is also listed in the literature. They are more prone to practice torture and infringe human rights (VREELAND, 2008); they do not protect property rights (KNUSTEN, 2011); and their provision for safe water, sanitation and education are low (DEACON, 2009).

Examples of harmful dictatorships are abundant and come from all over the world: Latin America (STEPAN, 1991; COSTABLE & VALENZUELA, 1993; MAINWARING & PÉREZ-LIÑAN, 2013; GASPARI, 2015); to Europe (LINZ & STEPAN, 1996; LEE, 2016); Africa (DECALO, 1985; NEGA & SCHNEIDER, 2012), and the Arab world (EL BADAWI & MAKDISI, 2007; PIAZZA, 2007). In a nutshell: institutions seem to matter. And a river of ink has already been written on the democratic bonanza and the dictatorial hardship.

The democratic siren song

When considering everything that have been said so far, we should not expect anything different when dealing with a pandemic. However, we argue to the contrary. Despite the different reasoning, our hypothesis is that the response from democracies and autocracies are not that different, at least when considering the final outcome: the adoption of social distancing policies.

When considering the above paragraphs, it is easy the reconcile the political science literature with the argument that democracies are more prone to have a better performance than dictatorships. Here we present two major reasons more clearly:

- (1) In democratic regimes, politicians are always seeking the electors' approval. To have a real chance in maintaining the job comes next election, political leaders must take action to keep the loss of life to a minimum;
- (2) And democracies, in average, are more economically developed than dictatorships.

³⁶ The consequences of government control of the media go beyond press freedom. It is directly associated with the functioning of political and economic markets, for example. See: Djankov et al. (2001).

The above reasons are very fair, and we expect that it explains the core of democratic response of pandemics³⁷. But it is not sufficient to back the hypothesis that democracies outperform autocracies³⁸. Authoritarian leaders have two institutional advantages to democratic ones. First, they are not concerned with the next electoral cycle. As Pulejo and Querubin (2020) demonstrate, countries that have close elections or whose leader can run for reelection implement milder forms of lockdown. In an autocracy, if there is an electoral schedule, it is most likely that the result is rigged in the incumbent's favor. Second, dictators do not have to deal with a strong opposition (or, sometimes, even with other branches of government). Dictators are freed from the burden of democracy. Due to this, Frey et al. (2020a) found evidence that autocracies impose stronger lockdowns, and that same levels of lockdown's stringency are associated with less social mobility in autocracies compared with democracies (FREY et al., 2020b).

Although presenting different mechanisms, a few authors have already shown that democracies and dictatorships are not so different in relevant political and economic issues. Gandhi (2008) have shown that dictatorial institutions do not have a significant impact over social spending. Gallagher and Hanson (2009) argue that the level of income inequality is not so different across political regimes.

However, we do recognize that the variation on the dependent variable should be higher than in democracies. As stated by Vreeland (2008), different features within the dictatorship group could lead to different outcomes in specific areas³⁹. The institutional diversity of dictatorships is a problem that any research on the subject faces (SVOLIK, 2012). The reason is the following: as we take the minimum feature of democracy (election) as the main incentive politicians have to be at their best behavior, this should work on every level of democracy. Dictatorships, on the other hand, come in very different flavors. The base of political sustentation may vary from family and top military officials to the whole economic elite.

We still believe that institutions do matter. However, our argument is one of a more nuanced difference. Different institutions can put countries in different paths but lead to the same outcome.

One important counterargument is also anchored in the effect of elections. Politicians not only wants to gather as much support as possible. They want to do it with as little cost as possible.

³⁷ Here we are only concerned with the institutional incentives. Moral responses are not considered.

³⁸ The argument is not all new. Gandhi (2008) had already shown that dictatorial institutions have no significant impact over press freedom or social spending.

³⁹ Vreeland's (2008) work deals with human rights. More specifically, how dictatorships that practices torture are more likely to be part of the UN Convention Against Torture that dictatorships that do not practice torture.

And given the amnesia that voters seem to have (ACHEN & BARTELS, 2016), the risk of leaders sub-funding response to the pandemic is an ever-present threat.

Data and methods⁴⁰

Methodologically, we have two steps. First, we will conduct a Kaplan-Meier analysis to see the difference of the survival probabilities for each political regime. This is especially relevant given our main hypothesis: there is no difference on how the two political regimes react. Then we will conduct a Cox Proportional Hazard (PH) model, with the adoption of restrictive policy as the event of interest.

Unlike the Kaplan-Meier and other non-parametric estimators, the Cox PH model allows for independent variables in a regression (ALLISON, 1984). It can be symbolized by the following equation:

$$\log h(t) = a(t) + b_1x_1 + b_2x_2$$

The Cox model presents the log of the hazard function for time t . And as the Cox model does not assume any distribution for the baseline function, $a(t)$ can be a function for any specific time. In addition to this benefit, in the Cox analysis the estimator depends only “on the ranks of the event times, not their numerical value” (GUO, 2010, p. 74). That means that any monotonic transformation will leave the coefficient unchanged⁴¹.

The data covers the period from January 11th – when the first death was registered in China – until June 30, the last month with consolidated data. This adds up to a total of 172 days. All countries enter the dataset when they register their first death and thus becomes in ‘risk’ of adopting social distancing policies. Cases that are left-censored, i.e., adopted such measures even before registering a death in national soil, will be excluded.

The strict social distancing policy variable

We used the University of Oxford’s database for confirmed cases of Covid-19 (ROSER et al., 2020) to identify the first confirmed death of this pandemic. It happened in January 11th, China. This is the day one of our analysis. The last day, June 30, is the 172nd day. A country is only introduced in the analysis when its first case is confirmed, and this is our “start” variable. For

⁴⁰ The R script for our analysis is available at: <https://osf.io/p9x2k/>.

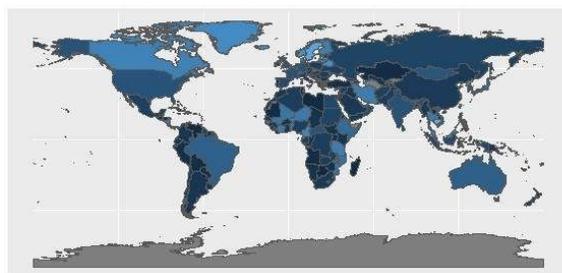
⁴¹ The Cox model has one more appealing feature: it can work with time-varying variables. However, we did not use such variables in our model.

example, Brazil is introduced in the dataset by the 47th day (start variable = 47), since its first confirmed case was on February 26. When a country enters the dataset, its clock starts ticking, counting how many days are passing without a strict social isolation measure.

To identify when such measures were adopted, we used the *Oxford's COVID-19 Government Response Tracker* (HALE et al., 2020), a database for the policies adopted worldwide to deal with the pandemic. One of the variables on this dataset concerns “Stay at home requirements”, an ordinal variable ranging from 0, “no measure”, to 3 “Require not leaving house with minimal exceptions”. For this analysis, we considered as strict social isolation measure a level 2 policy, described as policies that “require not leaving house with exceptions for daily exercise, grocery shopping, and ‘essential’ trips” (HALE et al., 2020). The day when a country adopted such measure, is our “stop” variable. For the Brazilian example, May 5th is the day indicated in the dataset when a level 2 social isolation policy was adopted⁴² – this is the day 116 in our analysis (stop variable = 116). With this information, we can build our “time” variable, simply decreasing the day when the policy was adopted by the day when the first case was confirmed (stop – start = time). To finish our example, the time variable for Brazil scores (116 – 47 =) 69.

From the 168 observations contained in the Covid-19 dataset, 128 enacted policies of social distancing whilst 40 did not. And from those that did act, five took measures of protection even before the first death occurred. Those countries are Fiji, Kosovo, Libya, Puerto Rico and Venezuela. The following figure shows a map indicating how fast a country enacted strict social distancing policies, since the first registered death.

Figure 1
Speed of public policy adoption



Source: Elaborated by the authors.

⁴² We used the database’s date as a reference for all cases, including federalist countries where different measures were adopted in the subnational levels at different times. Following the database’s methodology, when a subnational entity adopted a more stringent measure, this is reflected in the coding for the whole country. This is the case for Brazil, where a level 2 social isolation measure was only coded when some state governors imposed what they called “lockdown” measures by May.

The darker the blue, the faster a country reacted. This is the case for countries such as Venezuela and Libya, which enacted isolation policies even before the first novel coronavirus-related death. On the other hand, the lighter the blue, the slower a country reacted. This is the situation of Canada, the Northern Europe, and some countries in the African continent.

Political Regime

For our explanatory variable, we use the Varieties of Democracy (V-Dem) dataset. We draw our dichotomous variable from the work of Lührmann, Lindberg and Tannenberg (2017). Their “Regimes in the World” breaks the continuous variable from the V-Dem into four categories. However, first they divide the countries in democracies and autocracies. And it is following this concept that we elaborate our dummy variable for political regime. Using this variable has one major advantage when comparing with other binary measures of democracy. Przeworski et al. (2000), for example, employ a minimalist approach to democracy and only consider election-related themes when conceptualizing their measure. Using the V-Dem variable we can consider a wider concept of political regimes, such as “freedom of association, suffrage, clean elections, an elected executive, and freedom of expression” (LÜHRMANN, LINDBERG AND TANNENBERG, 2017).

Thus, political regime is coded as 0 for democracies and 1 for autocracies. For the 154 valid entries for our model in the dataset, we have almost a perfect balanced division between democracies and autocracies:

Table 1 – Political Regimes

Regime	Frequency
Democracy	78
Autocracy	76

Source: Elaborated by the authors.

Control variables

During the Covid-19 pandemic, several leaders decided to downplay the consequences of the disease. Those leaders did not react properly, but in some cases, local governments made the difference. This was the case of Brazil⁴³ and the United States⁴⁴ for example. Thus, to control for the actions of local governments, we use a dummy variable to indicate the existence of such type of government.

Economy may also play a significant role. As we already saw, an upbeat economy may help democracies in fighting a pandemic. But it can also prevent political leaders to act fast. As

⁴³ “Medidas serão baseadas...” (2020).

⁴⁴ Mervosh and Rogers (2020).

the economic situation of a democracy plays a significant role in the voters' decision making (ACHEN & BARTELS, 2016; VOETEN, 2016), presidents and prime ministers may hesitate before taking action. If the incumbent is scheduled to face the voters in an election in the next few months, the incentive to hold the restrictive response is even higher. According to Achen and Bartels (2016), voters have a myopic behavior. They tend to forget past neglect and consider only the recent history of the government. So, in fear of hurting the economy, generating mass unemployment and economic stagnation, incumbents in a democracy will wait, hoping that the pandemic does not destroy the change of being reelected. Considering this, we also control for GDP per capita and create a dummy variable to indicate if 2020 is an election year for each country.

Following Cheibub, Hong and Przeworski (2020) and Cepaluni, Dorsch and Branyiczki (2020), we also control for previous experience with SARS. Specifically, we use a dummy variable indicating countries that had at least 100 confirmed cases during the 2002-2003 SARS outbreak. We expect that previous experience with SARS makes governments more prone to react fast. Those countries already know how to deal with respiratory diseases with fast transmission. They also have a better idea of what the consequences of not tackling the pandemic early on can be.

Finally, we control for population density. Given that the novel coronavirus is an extremely contagious disease, we expect countries with high density to act faster than countries less populated. Table 2 shows all variables used in the model, as well as its sources.

Table 2 – Variables

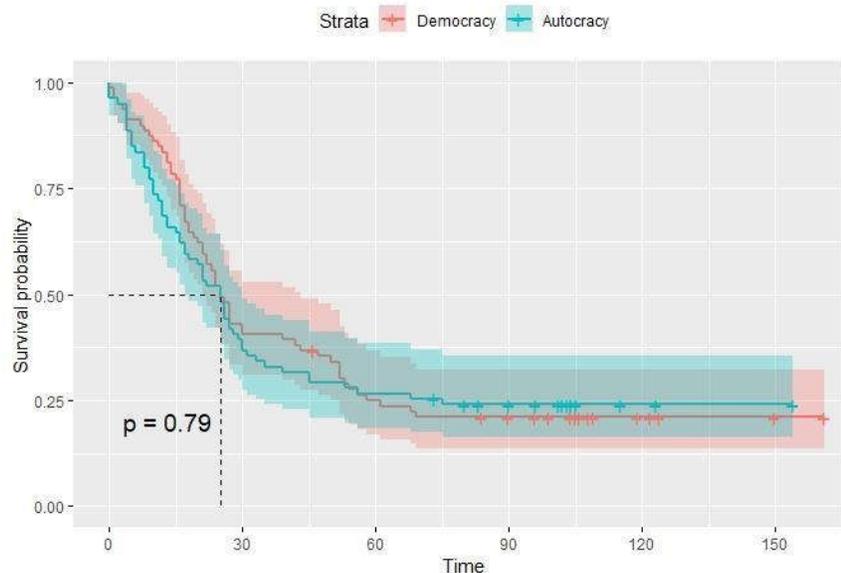
Variable	Source
Confirmed cases	Roser et al. (2020)
Policy adoption	Hale et al. (2020)
Democracy	V-Dem (2020)
Local government	V-Dem (2020)
GDP per capita	World Bank
Sars	Cepaluni et al. (2020)
Population density	OWID (2020)
Election year	IFES

Source: Elaborated by the authors.

Results

Considering that our main hypothesis is that there is no significant difference in how democracies and autocracies react to the Covid-19 pandemic, we first present a Kaplan-Meier curve (figure 2) to see the survival probabilities (probability to not take action) of the two regime groups.

Figure 2 - Kaplan-Meier curve



Source: Elaborated by the authors.

According to the Kaplan-Meier analysis, there is no significant difference in how the two different regime types reacted. The p-value is far from being significant ($p=0.79$). We can draw more valuable information from the figure. As the blue line appears below the red line in the first days of the analysis, we can affirm that autocracies are slightly faster in adopting such measures. The gap increases between 30 and 50 days. After that, the lines cross one another and the probability of not taking more time to act becomes smaller for democracies. Moreover, the dashed line represents the median. That means approximately half of the countries did take action and did so relatively soon: within 30 days from the first registered death.

Finally, to test our hypothesis, we used a Cox Proportional Hazards Model. The results can be seen in the following table⁴⁵.

⁴⁵ We also ran a model for decreasing returns of GDP per capita. However, the coefficient was not significant, and, in the name of parsimony, we decided to leave it out. The model is available in our R script.

Table 3 - Cox PH model

	Coefficient (1)	Exp(Coef) (2)	Coefficient (3)	Exp(Coef) (4)
Regime	0.016 (0.184)	1.016 (0.184)	-0.076 (0.266)	0.926 (0.266)
Local government			-0.269 (1.049)	0.764 (1.049)
GDP per capita			-0.00002*** (0.00001)	1.000 (0.00001)
Sars			-0.606 (1.014)	0.546 (1.014)
Population Density			-0.0003 (0.0005)	1.000 (0.0005)
Election Year			0.045 (0.349)	1.046 (0.349)
Regime*Election Year			-0.789 (0.553)	0.454 (0.553)
N	154	154	106	106
R ²	0.00005	0.00005	0.128	0.128
Log Likelihood	-529.009	-529.009	-338.458	-338.458
LR Test	0.008 (df = 1)	0.008 (df = 1)	14.512** (df = 7)	14.512** (df = 7)
Score (Logrank) Test	0.008 (df = 1)	0.008 (df = 1)	13.508* (df = 7)	13.508* (df = 7)

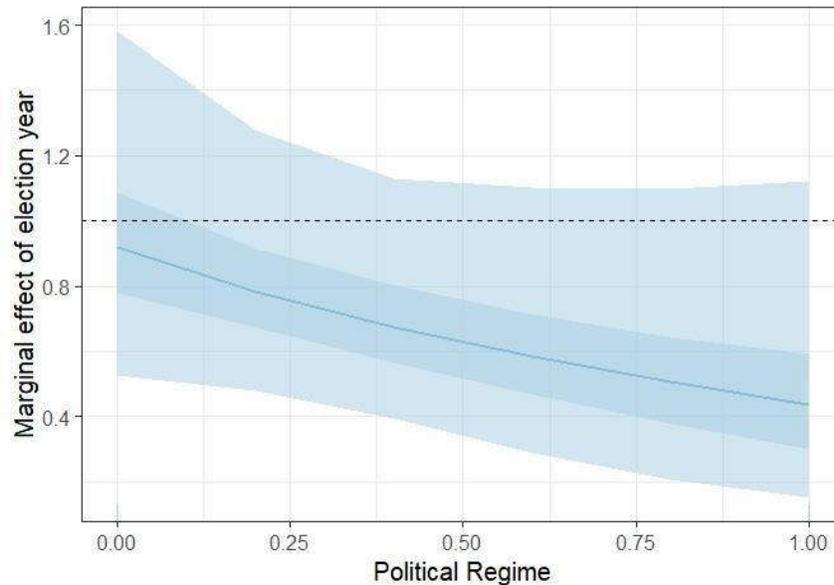
*p < .1; **p < .05; ***p < .01

Source: Elaborated by the authors

The results seem to corroborate our main hypothesis. When looking at the bivariate model, we already see the lack of statistical significance. This pattern is maintained when we introduce our control variables. In a nutshell, we can say that there is no significant difference in how democratic and autocratic leaders reacted to the pandemic. Even if we discard the p-value and consider the output, autocracies have only 7.4% less chance to adopt the social distancing policies.

The results regarding the institutional variables go even further. There is no statistically significant difference between countries where local governments exist, i.e., decentralization plays no role. This specific result could indicate an important next step: if decentralization does not matter, and at the same time we know that in some federalist countries the local governments are responsible for moving social distancing forward, the only possible scenario where decentralization would matter would be in a world filled with populist leaders ruling unitary countries.

Being in an election year is not important. And this statement works for both regime types. The interactive term shows that even jumping from one regime type to another, the variable does not become statistically significant. Figure 3 shows the marginal effect of election year for political regime.

Figure 3 - Marginal effect of election year

Source: Elaborated by the authors.

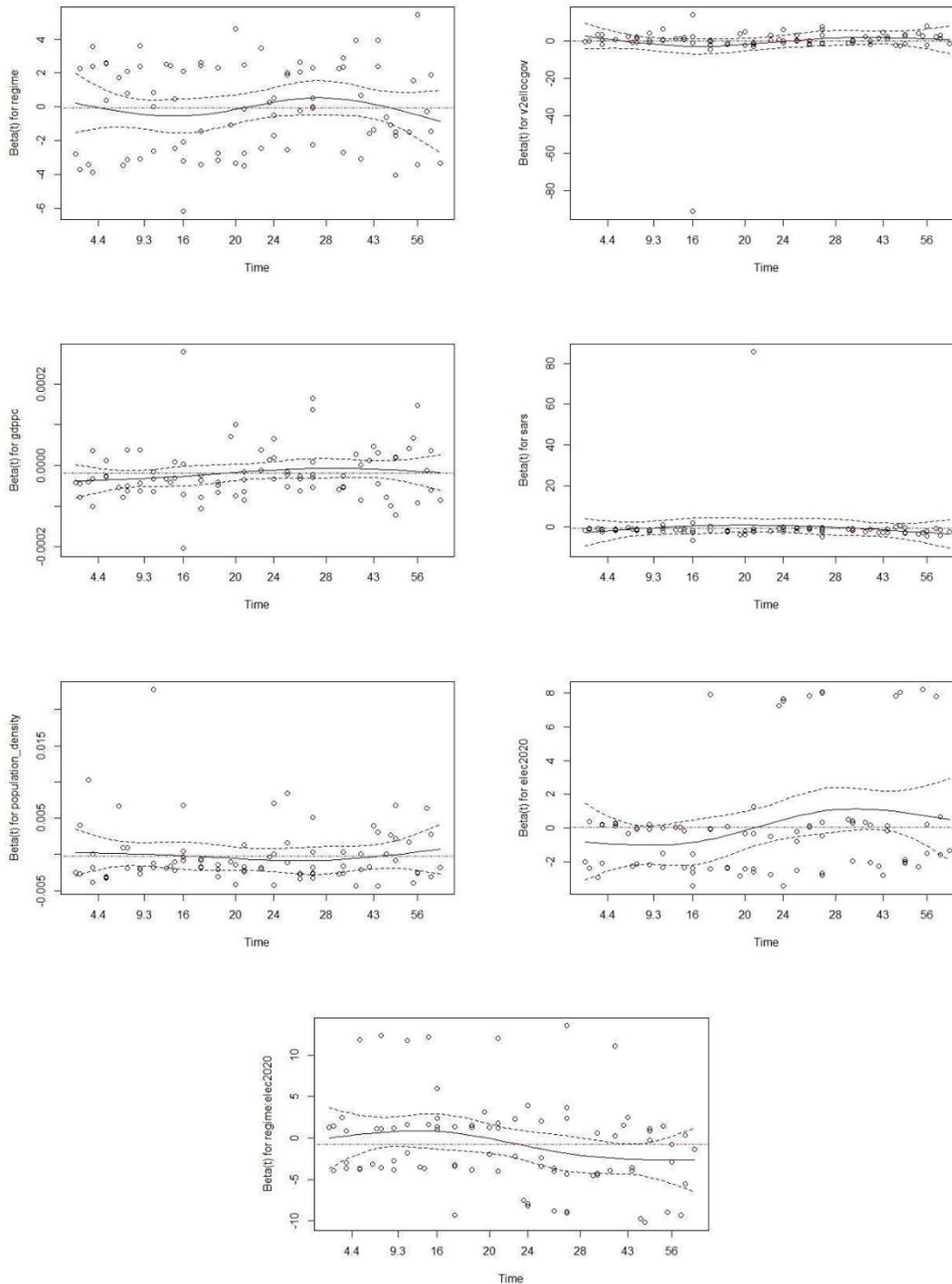
The figure above shows that as the political regime moves from the democratic regime (0) to the autocratic alternative (1), the marginal effect presents a negative slope. However, the marginal effect is always between zero and one. This means that coefficient signal for election year is not related to the type of political regime.

Even the only significant result tells us little. The result for GDP per capita is statistically significant, indicating that rich countries are slightly less likely to adopt strict measures to combat the novel coronavirus. But what its hazard ratio shows is that there is no real difference between rich and poor countries. The difference is smaller than 0%.

Residuals

To check the fitness of the model, we conducted analysis of the Schoenfeld residuals. This analysis' main goal is to observe if the proportional hazard has been fulfilled. If the line is confined within the confidence interval, we can assume that the proportional hazards has been respected (CARVALHO ET AL., 2011). Figure 4 shows the graphs for each covariate.

Figure 4 - Schoenfeld residuals



Source: Elaborated by the authors.

Almost all variables show clearly that the lines are within the range of the confidence interval. For the political regime explanatory variable, we see that its effect seems different in the

end. The dummy variable for national elections in 2020 and the interaction between political regime and election years, however, present a slightly problematic pattern. Although they are still within the confidence interval, they are barely so. Still, the global linear correlation of the residues is non-significant ($p=0.07$). This means that the model as whole fulfill the assumption of proportional hazards.

Conclusion

The novel coronavirus has social scientists looking for clues to help understand why governments react the way they do. A good number of researchers have deposited their efforts in political institutions (CEPALUNI, DORSCH & BRANYICZKI, 2020; CHEIBUB, HONG & PRZEWORSKI, 2020; GREER et al., 2020). Among those institutions, we looked for responses in the political regime.

Our main hypothesis – corroborated by the findings – was that there is no significance difference in how democracies and autocracies react to pandemics. We recognize, however, that very different paths lead each of those political regimes to the final destination: the adoption of social distancing policies. Whilst democratic leaders are concerned with how voters may react to more restrictive measures, authoritarian rulers do not have to bother with such scrutiny. This may pave the way for a timelier respond for authoritarian leaders. However, as we have seen in the Kaplan-Meier figure, democratic governments eventually close the gap with dictatorships. This could be explained by the number of veto players in each regime. A greater number of actors debating before to reach a decision can lead to a slower reaction. Further research could explore this pattern.

So, in a brief statement, we can argue that different political regimes do not react differently to the pandemic. Not only that: it does not matter if the political system is decentralized; if it is election year; if the country had previous experience with SARS; nor the population density. However, even if the coefficient is very close to zero, our model shows that richer countries are slower in taking action. This could be because they fear worsening the population's economic condition.

References

- ACEMOGLU, Daron; NAIDU, Suresh; RESTREPO, Pascual; ROBINSON, James D. Democracy Does Cause Growth. *Journal of Political Economy*, vol. 127, n° 1, pp. 47-100. 2019.
- ACEMOGLU, Daron; ROBINSON, James. *Economic Origins of Dictatorship and Democracy*. New York, NY: Cambridge University Press. 2006.

- ACHEN, Christopher H.; BARTELS, Larry M. *Democracy for Realists: Why elections do not produce responsive government*. Princeton, NJ: Princeton University Press. 2016.
- ADOLPH, C., AMANO, K., BANG-JENSEN, B., FULLMAN, N., & WILKERSON, J. *Pandemic politics: Timing state-level social distancing responses to COVID-19*. medRxiv. 2020.
- ALLCOTT, H., BOXELL, L., CONWAY, J., GENTZKOW, M., THALER, M., & YANG, D. Y. Polarization and public health: Partisan differences in social distancing during the Coronavirus pandemic. *NBER Working Paper*, (w26946). 2020.
- ALLISON, Paul. *Event History Analysis: regression for longitudinal event data*. Newbury Park, CA: SAGE Publications Inc. 1984.
- ANG, Yuen Yuen. When Covid-19 meets centralized, personalized power. *Nature Human Behavior*, vol. 4, pp. 445-447. 2020.
- AVELINO, George; BROWN, David S.; HUNTER, Wendy. The Effect of Capital Mobility, Trade Openness, and Democracy on Social Spending in Latin America, 1980-1999. *American Journal of Political Science*, vol. 49, nº 3, pp. 625-641. 2005.
- BADGER, E.; QUEALY, K. 2020, Red vs. blue on Coronavirus concern: The gap is still big but closing. *The New York Times*.
- BAUM, N. M.; JACOBSON, P. D.; GOOLD, S. D. "Listen to the people": public deliberation about social distancing measures in a pandemic. *The American Journal of Bioethics*, 9(11), 4-14. 2009.
- BOIX, Carles. *Democracy and Redistribution*. New York, NY: Cambridge University Press. 2003.
- BUENO DE MESQUITA, Bruce; SMITH, Alastair; SIVERSON, Randolph M.; MORROW, James D. *The Logic of Political Survival*. Cambridge, MA: MIT Press. 2003.
- CARVALHO, Marília Sá; ANDREOZZI, Valeska Lima; CODEÇO, Claudia Torres; CAMPOS, Dayse Pereira; BARBOSA, Maria Tereza Serrano; SHIMAKURA, Silvia Emiko. *Análise de Sobrevivência – Teoria e aplicação em saúde*. 2ª ed. Rio de Janeiro, RJ: Editora Fiocruz. 2011.
- CEPALUNI, Gabriel; DORSCH, Michael T.; BRANYICZKI, Réka. Political Regimes and Deaths in the Early Stages of the Covid-19 Pandemic. Available at: <https://ssrn.com/abstract=3586767>. 2020.
- CHEIBUB, José Antonio; HONG, Ji Yeon Jean; PRZEWORSKI, Adam. Rights and Deaths: government reaction to the pandemic. Available at: <https://sites.google.com/a/nyu.edu/adam-przeworski/home/working-papers>. 2020.
- CHENG, Z. J.; SHAN, J. *Novel coronavirus: where we are and what we know*. *Infection* [Internet]. 2020 Apr [cited 2020 Apr 30]; 48 (2): 155-63. 2019.
- COSTABLE, Pamela; VALENZUELA, Arturo. *A Nation of Enemies: Chile under Pinochet*. New York, NY: W. W. Norton & Company. 1993.

- COURTEMANCHE, C.; GARUCCIO, J., Le, A.; PINKSTON, J., & YELLOWITZ, A. Strong Social Distancing Measures In The United States Reduced The COVID-19 Growth Rate: Study evaluates the impact of social distancing measures on the growth rate of confirmed COVID-19 cases across the United States. *Health Affairs*, 10-1377. 2020.
- DAHL, ROBERT. *POLYARCHY: PARTICIPATION AND OPPOSITION*. NEW HAVEN, 1971.
- DAVE, D. M.; FRIEDSON; A. I., MATSUZAWA, K.; SABIA, J. J. When do shelter-in-place orders fight COVID-19 best? Policy heterogeneity across states and adoption time (No. w27091). *National Bureau of Economic Research*. 2020.
- DEACON, Robert T. Public Good Provision under Dictatorship and Democracy. *Public Choice*, vol. 139, pp. 241-262. 2009.
- DECALO, Samuel. African Personal Dictatorships. *The Journal of Modern African Studies*, vol. 23, n° 2, pp. 209-237. 1985.
- DJANKOV, Simeon; MCLIESH, Caralee; NEVONA, Tatiana; SHLEIFER, Andrei. Who Owns the Media? *NBER Working Papers*, #8288. 2001.
- EGOROV, Georgy; GURIEV, Sergei; SONIN, Konstantin. Why Resource-poor Dictators Allow Freer Media: A Theory and Evidence from Panel Data. *American Political Science Review*, vol. 103, n° 4, pp. 645-668. 2009.
- EL BADAWI, Ibrahim; MAKDISI, Samir. Explaining the Democracy Deficit in the Arab World. *The Quarterly Review of Economics and Finance*, vol. 46, pp. 813-831. 2007.
- FONG, M. W., GAO, H., WONG, J. Y., XIAO, J., SHIU, E. Y., RYU, S., & COWLING, B. J. Nonpharmaceutical measures for pandemic influenza in nonhealthcare settings—social distancing measures. *Emerging infectious diseases*, 26(5), 976. 2020.
- FRANTZ, Erica. *Authoritarianism*. New York, NY: Oxford University Press. 2018.
- FREY, Carl B.; CHEN, Chinchih; PRESIDENTE, Georgio. Democracy, Culture, and Contagion: Political Regimes and Countries Responsiveness to Covid-19. *Covid Economics* 18, 2020a.
- FREY, Carl B.; PRESIDENTE, Georgio; CHEN, Chinchih. Covid-19 and the Future of Democracy. VoxEU CEPR, 2020b. Available at: <https://voxeu.org/article/covid-19-and-future-democracy>. Accessed in August 8th, 2020.
- FRIEDSON, A. I., MCNICHOLS, D., SABIA, J. J., & DAVE, D. Did California's shelter-in-place order work? early coronavirus-related public health effects (No. w26992). *National Bureau of Economic Research*. 2020.
- GALLAGHER, May; HANSON, Jonathan K. Coalitions, Carrots, and Sticks: Economic Inequality and Authoritarian States. *PS: Political Science & Politics*, vol. 42, n° 4, pp. 667-672. 2009.
- GANDHI, Jennifer. *Political Institutions under Dictatorships*. New York: Cambridge University Press. 2008.

- GASPARI, Elio. *A Ditadura Envergonhada*. 2nd ed. Rio de Janeiro, RJ: Intrínseca. 2015.
- GLASS, Robert J., GLASS, Laura M., BEYELER, Walter E.; MIN, H. Jason. Targeted social distancing designs for pandemic influenza. *Emerging infectious diseases* 12, no. 11: 1671. 2006.
- GREER, Scott L.; KING, Elizabeth J.; FONSECA, Elize Massard da; PERALTA-SANTOS, Andre. The Comparative Politics of Covid-19: The need to understand government responses. *Global Public Health*. Available at: <https://www.tandfonline.com/doi/pdf/10.1080/17441692.2020.1783340?needAccess=true>. 2020.
- GUO, Shenyang. *Survival Analysis*. New York, NY: Oxford University Press. 2010.
- INTERNATIONAL FOUNDATION FOR ELECTORAL SYSTEMS. *Election Guide*. Available at: <http://www.electionguide.org/elections/?inst=&cont=&yr=2020>. 2020.
- HALE, Thomas; WEBSTER, Sam; PETHERICK, Anna; PHILLIPS, Toby; KIRA, Beatriz. Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, 2020.
- JOHNSON, Niall P. A. S.; MUELLER, Jurgen. Updating the Accounts: Global Mortality of the 1918-1920 "Spanish" Influenza Pandemic. *Bulletin of the History of Medicine*, vol. 76, n° 1, pp. 105-115. 2002.
- KAUFMAN, Robert R.; SEGURA-UBIERGO, Alex. Globalization, Domestic Politics, and Social Spending in Latin America: A Time-Series Cross-Section Analysis, 1973-97. *World Politics*, vol. 53, n° 4, pp. 553-587. 2001.
- KNUSTEN, Carl Henrik. Democracy, Dictatorship and Protection of Property Rights. *The Journal of Development Studies*, vol. 47, n° 1, pp. 164-182. 2011.
- LEE, Stephen J. *European Dictatorships, 1918-1945*. 4th ed. New York, NY: Routledge. 2016.
- LINZ, Juan; STEPAN, Alfred. *Problems of Democratic Transition and Consolidation: Southern Europe, South America, and Post-Communist Europe*. Baltimore, MD: Johns Hopkins University Press. 1996.
- LÜHRMANN, Anna; LINDBERG, Staffam I.; TANNENBERG, Marcus. Regimes in the World (RIW): a robust regime type measure based on V-Dem. *V-Dem Working Paper*, series 2017:47. 2017.
- MAHTANI, Kamal R., HENEGHAN, Carl, and ARONSON, Jeffrey K. "What is the evidence for social distancing during global pandemics? A rapid summary of current knowledge."
- MAINWARING, Scott; PÉREZ-LIÑÁN, Aníbal. *Democracies and Dictatorships in Latin America: emergence, survival, and fall*. New York, NY: Cambridge University Press. 2013.

- MARKEL, Howard; STERN, Alexandra M.; CETRON, Martin S. Theodore E. Woodward award non-pharmaceutical interventions employed by major American cities during the 1918–19 influenza pandemic. *Transactions of the American Clinical and Climatological Association* 119. 2008.
- “MEDIDAS serão baseadas na ciência”: a carta de governadores a Bolsonaro. Exame, São Paulo, 26 Mar. 2020. Available at: <https://exame.com/brasil/governadores-enviam-carta-a-bolsonaro-dizendo-que-vaio-manter-isolamento/> Accessed in: 07 Aug. 2020.
- MELTZER, Allan H.; RICHARDS, Scott F. A Rational Theory of the Size of Government. *Journal of Political Economy*, vol. 89, nº 5, pp. 914-927. 1981.
- MERVOSH, Sarah; ROGERS, Sarah. Governors Fight Back Against Coronavirus Chaos: ‘It’s like being on eBay with 50 other states’. New York Times. New York, 31 Mar. 2020. Available at: <https://www.nytimes.com/2020/03/31/us/governors-trump-coronavirus.html>. Accessed in: 07 Aug. 2020.
- NEGA, Berhanu; SCHNEIDER, Geoff. Things Fall Apart: Dictatorships, Development, and Democracy in Africa. *Journal of Economic Issues*, vol. 46, nº 2, pp. 371-382. 2012.
- OUR WORLD IN DATA. *Coronavirus Pandemic (Covid-19) – the data*. Available at: <https://ourworldindata.org/coronavirus-data>. 2020.
- PIAZZA, James A. Draining the Swamp: Democracy promotion, State failure, and terrorism in 19 Middle Eastern countries. *Studies in Conflict & Terrorism*, vol. 30, nº 6, pp. 521-539. 2007.
- PRZEWORSKI, Adam; ALVAREZ, Michael; CHEIBUB, Jose Antonio; LIMONGI, Fernando. *Democracy and Development: Political Institutions and Well-Being in the World, 1950-1990*. New York, NY: Cambridge University Press. 2000.
- PRZEWORSKI, Adam; LIMONGI, Fernando. Modernization: theories and facts. *World Politics*, vol. 49, nº 2, pp. 155-183. 1997.
- PULEJO, Maximo; QUERUBÍN, Pablo. Electoral Concerns Reduce Restrictive Measures During the COVID-19 Pandemic. Working Paper, 2020.
- RUGER, Jennifer Prah. Democracy and Health. *Quarterly Journal of Medicine*, vol. 98, pp. 299-304. 2005.
- ROSER, Max; RITCHIE, Hannah; ORTIZ-OSPINA, Estebán; HASELL, Joe. Coronavirus Pandemic (COVID-19), 2020. Published online at OurWorldInData.org. Available at: <https://ourworldindata.org/coronavirus>
- SEN, Amartya. 1999, *Development as Freedom*. New York, NY: Alfred A. Knopf.
- SSRN. 2016. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2882878
- STEPAN, Alfred. *The Military in Politics: changing patterns in Brazil*. Princeton, NJ: Princeton University Press. 1971.

SVOLIK, Milan. *The Politics of Authoritarian Rule*. New York, NY: Cambridge University Press. 2012.

VOETEN, Erik. Are People Really Turning Away from Democracy? Working Paper SSRN.

Available at: <https://ssrn.com/abstract=2882878>. 2016

VREELAND, James Raymond. Political Institutions and Human Rights: Why Dictatorships Enter into the United Nation Convention Against Torture. *International Organization*, vol. 62, nº 1, pp. 65-101. 2008.

WATANABE, Phillippe. Corrida por vacina contra Covid-19 já tem 24 delas na fase de testes em humanos. Folha de S. Paulo, São Paulo, 11 de Jul. 2020. Available at: <https://www1.folha.uol.com.br/equilibriosaude/2020/07/corrida-por-vacina-contracovid-19-ja-tem-21-delas-na-fase-de-testes-em-humanos.shtml>. Accessed in: 07 Aug. 2020.

YU, D., LIN, Q., CHIU, A. P., & HE, D. Effects of reactive social distancing on the 1918 influenza pandemic. *PloS one*, 12(7), e0180545. 2017.

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