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Electoral concerns reduce restrictive measures during the COVID-19 pandemic

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ABSTRACT
The outbreak of COVID-19 has called for swift action by governments, often involving the adoption of restrictive measures such as lockdowns. In this context, leaders have faced a trade-off between imposing stringent measures to limit the contagion, and minimizing the short-run costs on their national economy, which could impact their electoral prospects. Leveraging on both the timing of elections and the constitutional term limits faced by leaders in presidential systems, we document how incumbents who can run for re-election implement less stringent restrictions when the election is closer in time. The effect is driven by measures more likely to have a negative economic impact. This shows how electoral concerns help explain the observed differences in the response to the onset of the COVID-19 epidemic across different countries.

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1. Introduction
The global outbreak of COVID-19 in the Spring of 2020 posed unprecedented challenges to political leaders across the world. Most public health experts agree on the importance of restrictive measures such as lockdowns to slow the spread of the virus, ease the burden on the health care system and save lives (de Figueiredo et al., 2020). However, there has been substantial variation in the stringency of governments’ responses to the first wave (onset) of the pandemic. While the severity and timing of the outbreak may explain part of the variation, several other factors have been pointed out as potential contributors (Frey et al., 2020). In particular, restrictive measures have been shown to hurt the economy (Pew, 2020), and distribute their burden unequally across the population (Adams-Prassl et al., 2020). Public opinion polls on COVID-19 for a wide set of countries show that economic conditions – rather than health – tend to be the main concern of voters (Oliver, 2020). Anti-lockdown protests have sparked across the globe (Sly, 2020).

While containing the spread of the virus may ultimately be the best policy to address the economic and health consequences of the pandemic, in the short run elected leaders must often trade off the advice of experts with the preferences of voters, who will ultimately judge their performance at the polls. Political leaders, aware of the potential short-run electoral costs of a depressed economy, have often responded by easing or removing restrictions. In this paper, we study the extent to which political considerations have shaped public policy at the onset of the COVID-19 epidemic. We focus on the early months of the pandemic – up to May 2020 – a period that was characterized by a considerable heterogeneity in the restrictive measures imposed across the world. We argue that reelection concerns can play an important role in explaining this early variation in government responses, with particular regard to public health measures that can have immediate negative impacts on the economy.

We build on an existing body of literature that shows that economic downturns negatively impact reelection prospects of incumbents (Dutch and Stevenson, 2008) and that voting behavior is particularly sensitive to the state of the economy close to the election (Healy and Lenz, 2014). We also contribute to the...
literature on government responsiveness to crises and external events (see, e.g. Besley and Burgess, 2002; Ashworth et al., 2018).

Similarly, a long-standing tradition in political economy argues that incumbents’ policy choices will greatly differ depending on whether they can run for an additional term in office (Besley and Case, 1995; Ferraz and Finan, 2011). Finally, the literature on political business cycles shows that, cognizant of voter’s behavior, incumbents attempt to influence economic performance as the election approaches (Dräzen, 2000).

We leverage the timing of elections and the presence of constitutional term limits in presidential systems to study the effect of re-election concerns on COVID-19-related restrictions implemented between the pandemic’s outbreak and the end of May 2020. Both factors are institutionally predetermined, and thus arguably exogenous to the timing and severity of the epidemic’s outbreak in each country. Our analyses consistently show that countries where incumbent presidents are up for an additional term and where the upcoming election is closer in time tend to be less stringent, on average. The effect is driven by those policies – like closing workplaces and forbidding internal movement – that are likely to be more economically harmful. Our estimates suggest that reelection concerns can explain up to 24% of the variation in the stringency of government’s responses to the first wave of COVID-19.

To address concerns with our empirical strategy, we show that the interaction of being up for reelection and proximity to the upcoming election is uncorrelated with a broad set of country covariates. These include other political characteristics, like the leader’s ideology and the regime’s respect of democratic rule. We also show that results are robust to the use of different measures of stringency, to controlling for different covariates, and are unlikely to be driven by differences in the administrative level at which restrictions are mandated and applied.

Our findings have important implications for our understanding of what drives public health policies in times of crisis. In particular, our results highlight how – whenever the safeguard of public health is at odds with economic well-being – policymakers may decide to partially sacrifice the former for the latter. However, the extent to which such an adjustment takes place may be highly dependent on the institutional constraints that leaders face at the time of adoption.

2. Measuring stringency

The typical policy bundle of most governments in the face of COVID-19 consists of a mix of restrictions, welfare support, and healthcare improvements. We focus on the first dimension, looking at the stringency of measures adopted to stop the spread of the disease. Following the Oxford COVID-19 Government Response Tracker (OxCGRT), we define “stringency” as enacting policies that do one of the following: (i) limit individual freedom (of work, movement or gathering), (ii) shut down public services and events in order to reduce mobility, or (iii) deliver information about the necessity to comply with these measures.

To measure this particular dimension of government response, we rely on the Stringency Index (SI) computed by OxCGRT. Their online repository provides daily values of the SI for over 150 countries, calculated by averaging and re-scaling 9 different categorical indicators. These indicators are based on the joint efforts of more than 100 contributors, have received the attention of the media (Douglas, 2020), and have been used by other scholars (Frey et al., 2020). More details on the computation of the SI can be found in Hale et al. (2020).

The SI for a specific day d goes from 0 to 100, with 0 corresponding to a country where no restrictions are in place, and 100 designating one where the strictest possible measures are being taken on each of the nine dimensions. Our primary dependent variable, $S_I$, is a simple average of the SI across all the $n$ days since the first COVID-19 case was detected in country c (call it $d_{1,c}$) until May 29, i.e. the last weekday of May 2020 (call it D): $S_I = \frac{1}{n} \sum_{d=d_{1,c}}^{D} S_{I,d}$. While $S_I$ provides a comprehensive picture of a country’s stringency across our study period, it may fail to account for the variation in the rate of contagion and intensity of the epidemic. For example, a country may have low average stringency because the rate of infection remains very low after the first reported case. To address this, we compare countries’ stringency at the same rate of infection. In particular, we define $S_{I2}$ as the value of the SI for each country on the day in which it had 1 contagion per 100,000 inhabitants. Similarly, another concern with $S_I$ is that low average stringency may be driven by a very cautious response in earlier stages, when the rate of infection was low, followed by a more stringent response at a later stage. To address this, we define $S_{I1}$ as the highest level of stringency (i.e. the maximum value of the OxCGRT SI) attained in each country during our period of observation.

3. Empirical strategy

We are interested in how electoral concerns shape leaders’ stringency. To measure electoral concerns, we use the interaction of two institutional characteristics of each country, which were predetermined at the time of the COVID-19 outbreak. The first component of the interaction is whether the sitting incumbent is up for reelection. To code this, we combine information on constitutional term limits for the head of government with the number of terms already spent in office by each country’s leader. The second is the proximity to the next election for the country’s top executive position at the time of the outbreak, that for ease of interpretation we measure in years. This is gauged by counting the number of days between the first COVID-19 case and the next scheduled election, dividing it by 365, and multiplying the result by $-1$: $\text{ElecProximity}_c = -1 \cdot \left[ \frac{\text{date of the next election } - \text{date of the first confirmed case}}{365} \right]$. Thus, higher values of $\text{ElecProximity}_c$ imply that the election for the head of government is closer in time, with the upper bound of 0 corresponding to a hypothetical country scheduled to have an election on the day of its first confirmed case.

Our sample consists of the set of 65 countries with any constitutional term limits on the head of government included in the OxCGRT dataset as of May 29, 2020 (see Table A1). Given that our empirical approach requires the existence of term limits, our sample is limited to countries that do not have postponed elections following the outbreak of COVID-19, with the exception of Peru, where an election was postponed on July 26, 2020 (see Table A1 in the Appendix for details).
focus is almost entirely on presidential systems, where term limits tend to be more common.\(^7\) We acknowledge that, given the use of constitutional term limits as a source of variation in electoral concerns, our sample is both selected and limited in size. While selection potentially limits the generalizability of the results, our sample features countries in all continents with the exception of Oceania.

To further improve on internal validity, we also conduct our analysis on the more restricted set of 50 countries that have a two-term limit. For this set of countries, variation is driven by whether the country had a first or second-term president at the time of the COVID-19 outbreak. As illustrated in Appendix Fig. A1, the distribution of years to the next election has common support in countries with incumbents eligible and non-eligible for reelection.

For our empirical analysis we estimate OLS regressions of the form:

\[
Y_{ct} = \alpha + \beta_1 \text{CanRun}_{ct} + \beta_2 \text{Elec Proximity}_{ct} + \beta_3 (\text{CanRun} \times \text{Elec Proximity})_{ct} + \epsilon_{ct}
\]

where \(Y_{ct}\) is the stringency of country \(c\) – as measured by either \(S_1, S_2\), or \(S_3\) – and \(\text{CanRun}\), is a dummy equal to 1 if the incumbent is eligible for reelection. Throughout the analysis, we report robust standard errors.\(^8\)

The estimate of \(\beta_1\) captures the difference in stringency for countries with incumbents with and without reelection incentives, setting our measure of electoral proximity at 0. Given that – as explained above – 0 corresponds to the maximum level of election proximity, we expect \(\beta_1\) to be negative. That is, we expect that a hypothetical incumbent facing immediate reelection should impose less stringent public health measures. However, while this coefficient may be informative about the role of electoral concerns, as argued by Ferraz and Finan (2011) having a term-limited incumbent may be correlated with country characteristics or incumbent attributes – such as experience and ability – that may influence the response to the epidemic. Thus, while we use a wide range of observable country and incumbent characteristics to address this concern, this estimate should be interpreted cautiously and is not the main focus of our analysis.

The coefficient \(\beta_2\) measures the effect of the election in country \(c\) being one year closer at the moment of the outbreak, holding \(\text{CanRun}\), at 0. In other words, it corresponds to the effect of a unitary increase in election proximity, but for an incumbent who is not entitled to run for re-election. Predictions for this coefficient are more ambiguous. On the one hand, electoral proximity may have little impact on the policy choices of term-limited incumbents for whom the upcoming election has more limited individual consequences. However, career concerns or the electoral prospects of the incumbent’s party may still lead term-limited incumbents to minimize the short-run economic costs of the pandemic by easing stringency when election proximity is high.

The main coefficient of interest is \(\beta_3\), which captures the change in stringency following a one-year decrease in the distance to the next election, for a country whose leader is allowed to run for a further term in office. Following our discussion, we expect \(\beta_3\) to be negative and significant given the potential short-run trade-off between stringency and economic performance. Our key identification assumption here is that the interaction of the proximity to the next election and having a leader allowed to re-run is orthogonal to other characteristics that may impact the country’s response to the epidemic, and thus isolates the effects of electoral concerns. The central intuition underlying this assumption is that the outbreak of the epidemic was arguably independent of predetermined institutional factors like the existence of term limits and the timing of the next election. We further discuss and test this crucial assumption after presenting our main results.

4. Results

We first illustrate the patterns in the raw data. Fig. 1 depicts the linear correlation between distance to the next election and stringency (as measured by \(S_1\)), separately for countries with (Panel A) and without (Panel B) binding term limits for the incumbent. The figure suggests that electoral concerns may be an important determinant of policy stringency: the correlation is weak (and, if anything, positive: \(\rho = .20\)) when the leader cannot run for reelection, while it is negative (\(\rho = -.41\)) in the absence of a term limit.

Table 1 reports the regression estimates for each of the three measures of stringency and each of the two study samples. The estimates of \(\beta_1\) reveal that leaders eligible for reelection tend to enact less stringent policies in response to COVID-19. Consider
Table 1
Main Results.

|                | (1)      | (2)      | (3)      | (4)      | (5)      | (6)      |
|----------------|----------|----------|----------|----------|----------|----------|
| Incumbent Can Run | -16.94** | -18.86** | -19.35*  | -19.35*  | -19.52** | -17.51*  |
|                 | (7.023)  | (7.121)  | (10.27)  | (9.995)  | (8.772)  | (9.970)  |
| Election Proximity | 1.706    | 2.458*   | 2.764    | 1.572    | 2.330    | 2.051    |
|                 | (1.352)  | (1.289)  | (2.069)  | (1.682)  | (1.670)  | (2.039)  |
| Proximity × Can Run | -5.441** | -6.867*** | -8.077*** | -7.636*** | -6.990*** | -7.197** |
|                 | (2.055)  | (2.024)  | (2.903)  | (2.663)  | (2.481)  | (2.776)  |
| Observations    | 65       | 50       | 58       | 43       | 65       | 50       |
| $R^2$           | 0.13     | 0.22     | 0.12     | 0.20     | 0.19     | 0.24     |
| Mean Depvar     | 68.04    | 66.97    | 73.67    | 73.50    | 83.36    | 82.04    |
| Term Limit      | Any      | 2-Term   | Any      | 2-Term   | Any      | 2-Term   |

|                |          |          |          |          |          |          |
|----------------|----------|----------|----------|----------|----------|----------|
| S1             | S1       | S2       | S2       | S3       | S3       | S3       |
| Incumbent Can Run |         |         |          |          |          |          |
| Election Proximity |         |         |          |          |          |          |
| Proximity × Can Run |         |         |          |          |          |          |
| Observations    |          |          |          |          |          |          |
| $R^2$           |          |          |          |          |          |          |
| Mean Depvar     |          |          |          |          |          |          |
| Term Limit      |          |          |          |          |          |          |

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

Fig. 2. Effect by individual components of the Stringency Index. Notes: To facilitate the comparison of the coefficients, all outcomes are normalized by subtracting the sample mean and dividing by the standard deviation. Vertical bars are 95% confidence intervals based on robust standard errors.

column (1), which reports results for $S_1$, our preferred measure of stringency, based on the full sample. The coefficient in the first row implies that countries whose leader can run for an additional term experienced, on average, an overall stringency that is 17 points lower than those where the incumbent faces a term limit. Given a sample mean of 68.04 for $S_1$, this is close to a 25% effect.

Such a shift is tantamount to moving from the level of stringency experienced by citizens in Colombia ($S_1 = 76.45$), under the term-limited presidency of Iván Duque, to the one imposed by French President Emmanuel Macron (58.65), who will be allowed to seek another 5 years at the Élysée in 2022. However, for the reasons outlined above, this finding must be interpreted cautiously.

Our focus is on $\hat{\beta}_2$, that captures the differential role of election proximity for incumbents with and without reelection incentives. The estimates of $\hat{\beta}_2$ and $\hat{\beta}_3$ reveal that proximity to the upcoming elections reduces stringency, but only in places where the incumbent is actually eligible to run an additional term. For example, the coefficient in the last row of column (1) is negative and statistically significant and implies that, in countries without a binding term limit, a 1-year reduction in the time to the next election triggers an average decrease of 5.44 points (or 8%) in overall stringency. The coefficient on the interaction term becomes larger - a decrease of about 6.87 points per year - when focusing on the sample of countries with a two-term limit. Estimates for stringency measures $S_2$ and $S_3$ (columns 3–4 and 5–6, respectively) are bigger in absolute magnitude and statistically significant at conventional levels. This is reassuring and suggests that our findings are not driven by differences in the timing or severity of contagion across countries, an issue we discuss in more detail in the Balance Tests section below.

Finally, the estimates of $\hat{\beta}_3$, that capture the role of election proximity in countries where the incumbent is term-limited, are noisy and if anything positive. This provides further evidence that the values of $\hat{\beta}_1$ reflect the role of election concerns and not, for example, logistical issues associated with the organization of elections, that may impact stringency in countries scheduled to vote closer to the COVID-19 outbreak (we further address this concern below).

Next, in Fig. 2 we plot the interaction coefficient $\hat{\beta}_3$ when estimating (1) separately for each of the components of the SI. The results are consistent with electoral concerns mattering most for those policies that may prove more economically detrimental. Effects are larger for measures such as issuing stay-home requirements, restricting internal movement, and closing workplaces, which individually achieve statistical significance at either the 10% or the 1% level. By way of contrast, point estimates are very close to zero for school closing, the cancellation of public events, and the organization of COVID-19 public information campaigns, all policies that arguably have a smaller direct impact on a country’s economy.

The evidence provided so far lends support to the role of electoral concerns on the adoption of stringency measures by incumbents in response to the COVID-19 epidemic. However, one
alternative interpretation of our findings is that an upcoming election shifts all the efforts of executives to other activities - like campaigning - or that incumbents with an upcoming election face institutional constraints that prevent them from adopting appropriate responses to the crisis. In other words, it could be that executives up for reelection shortly are simply less responsive to the epidemic in general, and not specifically with respect to stringency as our argument implies.

To test for this, we re-estimate Eq. (1) using as outcome each of the three measures of economic responsiveness provided by OxCGRT, plus their Economic Support Index,10 as well as OxCGRT measures of country efforts in testing for and tracing of COVID-19 cases. The estimates of $\beta_3$ from this exercise are in Fig. 3. Results for the four economic measures reveal no significant evidence that leaders facing high electoral pressure tend to be less responsive in this domain. If anything, the only sizable coefficient – the one for fiscal responsiveness – is positive, which is consistent with the importance of the economy for incumbents up for reelection in the near future. There is also no evidence that reelection concerns affect testing efforts.

When it comes to tracing – which can possibly be seen as an alternative to lockdowns (Campbell, 2020) – we find mild evidence that electoral pressure may increase efforts on this dimension. On the one hand, this confirms that electorally concerned executives are unlikely to be simply inoperative. On the other, it suggests that these governments may be adopting a different policy mix, attempting to curb the spread without relying too heavily on restrictions.

5. Balance tests

A natural concern with cross-country regressions is endogeneity and omitted variable bias. However, both of our measures of electoral pressure are predetermined with respect to the timing of the COVID-19 outbreak, and should thus be orthogonal to it. We empirically test this by estimating Eq. (1) using as dependent variable the number of days from January 1st, 2020 (the first recorded day in the OxCGRT data) to the day of the first confirmed case in each country. As shown in Table A2 in the Appendix, the coefficients for the main effects and interaction term are not statistically significant and very small in absolute magnitude.

Importantly, our emphasis on $\beta_3$, the interaction between reelection incentives and electoral proximity, implies that for any potential confounder to bias our estimates it must be correlated with this interaction term and not simply with the main effects of these two electoral variables.

To address this possibility, we estimate our baseline regression, but employ as outcome variable 48 country or incumbent pre-COVID-19 characteristics. A detailed description of all outcomes, including the source, can be found in Table DA1 in the Data Appendix. We choose these variables on the grounds that they may be relevant for explaining observed stringency, or could proxy for the intensity of COVID-19 in a given country. They include, among others, GDP per capita, population density, current leader’s ideology (coded following the procedure described in the Data Appendix, Section DA1) and a country’s Polity IV democracy score. For ease of illustration, we assign each variable to one of four categories: politics, geography/demographics, economy, and connectedness with China. The 12 variables in the latter category (listed in Table DA1, Panel D) are particularly important, as we take them as indirect measures of the likelihood that the virus could penetrate country $c$ at an early stage from the place where it originated.

The results of this exercise are shown in Fig. 4, which plots estimates and 95% confidence intervals of $\beta_3$ for each of these 48 covariates. With the only exception of the incumbent’s win margin in the most recent election, all variables are uncorrelated with the interaction between election proximity and the incumbent being allowed to run again. Most importantly, not only are the coefficients statistically insignificant, but they are quite small in absolute magnitude. In Figs. A2–A5 in the Appendix we report the results of this analysis in more detail, including estimates of $\beta_1$ and $\beta_2$.

We also estimate (1) using two direct measures of the pandemic’s severity: the number of infected people per one million inhabitants in the week following the first confirmed case, and the number of infected people per one million inhabitants on the last day of our observation period. All coefficients are statistically insignificant across both samples. However, since these direct measures of severity are potentially endogenous to a country’s stringency, on the robustness checks below we rely instead on other variables that capture the potential for disease spread.

6. Robustness tests

While Fig. 4 reveals limited evidence that our interaction term confounds the effect of other country or incumbent characteristics, we nonetheless perform a series of robustness checks to further alleviate this concern. In particular, to account for the fact that having an incumbent eligible for reelection may confound the effect of other covariates, we control for each of these 48 country character-

\[ \beta_3 \text{ (OxCGRT, plus Economic Support Index, OxCGRT measures of country efforts in testing for and tracing of COVID-19 cases. These estimates show no significant evidence that leaders facing high electoral pressure tend to be less responsive to the epidemic in general, and not specifically with respect to stringency as our argument implies.)} \]

\[ \text{Fig. 3. Other Dimensions of Response. Notes: To facilitate the comparison of the coefficients, all outcomes are normalized by subtracting the sample mean and dividing by the standard deviation. Vertical bars are 95\% confidence intervals based on robust standard errors.} \]

10 The three measures capture the enactment and intensity of policies providing income support, debt relief, and fiscal benefits. The Economic Support Index combines the first two (again, refer to Hale et al., 2020 for details).
Fig. 4. Balance Tests. Notes: To facilitate the comparison of the coefficients, all variables are normalized by subtracting the sample mean and dividing by the standard deviation. Vertical bars are 95% confidence intervals based on robust standard errors.

In this paper we provide evidence that electoral concerns can help explain the heterogeneous public health response of political leaders at the onset of the COVID-19 epidemic. Our estimates suggest that reelection incentives and election proximity can account for almost a quarter of the variation in the stringency of the measures of stringency mostly capture nationwide policies, thus attributable to national executives (for which our measures of electoral concerns are relevant), rather than to sub-national leaders. For robustness we run the regressions reported in Table 1 excluding one of the countries at a time in each iteration. As shown in Fig. A8, no single country drives the effect documented in Table 1. Findings are very similar when we conduct these leave-one-out tests for $S_1$ and $S_2$. Final results.

Finally, given a limited sample size, one natural concern is that our results could be generated by simple chance. To tackle this possibility, we randomly permute the CanRun indicator across countries 1000 times, while keeping our measure of election proximity fixed to its actual value. This way, we can simulate results from randomly assigning the possibility of reelection, and compare the distribution of these simulated results to the actual estimate retrieved in Table 1, Column 1. This randomization inference exercise (Fig. A9) clearly shows that our estimate of $\beta_2$ could hardly have arisen by pure chance.

7. Discussion and conclusion

In this paper we provide evidence that electoral concerns can help explain the heterogeneous public health response of political leaders at the onset of the COVID-19 epidemic. Our estimates suggest that reelection incentives and election proximity can account for almost a quarter of the variation in the stringency of the measures of stringency mostly capture nationwide policies, thus attributable to national executives (for which our measures of electoral concerns are relevant), rather than to sub-national leaders. For robustness we run the regressions reported in Table 1 excluding one of the countries at a time in each iteration. As shown in Fig. A8, no single country drives the effect documented in Table 1. Findings are very similar when we conduct these leave-one-out tests for $S_1$ and $S_2$.

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policies adopted between the time of the outbreak and the end of May 2020. Consistent with the existence of a short-run trade-off between public health and the economy, the effect is driven by those measures that can be more economically detrimental, such as forbidding movement and closing workplaces.

These findings contribute to a broader literature documenting the importance of electoral and political variables for the choice of economic policy (Persson and Tabellini, 2000; Persson and Tabellini, 2003). Our findings are consistent with the argument of Frieden (2020) and confirm the relevance of political variables in explaining policy choices, even in the context of a global health emergency, when politicians across the world are under pressure to act fast and adopt the recommendations of public health experts in a coordinated manner.

We conclude with a set of caveats and directions for future research. First, in spite of the balance tests and robustness of our estimates, our results stem from a cross-country comparison and should thus be interpreted with caution. As more fine-grained, sub-national data become available, within-country studies may be able to dig deeper into the relationship between electoral concerns and the response to the epidemic. This is particularly relevant in countries in which the response to the epidemic has been devolved to local politicians such as governors or mayors. Nonetheless, we believe that the patterns documented in this paper are informative, and can further our understanding of the variation in response to COVID-19.

Second, our findings should not be taken as running counter to or being inconsistent with other findings, such as the short-term gains in incumbent popularity triggered by lockdowns in some Western-European countries (Blais et al., 2020). On the one hand, it may take time for leaders to realize that more stringent measures may allow them to gather additional support with some groups of the population (for example, those less likely to be affected economically by these measures). Similarly, politicians with reelection incentives may be willing to forego rallying effects that may quickly vanish, and opt instead to avoid dealing with a plummeting economy as the election day approaches.

Finally, while our data consistently show that reelection concerns have been an important determinant of government stringency, we do not claim that this is the only political driver of governments’ response to the epidemic. Several other factors could be at play, including the ideology of the leader or the degree of authoritarianism of the regime (Frey et al., 2020; Can Kavakli, 2020) – which we account for in both our balance and robustness tests – and citizens’ willingness to comply with different measures (Barrios et al., 2021), among others.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary material

Supplementary data associated with this article can be found in the online version, at https://doi.org/10.1016/j.jpubeco.2021.104387.

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