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ABSTRACT

More than Words: Leaders' Speech and Risky Behavior During a Pandemic*

This paper investigates if the anti-scientific rhetoric of modern populists can induce followers to engage in risky behavior. We gather electoral information, in-person card transactions, and geo-localized mobile phone data for approximately 60 million devices in Brazil. After the president publicly dismissed the risks of the COVID-19 pandemic and challenged scientific community recommendations, social distancing in pro-government localities declined. Consistently, general in-person transactions increased immediately, while expenses in pharmacies and cases grew with a six-day lag. Results are driven by localities with higher media penetration levels, active Twitter accounts, and a larger proportion of Evangelical Christians, a critical electoral group.

JEL Classification:	D1, D72, I12, I31
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I   Introduction

Populism is rising globally. Mudde and Kaltwasse (2017) and Guriev and Papaioannou (2020) define populism as a *"thin-centered ideology"* which segregates society between *"the corrupt elite"* and *"the pure people"*. The anti-elite view is often accompanied by anti-expert and anti-science sentiments since experts might be seen as co-opted by the global elites, defending their vested interests and the status quo. This explains, for instance, why some populist leaders – and their followers – dismiss the anthropogenic theory of global warming and, instead, relate it to an elite conspiracy, or why some might raise barriers against vaccination programs.

If leaders are persuasive, this anti-scientific rhetoric could have substantial socioeconomic effects. However, the evidence in this regard is rather scarce, especially in a real-world, outside-the-lab setting. This paper aims at filling this gap by studying how the anti-scientific words and actions of a populist head of state, against the recommendations of international organizations and the scientific community, can trigger the adoption of health-related risky behavior among his followers and affect public health.

We focus on the recent outbreak of COVID-19 in Brazil. At that time, Brazil was governed by a populist leader (Guriev and Papaioannou, 2020) who was aligned, politically and rhetorically, with other populist leaders worldwide, particularly with President Trump. Both presidents have consistently shown similar patterns in defying scientific advice related to several topics, ranging from curbing carbon dioxide emissions to interventions to prevent the spread of COVID-19. The Brazilian president's COVID-19 rhetoric was widely deemed as anti-scientific by medicine scholars (Hotez, 2021), economists (Sachs, 2020), the media (The Guardian, 2020) and members of the scientific community (Scientific American, 2020).

Since the start of the pandemic, the official response in Brazil has been notably heterogeneous among the different levels of government.[1] While sub-national governments have implemented non-pharmaceutical interventions with varying levels of strictness and recommended adherence to social distancing, Brazil's president has minimized the risks of the disease, explicitly and publicly contradicting the instructions communicated by governors, the recommendations of the World Health Organization (WHO) and, more generally, the scientific community. On different occasions (e.g., FT, 2020; The Economist, 2020), the president publicly encouraged citizens to go out and thus break social distancing policies. This context is ideal for testing whether the anti-scientific speech of a populist head of state can affect individual risk perception and high-stakes behavior — such as adherence to preventive measures recommended by the health authorities, with potential negative externalities on the community at large.

To address our question, we estimate a two-way fixed effect model at the day-municipality level with leads and lags, to test for pre-treatment and post-treatment effects. We first deploy a social distancing index at the municipal-day level based on granular location data from 60 million anonymous mobile devices across Brazil. We then combine this information with municipal data from the 2018 presidential election. In our setting, the "intervention" is defined by the interaction of a "pro-government" dummy (based on the municipal support for the president in the 2018 elections) and the dates corresponding to the events where the president publicly challenged the social distancing policies.

Following the prominent speeches on the part of the president against social isolation policies, the social distancing index immediately falls in those municipalities with a majority of supporters. The effect is significant and persists for at least a week. It is robust to several specifications and definitions of political support. Pre-events are insignificant. To further

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[1]Brazil is a three-tiered federation with 26 states, a federal district, and 5,571 municipalities.

support our results, we use daily data on credit card transactions from one of Brazil's largest banks. We document a consistent (opposite) effect on in-person consumer spending (excluding purchases in pharmacies), mirroring those on social distancing. This result suggests that the effect documented on mobility is hardly driven by lower-risk activities (such as outdoor running, which would not affect in-store purchases) or essential trips (such as buying medicines). We then document two additional effects directly related to public health: an increase in the number of cases and credit-card transactions in pharmacies with a lag of six days after the events.

We then present suggestive evidence of mechanisms which could be underlying the main results. First, we show that the effect seems to be driven by municipalities with a higher presence of local media, a result consistent with other papers that emphasize the role of local media in disseminating political news in Brazil (e.g., Ferraz and Finan, 2008; Bessone et al., 2019). Similarly, we show evidence consistent with the effect being driven by municipalities with a larger presence of Twitter accounts, suggesting the importance of social media in spreading political messages. Finally, we document a stronger effect in places with a larger proportion of Evangelical Christians, a religious group that represents around a quarter of the population and who not only heavily supported the president in the 2018 election,[2] but also showed a stronger approval of the president's handling of the pandemic (Folha, 2020).

We complement the empirical analysis by developing and calibrating a SIR model with equilibrium social distancing for Brazil. We show that events that change the perceived loss of infection risk for some set of agents can lead to new infections that in the aggregate – an object that we cannot compute in our empirical analysis – is about twice the relative effect.[3]

Our paper builds on studies examining the socioeconomic consequences of populism. Most of this evidence relates to the (macro) economic performance of populist governments (e.g., Dornbusch and Edwards, 1991; Funke et al., 2020). Part of the literature focuses on the effect of specific policies implemented by populist leaders, especially trade policies (e.g., Amiti et al., 2019; Fajgelbaum et al., 2020). Recent evidence documents how populist leaders have long-lasting institutional effects (e.g., media capture in Szeidl and Szucs, 2020) and a growing literature studies the effect of populism on the formation of certain values and beliefs (e.g., Bursztyn et al., 2020b; Muller and Schwarz, 2020). We contribute by documenting the effect of populism on citizen's engagement in risky behavior and public health.

More generally, our paper relates to the literature on leadership. Economics has traditionally focused on transactional leadership — incentives as the main channel through which the principal can induce behavior among the agents (e.g., Lazear and Rosen, 1981; Holmstrom and Milgrom, 1994). A growing theoretical (e.g., Acemoglu and Jackson, 2015) and empirical literature has explored how leaders can motivate followers, through speeches and exemplary behavior (e.g., Antonakis et al., 2014; Bassi and Rasul, 2017; d'Adda et al., 2017; Ajzenman, 2020). We contribute to this literature by focusing on the persuasive power of a populist leader' anti-expert rhetoric, a specific but widespread feature of modern populists, which has been largely unexplored.[4]

The paper is structured as follows. Section II introduces the context and chronology of events in Brazil. Section III describes the data. Section IV presents the empirical model and the main results and Section V concludes. Additional tables and figures relevant to the fine detail of the paper are included in Appendix A and are prefixed by an "A." in the main text.

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[2] 70% of Evangelicals voted for Bolsonaro. See Folha (2018).

[3] The model is described in Appendix B.

[4] Recent papers explore the political divide in compliance with social distancing during the COVID-19 pandemic, mostly in the US (e.g., Barrios and Hochberg, 2020; Allcott et al., 2020; Kushner Gadarian et al., 2020; Grossman et al., 2020). In a context similar to ours, Bursztyn et al. (2020a) show that prevention messages broadcasted on TV shows caused a significant impact on US viewers' behavior during the COVID-19 crisis.

II   Context

During the COVID-19 pandemic, most nations introduced non-pharmaceutical interventions (NPIs) to reduce the virus's spread. These interventions aim to "flatten the curve" to keep the number of critical cases at a manageable level. Although some of these measures are beyond individuals' control (e.g., school closures), the level of compliance depends on citizens' actions, particularly when isolation is not legally enforced.

In this section, we discuss Brazil's response to the pandemic focusing on our period from February 01 to April 14, 2020 — see Section III for details on data availability. At that time, knowledge about COVID-19 was scarce and uncertainty about how it spreads was pervasive. The official government response to the pandemic was heterogeneous and uncoordinated, in part because, in Brazil's federation, state governments have real power to implement their social distancing policies (Figure A.1 shows that every state government adopted social distancing policies but the timing varied across locations) and the federal government's view differed from that of the sub-national governments.

As cases began to rise, President Bolsonaro minimized the pandemic, explicitly challenging the recommendations of the scientific community and the WHO. He encouraged people to go out and frequent stores, and even attend public demonstrations in the streets, contradicting his own health minister. Bolsonaro was dismissive of the effects of the virus, calling it "just a little dose of flu" (see *The Wall Street Journal, 4/2*) and a "media trick" (see *The Guardian, 3/23*). His behavior was so controversial that it rapidly attracted the attention of dozens of international media outlets, including *The Economist, 3/26*, and *The New York Times, 4/1*, among many others.

Despite such opposition to social distancing measures, the president's messages have not always been uniform. To summarize his most prominent actions and public pronouncements, we develop a daily indicator of news coverage based on Di Tella and Franceschelli (2011)'s methodology. The goal is to use an objective and systematic approach to identify key events (those that were more salient) in regard to Bolsonaro's opposition to social distancing. More specifically, for each of the top-4 newspapers in terms of daily circulation – Folha de Sao Paulo, O Globo, O Estado de Sao Paulo, and Correio Brasiliense – we measured the share of their front-page area that reported: (a) Bolsonaro undervaluing the disease or (b) speaking (or acting) against social distancing policies. In Figures A.2 and A.3, we show examples of the type of news we classified in each category and the area that we consider for each, which includes the main text, the head-line and any accompanying figure (if available).

In Figure I (graph "a") we show how this variable evolved through time, using a moving average of 2 days. Two events stand out. First, Bolsonaro's participation in the public demonstrations of March 15. When joining the crowds in one of the demonstrations breaking recommended social distancing, he took selfies and fist-bumped several supporters, and posted a record number of tweets (47) since becoming president. His behavior quickly captured national and international media attention, with headlines directly alluding his "bad example to the nation."

The second was his official pronouncement on March 24's night. Presidential pronouncements are rare and reserved for especially relevant communications.[5] This type of message is relevant because every TV or radio station in the country must mandatorily broadcast the pronouncement. On March 24, Bolsonaro emphatically opposed NPIs implemented by sub-national governments, stressed that the country should return to normality, and minimized the pandemic's effect with

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[5]In Appendix D we include the translation of each of the five public official pronouncements during our period of analysis.

unscientific claims (e.g., even though he was 65 years old, he claimed that the disease would be a "little flu" for him given his "history of athleticism"). His speech again captured the attention of national and international media outlets.

In online Appendix C, we detail the pandemic-related events from Bolsonaro's actions and speeches. The detailed description suggests that the intensity of Bolsonaro's speech and behavior against social distancing was certainly not homogeneous and, in some moments, even confusing. However, the narrative seems to confirm what we observed analyzing the news coverage index.

To further corroborate the identification of the main events, in Figure I (graph "b") we show that March 15 and 25 were key dates relative to Google searches for the words "protests" and "Bolsonaro pronouncements," respectively. Finally, we analyze all tweets of Bolsonaro and his three sons (who are also high-profile politicians and are seen as representatives of their father by many in government and politics — see FT (2019)) and create an index based on retweets and likes of their anti-isolation messages. The twitter indexes (graphs "c" and "d" of Figure I) are defined as follows. We first assign a 1 to every tweet whose content was against social distancing/isolation (for example, when he urged governors to reduce NPI's stringency), a 0 if the tweet is neutral or a -1 if in favor of social distancing. Then we weight this simple index using the number of likes (or likes plus retweets), normalized over the entire sample,[6] to create an index between -1 and 1 capturing both content and reach. In the final step, we aggregate the indices to daily values. Using likes (a neater measure, as retweets could be from people criticizing) or likes plus retweets, the pattern is confirmed: March 15 and March 25 seem to be the most prominent dates regarding the spreading of the anti-isolation message.

In our baseline specification, we analyze the impact of these two specific events on citizen's behavior. As we explain in Section IV, in an alternative model we also use the continuous version of the news coverage index to analyze how different intensities of the anti-isolation message triggered a behavioral change regarding social distancing.

III   Data

The unit of our analysis is the municipality. To measure social distancing, we use an index created and developed by In Loco, a Brazilian technology company that provides information based on mobile location data. In Loco collects anonymized location data from 60 million devices, enabled by mobile apps that provide location-aware services while ensuring the privacy of their users. Using Bluetooth, Wi-Fi, and GPS, the company developed its technology to track the devices' location and movement to different places, with a precision of three meters. In Loco collects data using a standard procedure for location data companies: software development kits (SDKs) in widely-used mobile apps with a location tracking opt-in. The SDKs run in the background of mobile apps to record location data. The company leverages pairs of positions (location based on multiple app use by the same device) to improve location precision and measure the device's movement.[7]

The social distancing index measures the percentage of devices in a given municipality that remained within a radius of 450 meters of the location identified as home — the home location

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[6]The index puts higher weights on Bolsonaro's tweets because he has more followers than his sons.

[7]In Loco's location technology is 30 times more accurate than that of GPS (see Peixoto et al. (2020) for additional details). Despite its extensive coverage (one-fourth of all Brazilian devices are tracked), measurement error could exist and the sample of devices covered by In Loco might not be representative of the overall population. Despite these potential issues, several papers have been using data of the like, as it is a useful, high-frequency source of mobility (e.g., Barrios and Hochberg, 2020; Kushner Gadarian et al., 2020).

is determined by frequent nighttime checks based on network signals and on-device sensors. The index is computed on a daily basis, and ranges from zero to one. We use data for the 3,975 (out of the 5,571) municipalities in Brazil for which the social index is measured — some small-sized municipalities do not have enough mobile devices and the index is not computed. We obtained data on the social distancing index from February 01 to April 14, 2020. Figure A.4 shows that while the social distancing index has risen nationally, the changes have not been homogeneous. The mean of the index for the entire period is 0.37 (0.25 in February and 0.53 in the first two weeks of April). Figure A.5 compares In Loco's and Google's social distancing indexes for each Brazilian state and shows a high correlation between the two measures during these three months.[8]

To measure support for Bolsonaro, we use electoral data provided by the Superior Electoral Court (TSE — "Tribunal Superior Eleitoral"). We collected data on vote counts for the 2018 presidential election aggregated at the municipality level. We use several vote-related measures as a proxy for the president's local support. Figure A.6 shows the distribution of votes for Bolsonaro across municipalities in the 2018 presidential election.

The 2010 Population Census carried out by the Brazilian Bureau of Statistics (IBGE) provides data on income, poverty and religion at the municipal level. We use the 2019 estimate of population counts provided by the IBGE. We also gathered data from the IBGE's 2018 MUNIC ("Perfil dos Municipios Brasileiros") containing information on local-level media presence, such TV broadcasters.

We measure consumer spending using card transaction data from one of Brazil's largest banks (more than one-third of the market share in assets and credit card customers). The transaction data is aggregated at the municipality-day level (based on where the card owner resides). Transactions are divided into in-person and online transactions and presented by economic sector. Figure A.7 shows a high correlation between our measure of credit card transaction (aggregated at the state level) and Brazil's Central Bank measure (data on the universe of credit card transactions, publicly available aggregated at the state level). Data on COVID-19 cases are from Brasil.io website. Table A.1 presents descriptive statistics of the variables used in this paper.

IV   Empirical Strategy and Results

We use different empirical models to measure the effects of the political leader's behavior and public pronouncements in shaping adherence to social distancing.

IV.1   Pooled specification

Our baseline model is a two-way fixed effects (day, municipality) with leads and lags, in which we pool the two events and analyze the average pre-treatment and post-treatment effects. In particular, we estimate the following model:

$$Y_{md} = \sum_{l=-10}^{+10} \alpha_l Treated_{md-l} + \mu_d + \mu_m + \gamma X_{md} + \theta Z_{sd} + \upsilon_{md}, \tag{1}$$

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[8]We use Google's mobility trends for places of residence — for further details see https://www.google.com/covid19/mobility/data_documentation.html?hl=en. State-level is the most disaggregated level available for Google's index in Brazil.

where Y_{md} is the social distancing index for the municipality m, on day d; and $Treated_{md}$ is a dummy that takes a value of 1 if two conditions are fulfilled: the municipality m is defined as "pro-government" and the day d corresponds to one of the two events that we defined: March 15 and March 25 (taking a value of zero, otherwise). We define t=0 (treatment) as the day of the demonstration that took place during the day on March 15 and the next day after the official pronouncement by Bolsonaro at night on March 24. We include ten leads and ten lags of this variable to detect pre-treatment and post-treatment effects.[9] We also include time (μ_d) and municipality (μ_m) fixed effects.

In our baseline model, we define a municipality as "pro-government" if Bolsonaro's vote share was above the median observed in the state in the first round of the 2018 presidential election. As Figure A.6 shows, there is a clear regional divide in support for Bolsonaro. If we classified municipalities where the president obtained more than, for instance, 50% of the votes in the first round of election as "pro-government," we would lose within-state variability in our treatment variable for about one-fourth of the states. In one-third of the states, less than 1% of their municipalities registered the majority of votes for Bolsonaro (and in others, all municipalities were either anti- or pro-Bolsonaro). As most of the social distancing policies have been implemented at the state level and around the dates of our key events, accounting for within-state variability is important to isolate our estimation from any state-specific shocks that could have been different in pro and anti-Bolsonaro states. Although we control for the timing of state interventions in our models, we cannot control for law enforcement's timing, which could have been affected by Bolsonaro's words and actions. Having within state variability is thus crucial for identifying the effect.

We control for relevant characteristics at the municipality-day and state-day levels. First, we include a vector of dummies Z_{sd} indicating the type of non-pharmaceutical intervention in place in a given state (s) and day (d). These dummies cover three categories: school closure only, school closure plus a general ban, or no ban at all. If the dates when state policies were implemented correlate with Bolsonaro's speeches (e.g., an anti-Bolsonaro state could strategically decide to toughen the lock-down when Bolsonaro publicly undervalues the disease), our estimates would be biased. Therefore, we control for the implementation timing of state interventions. The fact that we have more than one event makes the correlation between the timing of Bolsonaro's speeches and state or municipal-level policies (that affects differently pro- and anti-Bolsonaro supports) more unlikely.

To account for the fact that support for the government is strongly correlated with variables such as poverty and rurality (both time-invariant), we include in X_{md} the interaction between day fixed effects and a poverty dummy, and day fixed effects and a rurality dummy.[10] These controls would also alleviate a potential concern that would arise if, for example, Bolsonaro's message affected social distancing differently in pro-Bolsonaro municipalities not because of their political alignment but because of other municipality time-invariant characteristics, also correlated with the citizens' political preferences.

In our main specification, we also include a state-specific linear trend. To account for the plausible correlation of policies within states and time (the level at which social distancing policies are typically implemented), we cluster the standard errors at the state-day level. We weight the municipal averages by their population in 2019.

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[9]As Schmidheiny and Siegloch (2020) show, the size of the window could be important for interpretation. We took a neutral approach and included all the leads and lags that our data allows without losing relevant information of the two events.

[10]The poverty dummy equals one if the municipal poverty rate is above the national-level median. The rurality dummy equals one if the proportion of residents living in rural areas is above the national-level median.

Results are presented in Figure II, graph "a". Almost all the pre-treatment effects are indistinguishable from zero. By contrast, almost every single day starting on day 1 is negative, and most of them are significantly different from zero.[11] Table A.2 shows the magnitude of the coefficients with different set of controls.

IV.2 Robustness exercises

Our baseline exercise raises the concern that in extremely "anti-Bolsonaro" states a municipality might instead be considered as "pro-Bolsonaro" when the support for the president was actually low in absolute values. To account for this problem, we re-estimate Equation (1), restricting the municipalities to the states in which Bolsonaro obtained more than 50% of votes in at least a third of the municipalities. The results in graph "b" of Figure II are very similar. In graph "c" of the same Figure, we present the results classifying municipalities where the president obtained more than 50% of the votes in the first round of the 2018 election as "pro-government." Results are similar in magnitude and significance.

We also deal with the potential problems related to the selection and intensity of the events. Although in Section II we provide evidence suggesting that the two dates we use as "treatment" were outliers in terms of spreading the presidential anti-isolation message, there were other relevant events – albeit less "intense" – that might be considered. We estimate then our empirical model using a continuous variable to account for different intensities in the anti-isolation speech of Bolsonaro: the proportion of front-pages in the main newspapers covering news related to Bolsonaro undervaluing the disease or speaking against isolation (see Section II for details). The result of the estimation is shown in Figure II, graph "d". An increase of 1% in the area of the front pages covering the news of Bolsonaro speaking against isolation or undervaluing the disease implies a negative post-treatment effect of approximately 0.08 pp in the isolation index (the average area in our sample is 1.62%).

In Figure A.8, we include additional robustness checks. In graph "a", we present the results changing the binary "pro-government" variable for a continuous one: Bolsonaro's vote share in the first round of the 2018 presidential election. This graph shows that 1 additional percentage point in Bolsonaro's vote share implies a post-treatment effect of approximately 0.08 points in the isolation index. A 14pp increase in the vote share for Bolsonaro (which is the difference in his vote share between a pro- and "anti-Bolsonaro" municipality, according to our baseline definition) would thus imply a reduction of 1.1 pp in the isolation index. This represents approximately 0.075 standard deviations.

Effects are still significant when clustering the standard errors at the municipality level or the state level (graphs "b" and "c" of Figure A.8, respectively). Finally, in the same Figure A.8 (graph "d"), we show the results of our model with "placebo events", using all other official pronouncements (in which Bolsonaro did not give messages against social distancing) as the "intervention". There are no effects on social distancing, before or after those pronouncements.

The estimates of a model with pooled events would be unbiased only under the assumptions of linearity and additivity – i.e., none of the events should be larger than the others (Sandler and Sandler (2014), Schmidheiny and Siegloch (2020)). We do not have any prior regarding which of our two events should be theoretical more impactful, as they are different in nature: one is an official public speech, and the other one is a demonstration. Moreover, as graph "a"

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[11]Given the nature of our specification, we cannot estimate the effect of the president's speech on the *levels* of mobility, but only on the difference. Besides, the specification does not allow us to differentiate between pro-Bolsonaro individuals *decreasing* social distancing and anti-Bolsonaro individuals *increasing* social distancing. identify the sum of these two effects.

of Figure I, the coverage of both events in the press look very similar in magnitude. In any case, as Sandler and Sandler (2014) shows, pooling two events when the additivity assumption is not fulfilled would bias our estimates towards zero. Therefore, if any, our estimates are conservative.

Another potential drawback of our pooled specification is that the events are close in time and, thus, there could be days that are simultaneously control and treatment. An alternative is to ignore the subsequent events after the first one (see, for example, Callaway and Sant'Anna (2019)). In graph (a) of Figure III we show the results of our main specification, but ignoring the second event. Although the point estimates are somewhat noisier, the results seem to hold.

One could also ignore the dynamics, consider all the days after the first event as "treatment" and estimate a difference-in-differences model. To test if our results hold in this case, we consider March 15 (the first event) and every subsequent day as "after" and all the previous days as "before". We show in Table A.3 that there are no anticipatory effects and a large post-treatment effect — an average reduction of the social distancing index of about 1.1 percentage points.

Finally, we estimate a dynamic difference-in-differences model and assess the magnitude of the effects after each one of the two events. We estimate a model as follows:

$$Y_{md} = \sum_{\tau=-43}^{30} \beta_\tau \cdot [ProGov_m \cdot (\text{Days After Event}=\tau)] + \phi_d + \rho_m + \lambda X_{md} + \delta Z_{sd} + \varepsilon_{md}, \quad (2)$$

where Y_{md} is the social distancing index for municipality m on day d, and $ProGov_m$ is a dummy that takes a value of 1 if the municipality m is defined as "pro-government". ρ_m and ϕ_d are municipality and day fixed effects, respectively. The vector X_{md} includes characteristics at the municipality-day, while Z_{sd} include state-day controls.

We use 74 days in the analysis and the indicator variable "Days After Event=τ" takes the value of one τ days away from the event. The parameter β_τ is the dynamic treatment effect. Since the social distancing index is bounded between 0 and 1, each coefficient β_τ of Equation (2) should be interpreted as a change in percentage points in social distancing of pro-government localities (compared to other municipalities) relative to the base day. The omitted coefficient $\beta_{\tau=-1}$ corresponds to March 14 to use the day before the first event as the base day. We use the same set of controls X_{md} and Z_{sd}, clustering of the standard errors, and weighting as in Equation (1).

The results are shown graphically in graph (b) of Figure III. The pattern seems suggestive: no clear "political divide" before the first event, after which there is a drop in the social distancing index for pro-Bolsonaro municipalities relative to the rest of the municipalities. Another drop seems to arise just after the second event and persists for a few additional days.

IV.3 Channels

To provide suggestive evidence on the mechanisms underlying our findings, we first explore the potential role of the local media. In Figure IV, we estimate the baseline model for two sub-samples: municipalities where there is no presence of local TV broadcasters (graph "a") and those where there is at least one (graph "b"). Consistent with papers showing the crucial role of local media spreading the news in Brazil (e.g., Ferraz and Finan, 2008; Varjao, 2019), the results seem to be driven by municipalities with some presence of local media.

We then study the role of social media (Twitter, a platform intensively used by Bolsonaro). We define a Twitter-usage indicator proceeding as follows. We first live-streamed all the tweets

in Brazil (a less computationally costly procedure than scraping older tweets). Our program ran for five days (July 20-24, 2020), capturing tweets every 20 minutes. We captured 60,000 tweets, which we then classified according to their municipality. We defined a simple indicator that equals one if there is at least one tweet and zero otherwise, which divides the sample into two approximately equal-sized sub-samples. In graphs "c" and "d" of Figure IV, we show the results. The pattern seems clear: no impact among municipalities with no presence of active Twitter accounts, and a large impact among the rest. The presence of Twitter activity could be correlated to omitted variables and thus our results are only suggestive.

Finally, we assess the relevance of the presence of Evangelicals, who represent around a quarter of the population and had the largest vote share for Bolsonaro (70%) among any religious group (Folha, 2018). Unlike other groups that also supported Bolsonaro in 2018, Evangelicals explicitly supported his handling of the pandemic against isolation policies (Folha, 2020). We analyze whether municipalities with a greater share of Evangelicals show a different pattern by splitting municipalities into two sub-samples: below or above the municipal median of the proportion of Evangelical parishioners. Figure IV (graphs "e" and "f") suggests that the effect is driven by municipalities where there is a larger population of Evangelical parishioners.

IV.4   Further analysis

Credit Card Transactions. If the results on social distancing truly reflect an increase in mobility, we would also expect to see an increase in in-person economic transactions. In Figure V, we estimate the empirical model using in-person and online card transactions (normalized by standard deviations) as the dependent variables (graphs "a" and "b").

We show an increase in in-person card transactions (mirroring the effects on mobility) with no discernible effect on online card transactions. In-person purchases include several commercial transactions, including non-essential activities. To exclude expenditures on a essential category, we examine in-person transactions excluding purchases in pharmacies and find show an almost identical pattern (Figure V, graph "c"). The documented increase in mobility seems not to be capturing only low-risk (outdoor exercising, for instance) or essential trips.

Reported Cases. We now turn to the implications of our results for public health. We estimate our main empirical model with the (inverse hyperbolic sine transformed) number of cases as the dependent variable — in our period of analysis, most of the observations have zeroes.[12] Reported cases during our window of analysis is likely to have a large measurement error and, thus, the results should be interpreted with caution. The number of cases was heavily underreported due to testing constraints, and testing capacity (which was very low in comparison to other nations) was not necessarily uniformly distributed across municipalities. Moreover, the distribution of the number of cases is heavily skewed. Overall, 95% of the observations in our dataset have zero cases. Figure A.9 maps the confirmed cases in Brazilian municipalities on April 4, 2020.

Graph "d" of Figure V shows that point estimates rise around 6 days after the events, a reasonable lag with the incubation period — the time from exposure to symptom onset (Wiersinga et al. (2020)). We present complementary evidence that is consistent with these results: the effects on health-related expenditures. In graph "e" of Figure V, we estimate the main empirical model, using municipality-day level data on credit card transactions in pharmacies as the dependent variable. Results show the lack of pre-trends and a significant increase six-seven days after the events.

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[12]We do not use population weights since the outcome is an absolute number instead of a municipal average.

Quantitative Analysis. In Appendix B, we present and calibrate a SIR model with equilibrium social distancing to Brazil at daily frequency. We assume that there are two locations, "pro-government" and "against-government" with two types of agents (supporters and opponents of the president) in both locations, which differ (as in the data) in the faction of the president's supporters. Our calibration strategy uses standard numbers from the literature to set the disease parameters (e.g., Atkeson, 2020) and disciplines social distancing with the temporal changes in the social distancing index. We consider an event in which the expected perceived loss for Bolsonaro's supporters (independently of their location) decreases, while for his opponents it remains unchanged, generating differences in social distancing across locations similar to those observed in Figure II. After ten days of an event similar to the one on March 15, there are about 4.6% more new cases in "pro-government" than in "against-government" locations. Our model allows us to calculate the aggregate effect (across both locations) on new infections with and without the event. After 10 days, there are 9.2% more new cases in the aggregate in our benchmark relative to a counterfactual without the event, which is approximately twice of the effect on cases in "pro-government" locations relative to "against-government" locations.

V Conclusion

Modern populism movements are based on the claim that they protect the people from a corrupt elite (e.g., Guriev and Papaioannou, 2020). Since scientific experts are, in general, part of the elite, populist leaders frequently campaign against scientific advice. During the COVID-19 pandemic, the Brazilian president explicitly challenged the advice of the experts and publicly spread an anti-isolation message. We investigate how his words and actions triggered the adoption of risky behavior among his supporters during a health crisis, above and beyond institutions and regulation.

We document a significant decrease in social distancing in pro-government municipalities following the president's most visible events advising, through words and example, against self-isolation behavior and policies. Consistently, expenses in pharmacies and cases grew with a six days lag. Our findings have potentially far-reaching implications for different issues societies face beyond the case of the pandemic, such as adherence to climate change mitigation policies, compliance with vaccination campaigns, coordination of nonviolent protests and openness and respect for the differences that exist among individuals.
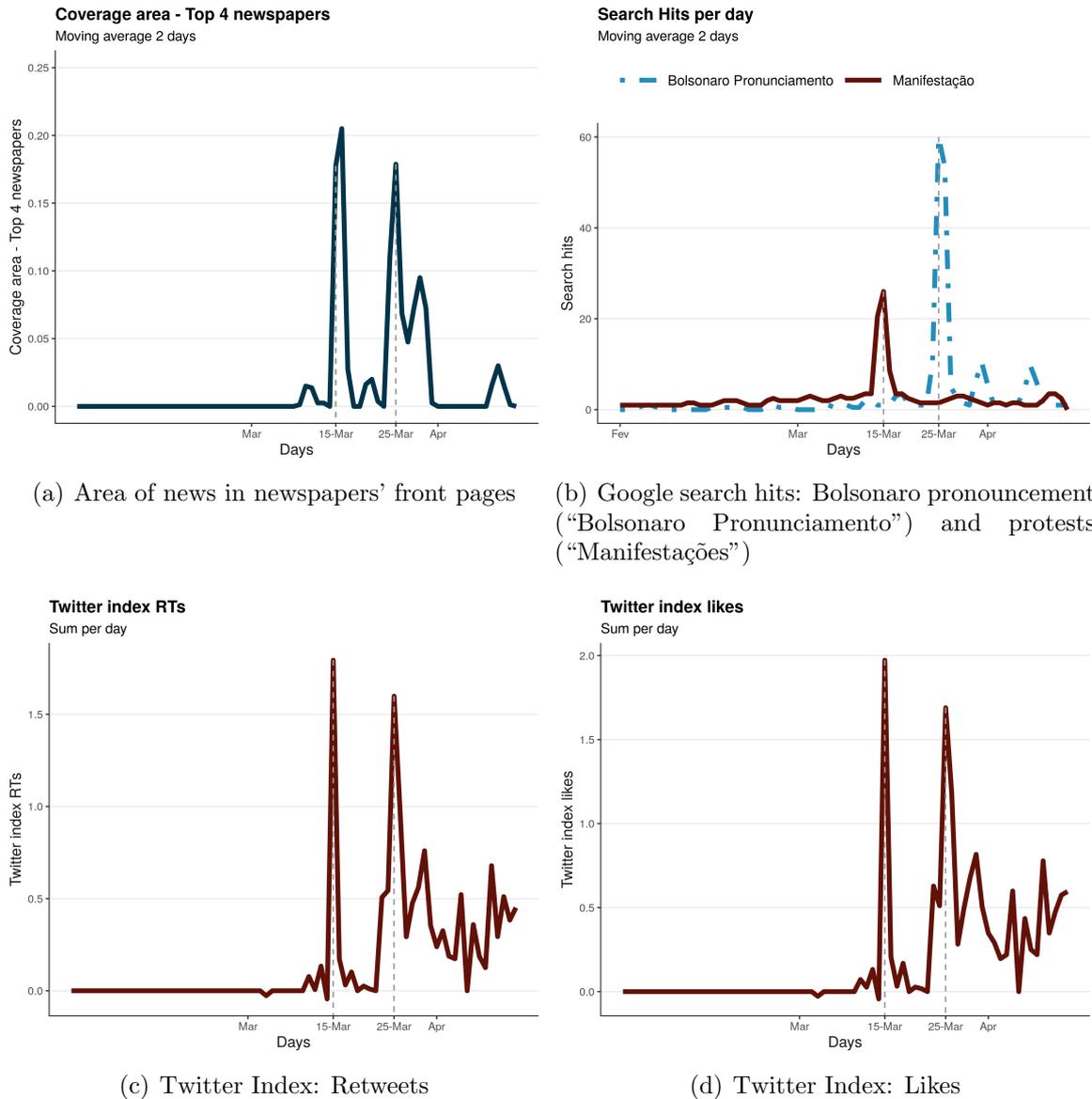
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VI Figures and Tables

Figure I. Intensity of Events: President against social distancing

(a) Area of news in newspapers' front pages

(b) Google search hits: Bolsonaro pronouncement ("Bolsonaro Pronunciamento") and protests ("Manifestações")


(c) Twitter Index: Retweets

(d) Twitter Index: Likes

Notes. Graph (a) shows the "news coverage index", defined as the share of the area (0 to 1) of the 4 main newspapers' front pages covering news of Bolsonaro against isolation or undervaluing Covid-19 (moving average 2-days). Graph (b) shows the results (moving average 2-days) for Google searches in Brazil for "protests" ("manifestações") and "Bolsonaro pronouncement" ("Bolsonaro pronunciamento") — searches made in Portuguese. Graphs (c) and (d) show Twitter indexes based on daily retweets and likes, respectively. We created an unweighted index for each tweet that was 1 if against, 0 if neutral or other and -1 if in favor of social distancing. Then we normalized this simple index using the number of likes (or likes plus retweets) to create an index between -1 and 1 for likes (or likes plus retweets). Finally, we aggregated the indices (which were so far tweet specific) to daily values. We used the tweets of the president and his three sons for this analysis.

Figure II. Baseline results and robustness
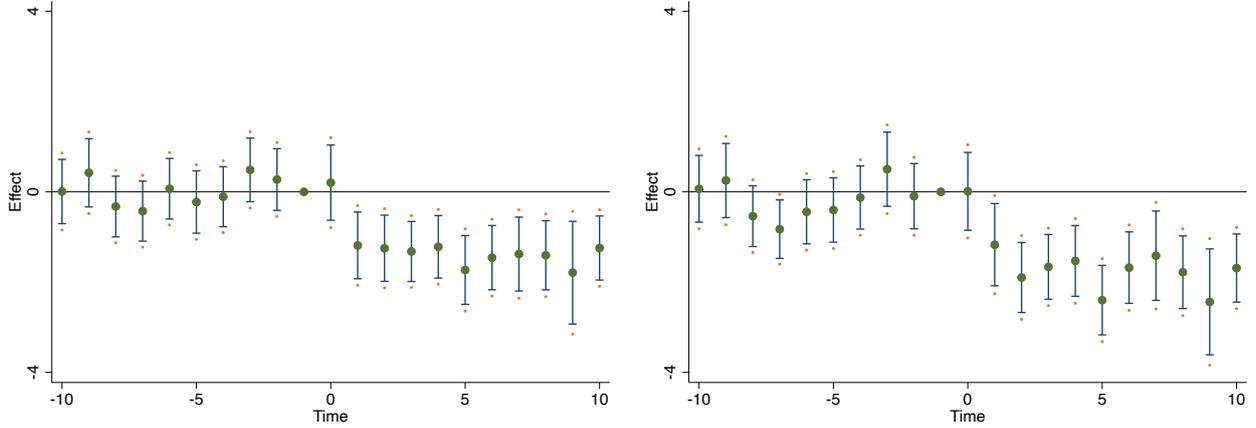
(a) Average effect on social distancing: support for Bolsonaro above state median (Baseline)

(b) Average effect on social distancing - support for Bolsonaro above state median in pro-Bolsonaro states
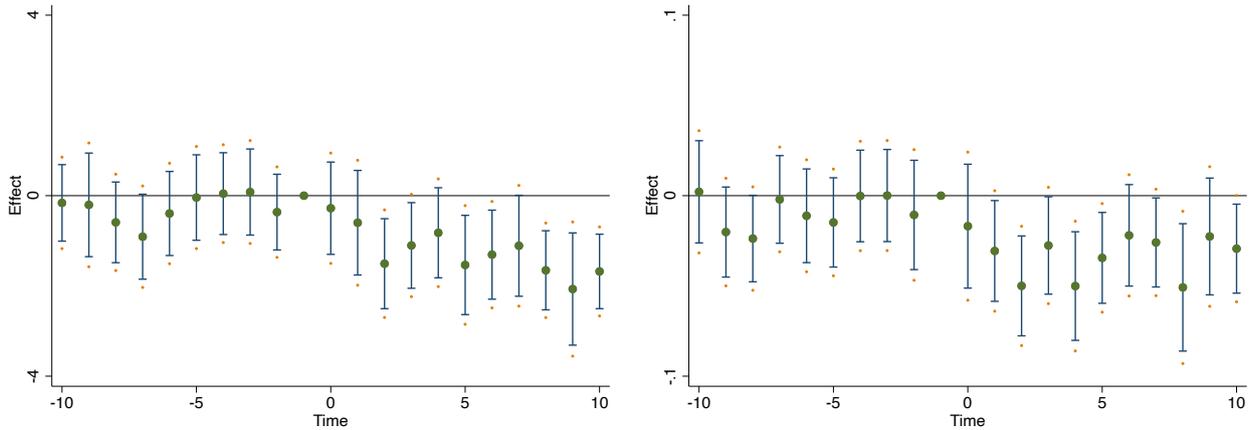
(c) Average effect on social distancing: support for Bolsonaro above 50%

(d) Average effect on social distancing: different intensity of events using front pages of newspapers

Notes. All results are expressed in percentage points (0-100 scale). Coefficients estimated from the empirical model in Section IV for 3,975 municipalities for which data on social distancing index is available. Data are provided at the municipality-day level. The day before each intervention is normalized to zero at t=-1. The dependent variable is the social distancing index for municipality m on day d. Standard Errors are clustered at state-day level. Confidence intervals: 95% (dots) and 90% (bars) . Panel (a) shows the baseline results, where the treated dummy equals one if the votes for the president in the first round were above the median observed in the state. Panel (b) presents the same results but excluding states in which there are less than a third of states in which Bolsonaro obtained less than 50% of the votes. Panel (c) presents results when the treated dummy equals one for municipalities where votes for the president was above 50% in the first round of the 2018 election. Panel (d) uses a continuous variable to classify the events (news coverage index), based on the area of the front pages of the 4 biggest newspapers, covering Bolsonaro's acts and words against isolation and undervaluing the Covid-19

Figure III. Model ignoring subsequent events and Dynamic difference-in-differences
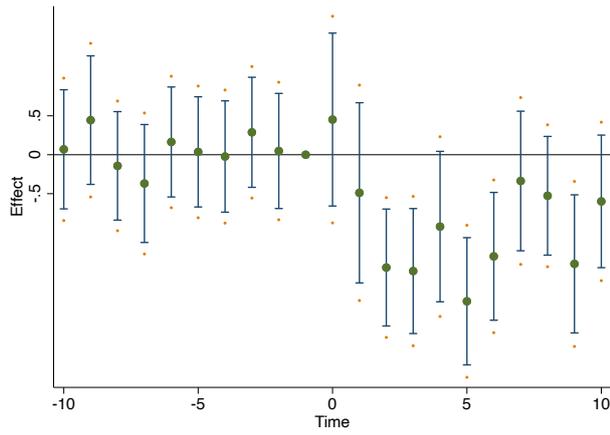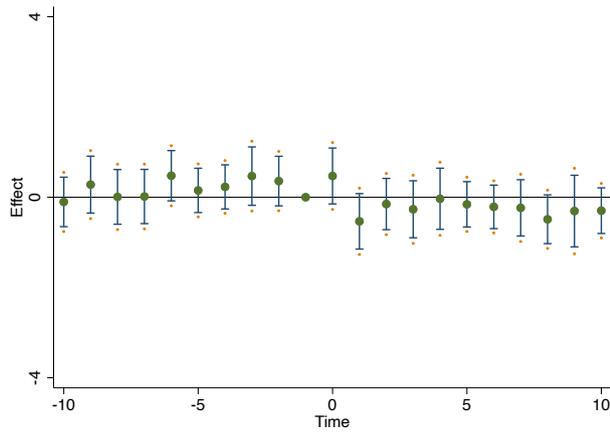

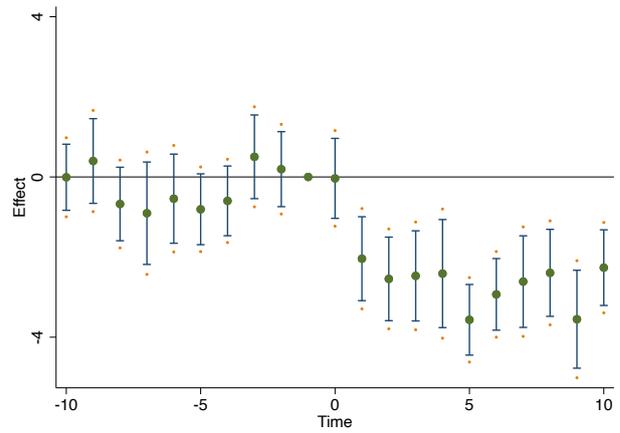(a) Ignoring subsequent events
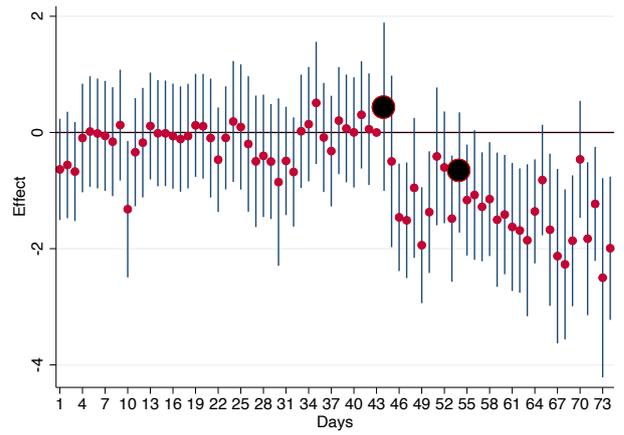
(b) Dynamic Diff-in-Diff

Notes. Results are expressed in percentage points (0-100 scale). Coefficients estimated from the empirical model in Section IV for 3,975 municipalities for which data on social distancing index is available. Data are provided at the municipality-day level. The day before each intervention is normalized to zero at t=-1. The dependent variable is the social distancing index for municipality m on day d. The treated dummy equals one if the votes for the president in the first round were above the median observed in the state. Standard Errors are clustered at state-day level. Panel (a): This graph presents the estimation of Equation (1) and considers only one event on March 15th. Confidence intervals: 95% (dots) and 90% (bars). Panel (b): This graph presents the estimation of Equation (2), the dynamic difference-in-differences specification. Confidence intervals: 95%. The big dots in black represent the two events.
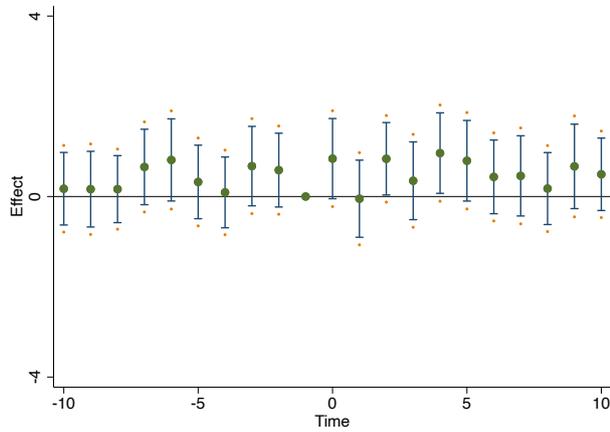
Figure IV. Average effect on social distancing - by media presence, Twitter activity and presence of evangelical parishioners
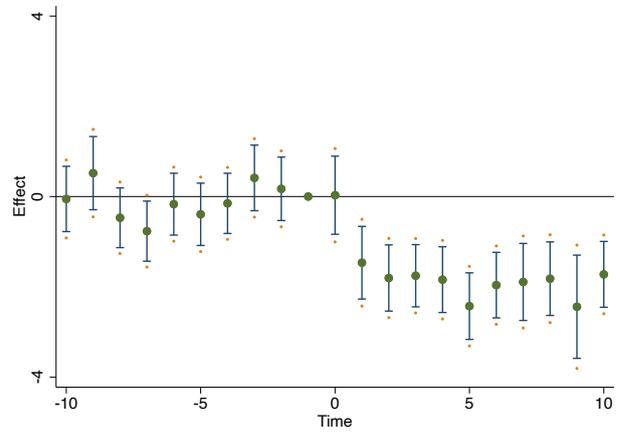

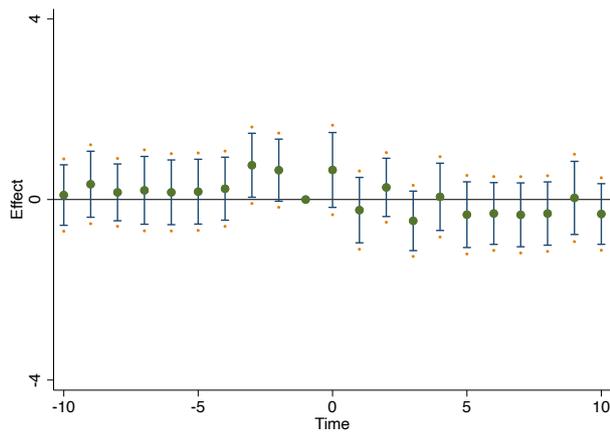(a) No local TV broadcaster in the municipality

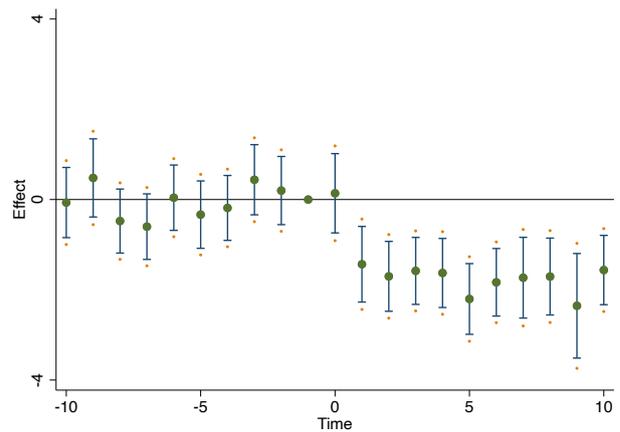(b) At least one local TV broadcaster in the municipality

(c) No Twitter activity

(d) Some Twitter activity

(e) Below p50 of % Evangelical parishioners

(f) Above p50 of % of Evangelical parishioners

Notes. All results are expressed in percentage points (0-100 scale). Coefficients estimated from the empirical model in Section IV for 3,975 municipalities for which data on social distancing index is available. Data are provided at the municipality-day level. The day before each intervention is normalized to zero at t=-1. The dependent variable is the social distancing index for municipality *m* on day *d*. The treated dummy equals one if the votes for the president in the first round were above the median observed in the state. Panel (a) shows the results for municipalities without local TV broadcaster, while panel (b) present for municipalities with at least one local TV broadcaster. Panel (c) shows the results for municipalities where no Twitter activity was registered in the sampled days. Panel (d) shows the results for municipalities where some Twitter activity was registered in the sampled days (at least one tweet). Panel (e) shows the results for municipalities with below-median % of Evangelical parishioners (non-Pentecostal), while panel (f) shows for above-median. Standard Errors clustered at state-day level. Religion data comes from the 2010 Census. Confidence intervals: 95% (dots) and 90% (bars).
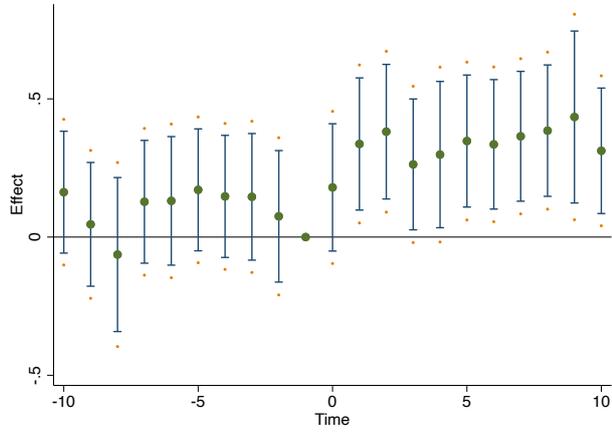
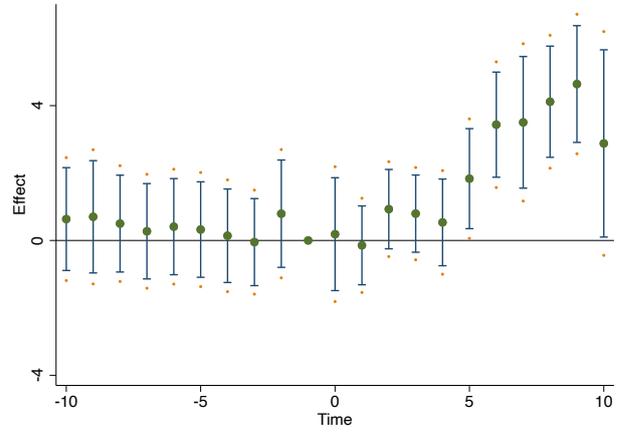**Figure V.** Credit Card Transactions and Reported Cases
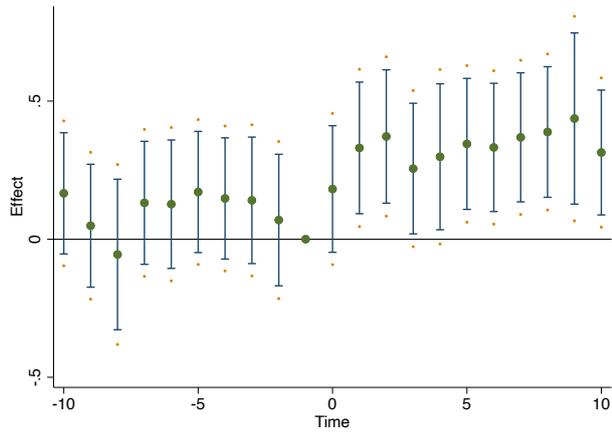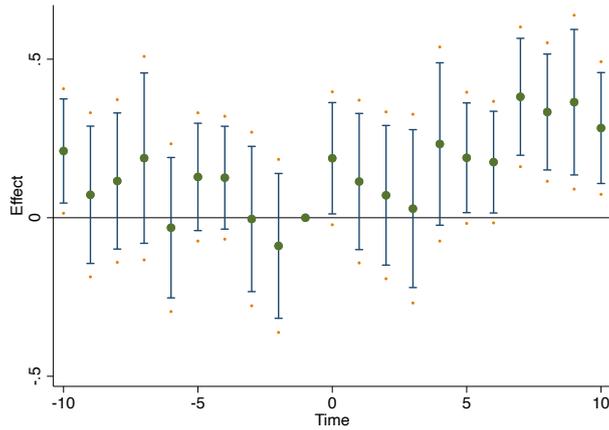

(a) In-person Transactions
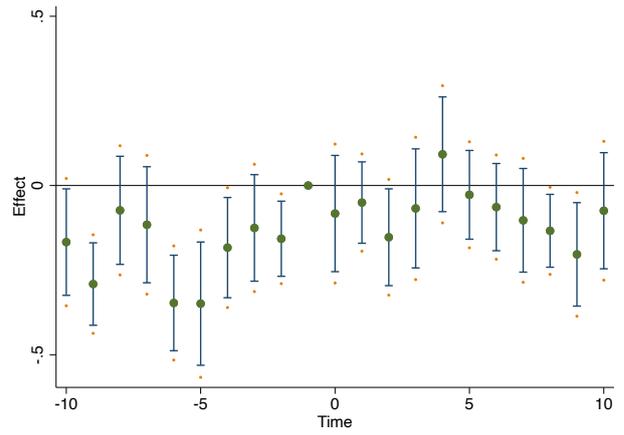
(b) Online Transactions

(c) In-person Transactions Ex-Pharmacy

(d) Reported Cases

(e) Total Transactions: Pharmacy

Notes. Coefficients estimated from the empirical model in Section IV for 3,975 municipalities for which data on social distancing index is available. The day before each intervention is normalized to zero at t=-1. Panel (a): dependent variable is the value of in-person credit card transactions in municipality m on day d. Panel (b): dependent variable is the value of online credit card transactions in municipality m on day d. Panel (c): the dependent variable is the value of in-person credit card transactions (excluding purchases in pharmacies) in municipality m on day d. Panel (d): the dependent variable is the (inverse hyperbolic sine transformed)) number of confirmed cases in municipality m on day d. Panel (e): the dependent variable is the value of in-person credit card transactions in pharmacies in municipality m on day d. In panels (a), (b), (c) and (e): The coefficients are normalized by standard deviations, and the location of each transaction is based on the municipality where the card owner resides. The treated dummy equals one if the votes for the president in the first round were above the median observed in the state. Standard Errors clustered at state-day level. Confidence intervals: 95% (dots) and 90% (bars).

A   Appendix: Additional Figures and Tables

Figure A.1. NPI policies implemented by each Brazilian state
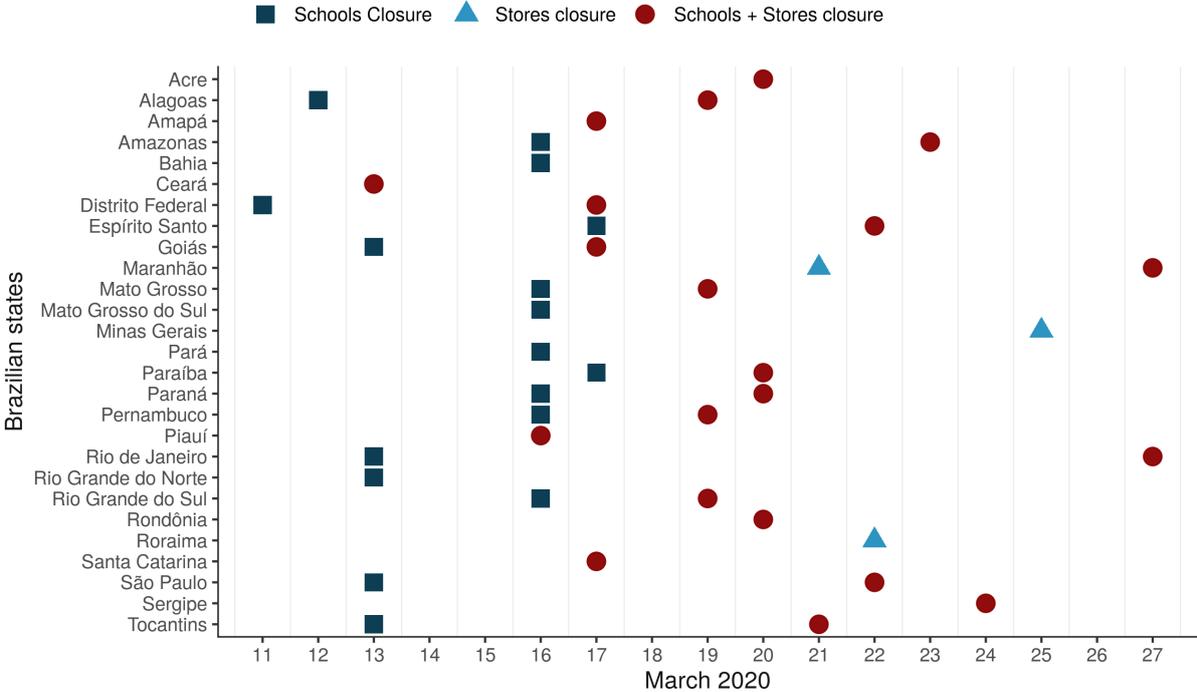
Notes. The figure shows non-pharmaceutical policies (school and store closure) implemented by all Brazilian states between March 11 and and March 27. Data stem from state legislation related to COVID-19.

Figure A.2. Area: Bolsonaro minimizing the virus

Notes. Cover of the newspaper O Estado de Sao Paulo - Wednesday, March 11, 2020. The box in red represents the area of the front page related to Bolsonaro minimizing the impact of the Covid-19. The text, translated by the authors of this paper: "Bolsonaro minimizes the crisis (title). A day after the global financial markets suffered historical losses due to the virus outbreak, the president Jair Bolsonaro denied the existence of any crisis and blamed the press for the situation."

Figure A.3. Media: Bolsonaro against isolation

Figure A.4. Social distancing index: before and after
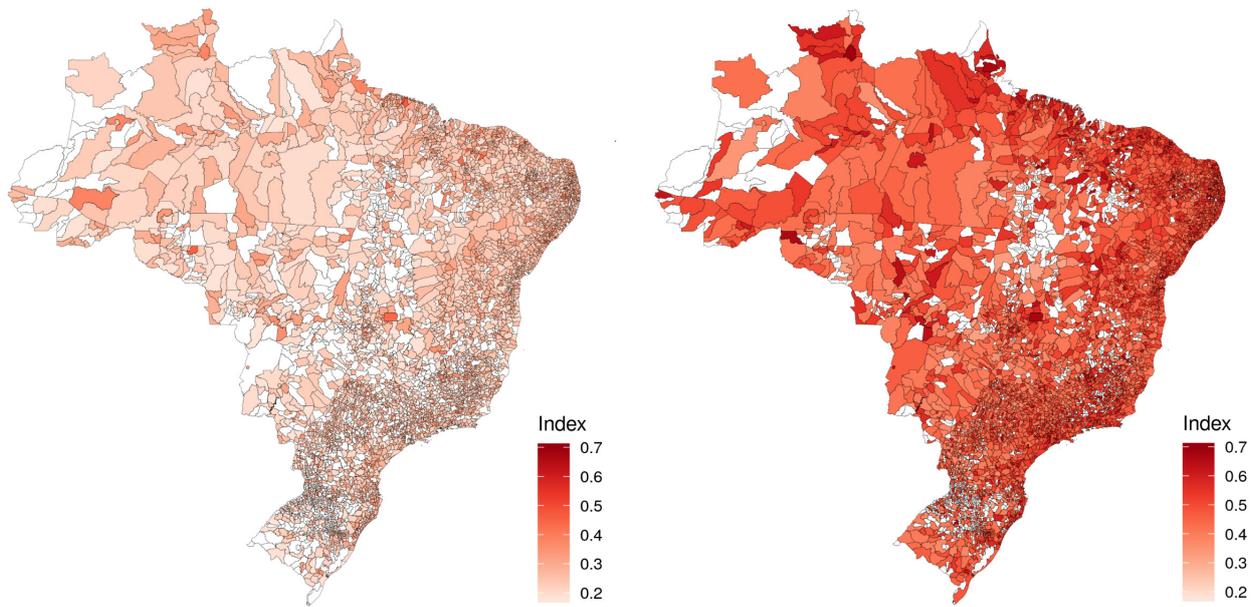
(a) Social distancing before: Feb 4

(b) Social distancing after: Apr 7

Notes. The figures show the social distancing index for all municipalities in Brazil on February 4 and April 7, 2020. The index ranges from zero to one. A higher value means that there is more social distancing. White areas are municipalities for which there is not enough data to make precise measurements. Municipalities in white are those without data on social distancing. The index is calculated by the technology company In Loco using location data from mobile devices. See Section III for more details on the data.

Figure A.5. Social Distancing Measures: Comparing Google and In Loco for each Brazilian state

Figure A.5. Social Distancing Measures: Comparing Google and In Loco for each Brazilian state (continued)

Figure A.5. Social Distancing Measures: Comparing Google and In Loco for each Brazilian state (continued)

Figure A.6. Votes for Bolsonaro in the 2018 presidential election

Notes. The figure shows for each municipality the percentage of votes for Bolsonaro in the first round of the 2018 presidential elections in Brazil. See Section III for more details on the data.

Figure A.7. Correlation between Card Transactions data and Central Bank data
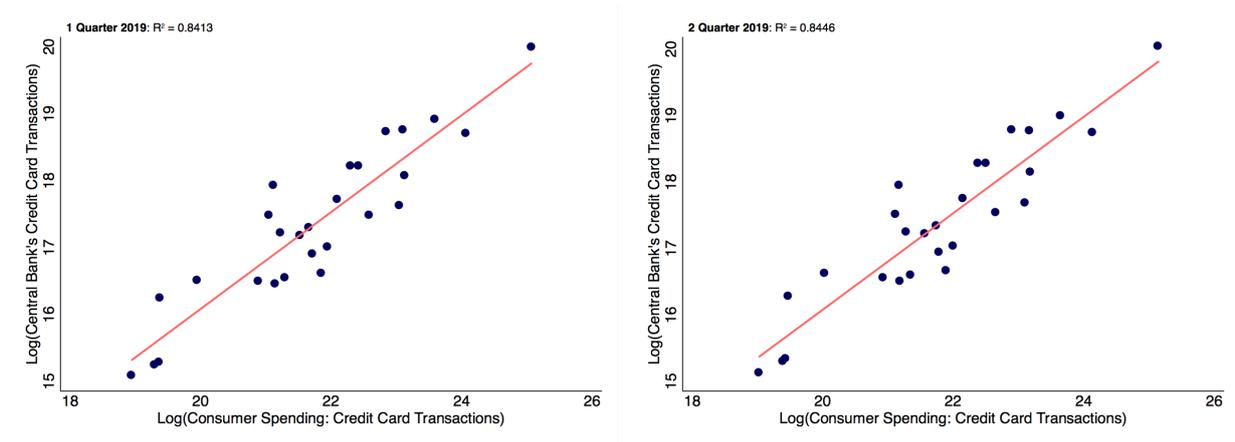
(a) 2019: 1st Quarter

(b) 2019: 2nd Quarter
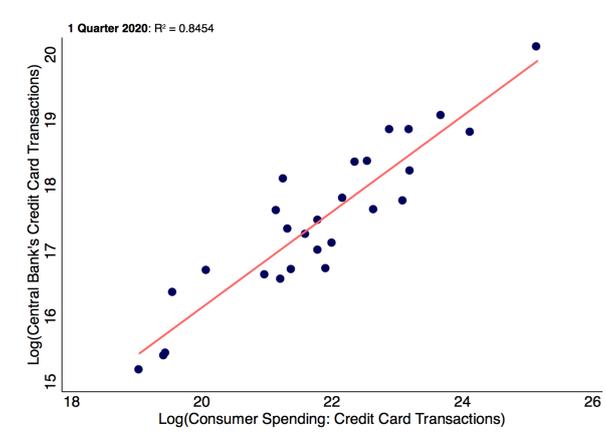
(c) 2020: 1st Quarter

Notes. The figures show the correlation between our measure of credit card transactions ("Consumer Spending: Credit Card Transactions") and Brazil's Central Bank data on the universe of credit card transactions. Central Bank data is quarterly data aggregated at the state level. Our measure of credit card transactions – daily information at the municipality level – is aggregated at to be consistent with Central Bank's data quarterly data. There are 3 scatter plots, one for each of the following quarters: first quarter 2019, second quarter 2019 and first quarter 2020. Each point in the scatter shows one of Brazil's 27 states.

Figure A.8. Main Results: robustness
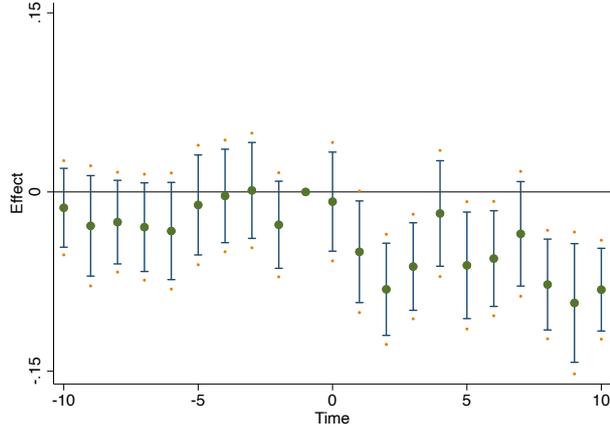
(a) Vote share, cluster: state-day
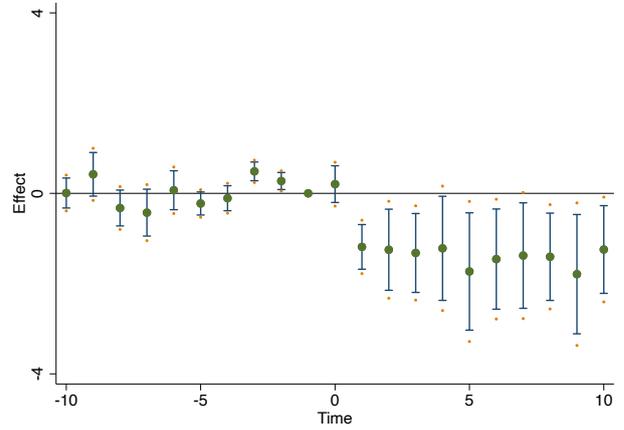
(b) Baseline, cluster: municipality
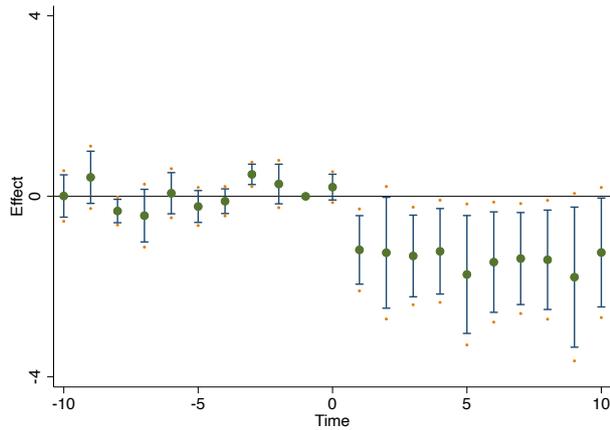
(c) Baseline, cluster: state
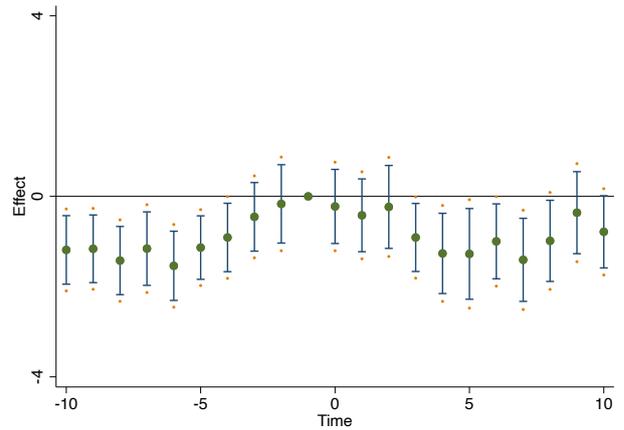
(d) Placebo exercise: other pronouncements, cluster: state-day

Notes. Coefficients estimated from the empirical model in Section IV for 3,975 municipalities for which data on social distancing index is available. Data are provided at the municipality-day level. The day before each intervention is normalized to zero at t=-1. The dependent variable is the social distancing index for municipality m on day d. Panel (a): support for Bolsonaro is defined as the Vote share for him in the first round of the 2018 presidential election. standard errors are clustered at the state-day level. Panel (b): treated dummy equals one if the votes for the president in the first round were above the median observed in the state, standard errors are clustered at the state-day level. Panel (c): treated dummy equals one if the votes for the president in the first round were above the median observed in the state, standard errors are clustered at the state level. Panel (d) is a placebo exercise for pronouncements where the president did not give messages about social distancing. Standard errors are clustered at the state-day level. Confidence intervals in all the graphs: 95% (dots) and 90% (bars)

Figure A.9. Confirmed cases in Brazilian municipalities on April 7, 2020
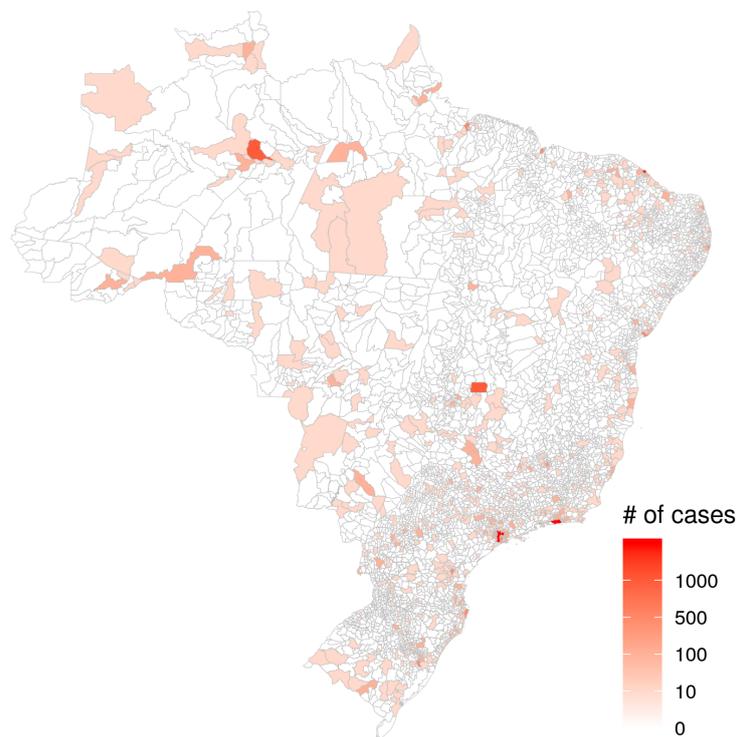
Note: The figure shows the location of confirmed cases in Brazilian municipalities on April 7, 2020.

TABLE A.1. Summary statistics

Variable	Mean	Std. Dev.	N
Social distancing index	0.37	0.15	294,150
Pro-government dummy: median	0.50	0.50	294,150
Pro-government dummy: 50% of votes	0.38	0.48	294,150
Poverty dummy	0.5	0.5	294,150
Rurality dummy	0.5	0.5	294,150
Population in 2019	50,569.52	260,990.23	294,150
# of evangelic in 2010	10,254.6	56,276.15	293,928
# of evangelic pentecostal in 2010	6,134.36	31,904.88	293,928
# of housing units with internet in 2010	4,369.45	39,200.24	293,928
= 1 if munic has a local TV broadcaster in 2018	0.09	0.29	294,150
Active population - Proportion	0.33	0.02	293,928
In-person credit card purchases	398,350.29	4,864,120.77	293,780
Online credit card purchases	161,444.72	2,686,295.88	293,780
Pharmacies: total credit card purchases	24,228.07	342,429.96	293,780
Pharmacies: in-person credit card purchases	22,674.22	304,457.78	293,780

Notes. Total number of observations N is 294,150, which represents 74 days and 3,975 spatial units (municipalities). The social distancing index varies from zero to one. The poverty dummy equals one if the municipal poverty rate is above the national-level median. The rurality dummy equals one if the proportion of residents living in rural areas is above the national-level median. Active population is defined as the proportion of men aged 15 to 64. See Section III for more details on the data.

	Dependent Variable: Social distancing index			
	(i)	(ii)	(iii)	(iv)
Day = -10	0.0011	0.0024	-0.0028	0.0079
	(0.7237)	(0.4513)	(0.4444)	(0.4345)
Day = -9	0.3915	0.4564	0.4299	0.4221
	(0.7963)	(0.4750)	(0.4678)	(0.4610)
Day = -8	-0.1601	-0.3176	-0.3178	-0.3247
	(0.6564)	(0.4219)	(0.4208)	(0.4103)
Day = -7	-0.1124	-0.4115	-0.4227	-0.4271
	(0.6564)	(0.4283)	(0.4127)	(0.4057)
Day = -6	0.2474	0.1143	0.0719	0.0695
	(0.6861)	(0.4400)	(0.4171)	(0.4092)
Day = -5	0.0138	-0.1099	-0.2228	-0.2244
	(0.6988)	(0.4374)	(0.4327)	(0.4217)
Day = -4	0.0841	0.0062	-0.1071	-0.1074
	(0.6682)	(0.4313)	(0.4146)	(0.4055)
Day = -3	0.7117	0.5995	0.4863	0.4873
	(0.6990)	(0.4852)	(0.4398)	(0.4298)
Day = -2	0.4553	0.2749	0.2749	0.2736
	(0.6731)	(0.4442)	(0.4326)	(0.4166)
Day = -1 (base period)	0	0	0	0
Day = 0	0.4156	0.2107	0.2218	0.2044
	(0.8281)	(0.5277)	(0.5222)	(0.5080)
Day = 1	-1.0193	-1.1912	-1.2177	-1.1863
	(0.7600)	(0.4743)	(0.4640)	(0.4511)
Day = 2	-0.8074	-1.2816	-1.2819	-1.2495
	(0.7058)	(0.4775)	(0.4693)	(0.4471)
Day = 3	-0.8767	-1.3443	-1.3556	-1.3208
	(0.7227)	(0.4312)	(0.4171)	(0.4055)
Day = 4	-0.5623	-1.2121	-1.2545	-1.2178
	(0.7890)	(0.4581)	(-1.2545)	(0.4221)
Day = 5	-1.0394	-1.6554	-1.7683	-1.7308
	(0.8076)	(0.5063)	(0.4887)	(0.4646)
Day = 6	-0.9771	-1.3825	-1.4957	-1.4569
	(0.7154)	(0.4870)	(0.4574)	(0.4343)
Day = 7	-0.7361	-1.3052	-1.4185	-1.3783
	(0.8013)	(0.5714)	(0.5224)	(0.4995)
Day = 8	-1.0137	-1.4431	-1.4431	-1.4053
	(0.7028)	(0.5122)	(0.4977)	(0.4675)
Day = 9	-1.1758	-1.8296	-1.8296	-1.7904
	(1.0665)	(0.7445)	(0.7296)	(0.6942)
Day = 10	-0.8796	-1.2887	-1.2938	-1.2440
	(0.7189)	(0.4568)	(0.4481)	(0.4328)
Controls	No	Yes	Yes	Yes
Day FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Observations				
Number of Municipalities	3,950	3,950	3,950	3,950

Notes. The baseline period is the day before each main event. The unit of observation is a municipality-day. Robust standard errors (in parentheses) are clustered at the state-day level. The overall sample includes 3,950 municipalities. All four models – columns (i) to (iv) – include both municipality and day fixed effects. Column (i) does not include any control variable. Column (ii) controls for baseline poverty $\times$ day FE and baseline rural $\times$ day FE. Poverty is a dummy that equals one if the municipality's income is below the national median. Rural dummy equals one if the municipality's population located in rural areas is below the national median. Column (iii) controls for baseline poverty $\times$ day FE, baseline rural $\times$ day FE, and state-level NPI dummies. Column (iv) controls for baseline poverty $\times$ day FE, baseline rural $\times$ day FE, state-level NPI dummies, and state-specific linear trends.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

TABLE A.3. Difference-in-Differences

	(i)	(ii)	(iii)	(iv)
	Dependent Variable: Social distancing index			
Post*Treat	-0.5207	-1.0950	-1.1563	-1.1243
	(0.7675)	(0.3833)	(0.3873)	(0.3955)
Day = -1	-0.3069	-0.0551	-0.0550	-0.0524
	(0.8702)	(0.4461)	(0.4438)	(0.4508)
Day = -2	-0.2841	-0.2467	-0.2467	-0.2440
	(0.6035)	(0.3370)	(0.3194)	(0.3180)
Day = -3	0.2810	0.3038	0.3038	0.3065
	(0.5515)	(0.3023)	(0.2935)	(0.2964)
Day = -4	-0.0853	-0.0662	-0.0662	-0.0635
	(0.4925)	(0.3018)	(0.2934)	(0.2972)
Day = -5	-0.1660	-0.1341	-0.1341	-0.1314
	(0.4468)	(0.3031)	(0.2883)	(0.2896)
Day = -6	0.3417	0.5261	0.5261	0.5288
	(0.4276)	(0.3495)	(0.3318)	(0.3330)
Day = -7	0.0008	-0.2333	-0.2333	-0.2306
	(0.4309)	(0.3286)	(0.3262)	(0.3251)
Day = -8	-0.6169	-0.5938	-0.5938	-0.5911
	(0.6079)	(0.3824)	(0.3819)	(0.3816)
Day = -9	0.4421	0.3678	0.3678	0.3704
	(0.6744)	(0.4420)	(0.4270)	(0.4272)
Day = -10	0.1639	0.3497	0.3497	0.3817
	(0.4240)	(0.2896)	(0.2790)	(0.2772)
Controls	No	Yes	Yes	Yes
Day FE	Yes	Yes	Yes	Yes
Municipality FE	Yes	Yes	Yes	Yes
Observations				
Number of Municipalities	3,950	3,950	3,950	3,950

Notes. The baseline period is the day before the first event (March 14). The unit of observation is a municipality-day. Robust standard errors (in parentheses) are clustered at the state-day level. The overall sample includes 3,950 municipalities. All four models – columns (i) to (iv) – include both municipality and day fixed effects. Column (i) does not include any control variable. Column (ii) controls for baseline poverty × day FE and baseline rural × day FE. Poverty is a dummy that equals one if the municipality's income is below the national median. Rural dummy equals one if the municipality's population located in rural areas is below the national median. Column (iii) controls for baseline poverty × day FE, baseline rural × day FE, and state-level NPI dummies. Column (iv) controls for baseline poverty × day FE, baseline rural × day FE, state-level NPI dummies, and state-specific linear trends.
*** p<0.01, ** p<0.05, * p<0.1

B Appendix: Theoretical Model

Here we now present a model to characterize how differences in the perceived risk of infection, and the cost associated with it, influence equilibrium social distancing and the spread of the disease. The model is a modified version of the basic SIR (Susceptible (S), Infected (I) and Recovered(R)) framework presented by Kermack and McKendrick (1927) and extended by Kremer (1996) to the case of equilibrium social distancing.[13] We introduce heterogeneity in the perceived expected loss of being infected. This is a reduced form for different mechanisms of how individuals expect the disease would affect them. Since individuals may be uninformed about the severity of being infected with the virus and the local spread of the pandemic, a leader's words can affect their perceived expected loss from the disease or the share of individuals who perceived the disease to have minor effects on their health. Our model is stylized and does not aspire to capture any specific mechanism in detail of how a leader's speech affects individuals' perception about the severity of the pandemic.

Time is continuous and the population size is normalized to unit such that $S_t + I_t + R_t = 1$. In the initial period, the number of recovered (or immune) individuals is $R_0 = 0$ and a small measure of individuals get infected such that S_0 is just below 1 and I_0 is just above zero. There are $n \in \{1, 2..., N\}$ types of individuals. The share of type-n agents is $\pi_n \in [0, 1]$ with $\sum_{n=1}^{N} \pi_n = 1$ and their expected perceived loss of being infected is L_n. Without loss of generality let $0 \leq L_1 < L_2 < ... < L_N$. Agents can take actions to avoid contagion by being vigilant. The social distancing effort of an agent n is v_n, which decreases the infection rate, as further described below. In practical terms, this means avoiding going out or visiting relatives, working from home, using masks, more hand washing and cleaning, and so on. The social distancing effort v_{nt} to avoid infection comes with a cost described by the function $c(v_{nt}) = \frac{v_{nt}^2}{2}$. This can be interpreted as the foregone income of working from home, employment loss, and the non-monetary stress and mental challenge of being deprived of a social life.

At each instant, individuals match randomly. Susceptible individuals S_t may become infected once they match with infected individuals I_t. The rate at which infection spreads to an individual n is

$$\beta f(v_{nt}) \left[\sum_{i=1}^{N} \pi_i f(\bar{v}_{it}) \right] \quad \text{with} \quad f(v_{nt}) = 1 - \zeta v_{nt},$$

where $\zeta > 0$ is a parameter describing the effectiveness of an individual's own vigilance in avoiding infection and $\bar{v}_{it}$ is the social distancing adopted by the other agents. When $\zeta = 0$, the model is equivalent of a standard SIR model without endogenous social distancing and the infection rate is β. The aggregate rate at which a susceptible individual becomes infected is

$$x_t(v_{nt}/\bar{\mathbf{v}}_{\mathbf{t}}) = \beta f(v_{nt}) \left[\sum_{i=1}^{N} \pi_i f(\bar{v}_{it}) \right] S_t I_t.$$

Given other players' strategy $\bar{\mathbf{v}}_{\mathbf{t}}$, an individual type-$n$ chooses social distancing v_{nt} to minimize the perceived expected total loss:

$$v_{nt}^* = \underset{v_{nt} \geq 0}{\arg \min} \left\{ x_t(v_{nt}/\bar{\mathbf{v}}_{\mathbf{t}}) L_n + \frac{v_{nt}^2}{2} \right\}.$$

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[13]See also Toxvaerd (2019), Toxvaerd (2020), Greenwood et al. (2019) and Keppo et al. (2020).

In a Nash equilibrium of this contagion game, we have

$$v_{nt}^* = \frac{\zeta \beta I_t S_t L_n}{1 + \zeta^2 \beta I_t S_t [\sum_{i=1}^{N} \pi_i L_i]} > 0 \quad \text{and} \quad f(v_{n,t}^*) = (1 - \zeta v_{nt}^*) \in (0, 1). \tag{3}$$

Therefore, the lower agent-n's perceived expected loss L_n, the less cautious the agent is and the lower her vigilance. In addition, the lower the other agents' perceived expected loss, $\bar{L} = \sum_{i=1}^{N} \pi_i L_i$, the greater her vigilance. Clearly, social distancing rises with contagion $\beta I_t S_t$. The dynamics of the system are given by:

$$\dot{S}_t = -\beta \left[\sum_{i=1}^{N} \pi_i (1 - \zeta v_{it}^*) \right] \left[\sum_{i=1}^{N} \pi_i (1 - \zeta v_{it}^*) \right] S_t I_t, \tag{4}$$

$$\dot{I}_t = \beta \left[\sum_{i=1}^{N} \pi_i (1 - \zeta v_{it}^*) \right] \left[\sum_{i=1}^{N} \pi_i (1 - \zeta v_{it}^*) \right] S_t I_t - \gamma I_t, \tag{5}$$

$$\dot{R}_t = \gamma I_t. \tag{6}$$

As the number of infected people increases and contagion rises, individuals become more vigilant, equilibrium social distancing rises, and therefore the number of infected people is reduced relative to the typical epidemiological model (see Figure A.10(a)). While vigilance flattens out the infection curve by decreasing the reproduction rate $r_t = \frac{\beta_t}{\gamma}$, it can quantitatively be very different from an imposed lockdown, which can be captured by a reduction in β. Figure A.10(b) shows the equilibrium average vigilance. Voluntary social distancing keeps people at home only when the infection risk starts to become visible and the epidemic is already well underway.

What are the effects on social distancing of a rise in the share of individuals who perceive COVID-19 to be a minor health problem? Such a change corresponds to a reduced form approach to capture how leader's words and actions can affect individual perceived loss and therefore social distancing. Results are summarized in the following proposition.

Proposition 1. *Assume that there are two types of individuals $n \in \{1, 2\}$ with $\{L_1 < L_2\}$ and the share of type-1 individuals is π. Denote the average society's vigilance by $\bar{v}_t = \pi v_{1,t}^* + (1 - \pi)v_{2,t}^*$ and the society's infection rate by β_t where*

$$\beta_t = \beta \left[\pi(1 - \zeta v_{1,t}^*) + (1 - \pi)(1 - \zeta v_{2,t}^*) \right]^2, \quad \text{with } v_{n,t}^* = \frac{\zeta \beta I_t S_t L_n}{1 + \zeta^2 \beta I_t S_t [\pi L_1 + (1 - \pi) L_2]}.$$

Then, a rise in the share of individuals with the lowest expected perceived loss (π), decreases the average society's vigilance $\bar{v}_t$ and increases the society's infection rate β_t. A fall in the perceived expected loss of any agent (L_1 or L_2) decreases the average society's vigilance $\bar{v}_t$ and increases the society infection rate β_t

Proof. Taking partial derivatives of $\bar{v}_t$ and β_t with respect to π, L_1 and L_2 proves the results. $\square$

There are two opposing effects of how a fall in the perceived loss of some individuals in society affects average social distancing and the infection rate. The first is a composition effect since there will be more individuals with the lowest equilibrium vigilance, i.e., with v_{1t}^*, and therefore social distancing should fall and the infection rate should rise. However, the average perceived expected loss $\sum_i^{N} \pi_i L_i$ in society falls and caution to avoid infection on the part of all agents rises, decreasing the infection rate. Proposition 1 shows that the former effect dominates the latter and a fall in the perceived loss to be infected of some individuals decreases average

social distancing and increases the infection rate. A similar result is also shown when there is a rise in the share of individuals who believe the virus's consequences are minor.

The corollary below describes more precisely what we test in our empirical analysis. Suppose two locations (they can initially have different expected perceived loss or different share of the population who perceived the disease to be minor) but one location is more affected by a leader's speech (e.g., a large share of the population voted for this leader to be the president or are more aligned to her/his views and therefore follow more her/his advice) minimizing the consequences of the virus and/or advising people to go out to work and to open their business than the other.

Corollary 2. *Consider two locations (A and B) and assume that both locations face a COVID-19 pandemic. If either the perceived loss of any individual falls (or the share of individuals with the lowest perceived loss of the disease rise) in location A relative to location B, then average vigilance (e.g., social distancing) in location A would fall relative to average vigilance in location B. The infection rate would rise in location A relative to location B.*

Therefore, if an event triggers a fall in the perceived loss of being infected with the virus of some individuals in location A relative to location B, then average social distancing would decrease in location A relative to location B. This would increase the infection rate $r_t = \frac{\beta_t}{\gamma}$ in location A relative to location B. Figure A.10(c) shows the difference-in-difference on average social distancing in location A and location B after an event which affects perceived individual loss in location A relative to location B. As we can see, average social distancing in location A would fall relative to location B than in the counterfactual case of the absence of this event. Figure A.10(d) displays differences in new infections between the two locations (solid line) before and after this event described above. It also shows differences in average (across both locations) new infections with the presence of the event and in the path without this event.

Calibration. We calibrate the above model to Brazil at daily frequency. We set the horizon to be approximately two years or 700 days. Following Atkeson (2020), we assume that initially, there are one in ten million individuals infected, so $I_0 = 1.0000e^{-07}$ and therefore $S_0 = 1 - I_0$. Since we are analyzing the model for 700 days, we assume that agents become immune to the virus once they recover from the disease and therefore we can abstract from deaths — the presence of deaths would not change the dynamics of infection. We can easily back up the number of fatalities using the estimated death rates of the virus — Atkeson (2020) reports fatalities rates from 0.3% to 1.2%.

We now turn to the epidemic parameters of COVID-19. We set γ such that a person on average recovers from COVID-19 in 14 days, so $\gamma = 1/14$. We target a value of 3 for the basic reproduction number so that we set $\beta = 3 \times \gamma$ (see Atkeson, 2020).

We assume that there are two locations (A and B) and two types of individuals in each location. The locations are "pro-government (A)" (38%) and "against-government (B)" (62%) — the percentage of each location in the economy are consistent with those reported in the summary statistics of Table A.1. In the "pro-government" location, 47% of the individuals are Bolsonaro's supporters (type-1); and in the "against-government" location, 31% of the individuals are Bolsonaro's supporters (type-1). The other type of agents (type-2) are not Bolsonaro's supporters. Those numbers are consistent with their empirical counterpart.

It remains to determine the parameter of the social distancing function ζ and the perceived loss for both types of agents L_1 and L_2. Parameters ζ and $\{L_1, L_2\}$ cannot be jointly identified in the model, so that we normalize $\zeta = 1$. We assume that initially the expected perceived loss of the disease is the same for the two types of individuals. Therefore, $L_1 = L_2 = L$. Then,

there is an event on day 50 of the model[14] so that the expected perceived loss for Bolsonaro's supporters (independently of their location) decreases (L_1 falls from L to $\tilde{L}_1$), while for those who do not support the president the expected perceived loss remains unchanged ($L_2 = L$). Therefore, we need to calibrate L and $\tilde{L}_1$. We use two empirical moments to discipline how we set these two parameters.

i. The change in the average social distancing index across all locations from February (0.25) to April (0.53) —- a change in 0.28. Here, we are assuming a one-to-one mapping between our social distancing index measured by mobile phone mobility and vigilance v in the model. Clearly, there are other variables related to vigilance in the model, such as the use of mask, avoiding indoor gathering and sanitizer.

ii. The average fall in social distancing in pro-government locations relative to against-government locations is similar to the one observed in our event study analysis presented in Figure II — about 2 percentage points difference.

The above strategy leads to $L = L_1 = L_2 = 85$ and $\tilde{L}_1 = 5$.

Counterfactual Exercises. With all parameters set, we can now quantitatively analyze the model. Our model counterfactual exercises suggest that after ten days of an event similar to the one on March 15, there are about 4.6% more new cases in "pro-government" locations than in "against-government" locations. There are president's supporters in both locations and our model allows us to compute an object that we cannot compute in our empirical analysis: the aggregate effect (across both locations) on new infections with and without the event. Aggregating across the two locations, we show that after 10 days, there are 9.2% more new cases in our benchmark relative to a counterfactual without the event — see Figure A.10(d). The event's aggregate effect is therefore approximately twice of the effect of "pro-government"relative to "against-government" locations.

Finally, if we assume that the effect of the event on perceived expected loss of being infected is persistent on the president's supporters, then we can compute the overall effect of the event after say one year or two years of the pandemic. In this case, there are approximately 5.61% (2.18%) more infections in "pro-government" locations than in "against-government" locations when we aggregate the sum of all new infections over one year (over two years). In addition, aggregating across the two locations, we can show that there are 17.5% (3.8%) more new infections in the presence of the event than in the counterfactual without the event over one year (over two years).

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[14]The peak of COVID-19 fatalities curve in Brazil is on June 24. In our model, the peak occurs at $t = 158$. The difference between June 24 and March 15 corresponds to 100 days and given that the peak of infections should be approximately 14 days before the peak of deaths, this corresponds to 86 days before the peak of deaths. Therefore, the event occurs in our model at $t = 72$. There is no clear evidence on when the virus started to circulate in the country. This is the reason why we determine the event in our model from the peak of the curve and not from an initial time period. We use the fatalities curve since it is more reliable than confirmed cases, which depend on the number of tests performed.

Figure A.10. SIR model with social distancing.
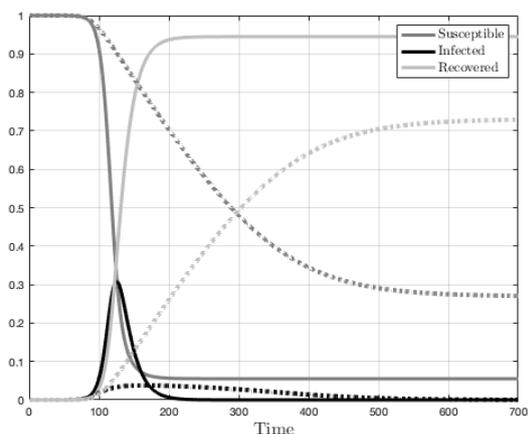
(a) Dynamics of the SIR model with (dashed) and without (solid) equilibrium social distancing.
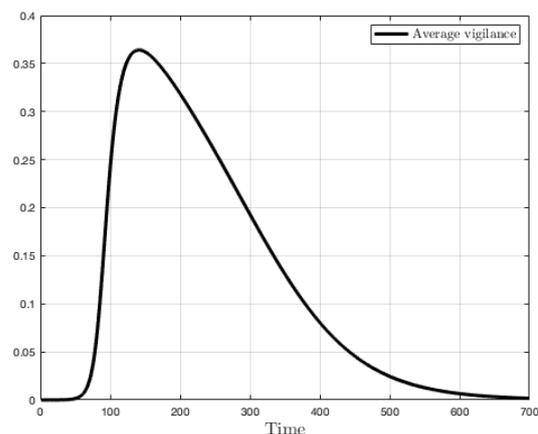
(b) Average social distancing in a pandemic.
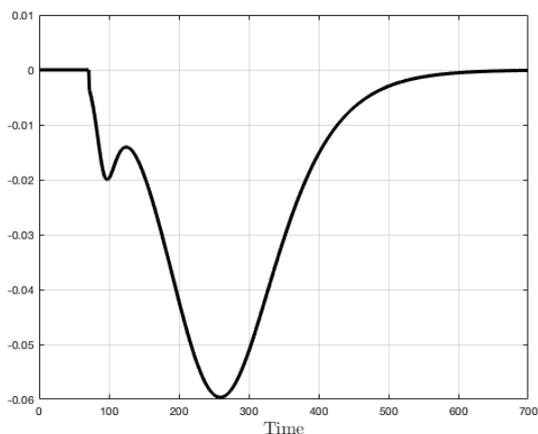
(c) Difference in social distancing before and after an event which triggers a fall in the average perceived expected loss in one location relative to the other.
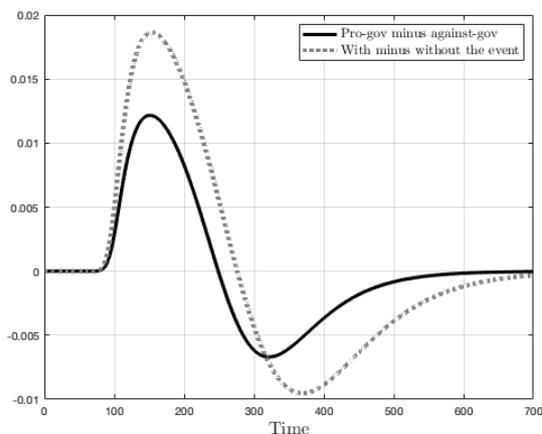
(d) Difference in new infections before and after an event which triggers a fall in the average perceived expected loss in one location relative to the other..

Notes. Figure A.10(a) shows the dynamics of the SIR model without equilibrium social distancing (solid line) and with equilibrium social distancing (dotted line). The value of the model parameters are described in Appendix B. Figure A.10(b) shows the average equilibrium vigilance. Figure A.10(c) shows the difference in the average vigilance in location A ("pro-government") relative to B ("against-government"). In location A average perceived expected loss decreases relative to location B at period $t = 72$. Figure A.10(d) shows the difference in new infections in location A relative to B (solid line) before and after an event which decreased average perceived loss in location A relative to B. The dotted line shows the difference in average (across both location) new infections relative to the event in which there is no fall in perceived expected loss.

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C Appendix: Context and Chronology

In this appendix, we detail the pandemic-related events from Bolsonaro's actions and speeches, from the beginning of the pandemic in Brazil until April 14. It is important to notice that in this period there were five official presidential pronouncements (all of them related to the pandemic). This type of message is particularly relevant because every TV or radio station in the country must mandatorily broadcast the pronouncement. They are thus rare and reserved for especially relevant communications from the president. The text of each of these speeches can be accessed at: https://www.gov.br/planalto/pt-br/acompanhe-o-planalto/pronunciamentos. In the Appendix D below, we include the translation of each of the public official pronouncements during our period of analysis.

(i) In the first official pronouncement on March 6, Bolsonaro stated that people "must strictly follow experts' recommendations on the best protective measures." There were no clear guidelines on social distancing.

(ii) On an official visit to the United States on March 10, the president recognized that there is a international crisis related to COVID-19. On March 12, he appeared with his health minister on television, and both were wearing face masks. Many members of his cabinet who went in the official mission to the United States tested positive for COVID-19. He was therefore with a risk to be infected as he stated on television. The health minister recommended postponing the public protests against the Congress and the Supreme Federal Court (STF) scheduled for the coming Sunday, on March 15.

In the second official pronouncement later that day, Bolsonaro stated that the public demonstrations should be "reconsidered" given the "current events." Therefore, there was actually no clear message against social distancing.

(iii) The protests planned for March 15 against the Congress and the Supreme Court took place. Bolsonaro, despite possibly being infected with COVID-19 (his test's result was released only on March 16), joined one of the demonstrations in Brasilia. He took selfies and fist bumped several supporters, as well as posted a record number of tweets (47) since becoming president. Most of these tweets included videos of the rallies across different cities of the country.

His behavior quickly captured the interest of national and international media. On March 16, a picture of Bolsonaro participating in the demonstration appeared on the front page of the three largest newspapers in Brazil (*Folha de Sao Paulo*, *O Globo* and *Estadao*), with headlines directly alluding to his actions in relation to prevention of the virus and his "bad example to the nation". The news reached several international outlets — see FT (2020).[15]

(iv) On March 18, Bolsonaro and several of his ministers, spoke with the press and presented policies aimed at mitigating the economic and health impacts of the pandemic. They were all using face masks and there was no direct message on social distancing.

(v) On March 24, the third pronouncement took place. In the first two pronouncements (March 6 and 12), the president gave short speeches and the messages were not related to

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[15]Each of the main newspapers' front pages can be downloaded from https://vercapas.com.br.

social distancing. He emphasized the work of the federal government and tried to calm and encourage people to follow the prevention measures recommended by specialists.

Notably, the tone of these messages completely changed in his speech on March 24. This time, Bolsonaro directly referred to the social distancing policies implemented by the sub-national governments. He first emphasized that the risk group was mainly the elderly and argued that there was no point in closing schools. He also stressed that jobs should be maintained and criticized the media for diffusing news on Italy ("a country with a large elderly population and completely different weather").

He spoke of his personal situation, contending that because of his "history of athleticism," he need not worry even if he got infected. As with the public protests on March 15 (and unlike any of his previous or subsequent official communications), his speech made the front pages of the main national newspapers the following day, all of which explicitly reported his position against social distancing and contrary to "world trends". Similarly to March 15, his message reached again international media outlets (e.g., The Washington Post, 2020).

(vi) In the next official pronouncement on March 31, Bolsonaro's attitude was more moderate. He cited the World Health Organization, and applauded the policies implemented by the federal and state governments to mitigate the effects of the pandemic. If anything, the media's interpretation was that Bolsonaro was "toning down" his message.

(vii) Finally, on April 8, the president's pronouncement maintained the same character of the previous one, praising his policies and the coordination of the federal government with the states. Again, the media interpreted that Bolsonaro was "toning down" his message.[16]

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[16]Folha, the largest newspaper in Brazil, for example, stated on April 1 that "Bolsonaro changes his tone, and speaks about a pact and a challenge for this generation", while O Globo stated that "Cases in the country hit a record, and Bolsonaro, isolated, moderates his tone".

D   Appendix: The President's Pronouncements

In this appendix, we provide a transcription in English of all official pronouncements made by Brazil's President from January 1, 2020 to June 30, 2020. Recall that the World Health Organization (WHO) has declared the COVID-19 outbreak a global pandemic on March 11, 2020. During that period, the President has made six official pronouncements: March 6, March 12, March 24, March 31, April 8, and April 16.[17]

D.1   Pronouncement on March 6

"Good night.

The world faces a big challenge. In recent months, a new virus has emerged, against which we have no immunity. The cases started in China, but the virus is already present on all continents.

Brazil strengthened its surveillance system in ports, airports, and health facilities and was the first country in South America to deal with the disease. Since then, we have transmitted daily, transparent information to all states and municipalities so that each one can better organize services' delivery to the population.

The Federal Government has been providing technical guidance to all states through the Ministry of Health.

The other ministries joined forces and, together with the other branches, will continue to guarantee our institutions' functioning until the return to normality.

I determined actions that expand the functioning of health posts and strengthen our hospitals and laboratories.

I call on the Brazilian population, especially health professionals, to work together and overcome this situation together. The moment demands union.

Although the problem may get worse, there is no reason to panic. Strictly following the experts' recommendations is the best preventive measure.

May God protect and bless our Brazil."

D.2   Pronouncement on March 12

"In light of the Coronavirus's outbreak in many countries, the World Health Organization has responsibly classified the current situation as a pandemic.

The Brazilian Health System, like other countries, has a limit on the number of patients that can be treated. The government is careful to keep the evolution of the situation under control. The number of infected people will likely increase in the coming days, without, however, be the cause of any panic.

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[17]The text of each of these speeches can be accessed at: https://www.gov.br/planalto/pt-br/acompanhe-o-planalto/pronunciamentos.

There is a more significant concern, for obvious reasons, with the elderly. There is also a recommendation from health authorities to avoid large popular concentrations. We want the population to be active and zealous regarding public affairs, but we can never jeopardize our people's health.

The spontaneous and legitimate movements, scheduled for March 15, serve the interests of the nation. Guided by law and order, they demonstrate the maturity of our democracy and are evident expressions of our freedom. However, in the light of recent events, they need to be rethought.

Our health and our family members' health must be preserved. The moment is one of union, serenity, and common sense.

We cannot forget, however, that Brazil has changed. The people are attentive and demand from us respect for the Constitution and zeal for the public money.

For this reason, the motivations of the public will remain alive and unwavering.

May God bless our Brazil."

D.3   Pronouncement on March 24

"Good night.

Since when we rescued our brothers in Wuhan, China, during an operation coordinated by the Ministries of Defense and Foreign Affairs, the yellow light has appeared for us.

We started to prepare to face the Coronavirus because we knew that it would arrive in Brazil sooner or later. Our Minister of Health met with almost all health state secretaries to build the strategic plan to fight the virus. Since then, Dr. Henrique Mandetta has been doing an excellent job of clarifying and preparing the SUS to care for possible victims.

But, what we had to contain at that moment was panic, hysteria and, at the same time, devise a strategy to save lives and avoid mass unemployment. We did so, almost against everything and against everyone.

Much of the media went against the grain. They spread exactly the feeling of dread, with the announcement of the large number of victims in Italy as their flagship. A country with a large number of older people and a climate totally different from ours. The perfect scenario, enhanced by the media, for a real hysteria to spread throughout our country.

However, it is clear that from yesterday to today, part of the press has changed its editorial: they ask for calm and tranquility. This is very good, congratulations to the Brazilian media. It is essential that balance and truth prevail among us.

The virus has arrived, is being faced by us, and will soon pass. Our life must go on. Jobs must be maintained. The livelihood of families must be preserved. We must, yes, return to normality.

A few state and local authorities must abandon the scorched earth concept, the transportation block, the closure of trade, and mass confinement.

What is happening in the world has shown that the risk group is that of people over 60 years old. So why close schools? Fatal cases of healthy people under the age of 40 are rare. 90% of us will have no manifestation if one gets contaminated. Yes, we must be extremely concerned about not transmitting the virus to others, especially to our dear parents and grandparents, respecting the Ministry of Health guidelines.

In my particular case, due to my athlete's background, if the virus infected me, I wouldn't have to worry, I wouldn't feel anything or I would, at most, have a cold or a little cold, as the well-known doctor from that well-known television said.

While I am speaking, the world is seeking treatment for the disease. The American FDA and Albert Einstein Hospital, in São Paulo, are seeking proof of the effectiveness of chloroquine in the treatment of Covid-19. Our government has received positive news about this medicine manufactured in Brazil, widely used in the fight against malaria, lupus, and arthritis.

I believe in God, who will train scientists and researchers from Brazil and the world to cure this disease.

I take this opportunity to pay my tribute to all health professionals – doctors, nurses, technicians, and collaborators – who at the front receive us in hospitals, treat us, and comfort us.

As I have been saying since the beginning, without panic or hysteria, we will overcome the virus and be proud to be living in this new Brazil, which has everything, yes, everything to be a great nation.

We are together, increasingly united.

God bless our dear homeland."

D.4 Pronouncement on March 31

"Good night.

I come at this important time to address you all.

Since the beginning of the government, we have worked on all fronts to solve historical problems and improve people's lives. Brazil has come a long way in these 15 months, but now we are facing the greatest challenge of our generation.

My concern has always been to save lives, both those that will be lost by the pandemic and those that will be affected by unemployment, violence, and hunger.

I put myself in the place of the people, and I understand their anguishes. Protective measures must be implemented in a rational, responsible, and coordinated manner.

In this sense, Mr. Tedros Adhanom, Director-General of the World Health Organization, said he knew that "many people, in fact, have to work every day to earn their daily bread" and that "governments have to take this population into account".

He went on to say, "if we close or limit movements, what will happen to these people, who have to work every day and who have to earn their daily bread every day?" He continues, "So each country, based on its situation, should answer this question."

The WHO director also states that, concerning each measure, "we have to see what it means for the individual on the streets" and adds "I come from a poor family, I know what it means always to be concerned about your daily bread and that must be taken into account, because every individual matters. The way each individual is affected by our actions has to be considered".

I do not use these words to deny the importance of measures to prevent and control the pandemic but to show in the same way that we need to think about the most vulnerable. This has been my concern from the beginning.

What will become of the street vendor, the barbecue vendor, the day laborer, the bricklayer's assistant, the truck driver, and the other freelancers I have been in contact with throughout my public life?

That is why I determined that our Minister of Health should spare no effort, supporting through SUS all the states of Brazil, increasing the capacity, and preparing the health network to fight the pandemic.

Thus, new beds are already being purchased with respirators, personal protective equipment, test kits, and other necessary supplies.

I also ordered our Minister of Economy to adopt all possible measures to protect, above all, the Brazilians' jobs and income.

We did this through financial aid to states and municipalities, credit lines for companies, monthly aid of R\$ 600 to informal and vulnerable workers, entry of over 1.2 million families in the Bolsa Família program, we also postponed the payment of debts of states and municipalities, just to mention some of the measures adopted.

Besides, today, in agreement with the pharmaceutical industry, we decided to postpone the readjustment of medicines in Brazil for 60 days.

We have a mission: to save lives, without leaving jobs behind.

On the one hand, we have to be cautious and cautious with everyone, especially with the elderly and those with pre-existing diseases.

On the other hand, we have to fight unemployment, which is growing rapidly, especially among the poorest.

We will fulfill this mission while taking care of people's health.

The virus is a reality, there is still no vaccine against it or medicine with scientifically proven efficiency, although hydroxychloroquine seems quite effective.

The Coronavirus came, and one day it will go away; unfortunately, we will have losses along this path. I myself have lost loved ones in the past, and I know how painful it is. We all have to avoid as much as possible any loss of human life. As the Director-General of WHO said, "Every individual matters."

At the same time, we must avoid the destruction of jobs, which is already causing a lot of suffering for Brazilian workers.

At the last G-20 meeting, we, the Heads of State and Government, pledged to protect lives and preserve jobs. I will do so.

Since February, I determined the use of the Armed Forces to fight the Coronavirus. The Ministry of Defense has rescued Brazilians in China. Now the Armed Forces act in support of the Health and Safety areas throughout Brazil. An Operations Center was created to coordinate the actions, and 10 Joint Commands were created, covering the entire national territory. They carry out activities ranging from setting up patient screening stations, supporting information campaigns and vaccination campaigns, logistics, and transportation of medicines. The Military Chemical-Pharmaceutical Laboratories entered with full force, and, in 12 days, one million chloroquine tablets will be produced, in addition to hand sanitizers.

I repeat: the side effect of measures to combat the Coronavirus cannot be worse than the disease itself.

My obligation as the president goes beyond the next few months. Prepare Brazil for its resumption, reorganize our economy and mobilize all our resources and energy to make Brazil

even stronger after the pandemic.

I take this opportunity to express my solidarity and thank the efforts and personal sacrifice of all health professionals, in the security area, truck drivers, and all service workers considered essential that are keeping the country functioning, as well as the men and women in the countryside who produce our food.

With this same spirit, I thank and reaffirm the importance of collaboration and the necessary union of all in a great pact to preserve life and jobs: parliament, judiciary, governors, mayors, and society.

God bless our beloved Brazil."

D.5 Pronouncement on April 8

"Good night!

We live a unique moment in our history.

To be President of the Republic is to look at the whole and not just the parts. There is no doubt that our primary objective has always been to save lives.

I would like, first of all, to show my solidarity with the families that lost their loved ones in this war that we are facing.

I have a responsibility to decide on the country's issues broadly, using the ministers' team I have chosen to lead the nation's destinies. Everyone must be in tune with me.

I have always said that we had two problems to solve, the virus and unemployment, which should be dealt with simultaneously.

I respect the autonomy of governors and mayors. Many measures, whether restrictive or not, are their sole responsibility. The Federal Government has not been consulted on its scope or duration. I hope that soon we will come out together and stronger so that we can better develop our country.

As stated by the Director-General of the World Health Organization, each country has its particularities, that is, the solution is not the same for everyone. The most humble cannot stop moving to get their daily bread.

The consequences of treatment cannot be more harmful than the disease itself. Unemployment also leads to poverty, hunger, misery, in short, death itself. In this spirit, I have instructed my ministers.

After listening to doctors, researchers, and heads of state from other countries, I started to publicize, in the last 40 days, the possibility of treating the disease since its initial phase.

A little while ago, I talked to Dr. Roberto Kalil. I congratulated him for his honesty and commitment to the Hippocratic Oath, assuming that he not only used Hydroxychloroquine, but also gave it to dozens of patients. Everyone is saved.

He told me more: that, despite not having completed the testing protocol, he administered the medication now, so as not to regret it in the future. This decision could go down in history as having saved thousands of lives in Brazil. Our congratulations to Dr. Kalil.

We have more good news. As a result of my direct conversation with the Prime Minister of India, we will receive, until Saturday, the raw material for continuing producing Hydroxychloroquine, so that we can treat COVID-19 patients, as well as malaria, lupus, and arthritis. I thank Prime

Minister Narendra Modi and the Indian people for this very timely help to the Brazilian people.

Starting tomorrow, we will begin paying the R$ 600.00 of emergency aid to support informal workers, unemployed, and micro-entrepreneurs for three months.

We also granted exemption from the electricity bill's payment to beneficiaries of the social tariff for three months, serving more than nine million families whose bills are up to R$ 150.00.

We made 60 billion available through Caixa Econômica Federal to be used as working capital for micro, small and medium-sized enterprises, and civil construction companies.

Beneficiaries of Bolsa Família, which are almost 60 million people, will also receive a supplementary allowance for Emergency Aid.

In June, we also authorized the withdrawal of up to R$ 1,045.00 to those who have an account linked to FGTS.

We repatriated more than 11,000 Brazilians who were abroad, in an effort led by Itamaraty, Ministry of Defense and Embratur.

I am sure that the vast majority of Brazilians want to go back to work.

This has always been my guide to all ministers, observing the rules of the Ministry of Health.

When I leave the Presidency, I intend to give my successor a much better Brazil than the one I found in January last year.

Let us follow John 8:32: "And ye shall know the truth, and the truth shall make you free!"

I wish everyone a Good Friday of reflection and a Happy Easter Sunday!

God bless our Brazil!"

D.6   Pronouncement on April 16

"Good afternoon. Now I just finished a meeting with Minister Mandetta, approximately 30 minutes, and we discussed the current situation of the Ministry, as well as the pandemic, a very productive conversation, very cordial, where we sealed a cycle at the Ministry of Health. As was expected by me, he volunteered to participate in a transition as smooth as possible, with the greatest wealth of details that can be offered. By common agreement, but that is not the technical term, I will exonerate him from the Ministry in the next few hours.

It was really a consensual divorce, because above me, as President, and of him, as a Minister, is the health of the Brazilian people. Life for us all comes first. The issue of the Coronavirus is taking place all over the world, and each country has its specificities, as the WHO chief rightly said. In Brazil, it is no different.

As the President of the Republic, I coordinate 22 ministries and, in most cases, the problem is not related to just one Ministry. When we talk about health, we talk about life, and we can't stop talking about jobs. As an unemployed person, he will be more likely to suffer health problems than an employed person. And since the beginning of the pandemic, I addressed all the ministers and talked about life and employment. It is like a patient with two diseases, and we cannot abandon one and treat exclusively another, because, at the end of the line, that patient may lose his life.

We know about their interpretations of what one says. The interpretation depends on the editorial line or that reporter. We always talk about life and employment, never employment, and the economy in isolation. Never.

From the beginning, I tried to carry a message of tranquility. The climate of almost terror has settled amid society. This is not good, because a person who lives under stress, in an environment of hysteria, is a person who is prone to acquire new diseases or aggravate those that he already has.

We fully understand the gravity of the situation. We would like no one to lose lives, not just for this, and for no reason, because life when it comes to an end, death touches us all. I have a 93-year-old mother, she is quite old, with some comorbidities, and I hope she will live for a long time.

During that time, it is the minister's right to defend his point of view as a doctor. And the question of understanding the problem of employment also was not in the way that I thought, as President, that should be addressed. I do not condemn, I do not recriminate, and I do not criticize Minister Mandetta. He did what, as a doctor, he thought he should do.

Over that time, the separation increasingly became a reality, but we cannot make decisions so that the work done by him until now is lost. What I talked about during that time with the oncologist Dr. Nelson, next to me, went to make him understand the situation as a whole, without obviously abandoning his main interest, the maintenance of life, but without forgetting that, besides that, we had other problems. This other is the question of unemployment, which, increasingly, we see is apparent in our country. Alongside with the virus came a real machine for grinding jobs. The most humble people began to experience the problem first. They cannot stay at home for long.

Therefore, it is not what we would like to do; it is what can be done. We cannot harm those most in need. They cannot stay at home for long without looking for their food. And the first to suffer from this were informal ones, in the order of 38 million in Brazil. Jobs with a formal contract, we also see, as we have talked to the whole society, are increasingly being destroyed. If it reaches such a level, what we do not want is that the return to normality and other problems will appear in addition to taking a long time. We are concerned that this return to normality arrives as soon as possible.

So, even before other measures, we took several measures, among them, one of the most important is Emergency Aid for exactly informal and similar workers. So the government did not abandon, at any time, the neediest.

And what I talked to Dr. Nelson is that, gradually, we have to open jobs in Brazil. This great mass of humble people cannot be trapped inside the house. And, what is worse, when I return, I have no job. And the government cannot maintain this Emergency Aid or other actions for a long time. Approximately 600 billion reais have already been spent, and we can reach R\$ 1 trillion. I know, and I repeat that life is priceless, but the economy, employment, must return to normality, not as soon as possible, as was discussed with Dr. Nelson. Still, he has to start flexibilization so that we will not suffer precisely from it.

We all, Executive branch, Legislative branch, Judiciary decisions, have to make these decisions with great prudence. The government is not an eternal source of help. At no time was I consulted on measures taken by most governors and mayors. I'm sure they knew what they were doing. The price will be high. Did they have to do anything? They did, but if, perhaps, they have exaggerated, do not hold others accountable, not the Federal Government, do not put this bill, on the backs of our suffering Brazilian people.

We do not want to create any controversy here with another branch. They are all responsible for their actions, just as I am, as chief of the executive branch. I will not shirk my responsibility. Decisions, I am forced to make. Because I have always said, given my military background: worse than a bad decision is no decision. I will never sin by omission. That was the teaching I

had in my military career.

This will be my line of action. We set up a government that is different from the ones set up previously, which has worked. We were practically flying at the end of the last quarter. Everything was going very well. Brazil had everything to succeed, in a short space of time. This "working out" will now happen, but in a longer time, where I appeal to the other branches: the responsibility is not only mine, it belongs to all of us. The excesses that some have committed let them take responsibility for them. I would never send my Armed Forces to arrest whoever was on the streets. Never, as head of the Executive branch, will I withdraw the constitutional right to come and go, regardless of the citizen. We must take measures, yes, to prevent the proliferation or expansion of the virus, but through conviction and with actions that do not threaten the freedom and the individual guarantee of any citizen. We will never restrict any fundamental rights of a citizen. Who has the power to decree a state of defense or state of siege, after a decision, obviously, by the Brazilian Parliament, is the President of the Republic, and not the mayor or governor.

The excess will not lead to the solution of the problem; on the contrary, it will worsen. And, as I have been saying for a long time, I am sure, I have friends, from BMA, members of the Brazilian Medicine Association, that the medicine to cure a patient cannot have a more harmful side effect than the disease itself.

Therefore, the Federal Government, the President of the Republic, has a broader view than each minister per se. This is our job. These are often the decisions that we are forced to make. Problems happen in everyone's life, and we must look for the best way to solve it.

So, at that moment, in addition to thanking Mr. Henrique Mandetta, for his cordiality, for the way he conducted his Ministry, I also thank Dr. Nelson for accepting this invitation. And he knows the enormous challenge that lies ahead. A transition is beginning today, which will gradually serve to redirect the position not only of the President but of the 22 ministers who make up our government. All ministers are involved in the same cause, without exception. We are together in defense of the life of the Brazilian people, in defense of jobs and, also, obviously, seeking to bring tranquility and peace to our people.

So, I thank Dr. Nelson, to whom I pass the word now."