

**THE DISASTROUS EFFECTS OF LEADERS IN DENIAL: EVIDENCE FROM THE  
COVID-19 CRISIS IN BRAZIL**

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## **ABSTRACT**

The COVID-19 pandemic has shown the critical role of political leaders in influencing social behavior. Leaders in denial contributed to different outcomes regarding virus transmission. Mr. Jair Bolsonaro is the archetype of a leader in denial. The current president of Brazil made a sequence of television and radio speeches downplaying the severity of COVID-19 pandemic. The content of Mr. Bolsonaro's communications minimized the disease's effects, disregarded the importance of social distance, and stimulated the adoption of treatments without scientific proof of efficacy. Our analysis reveals different responses of the population to Mr. Bolsonaro's speeches. Municipalities in which Mr. Bolsonaro received the majority of votes in 2018 presidential election are more affected by COVID-19 cases and related deaths. This paper associates the denialist attitude of national leadership with his supporters' riskier behavior, leading to disastrous results in terms of lives lost.

## **INTRODUCTION**

The COVID-19 pandemic crisis provides an opportunity to investigate political leaders' effects on citizens welfare. Some leaders, such as Angela Merkel and Jacinta Ardern, Prime Minister of Germany and New Zealand, respectively, publicly encouraged citizens towards public health improving behaviors, such as using masks and adopting social distancing. Other leaders, such as Donald Trump and Jair Bolsonaro, former president of the United States and current president of Brazil, respectively, did the opposite. They systematically denied the recommendations of scientists by discouraging measures that could refrain the virus. The denialist leadership style of Mr. Trump and Mr. Bolsonaro lead to engage in riskier behaviors (Ajzenman, Cavalcanti, & da Mata, 2020; Allcott et al., 2020; Clinton, Cohen, Lapinski, & Trussler, 2021).

By 'leadership in denial' we understand leaders that reject to admit the world as it is instead of how they would like it to be (Brownlee, 2020; Tedlow, 2008). Political leaders' speech can influence social behavior (Weber, 1946). President Bolsonaro's leadership in denial helps to illustrate this point. In almost all opportunities he had to communicate with Brazilian citizens, he

minimized the disease's effects, promoted social gathering, downplayed the importance of social distancing and personal hygiene, supported medical treatments without scientific proof of efficacy. He also discouraged masks and vaccines. On March 24<sup>th</sup>, 2020, in one of his television and radio speeches, which are broadcasted openly and compulsorily in Brazil, Mr. Bolsonaro said: "*In my particular case, due to my athlete's history, if I was infected by the virus, I wouldn't have to worry, I wouldn't feel anything, or I would be, at most, affected by a light flu or little cold (...)*."<sup>1</sup> Brazil has experienced 350,000 deaths as of date, the pandemic hurt mostly the disenfranchised populations, and the country is currently considered an incubator for virus variants (Castro et al., 2021; Coutinho et al., 2021; Pereira, Nascimento, Gratão, & Pimenta, 2020; Rocha et al., 2021; Sabino et al., 2021).

This paper shows that Mr. Bolsonaro's denialist leadership style has severe consequences: municipalities where he had stronger political support in the last presidential elections present a higher number of COVID-19 cases and related deaths . We use data on all Brazilian municipalities during the first 52 weeks of the COVID-19 pandemic, starting on Feb 26<sup>th</sup>, 2020.<sup>2</sup> The results suggest that, after Bolsonaro's last compulsory speech on TV, cities in which Mr. Bolsonaro had the majority of votes in the 2018 presidential elections exhibit up to seven times higher numbers of deaths than cities in which he did not. Paradoxically, these results submit that populations supporting a leader in denial are some of the main victims of his leadership style.

## MATERIAL AND METHOD

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<sup>1</sup> Presidential Speech broadcasted nationally in TV and Radio. Dated from March 24<sup>th</sup>, 2020. Official text and video available in Table 1.

<sup>2</sup> Note that the figures and tables show the last period as week = 51, this is the case because the baseline is set at week = 0, when the first case had not been identified in Brazilian territory.

We organized a panel data of all 5,570 Brazilian municipalities with daily observations from February 25<sup>th</sup>, 2020<sup>3</sup> to February 18<sup>th</sup>, 2021 on the number of confirmed infections and the number of deaths due to COVID-19. The data on confirmed cases and deaths are available in the Brasil.IO repository, which is a task force of volunteers aggregating official notifications of Brazilian states health secretaries.<sup>4</sup> We verified what happened after five speeches performed by Mr. Bolsonaro. These presidential speeches were broadcasted openly by TV and radio networks from March 6<sup>th</sup>, 2020 to April 8<sup>th</sup>, 2020. The speeches content denials and downplays the threat of the disease and incentivizes the population to keep regular activities (see Table 1 with a summary of each speeches). Finally, we leverage data from the 2018 Presidential election results, which captures the share of support for Mr. Bolsonaro in each municipality by election round. This data was collected on the Brazilian Electoral Supreme Court database.

**<< Insert Table 1 about here >>**

Departing from presidential speeches, the employment of several econometric techniques shows that areas with increased number of Bolsonaro's supporters presented more COVID-19 cases and deaths than areas with a lower number of supporters. Following a well-developed literature in economics (Imbens & Lemieux, 2008; Lee & Lemieux, 2010), we define Bolsonaro's supporting base as the municipalities in which the politician received more than 50 percent of valid votes in the second round of the Brazilian presidential election in 2018 (see Figure 1). We validate this discontinuity through a McCrary test that confirms the smoothness around the cut-off point of the second round votes density function (McCrary, 2008) (see Appendix A). Therefore, the models

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<sup>3</sup> Our panel starts one day before the emergence of the first diagnosed COVID-19 case in Brazil.

<sup>4</sup> Note that, in an attempt to restrict access to information about pandemic evolution in Brazil, the Brazilian Health Ministry stopped publicizing the cases and deaths evolution per municipality in June 2020. Therefore, we rely on data from Brasil.IO taskforce to perform our estimations. The dataset has been considered more reliable than the official numbers, and has been used in several academic publications (Ajzenman et al., 2020; Bastos et al., 2020). Only in March 2021, official data were made available again.

compare the evolution of cases and deaths between these two groups of municipalities, the ones where Bolsonaro "won" and where the ones where he "lost". Note that, on average Mr. Bolsonaro "won" in richer and larger municipalities, with superior access to healthcare resources (see Appendix B.4). This feature might impose extra burden on the municipalities where he "lost" given the heterogeneous impacts of the pandemic in more vulnerable locations (Coelho et al., 2020; Tavares & Betti, 2021).

**<< Insert Figure 1 about here >>**

Moreover, following the policy analysis literature (Meyer, 1995; Moser & Voena, 2012), we examine the evolution of these two groups of municipalities before and after the last TV and radio pronouncement on COVID-19 performed by Mr. Bolsonaro on April 04<sup>th</sup>, 2020 (week 7) (see Table 1).

We defined the TV and radio speeches as an important driver for the analyses for several reasons. First, by force of law, all television channels and all radio stations operating in Brazil compulsorily broadcast presidential speeches. Second, television is still the most democratic communication channel in the country. In Brazil, television influences and shapes citizen's behavior even on family planning decisions such as the number of children (La Ferrara, Chong, & Duryea, 2012). Third, following an extensive literature on the topic, we believe that a direct address by the president to all citizens would affect their behavior, particularly among the ones who support the leader (Ajzenman et al., 2020; Allcott et al., 2020; Brauner et al., 2020).

Finally, we use these speeches because they transmit a homogeneous message, reported simultaneously and with the exact same content to the whole nation. This feature approximates our design to a quasi-experiment, in which the treatment is exactly the same, but the recipients are heterogeneous according to their degree of support to the leader in denial. This feature avoids

potential biases and noise added by regular or social media on the presidential message which might be described and broadcasted in different ways and emphasizing distinct aspects.

Our main models control for week and municipality fixed effects; we binned new cases and new deaths weekly. This procedure allows us to observe the evolution of the outcome considering a seven-day moving average window counting from the date of the first diagnosed case in Brazil (February 26<sup>th</sup>, 2020). We also perform several robustness-checks to our main specification. First, we validate the results considering the proportion of votes for Bolsonaro per municipality in the first round of the 2018 Brazilian presidential election. Second, we evaluate the results restricting our sample to municipalities in which Bolsonaro's defeat/victory was within a narrow margin (between 30 and 70 percent of the valid votes). Finally, we repeated the same procedure but for municipalities in which Bolsonaro's defeat/victory was within a wide margin (less than 30 percent or more than 70 percent of the valid votes). Ancillary tests accounting for demographic and other confounding variables were also performed. All estimations corroborate the main findings with differences in magnitude that align with our main results. For more information, please check Appendix B, C, and D.

## **RESULTS**

The results show that municipalities in which Mr. Bolsonaro obtained the majority of votes in the second round of the 2018 presidential elections are precisely the ones more affected by COVID-19. The higher the proportion of votes for Mr. Bolsonaro, the higher is the incidence of new cases and new deaths among the municipal population after his denialist speeches. In numerical terms, an additional ten percentage point of votes share gained by Bolsonaro in the municipality is correlated with 129.3 additional new cases per week ( $p < 0.01$ ) and 3.28 additional

new deaths per week ( $p < 0.01$ ) (see Table 2). These results are even higher in magnitude if we consider the first round of the election results.

**<< Insert Table 2 about here >>**

Figure 2 shows the evolution of the coefficient estimates of new cases and new deaths by Bolsonaro's support before and after his last TV and radio speech on COVID-19.<sup>5</sup> The graphs show that both municipality groups followed a similar trend before Bolsonaro's sequence of TV and radio denialist speeches (see Appendix B for full regression models). However, after continuous presidential messages against social distancing and promoting alternative treatments without scientific support such as chloroquine, municipalities with a higher share of Bolsonaro's supporters increased the number of cases and deaths up to seven times more than in municipalities with a lower number of supporters.

Note that the graphs include a second dashed line (grey line) with the date of the 2020 municipal elections (November 15<sup>th</sup>, 2021). In this period, some local politicians running for mayor and city councils leveraged on Bolsonaro's guidance and reinforced his opinions to assure winning votes from his supporter base living in those locations. Therefore, it is likely that presidential messages that minimize the public health consequences were reemphasized and further disseminated by these local candidates despite no TV and radio presidential speeches had been performed at that time.

**<< Insert Figure 2 about here >>**

To provide a rough estimation of the differences between municipality types (supporters and non-supporters), in week 14 of the pandemic in Brazil, about two months after the last

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<sup>5</sup> We are not considering Bolsonaro's speeches in Brazil's independence day (September 7<sup>th</sup>) and Christmas eve (December 24<sup>th</sup>). We decided to proceed this way, since these two speeches do not specifically discuss COVID-19 situation, and therefore, do not related to the object under analysis in this study.

presidential TV pronouncement on COVID-19, municipalities supporting Bolsonaro had 141% more new cases and 164% more new deaths.<sup>6</sup> This number was amplified to 299% more new cases and 415% more new deaths in week 51, i.e., almost one year after the first diagnosed case. Considering municipalities in which Mr. Bolsonaro lost/won by a wide margin, i.e., municipalities with much more or much less share of supporters, the picture is even more alarming. In this case, in week 51, for example, municipalities widely supporting Bolsonaro had 567% more new cases and 647% more new deaths than municipalities narrowly supporting him (see Appendix B.2 and B.3).

## DISCUSSION

The results highlight the extent to which a leader in denial is associated to the evolution of the pandemic heterogeneously, depending on the amount of support base he/she has in diverse locations. The study also shows that the higher the support base's intensity, i.e., a higher share of votes, the higher the tendency of the population to follow the denialist claims made by the leader. Finally, the results point to the fact that leaders who performed public pronouncements through democratically accessible channels such as TV and radio can catalyze the soar in COVID-19 cases and deaths quicker, especially in locations with a higher support base.

These results unveil several implications for the COVID-19 crisis. First, it highlights and methodologically shows the nefarious effects of leaders in denial, particularly among their supporters. Second, it evidences the power of traditional media channels that reach more broad segments of the population than internet-based ones. Third, it suggests that attitudes not aligned with scientific recommendations can affect and harm the rule-out of the immunization campaign

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<sup>6</sup> In the week 14, the coefficient ratio between new cases where Bolsonaro Won/Bolsonaro Lost =  $5.015/3.562 = 140.8\%$ . Respectively, the coefficient ratio between new deaths where Bolsonaro Won/Bolsonaro Lost =  $0.218/0.133 = 163.9\%$ . All other estimations on the additional percent of new cases and new deaths followed this same structure used in this calculation.



and, consequently, increase the risk for local populations and the international community. Therefore, leaders in denial should be resisted emphatically and deterred as early as possible. Otherwise, their denialist style can be disastrous to the whole national and international communities.

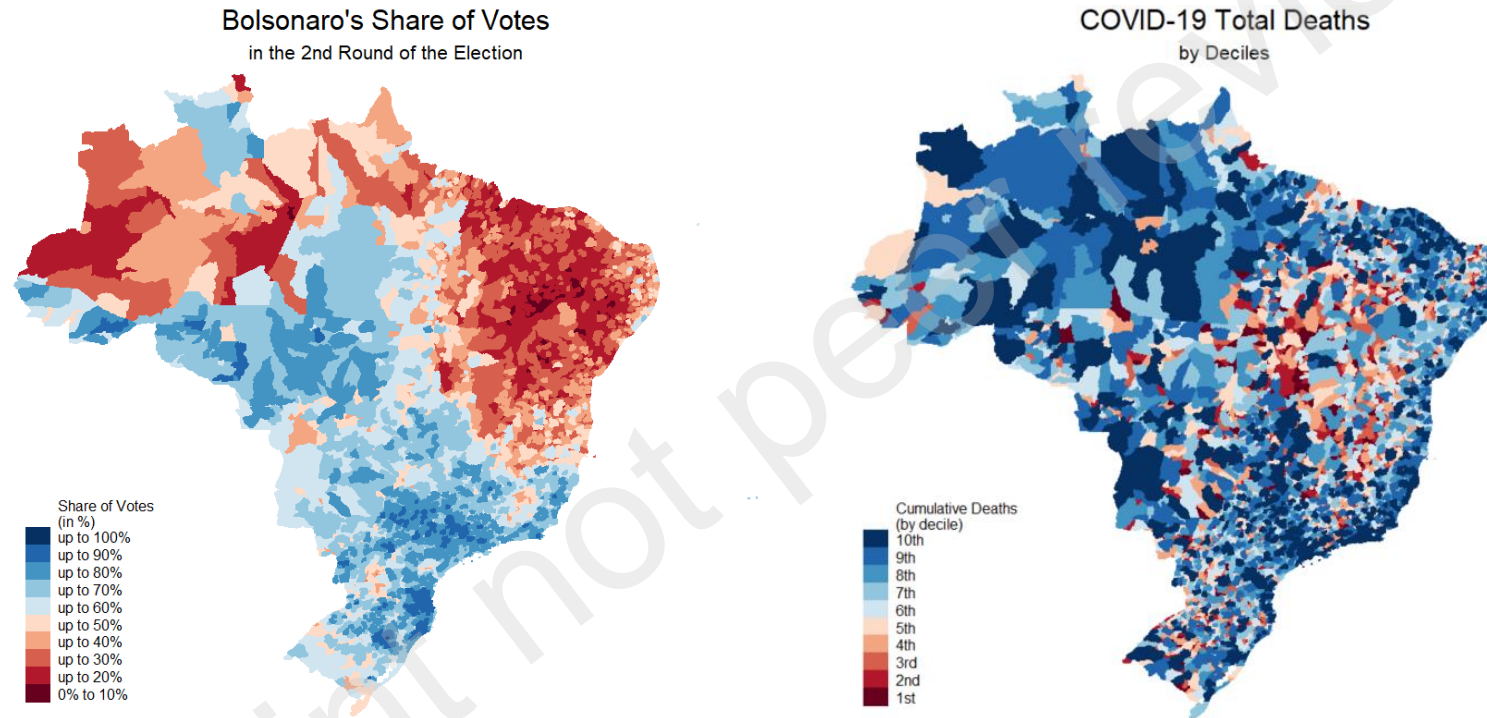
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## FIGURES

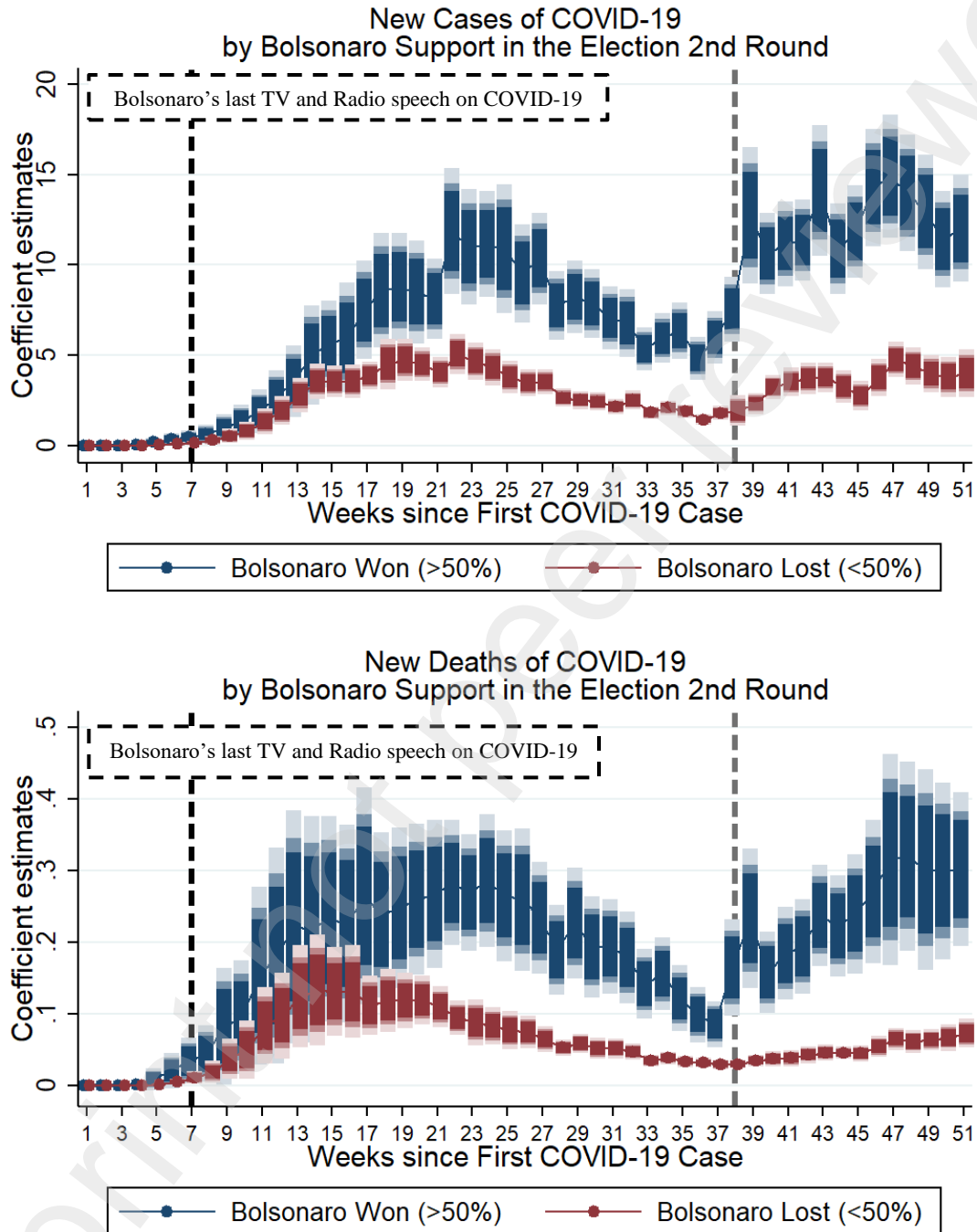
**Figure 1 – Brazil Map by Bolsonaro's Share of Votes in the 2<sup>nd</sup> Round of 2018 Election (left) and COVID-19 Total Deaths in February 2021 by decile (right)**



Note 1: Data from the Superior Electoral Court and Brasil.IO database. Considering percent among valid votes in the second round of the Brazilian presidential Election in 2018. Considering deciles of Cumulative Deaths.

Note 2: Municipalities in the Northwest area of Brazilian territory are larger in area, less populated, and more vulnerable in terms of healthcare characteristics and socio-demographics of citizens, for example, a higher concentration of native-Brazilian populations, who are more susceptible to infectious diseases.

**Figure 2 – Cases and Deaths Evolution by Bolsonaro's Support, Weekly**



Note: controlling for week and municipality FEs. Binned by week. Baseline is set at week = 0, which is the week immediate before the date of the first case diagnosed in Brazil. The black dashed line (first line) represents the last TV pronouncement from Bolsonaro about COVID-19 situation. The grey dashed line (second line) represents the date of Municipal elections in 2020. Darker colors represent respectively 99, 95 and 90 C.I. Graphs y-axes are in different scales.

## TABLES

**Table 1 – Mr. Bolsonaro's TV and Radio Speeches Excerpts**

| Date/Week                     | Translated Excerpts from the Speeches  | Official Links*   |
|-------------------------------|--|---|
| March 06,<br>2020<br>(week 2) | "In the last months, a new virus appeared, against which we have no immunity"   "Let us work together and overcome this situation together. The moment is for unity."   "Strictly following the experts' recommendations is the best preventive measure."  | <a href="#">Official Video</a><br><br><a href="#">Official Text</a> |
| March 12,<br>2020<br>(week 3) | "The World Health Organization has responsibly classified the current situation as a pandemic."   "The government is attentive to keep the evolution of the situation under control."   "There is also a recommendation from the health authorities to avoid large popular gatherings. We want people to be active and zealous with the public affairs, but we can never jeopardize the health of our people"   "Our health and that of our family members must be preserved. The moment is one of union, serenity, and common sense."   | <a href="#">Official Video</a><br><br><a href="#">Official Text</a> |
| March 24,<br>2020<br>(week 4) | "The virus has arrived, is being faced by us, and will soon pass. Our life must continue. Jobs must be maintained. The livelihood of families must be preserved. We must, yes, return to normal."   "A few state and municipal authorities must abandon the scorched earth concept, the ban on transportation, the closing of trade and mass confinement."   "What is happening in the world has shown that the risk group is that of the people above the age of 60. So why close schools? Fatal cases of healthy people under 40 are rare. 90% of us will have no manifestation if we get infected "   "In my particular case, due to my athlete's history, if I was infected by the virus, I wouldn't have to worry, I wouldn't feel anything or I would be, at most, suffering from a light flu or a little cold,"   "The American FDA and Albert Einstein Hospital, in São Paulo, seek proof of the effectiveness of Chloroquine in the treatment of Covid-19." | <a href="#">Official Video</a><br><br><a href="#">Official Text</a> |
| March 31,<br>2020<br>(week 5) | "My concern has always been to save lives, both those that we will lose by the pandemic and those that will be affected by unemployment, violence, and hunger."   "That is why I determined that our Minister of Health should spare no effort, supporting through SUS all the states of Brazil by increasing the capacity of the health network and preparing it to fight the pandemic."   "I also ordered our Minister of Economy to adopt all possible measures to protect, above all, the employment and income of Brazilians."   "We have a mission: to save lives, without leaving jobs behind."   "The virus is a reality, there is still no vaccine against it or medicine with scientifically proven efficiency, although Hydroxychloroquine seems to be very effective."   "My obligation as the president goes beyond the next few months. Prepare Brazil for its resumption."  | <a href="#">Official Video</a><br><br><a href="#">Official Text</a> |
| April 8,<br>2020<br>(week 7)  | "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 the governors and mayors. Many measures, whether restrictive or not, are their exclusive responsibility. The Federal Government has not been consulted on its breadth or duration."   "I started to disclose, in the last 40 days, the possibility of treating the disease since its initial phase."   "I recently spoke with 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 safe."   | <a href="#">Official Video</a><br><br><a href="#">Official Text</a> |

Note: All links were accessed on March 20<sup>th</sup>, 2021. Content is in the Brazilian Portuguese language.

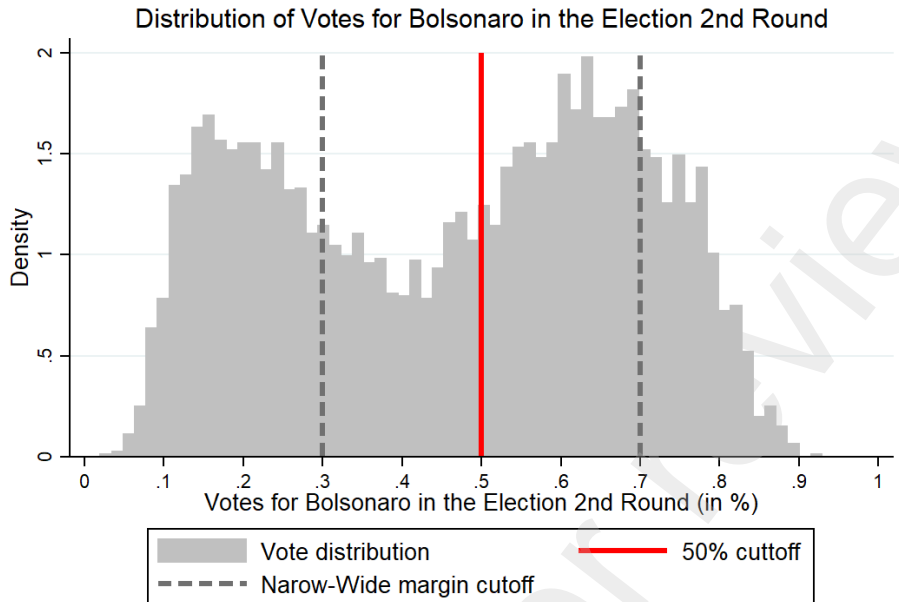
**Table 2 – Heterogeneity Analysis by Vote Support in the 1<sup>st</sup> and 2<sup>nd</sup> Round, comparing in the Before and After Bolsonaro's Last TV and Radio Pronouncement**

|   | (1)                 | (2)                 | (3)                 | (4)                 | (5)                 | (6)                  | (7)                 | (8)                 |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|---------------------|---------------------|
|   | New COVID-19 Cases  |                     |                     |                     | New COVID-19 Deaths |                      |                     |                     |
| TV and Radio Last Pronouncement         | 7.979**<br>(0.626)  | 3.903**<br>(0.847)  | 2.065**<br>(0.502)  | 1.964**<br>(0.487)  | 0.186**<br>(0.0211) | 0.182**<br>(0.0522)  | 0.0375*<br>(0.0154) | 0.0335*<br>(0.0149) |
| TV × Votes 1 <sup>st</sup> Round        |                     |                     | 15.27**<br>(1.581)  |                     |                     |                      | 0.383**<br>(0.0669) |                     |
| TV × Votes 2 <sup>nd</sup> Round        |                     |                     |                     | 12.93**<br>(1.480)  |                     |                      |                     | 0.328**<br>(0.0563) |
| Week FE                                 | Y                   | Y                   | Y                   | Y                   | Y                   | Y                    | Y                   | Y                   |
| Municipality FE                         | Y                   | Y                   | Y                   | Y                   | Y                   | Y                    | Y                   | Y                   |
| Lagged Total Number of Cases and Deaths | N                   | Y                   | N                   | N                   | N                   | Y                    | N                   | N                   |
| Constant                                | 0.000180<br>(0.372) | 2.51e-05<br>(0.234) | 0.000180<br>(0.370) | 0.000180<br>(0.370) | 0<br>(0.0147)       | 8.06E-09<br>(0.0130) | 0<br>(0.0147)       | 0<br>(0.0147)       |
| Observations                            | 2,005,200           | 1,999,630           | 2,005,200           | 2,005,200           | 2,005,200           | 1,999,630            | 2,005,200           | 2,005,200           |
| R-squared                               | 0.359               | 0.389               | 0.359               | 0.359               | 0.423               | 0.427                | 0.423               | 0.423               |
| Number Municipalities                   | 5,570               | 5,570               | 5,570               | 5,570               | 5,570               | 5,570                | 5,570               | 5,570               |
| Pre-trend F-test                        | 1.0                 |                     |                     |                     | 0.0                 |                      |                     |                     |
| p-value of F-test                       | 0.318               |                     |                     |                     | 1.000               |                      |                     |                     |

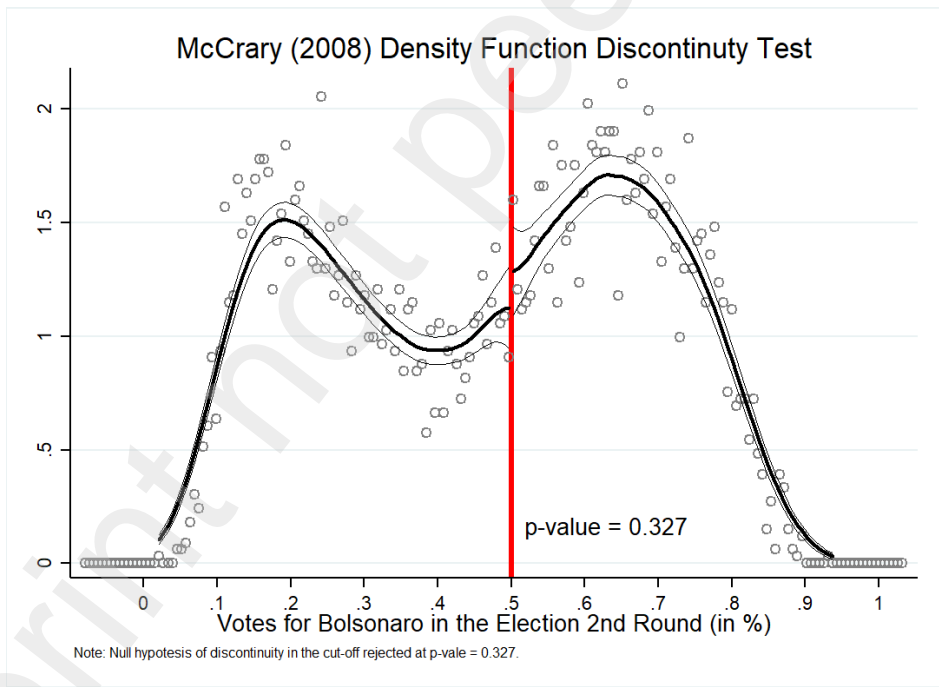
Note: Robust standard errors in parentheses were clustered at the municipality level. Pre-trend test consider week 1, which is before the sequence of TV and radio pronouncements performed by Mr. Bolsonaro which started in week 2 and went up to week 7. \*\* p<0.01, \* p<0.05, + p<0.1

**APPENDIX**

# APPENDIX A – 2<sup>nd</sup> Round Votes Distribution and Density Function Discontinuity Test



Note: data from the superior electoral court.



Note: Null hypothesis of discontinuity in the cut-off rejected at p-value = 0.327.

Note: Distribution of votes in the second round of the election and McCrary (2008) test on the suitability of the analysis in the 0.5 discontinuity cut-off



**APPENDIX B – Ancillary Tables**

**Table B.1 – Cases and Deaths Evolution by Bolsonaro's Support, Weekly**

|         | (1)<br>New COVID-19 Cases     |                                | (3)<br>New COVID-19 Deaths    |                                |
|---------|-------------------------------|--------------------------------|-------------------------------|--------------------------------|
|         | Bolsonaro Won<br>in 2nd Round | Bolsonaro Lost<br>in 2nd Round | Bolsonaro Won<br>in 2nd Round | Bolsonaro Lost<br>in 2nd Round |
| Week 1  | -0.000311<br>(0.000311)       | 0<br>(4.71e-08)                | 0                             | 0<br>(1.20e-08)                |
| Week 2  | 0.000880+<br>(0.000494)       | 0.000102<br>(0.000102)         | 0                             | 0<br>(1.23e-08)                |
| Week 3  | 0.0124+<br>(0.00698)          | 0.00219*<br>(0.000917)         | 5.18e-05<br>(5.18e-05)        | 0<br>(1.21e-08)                |
| Week 4  | 0.0595**<br>(0.0178)          | 0.0147+<br>(0.00853)           | 0.000725<br>(0.000452)        | 5.08e-05<br>(5.09e-05)         |
| Week 5  | 0.178*<br>(0.0843)            | 0.0260*<br>(0.0115)            | 0.00844<br>(0.00587)          | 0.00107*<br>(0.000416)         |
| Week 6  | 0.339**<br>(0.130)            | 0.0837*<br>(0.0374)            | 0.0202*<br>(0.00941)          | 0.00503**<br>(0.00162)         |
| Week 7  | 0.457**<br>(0.147)            | 0.142**<br>(0.0502)            | 0.0339**<br>(0.0125)          | 0.0107**<br>(0.00355)          |
| Week 8  | 0.627**<br>(0.204)            | 0.289**<br>(0.0930)            | 0.0439**<br>(0.0153)          | 0.0183**<br>(0.00592)          |
| Week 9  | 0.998**<br>(0.294)            | 0.539**<br>(0.159)             | 0.0825**<br>(0.0317)          | 0.0368**<br>(0.0108)           |
| Week 10 | 1.356**<br>(0.351)            | 0.811**<br>(0.199)             | 0.0947**<br>(0.0308)          | 0.0501**<br>(0.0158)           |
| Week 11 | 1.885**<br>(0.471)            | 1.355**<br>(0.279)             | 0.153**<br>(0.0482)           | 0.0835**<br>(0.0207)           |
| Week 12 | 2.686**<br>(0.571)            | 1.924**<br>(0.307)             | 0.181**<br>(0.0584)           | 0.0972**<br>(0.0232)           |
| Week 13 | 3.557**<br>(0.766)            | 2.797**<br>(0.367)             | 0.221**<br>(0.0631)           | 0.124**<br>(0.0278)            |
| Week 14 | 5.015**<br>(1.060)            | 3.562**<br>(0.372)             | 0.218**<br>(0.0614)           | 0.133**<br>(0.0299)            |
| Week 15 | 5.633**<br>(0.934)            | 3.553**<br>(0.340)             | 0.233**<br>(0.0557)           | 0.131**<br>(0.0239)            |
| Week 16 | 5.973**<br>(1.182)            | 3.567**<br>(0.362)             | 0.226**<br>(0.0536)           | 0.131**<br>(0.0251)            |
| Week 17 | 7.509**<br>(1.057)            | 3.875**<br>(0.300)             | 0.264**<br>(0.0586)           | 0.111**<br>(0.0161)            |
| Week 18 | 8.593**<br>(1.237)            | 4.526**<br>(0.543)             | 0.238**<br>(0.0448)           | 0.118**<br>(0.0172)            |
| Week 19 | 8.771**                       | 4.735**                        | 0.248**                       | 0.118**                        |

|         |         |         |          |           |
|---------|---------|---------|----------|-----------|
|         | (1.162) | (0.450) | (0.0436) | (0.0148)  |
| Week 20 | 8.500** | 4.498** | 0.260**  | 0.119**   |
|         | (1.105) | (0.357) | (0.0411) | (0.0133)  |
| Week 21 | 8.121** | 4.070** | 0.267**  | 0.109**   |
|         | (0.862) | (0.323) | (0.0402) | (0.0110)  |
| Week 22 | 11.86** | 5.077** | 0.283**  | 0.0938**  |
|         | (1.350) | (0.432) | (0.0340) | (0.00928) |
| Week 23 | 11.00** | 4.660** | 0.269**  | 0.0872**  |
|         | (1.237) | (0.396) | (0.0316) | (0.0123)  |
| Week 24 | 11.15** | 4.338** | 0.285**  | 0.0827**  |
|         | (1.142) | (0.387) | (0.0360) | (0.0103)  |
| Week 25 | 10.89** | 3.798** | 0.264**  | 0.0767**  |
|         | (1.383) | (0.342) | (0.0357) | (0.0104)  |
| Week 26 | 9.538** | 3.481** | 0.259**  | 0.0740**  |
|         | (1.055) | (0.287) | (0.0386) | (0.00865) |
| Week 27 | 10.36** | 3.519** | 0.234**  | 0.0642**  |
|         | (0.983) | (0.265) | (0.0304) | (0.00689) |
| Week 28 | 7.770** | 2.650** | 0.189**  | 0.0526**  |
|         | (0.740) | (0.194) | (0.0243) | (0.00446) |
| Week 29 | 8.221** | 2.509** | 0.227**  | 0.0582**  |
|         | (0.782) | (0.188) | (0.0301) | (0.00541) |
| Week 30 | 7.844** | 2.443** | 0.193**  | 0.0514**  |
|         | (0.737) | (0.191) | (0.0273) | (0.00574) |
| Week 31 | 7.071** | 2.147** | 0.194**  | 0.0512**  |
|         | (0.684) | (0.165) | (0.0258) | (0.00554) |
| Week 32 | 6.778** | 2.512** | 0.178**  | 0.0468**  |
|         | (0.736) | (0.208) | (0.0250) | (0.00447) |
| Week 33 | 5.361** | 1.818** | 0.141**  | 0.0343**  |
|         | (0.463) | (0.140) | (0.0188) | (0.00322) |
| Week 34 | 5.946** | 2.085** | 0.155**  | 0.0379**  |
|         | (0.532) | (0.157) | (0.0196) | (0.00330) |
| Week 35 | 6.362** | 1.911** | 0.121**  | 0.0329**  |
|         | (0.600) | (0.145) | (0.0179) | (0.00290) |
| Week 36 | 4.847** | 1.440** | 0.0987** | 0.0310**  |
|         | (0.461) | (0.105) | (0.0150) | (0.00262) |
| Week 37 | 5.969** | 1.812** | 0.0852** | 0.0292**  |
|         | (0.560) | (0.153) | (0.0125) | (0.00267) |
| Week 38 | 7.547** | 1.922** | 0.165**  | 0.0295**  |
|         | (0.690) | (0.328) | (0.0262) | (0.00254) |
| Week 39 | 12.74** | 2.324** | 0.233**  | 0.0344**  |
|         | (1.465) | (0.225) | (0.0378) | (0.00301) |
| Week 40 | 10.63** | 3.235** | 0.157**  | 0.0368**  |
|         | (0.877) | (0.265) | (0.0222) | (0.00410) |
| Week 41 | 11.18** | 3.528** | 0.184**  | 0.0380**  |
|         | (0.910) | (0.300) | (0.0252) | (0.00436) |
| Week 42 | 11.36** | 3.728** | 0.194**  | 0.0428**  |

|                            |                     |                    |                     |                       |
|----------------------------|---------------------|--------------------|---------------------|-----------------------|
| Week 43                    | (0.864)<br>14.11**  | (0.334)<br>3.772** | (0.0257)<br>0.237** | (0.00466)<br>0.0451** |
| Week 44                    | (1.394)<br>10.89**  | (0.316)<br>3.280** | (0.0276)<br>0.222** | (0.00438)<br>0.0454** |
| Week 45                    | (0.972)<br>11.84**  | (0.350)<br>2.758** | (0.0273)<br>0.239** | (0.00328)<br>0.0447** |
| Week 46                    | (0.992)<br>14.27**  | (0.316)<br>3.762** | (0.0323)<br>0.271** | (0.00442)<br>0.0540** |
| Week 47                    | (1.250)<br>14.90**  | (0.400)<br>4.746** | (0.0388)<br>0.315** | (0.00584)<br>0.0647** |
| Week 48                    | (1.330)<br>13.99**  | (0.378)<br>4.404** | (0.0573)<br>0.320** | (0.00596)<br>0.0609** |
| Week 49                    | (1.248)<br>12.94**  | (0.391)<br>3.975** | (0.0513)<br>0.301** | (0.00613)<br>0.0634** |
| Week 50                    | (1.228)<br>11.41**  | (0.406)<br>3.809** | (0.0544)<br>0.299** | (0.00578)<br>0.0665** |
| Week 51                    | (1.031)<br>12.01**  | (0.428)<br>4.015** | (0.0478)<br>0.301** | (0.00718)<br>0.0726** |
|                            | (1.144)             | (0.516)            | (0.0417)            | (0.00775)             |
| Municipality FE            | Y                   | Y                  | Y                   | Y                     |
| Constant                   | 0.000362<br>(0.711) | 0<br>(0.228)       | 0<br>(0.0288)       | 0<br>(0.00710)        |
| Observations               | 993,600             | 1,011,600          | 993,600             | 1,011,600             |
| R-squared                  | 0.358               | 0.364              | 0.439               | 0.261                 |
| Number Municipalities      | 2,760               | 2,810              | 2,760               | 2,810                 |
| Joint Significance F-test  | 12.87               | 17.22              | 7.139               | 14.03                 |
| Joint Significance p-value | 0.000               | 0.000              | 0.000               | 0.000                 |

Note: Robust standard errors in parentheses were clustered at the municipality level. Number of cases are binned by week. \*\* p<0.01, \* p<0.05, + p<0.1

**Table B.2 – Cases Evolution by Bolsonaro's Support in the 1<sup>st</sup> Round (top), with Narrow Margin (bottom left) and with Wide Margin (bottom right) in the 2<sup>nd</sup> Round, Weekly**

|         | (1)                        | (2)                         | New COVID-19 Cases                            |  | (5)   | (6)  |
|---------|----------------------------|-----------------------------|---|--|---|--|
|         | Bolsonaro Won in 1st Round | Bolsonaro Lost in 1st Round | Bolsonaro Won in 2nd Round with Narrow Margin | Bolsonaro Lost in 2nd Round with Narrow Margin | Bolsonaro Won in 2nd Round with Wide Margin | Bolsonaro Lost in 2nd Round with Wide Margin |
| Week 1  | 0<br>(1.72e-07)            | -0.000234<br>(0.000235)     | -0.000477<br>(0.000477)                       | 0  | 0   | 0<br>(8.81e-08)                              |
| Week 2  | 0.000598*<br>(0.000237)    | 0.000429<br>(0.000360)      | 0.00127+<br>(0.000754)                        | 0.000260<br>(0.000260)                         | 0.000149<br>(0.000149)                      | 0<br>(8.81e-08)                              |
| Week 3  | 0.00703**<br>(0.00231)     | 0.00734<br>(0.00517)        | 0.0161<br>(0.0107)                            | 0.00558*<br>(0.00234)                          | 0.00535**<br>(0.00175)                      | 0<br>(8.81e-08)                              |
| Week 4  | 0.0684**<br>(0.0232)       | 0.0205*<br>(0.00878)        | 0.0733**<br>(0.0271)                          | 0.0364+<br>(0.0218)                            | 0.0337**<br>(0.00736)                       | 0.000752**<br>(0.000277)                     |
| Week 5  | 0.107**<br>(0.0288)        | 0.0981<br>(0.0624)          | 0.242+<br>(0.129)                             | 0.0632*<br>(0.0294)                            | 0.0572**<br>(0.0107)                        | 0.00201**<br>(0.000407)                      |
| Week 6  | 0.253**<br>(0.0622)        | 0.188+<br>(0.0971)          | 0.431*<br>(0.199)                             | 0.200*<br>(0.0954)                             | 0.167**<br>(0.0261)                         | 0.00877**<br>(0.00124)                       |
| Week 7  | 0.390**<br>(0.106)         | 0.251*<br>(0.104)           | 0.581**<br>(0.225)                            | 0.335**<br>(0.128)                             | 0.227**<br>(0.0335)                         | 0.0185**<br>(0.00202)                        |
| Week 8  | 0.484**<br>(0.107)         | 0.442**<br>(0.160)          | 0.795*<br>(0.312)                             | 0.670**<br>(0.237)                             | 0.313**<br>(0.0455)                         | 0.0444**<br>(0.00423)                        |
| Week 9  | 0.801**<br>(0.181)         | 0.749**<br>(0.235)          | 1.267**<br>(0.450)                            | 1.174**<br>(0.404)                             | 0.496**<br>(0.0608)                         | 0.130**<br>(0.0136)                          |
| Week 10 | 1.128**<br>(0.245)         | 1.056**<br>(0.277)          | 1.728**<br>(0.536)                            | 1.672**<br>(0.505)                             | 0.660**<br>(0.0989)                         | 0.257**<br>(0.0233)                          |
| Week 11 | 1.634**<br>(0.350)         | 1.609**<br>(0.372)          | 2.357**<br>(0.718)                            | 2.558**<br>(0.707)                             | 1.001**<br>(0.145)                          | 0.581**<br>(0.0467)                          |
| Week 12 | 2.414**<br>(0.429)         | 2.243**<br>(0.437)          | 3.325**<br>(0.872)                            | 3.320**<br>(0.775)                             | 1.493**<br>(0.180)                          | 1.026**<br>(0.0685)                          |
| Week 13 | 3.299**<br>(0.761)         | 3.109**<br>(0.506)          | 4.378**<br>(1.162)                            | 4.617**<br>(0.911)                             | 2.023**<br>(0.340)                          | 1.627**<br>(0.139)                           |
| Week 14 | 4.661**<br>(0.816)         | 4.084**<br>(0.734)          | 6.169**<br>(1.615)                            | 5.273**<br>(0.907)                             | 2.859**<br>(0.356)                          | 2.461**<br>(0.176)                           |
| Week 15 | 5.567**<br>(0.836)         | 4.070**<br>(0.611)          | 6.783**<br>(1.414)                            | 5.331**<br>(0.837)                             | 3.482**<br>(0.426)                          | 2.410**<br>(0.144)                           |
| Week 16 | 5.619**<br>(0.817)         | 4.311**<br>(0.831)          | 7.279**<br>(1.799)                            | 5.192**<br>(0.893)                             | 3.533**<br>(0.433)                          | 2.522**<br>(0.149)                           |
| Week 17 | 7.716**<br>(1.088)         | 4.611**<br>(0.606)          | 8.637**<br>(1.589)                            | 5.280**<br>(0.724)                             | 5.400**<br>(0.619)                          | 2.971**<br>(0.160)                           |

|         |                    |                    |                    |                    |                    |                     |
|---------|--------------------|--------------------|--------------------|--------------------|--------------------|---------------------|
| Week 18 | 9.062**<br>(1.198) | 5.226**<br>(0.808) | 9.421**<br>(1.847) | 6.781**<br>(1.367) | 7.045**<br>(0.816) | 3.076**<br>(0.145)  |
| Week 19 | 9.587**<br>(1.182) | 5.246**<br>(0.712) | 8.958**<br>(1.712) | 6.765**<br>(1.105) | 8.421**<br>(0.943) | 3.429**<br>(0.197)  |
| Week 20 | 9.347**<br>(1.001) | 4.985**<br>(0.705) | 8.519**<br>(1.630) | 6.047**<br>(0.861) | 8.463**<br>(0.879) | 3.501**<br>(0.192)  |
| Week 21 | 9.168**<br>(1.000) | 4.464**<br>(0.460) | 8.008**<br>(1.240) | 5.495**<br>(0.793) | 8.331**<br>(0.866) | 3.153**<br>(0.144)  |
| Week 22 | 13.49**<br>(1.368) | 5.798**<br>(0.798) | 11.16**<br>(1.959) | 6.748**<br>(1.034) | 13.15**<br>(1.264) | 4.001**<br>(0.246)  |
| Week 23 | 12.34**<br>(1.167) | 5.428**<br>(0.769) | 10.09**<br>(1.801) | 6.181**<br>(0.887) | 12.69**<br>(1.125) | 3.681**<br>(0.310)  |
| Week 24 | 12.81**<br>(1.246) | 5.051**<br>(0.638) | 10.53**<br>(1.635) | 5.941**<br>(0.938) | 12.31**<br>(1.185) | 3.307**<br>(0.198)  |
| Week 25 | 12.04**<br>(1.239) | 4.844**<br>(0.859) | 10.50**<br>(2.027) | 5.293**<br>(0.842) | 11.62**<br>(1.181) | 2.835**<br>(0.146)  |
| Week 26 | 10.82**<br>(1.194) | 4.217**<br>(0.541) | 9.377**<br>(1.538) | 4.806**<br>(0.701) | 9.839**<br>(0.952) | 2.629**<br>(0.136)  |
| Week 27 | 12.09**<br>(1.136) | 4.208**<br>(0.489) | 8.937**<br>(1.325) | 4.617**<br>(0.628) | 13.03**<br>(1.350) | 2.813**<br>(0.160)  |
| Week 28 | 8.710**<br>(0.808) | 3.348**<br>(0.394) | 7.174**<br>(1.018) | 3.482**<br>(0.467) | 8.883**<br>(0.942) | 2.115**<br>(0.105)  |
| Week 29 | 9.491**<br>(0.918) | 3.173**<br>(0.373) | 7.549**<br>(1.005) | 3.201**<br>(0.452) | 9.478**<br>(1.227) | 2.063**<br>(0.105)  |
| Week 30 | 9.083**<br>(0.843) | 3.051**<br>(0.370) | 7.129**<br>(0.940) | 3.240**<br>(0.457) | 9.181**<br>(1.177) | 1.930**<br>(0.107)  |
| Week 31 | 8.275**<br>(0.833) | 2.662**<br>(0.304) | 6.771**<br>(0.916) | 2.848**<br>(0.396) | 7.632**<br>(0.957) | 1.696**<br>(0.0911) |
| Week 32 | 7.621**<br>(0.822) | 3.063**<br>(0.387) | 6.745**<br>(1.054) | 3.126**<br>(0.476) | 6.840**<br>(0.760) | 2.117**<br>(0.149)  |
| Week 33 | 6.190**<br>(0.539) | 2.208**<br>(0.233) | 5.032**<br>(0.643) | 2.366**<br>(0.334) | 5.974**<br>(0.567) | 1.465**<br>(0.0821) |
| Week 34 | 6.782**<br>(0.620) | 2.546**<br>(0.266) | 5.781**<br>(0.754) | 2.722**<br>(0.380) | 6.254**<br>(0.587) | 1.676**<br>(0.0815) |
| Week 35 | 7.190**<br>(0.670) | 2.513**<br>(0.308) | 6.193**<br>(0.841) | 2.499**<br>(0.350) | 6.678**<br>(0.703) | 1.533**<br>(0.0777) |
| Week 36 | 5.462**<br>(0.504) | 1.910**<br>(0.241) | 4.647**<br>(0.642) | 1.891**<br>(0.251) | 5.219**<br>(0.556) | 1.150**<br>(0.0606) |
| Week 37 | 6.773**<br>(0.576) | 2.358**<br>(0.319) | 5.532**<br>(0.789) | 2.571**<br>(0.376) | 6.784**<br>(0.638) | 1.324**<br>(0.0650) |
| Week 38 | 8.587**<br>(0.700) | 2.686**<br>(0.448) | 6.816**<br>(0.964) | 3.134**<br>(0.830) | 8.914**<br>(0.819) | 1.143**<br>(0.0659) |
| Week 39 | 15.47**<br>(1.953) | 3.319**<br>(0.458) | 11.42**<br>(2.067) | 3.660**<br>(0.561) | 15.20**<br>(1.654) | 1.464**<br>(0.0691) |

|                            |                    |                     |                     |                    |                    |                     |
|----------------------------|--------------------|---------------------|---------------------|--------------------|--------------------|---------------------|
| Week 40                    | 12.31**<br>(0.982) | 4.073**<br>(0.464)  | 9.314**<br>(1.189)  | 4.665**<br>(0.657) | 13.08**<br>(1.179) | 2.315**<br>(0.0986) |
| Week 41                    | 12.80**<br>(0.918) | 4.460**<br>(0.542)  | 10.01**<br>(1.267)  | 5.110**<br>(0.745) | 13.37**<br>(1.101) | 2.511**<br>(0.110)  |
| Week 42                    | 13.10**<br>(0.958) | 4.597**<br>(0.490)  | 10.01**<br>(1.147)  | 5.453**<br>(0.833) | 13.90**<br>(1.244) | 2.618**<br>(0.108)  |
| Week 43                    | 16.55**<br>(1.741) | 4.899**<br>(0.581)  | 11.68**<br>(1.367)  | 5.698**<br>(0.783) | 18.65**<br>(3.073) | 2.532**<br>(0.119)  |
| Week 44                    | 12.31**<br>(0.958) | 4.306**<br>(0.600)  | 9.995**<br>(1.331)  | 5.279**<br>(0.880) | 12.57**<br>(1.259) | 1.994**<br>(0.0925) |
| Week 45                    | 13.83**<br>(1.070) | 3.831**<br>(0.553)  | 10.52**<br>(1.353)  | 4.819**<br>(0.795) | 14.30**<br>(1.302) | 1.432**<br>(0.0736) |
| Week 46                    | 16.13**<br>(1.231) | 5.232**<br>(0.755)  | 13.27**<br>(1.783)  | 6.229**<br>(0.994) | 16.15**<br>(1.327) | 2.176**<br>(0.140)  |
| Week 47                    | 16.60**<br>(1.289) | 6.219**<br>(0.799)  | 14.13**<br>(1.946)  | 7.398**<br>(0.935) | 16.36**<br>(1.153) | 3.041**<br>(0.139)  |
| Week 48                    | 16.00**<br>(1.409) | 5.577**<br>(0.659)  | 13.21**<br>(1.810)  | 6.787**<br>(0.959) | 15.44**<br>(1.172) | 2.870**<br>(0.173)  |
| Week 49                    | 14.81**<br>(1.229) | 5.085**<br>(0.737)  | 12.09**<br>(1.784)  | 6.385**<br>(1.018) | 14.54**<br>(1.133) | 2.425**<br>(0.113)  |
| Week 50                    | 13.09**<br>(1.035) | 4.702**<br>(0.648)  | 10.49**<br>(1.468)  | 6.095**<br>(1.076) | 13.14**<br>(1.101) | 2.339**<br>(0.108)  |
| Week 51                    | 13.56**<br>(1.254) | 5.068**<br>(0.688)  | 11.44**<br>(1.622)  | 6.671**<br>(1.303) | 13.08**<br>(1.262) | 2.307**<br>(0.108)  |
| Municipality FE            | Y                  | Y                   | Y                   | Y                  | Y                  | Y                   |
| Constant                   | 0<br>(0.681)       | 0.000273<br>(0.438) | 0.000556<br>(1.034) | 0<br>(0.571)       | 0<br>(0.651)       | 0<br>(0.0666)       |
| Observations               | 687,600            | 1,317,600           | 647,280             | 396,000            | 346,320            | 615,600             |
| R-squared                  | 0.261              | 0.479               | 0.400               | 0.386              | 0.192              | 0.142               |
| Number Municipalities      | 1,910              | 3,660               | 1,798               | 1,100              | 962                | 1,710               |
| Joint Significance F-test  | 11.2               | 17.0                | 9.0                 | 6.3                | 8.1                | 23.9                |
| Joint Significance p-value | 0.000              | 0.000               | 0.000               | 0.000              | 0.000              | 0.000               |

Note: Robust standard errors in parentheses were clustered at the municipality level. Number of cases are binned by week. Narrow-Wide Margin refer to 30-70% cut-offs. \*\* p<0.01, \* p<0.05, + p<0.1

**Table B.3 – Deaths Evolution by Bolsonaro's Support in the 1<sup>st</sup> Round, with Narrow Margin, and with Wide Margin in the 2<sup>nd</sup> Round, Weekly**

|         | (1)                        | (2)                         | New COVID-19 Deaths                           |  | (5)   | (6)  |
|---------|----------------------------|-----------------------------|---|--|---|--|
|         | Bolsonaro Won in 1st Round | Bolsonaro Lost in 1st Round | Bolsonaro Won in 2nd Round with Narrow Margin | Bolsonaro Lost in 2nd Round with Narrow Margin | Bolsonaro Won in 2nd Round with Wide Margin | Bolsonaro Lost in 2nd Round with Wide Margin |
| Week 1  | 0<br>(3.14e-08)            | 0                           | 0<br>(3.80e-08)                               | 0  | 0<br>(1.43e-08)                             | 0  |
| Week 2  | 0<br>(3.30e-08)            | 0                           | 0<br>(3.80e-08)                               | 0  | 0<br>(1.43e-08)                             | 0  |
| Week 3  | 0<br>(3.32e-08)            | 3.90e-05<br>(3.91e-05)      | 7.95e-05<br>(7.96e-05)                        | 0  | 0<br>(1.46e-08)                             | 0  |
| Week 4  | 0.000449+<br>(0.000259)    | 0.000351<br>(0.000315)      | 0.00103<br>(0.000689)                         | 0  | 0.000149<br>(0.000149)                      | 8.35e-05<br>(8.37e-05)                       |
| Week 5  | 0.00314*<br>(0.00122)      | 0.00554<br>(0.00439)        | 0.0122<br>(0.00900)                           | 0.00247*<br>(0.00105)                          | 0.00149**<br>(0.000513)                     | 0.000167<br>(0.000118)                       |
| Week 6  | 0.0133**<br>(0.00357)      | 0.0122+<br>(0.00696)        | 0.0263+<br>(0.0144)                           | 0.0110**<br>(0.00409)                          | 0.00891**<br>(0.00144)                      | 0.00117**<br>(0.000312)                      |
| Week 7  | 0.0272**<br>(0.00792)      | 0.0196*<br>(0.00891)        | 0.0431*<br>(0.0192)                           | 0.0234**<br>(0.00902)                          | 0.0166**<br>(0.00226)                       | 0.00251**<br>(0.000526)                      |
| Week 8  | 0.0389**<br>(0.0127)       | 0.0269*<br>(0.0105)         | 0.0554*<br>(0.0234)                           | 0.0413**<br>(0.0151)                           | 0.0226**<br>(0.00389)                       | 0.00343**<br>(0.000592)                      |
| Week 9  | 0.0578**<br>(0.0161)       | 0.0603*<br>(0.0239)         | 0.108*<br>(0.0485)                            | 0.0804**<br>(0.0276)                           | 0.0345**<br>(0.00584)                       | 0.00869**<br>(0.00107)                       |
| Week 10 | 0.0727**<br>(0.0243)       | 0.0719**<br>(0.0230)        | 0.128**<br>(0.0473)                           | 0.104*<br>(0.0402)                             | 0.0319**<br>(0.00538)                       | 0.0156**<br>(0.00179)                        |
| Week 11 | 0.121*<br>(0.0475)         | 0.116**<br>(0.0309)         | 0.208**<br>(0.0738)                           | 0.166**<br>(0.0526)                            | 0.0483**<br>(0.00758)                       | 0.0302**<br>(0.00328)                        |
| Week 12 | 0.163*<br>(0.0679)         | 0.126**<br>(0.0316)         | 0.245**<br>(0.0895)                           | 0.193**<br>(0.0589)                            | 0.0603**<br>(0.00945)                       | 0.0358**<br>(0.00293)                        |
| Week 13 | 0.186**<br>(0.0671)        | 0.165**<br>(0.0386)         | 0.300**<br>(0.0966)                           | 0.232**<br>(0.0705)                            | 0.0737**<br>(0.0119)                        | 0.0547**<br>(0.00485)                        |
| Week 14 | 0.199**<br>(0.0662)        | 0.163**<br>(0.0384)         | 0.282**<br>(0.0939)                           | 0.252**<br>(0.0761)                            | 0.0996**<br>(0.0149)                        | 0.0560**<br>(0.00441)                        |
| Week 15 | 0.219**<br>(0.0613)        | 0.162**<br>(0.0328)         | 0.298**<br>(0.0849)                           | 0.235**<br>(0.0606)                            | 0.111**<br>(0.0166)                         | 0.0637**<br>(0.00477)                        |
| Week 16 | 0.209**<br>(0.0520)        | 0.161**<br>(0.0356)         | 0.283**<br>(0.0819)                           | 0.234**<br>(0.0634)                            | 0.118**<br>(0.0159)                         | 0.0637**<br>(0.00498)                        |
| Week 17 | 0.265**<br>(0.0613)        | 0.146**<br>(0.0329)         | 0.315**<br>(0.0892)                           | 0.189**<br>(0.0405)                            | 0.168**<br>(0.0214)                         | 0.0612**<br>(0.00413)                        |

|         |                      |                       |                      |                       |                      |                       |
|---------|----------------------|-----------------------|----------------------|-----------------------|----------------------|-----------------------|
| Week 18 | 0.241**<br>(0.0459)  | 0.144**<br>(0.0272)   | 0.279**<br>(0.0679)  | 0.207**<br>(0.0433)   | 0.162**<br>(0.0194)  | 0.0609**<br>(0.00427) |
| Week 19 | 0.255**<br>(0.0440)  | 0.145**<br>(0.0262)   | 0.286**<br>(0.0660)  | 0.194**<br>(0.0369)   | 0.177**<br>(0.0205)  | 0.0697**<br>(0.00507) |
| Week 20 | 0.272**<br>(0.0378)  | 0.145**<br>(0.0260)   | 0.285**<br>(0.0619)  | 0.194**<br>(0.0332)   | 0.213**<br>(0.0234)  | 0.0710**<br>(0.00458) |
| Week 21 | 0.283**<br>(0.0367)  | 0.138**<br>(0.0249)   | 0.280**<br>(0.0600)  | 0.175**<br>(0.0270)   | 0.242**<br>(0.0263)  | 0.0673**<br>(0.00471) |
| Week 22 | 0.324**<br>(0.0376)  | 0.116**<br>(0.0179)   | 0.283**<br>(0.0495)  | 0.138**<br>(0.0226)   | 0.282**<br>(0.0309)  | 0.0657**<br>(0.00452) |
| Week 23 | 0.297**<br>(0.0331)  | 0.115**<br>(0.0190)   | 0.260**<br>(0.0454)  | 0.137**<br>(0.0307)   | 0.286**<br>(0.0320)  | 0.0553**<br>(0.00423) |
| Week 24 | 0.313**<br>(0.0331)  | 0.115**<br>(0.0224)   | 0.283**<br>(0.0529)  | 0.125**<br>(0.0254)   | 0.289**<br>(0.0296)  | 0.0552**<br>(0.00384) |
| Week 25 | 0.291**<br>(0.0360)  | 0.107**<br>(0.0208)   | 0.270**<br>(0.0525)  | 0.119**<br>(0.0260)   | 0.254**<br>(0.0290)  | 0.0492**<br>(0.00305) |
| Week 26 | 0.284**<br>(0.0440)  | 0.104**<br>(0.0191)   | 0.267**<br>(0.0569)  | 0.113**<br>(0.0216)   | 0.244**<br>(0.0310)  | 0.0491**<br>(0.00290) |
| Week 27 | 0.264**<br>(0.0348)  | 0.0880**<br>(0.0149)  | 0.235**<br>(0.0443)  | 0.0935**<br>(0.0169)  | 0.232**<br>(0.0271)  | 0.0454**<br>(0.00310) |
| Week 28 | 0.214**<br>(0.0284)  | 0.0712**<br>(0.0114)  | 0.195**<br>(0.0355)  | 0.0766**<br>(0.0105)  | 0.177**<br>(0.0215)  | 0.0371**<br>(0.00280) |
| Week 29 | 0.251**<br>(0.0310)  | 0.0849**<br>(0.0165)  | 0.221**<br>(0.0435)  | 0.0899**<br>(0.0131)  | 0.237**<br>(0.0290)  | 0.0378**<br>(0.00271) |
| Week 30 | 0.214**<br>(0.0316)  | 0.0731**<br>(0.0131)  | 0.191**<br>(0.0399)  | 0.0786**<br>(0.0142)  | 0.196**<br>(0.0241)  | 0.0339**<br>(0.00232) |
| Week 31 | 0.223**<br>(0.0320)  | 0.0692**<br>(0.0109)  | 0.186**<br>(0.0367)  | 0.0730**<br>(0.0134)  | 0.207**<br>(0.0280)  | 0.0372**<br>(0.00287) |
| Week 32 | 0.203**<br>(0.0280)  | 0.0646**<br>(0.0124)  | 0.180**<br>(0.0368)  | 0.0709**<br>(0.0108)  | 0.175**<br>(0.0203)  | 0.0313**<br>(0.00232) |
| Week 33 | 0.162**<br>(0.0232)  | 0.0484**<br>(0.00785) | 0.138**<br>(0.0266)  | 0.0491**<br>(0.00765) | 0.147**<br>(0.0212)  | 0.0247**<br>(0.00192) |
| Week 34 | 0.172**<br>(0.0228)  | 0.0566**<br>(0.00914) | 0.159**<br>(0.0291)  | 0.0506**<br>(0.00773) | 0.148**<br>(0.0142)  | 0.0297**<br>(0.00216) |
| Week 35 | 0.139**<br>(0.0238)  | 0.0441**<br>(0.00570) | 0.128**<br>(0.0268)  | 0.0438**<br>(0.00673) | 0.110**<br>(0.0115)  | 0.0260**<br>(0.00200) |
| Week 36 | 0.112**<br>(0.0178)  | 0.0397**<br>(0.00677) | 0.0995**<br>(0.0220) | 0.0399**<br>(0.00597) | 0.0973**<br>(0.0130) | 0.0252**<br>(0.00195) |
| Week 37 | 0.0956**<br>(0.0156) | 0.0368**<br>(0.00517) | 0.0831**<br>(0.0177) | 0.0404**<br>(0.00626) | 0.0891**<br>(0.0136) | 0.0220**<br>(0.00172) |
| Week 38 | 0.181**<br>(0.0300)  | 0.0522**<br>(0.0122)  | 0.164**<br>(0.0378)  | 0.0410**<br>(0.00584) | 0.166**<br>(0.0257)  | 0.0221**<br>(0.00179) |
| Week 39 | 0.279**<br>(0.0517)  | 0.0564**<br>(0.00953) | 0.252**<br>(0.0566)  | 0.0529**<br>(0.00707) | 0.198**<br>(0.0240)  | 0.0226**<br>(0.00187) |



|                            |                     |                      |                     |                       |                     |                       |
|----------------------------|---------------------|----------------------|---------------------|-----------------------|---------------------|-----------------------|
| Week 40                    | 0.171**<br>(0.0247) | 0.0580**<br>(0.0111) | 0.153**<br>(0.0329) | 0.0552**<br>(0.00981) | 0.166**<br>(0.0164) | 0.0249**<br>(0.00234) |
| Week 41                    | 0.199**<br>(0.0275) | 0.0644**<br>(0.0129) | 0.184**<br>(0.0373) | 0.0561**<br>(0.0107)  | 0.184**<br>(0.0193) | 0.0264**<br>(0.00187) |
| Week 42                    | 0.210**<br>(0.0290) | 0.0691**<br>(0.0126) | 0.188**<br>(0.0379) | 0.0640**<br>(0.0115)  | 0.205**<br>(0.0202) | 0.0292**<br>(0.00194) |
| Week 43                    | 0.263**<br>(0.0325) | 0.0764**<br>(0.0125) | 0.236**<br>(0.0402) | 0.0725**<br>(0.0107)  | 0.240**<br>(0.0249) | 0.0275**<br>(0.00208) |
| Week 44                    | 0.252**<br>(0.0328) | 0.0711**<br>(0.0117) | 0.216**<br>(0.0399) | 0.0639**<br>(0.00785) | 0.233**<br>(0.0234) | 0.0334**<br>(0.00185) |
| Week 45                    | 0.271**<br>(0.0404) | 0.0736**<br>(0.0127) | 0.237**<br>(0.0479) | 0.0687**<br>(0.0108)  | 0.243**<br>(0.0240) | 0.0293**<br>(0.00214) |
| Week 46                    | 0.304**<br>(0.0457) | 0.0868**<br>(0.0175) | 0.280**<br>(0.0583) | 0.0899**<br>(0.0145)  | 0.253**<br>(0.0221) | 0.0310**<br>(0.00213) |
| Week 47                    | 0.357**<br>(0.0746) | 0.101**<br>(0.0194)  | 0.351**<br>(0.0873) | 0.102**<br>(0.0144)   | 0.249**<br>(0.0210) | 0.0408**<br>(0.00296) |
| Week 48                    | 0.371**<br>(0.0689) | 0.0940**<br>(0.0151) | 0.339**<br>(0.0770) | 0.0947**<br>(0.0151)  | 0.284**<br>(0.0318) | 0.0392**<br>(0.00266) |
| Week 49                    | 0.358**<br>(0.0745) | 0.0885**<br>(0.0138) | 0.318**<br>(0.0826) | 0.0992**<br>(0.0139)  | 0.269**<br>(0.0233) | 0.0404**<br>(0.00315) |
| Week 50                    | 0.348**<br>(0.0630) | 0.0952**<br>(0.0159) | 0.309**<br>(0.0720) | 0.110**<br>(0.0177)   | 0.281**<br>(0.0268) | 0.0388**<br>(0.00284) |
| Week 51                    | 0.351**<br>(0.0551) | 0.100**<br>(0.0140)  | 0.311**<br>(0.0618) | 0.117**<br>(0.0190)   | 0.284**<br>(0.0310) | 0.0439**<br>(0.00330) |
| Municipality FE            | Y                   | Y                    | Y                   | Y                     | Y                   | Y                     |
| Constant                   | 0<br>(0.0313)       | 0<br>(0.0153)        | 0<br>(0.0434)       | 0<br>(0.0180)         | 0<br>(0.0150)       | 0<br>(0.00133)        |
| Observations               | 687,600             | 1,317,600            | 647,280             | 396,000               | 346,320             | 615,600               |
| R-squared                  | 0.395               | 0.459                | 0.451               | 0.274                 | 0.256               | 0.060                 |
| Number Municipalities      | 1,910               | 3,660                | 1,798               | 1,100                 | 962                 | 1,710                 |
| Joint Significance F-test  | 6.6                 | 8.5                  | 4.3                 | 6.5                   | 5.3                 | 22.4                  |
| Joint Significance p-value | 0.000               | 0.000                | 0.000               | 0.000                 | 0.000               | 0.000                 |

Note: Robust standard errors in parentheses were clustered at the municipality level. Number of cases are binned by week. Narrow-Wide Margin refer to 30-70% cut-offs. \*\* p<0.01, \* p<0.05, + p<0.1

**Table B.4 – Test of Means on General Characteristics of Municipalities Before COVID-19 Crisis, by result in the 2<sup>nd</sup> Round of the 2018 Brazilian Presidential Election**

|   | <b>Bolsonaro Won<br/>2nd Round</b> | <b>Bolsonaro Lost<br/>2nd Round</b> | <b>Difference<br/>(Won - Lost)</b> | <b>p-value</b> |
|---|------------------------------------|-------------------------------------|------------------------------------|----------------|
| <i>Demographics</i>   |                                    |                                     |                                    |                |
| GDP per capita (in R\$ for 2018)  | R\$ 32,565                         | R\$ 14,624                          | R\$ 17,942                         | 0.000          |
| Population (in 2019)  | 51,728                             | 23,978                              | 27,751                             | 0.000          |
| <i>Total Healthcare Resources in 2019<br/>(per 100 thousand inhabitants)</i>          |                                    |                                     |                                    |                |
| Number of Doctors   | 109                                | 58                                  | 51                                 | 0.000          |
| Number of Hospital Beds   | 183                                | 130                                 | 53                                 | 0.000          |
| Number of complementary ICU and Semi-ICU Beds   | 8                                  | 3                                   | 5                                  | 0.000          |
| <i>Total Comorbidities Hospitalization in 2019<br/>(per 100 thousand inhabitants)</i> |                                    |                                     |                                    |                |
| Hospitalizations due to Circulatory problems  | 823                                | 524                                 | 299                                | 0.000          |
| Hospitalizations due to Respiratory problems  | 879                                | 709                                 | 170                                | 0.000          |
| Hospitalizations due to Digestive problems  | 779                                | 584                                 | 195                                | 0.000          |
| Number of municipalities  | 2,760                              | 2,810                               |                                    |                |

Note: test of means on the attributes of municipalities before COVID-19 crisis emergence. Tested by result in 2<sup>nd</sup> round of the 2018 election. Data from Brazilian Universal Health System (DATASUS) and Brazilian Institute for Geography and Statistics.

**Table B.5 – Heterogeneity Analysis Controlling for Demographics, Healthcare Resources, and Comorbidities in 2019**

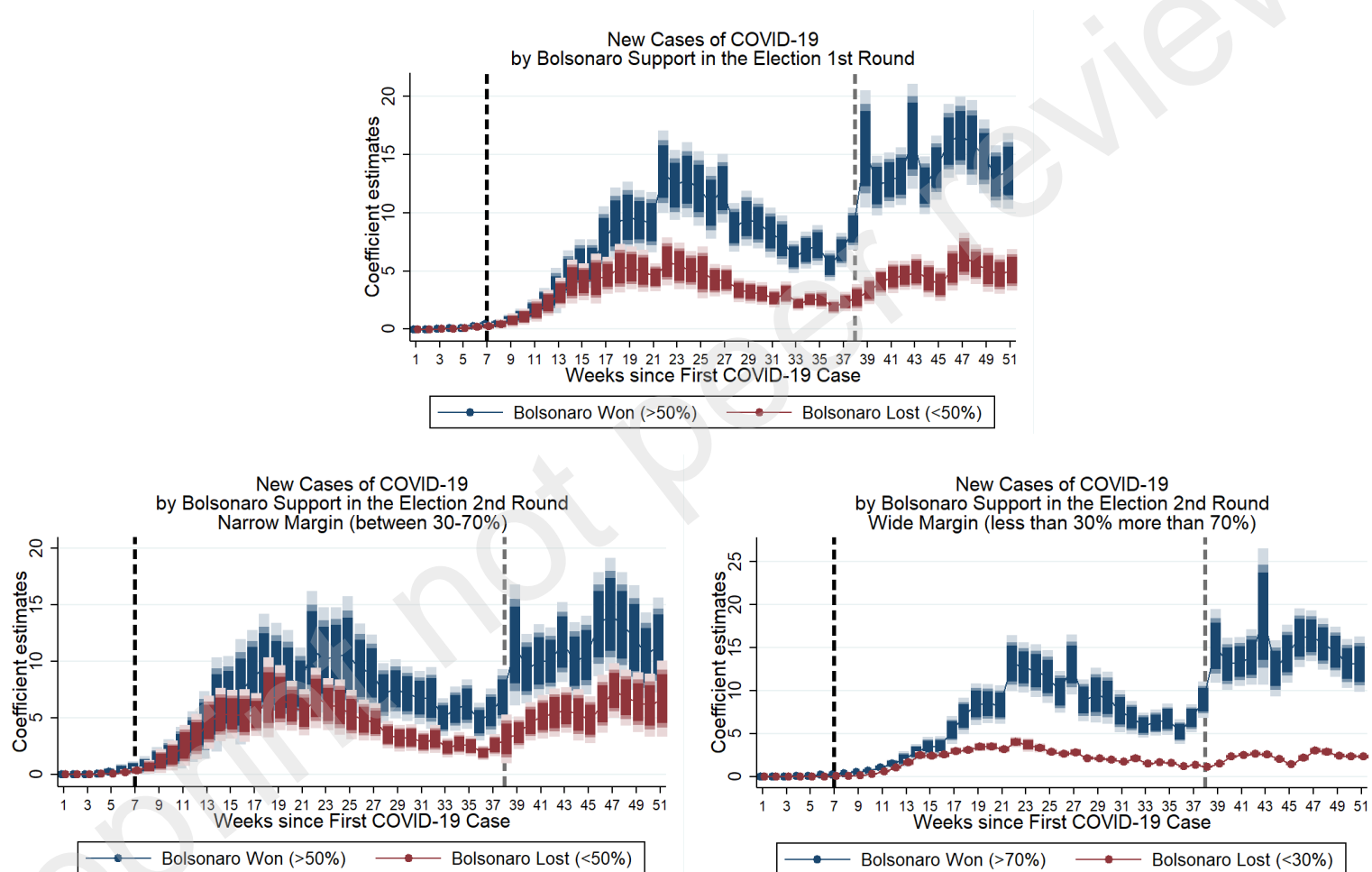
|                                       | (1)                      | (2)                      | (3)                      | (4)                      | (5)                      | (6)                      | (7)                      | (8)                      |
|---------------------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
|                                       | New COVID-19 Cases       |                          |                          |                          | New COVID-19 Deaths      |                          |                          |                          |
| TV                                    |                          | 7.979**<br>(0.625)       |                          | 1.964**<br>(0.486)       |                          | 0.186**<br>(0.0210)      |                          | 0.0335*<br>(0.0148)      |
| Votes 2nd Round                       |                          |                          | 2.267**<br>(0.547)       | -9.114**<br>(1.201)      |                          |                          | 0.0972**<br>(0.0261)     | -0.191**<br>(0.0369)     |
| TV × Votes 2nd Round                  |                          |                          |                          | 12.93**<br>(1.478)       |                          |                          |                          | 0.328**<br>(0.0562)      |
| <i>Demographics</i>                   |                          |                          |                          |                          |                          |                          |                          |                          |
| GDP per capita                        | 2.96e-05**<br>(6.79e-06) | 2.96e-05**<br>(6.79e-06) | 2.12e-05**<br>(6.22e-06) | 2.12e-05**<br>(6.22e-06) | 5.47e-07**<br>(1.85e-07) | 5.47e-07**<br>(1.85e-07) | 1.86e-07<br>(1.36e-07)   | 1.86e-07<br>(1.36e-07)   |
| Population                            | 5.05e-05**<br>(1.74e-05) | 5.05e-05**<br>(1.74e-05) | 5.04e-05**<br>(1.75e-05) | 5.04e-05**<br>(1.75e-05) | 7.56e-06**<br>(1.00e-06) | 7.56e-06**<br>(1.00e-06) | 7.55e-06**<br>(9.93e-07) | 7.55e-06**<br>(9.93e-07) |
| <i>Healthcare Resources</i>           |                          |                          |                          |                          |                          |                          |                          |                          |
| Number of Doctors                     | -0.00357<br>(0.00561)    | -0.00357<br>(0.00561)    | -0.00343<br>(0.00564)    | -0.00343<br>(0.00564)    | -0.000237<br>(0.000200)  | -0.000237<br>(0.000200)  | -0.000231<br>(0.000200)  | -0.000231<br>(0.000200)  |
| Number of Hospital Beds               | 0.00948<br>(0.00942)     | 0.00948<br>(0.00942)     | 0.00941<br>(0.00938)     | 0.00941<br>(0.00938)     | -0.000324<br>(0.000233)  | -0.000324<br>(0.000233)  | -0.000327<br>(0.000232)  | -0.000327<br>(0.000232)  |
| Number of ICU and Semi-ICU Beds       | 0.00346<br>(0.0467)      | 0.00346<br>(0.0467)      | 0.00412<br>(0.0464)      | 0.00412<br>(0.0464)      | 0.00526**<br>(0.00150)   | 0.00526**<br>(0.00150)   | 0.00529**<br>(0.00151)   | 0.00529**<br>(0.00151)   |
| <i>Comorbidities Hospitalizations</i> |                          |                          |                          |                          |                          |                          |                          |                          |
| Circulatory problems                  | -0.00743+<br>(0.00428)   | -0.00743+<br>(0.00428)   | -0.00774+<br>(0.00433)   | -0.00774+<br>(0.00433)   | -0.000480*<br>(0.000233) | -0.000480*<br>(0.000233) | -0.000494*<br>(0.000235) | -0.000494*<br>(0.000235) |
| Respiratory problems                  | 0.0142+<br>(0.00827)     | 0.0142+<br>(0.00827)     | 0.0143+<br>(0.00827)     | 0.0143+<br>(0.00827)     | -8.44e-05<br>(0.000160)  | -8.44e-05<br>(0.000160)  | -8.02e-05<br>(0.000161)  | -8.02e-05<br>(0.000161)  |
| Digestive problems                    | 0.00630<br>(0.00645)     | 0.00630<br>(0.00645)     | 0.00642<br>(0.00645)     | 0.00642<br>(0.00645)     | -0.000258<br>(0.000283)  | -0.000258<br>(0.000283)  | -0.000252<br>(0.000283)  | -0.000252<br>(0.000283)  |
| Week FE                               | Y                        | Y                        | Y                        | Y                        | Y                        | Y                        | Y                        | Y                        |
| Constant                              | -6.040**<br>(0.649)      | -6.040**<br>(0.649)      | -6.884**<br>(0.708)      | -1.587**<br>(0.386)      | -0.132**<br>(0.0196)     | -0.132**<br>(0.0196)     | -0.168**<br>(0.0258)     | -0.0342<br>(0.0209)      |
| Observations                          | 2,005,200                | 2,005,200                | 2,005,200                | 2,005,200                | 2,005,200                | 2,005,200                | 2,005,200                | 2,005,200                |
| R-squared                             | 0.333                    | 0.333                    | 0.333                    | 0.334                    | 0.405                    | 0.405                    | 0.405                    | 0.406                    |
| Number Municipalities                 | 5,570                    | 5,570                    | 5,570                    | 5,570                    | 5,570                    | 5,570                    | 5,570                    | 5,570                    |

Note: Robust standard errors in parentheses were clustered at the municipality level. Model controls for Municipality characteristics in 2019, therefore municipality FEs are not included.

\*\* p<0.01, \* p<0.05, + p<0.1

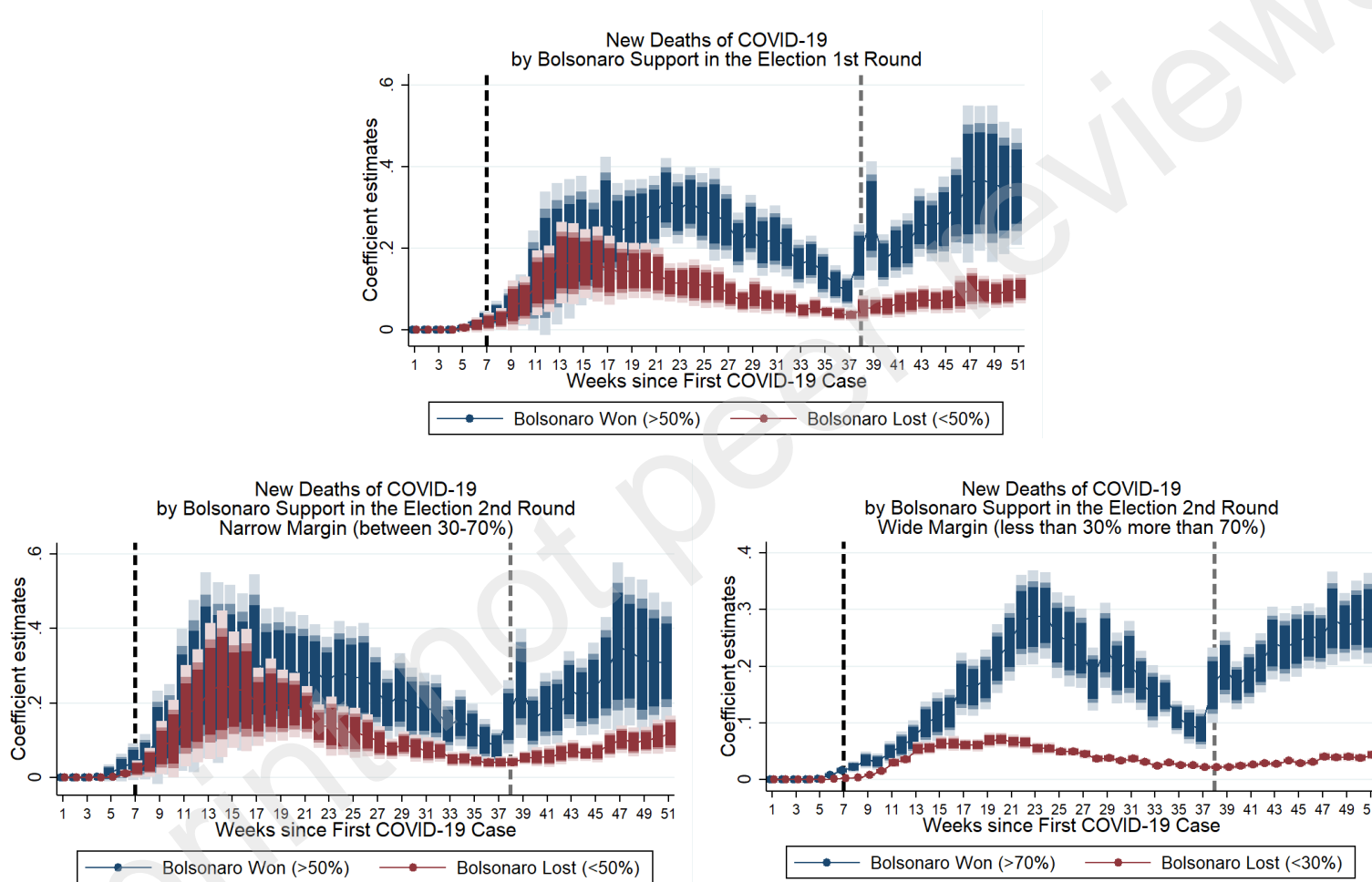
## APPENDIX C – Ancillary Figures

**Figure C.1 - Cases Evolution by Bolsonaro's Support in the 1<sup>st</sup> Round (top), with Narrow Margin (bottom left), and with Wide Margin (bottom right) in the 2<sup>nd</sup> Round, Weekly**



Note: controlling for week and municipality FEs. Binned by week. Baseline is set at week = 0, which is the week immediate before the date of the first case diagnosed in Brazil. The black dashed line (first line) represents the last TV pronouncement from Bolsonaro about COVID-19 situation. The grey dashed line (second line) represents the date of Municipal elections in 2020. Darker colors represent respectively 99, 95 and 90 C.I. Graphs y-axes are in different scales.

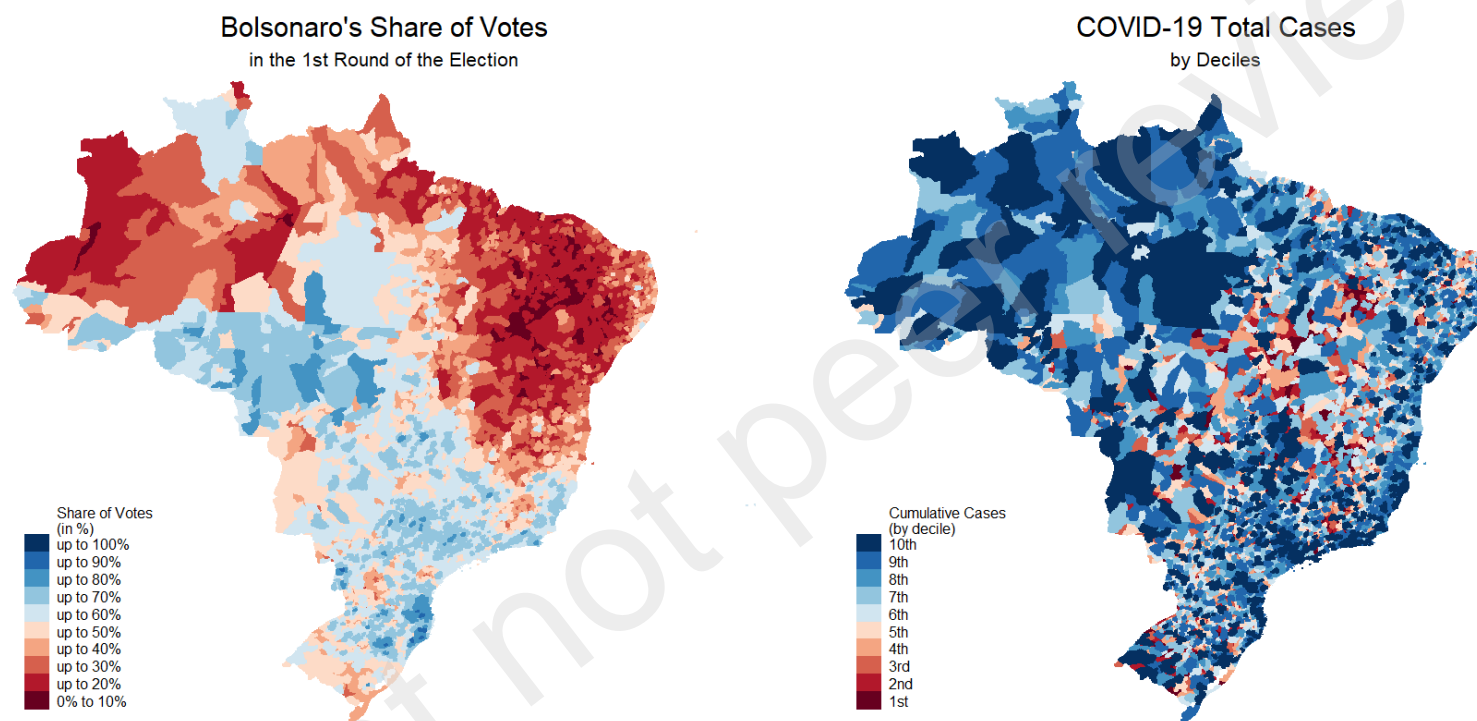
**Figure C.2 - Deaths Evolution by Bolsonaro's Support in the 1<sup>st</sup> Round (top), with Narrow Margin (bottom left), and with Wide Margin (bottom right) in the 2<sup>nd</sup> Round, Weekly**



Note: controlling for week and municipality FEs. Binned by week. Baseline is set at week = 0, which is the week immediate before the date of the first case diagnosed in Brazil. The black dashed line (first line) represents the last TV pronouncement from Bolsonaro about COVID-19 situation. The grey dashed line (second line) represents the date of Municipal elections in 2020. Darker colors represent respectively 99, 95 and 90 C.I. Graphs y-axes are in different scales.

## APPENDIX D – Ancillary Maps

**Figure D.1 - Brazil Map by Bolsonaro's Share of Votes in the 1<sup>st</sup> Round of 2018 Election (left) and COVID-19 Total Cases in February 2021 by deciles (right)**



Note 1: Data from the Superior Electoral Court and Brasil.IO database. Considering percent among valid votes in the second-round of the Brazilian presidential Election in 2018. Considering deciles of Cumulative Cases.

Note 2: Municipalities in the Northwest area of Brazilian territory are larger in area, less populated, and more vulnerable in terms of healthcare characteristics and socio-demographics of citizens, for example, a higher concentration of native-Brazilian populations, who are more susceptible to infectious diseases.