

Will I get COVID-19?

Partisanship, Social Media Frames, and Perceptions of Health Risk in Brazil *

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September 1, 2020

Abstract

In these polarized and challenging times, not even perceptions of personal risk are immune to partisanship. This paper introduces results from a new survey with an embedded social media experiment conducted during the first months of the COVID-19 pandemic in Brazil. Descriptive results show that pro-government and opposition partisans report very different expectations of health and job risks. Job and health policy have become wedge issues that elicit partisan responses. We exploit random variation in the survey recruitment to show the effects of the first President’s speech on national TV on risk perceptions and how partisanship moderates these results. We conclude with a framing experiment that models key cognitive mechanisms driving partisan differences in perceptions of health risks and job security during the COVID-19 crisis.

*This research is part of the *Inter-American Development Bank* project: “Transparency, trust, and Social Media”, 1300600-01-PEC. PI: Ernesto Calvo, 2019-2020. We thank Elizabeth Zechmeister, Noam Lupu, and Maita Schade from LAPOP, who coordinated the probabilistic selection of respondents from a Netquest panel of Brazilian voters. We also thank Julia Rubio, who contribute to the survey design and Sandra Ley and Francisco Cantu, who are collaborators of the three surveys fielded in this project. We received invaluable feedback from the members of the interdisciplinary Lab for Computational Social Science (iLCSS-UMD) as well as important suggestions from Fernando Guarnieri, Antoine Banks, Natalia Aruguete, Maria Victoria Murillo, Isabella Alcaniz, Mario Pecheny, Mariana Carvalho, Amaro Grassi, Lorena Barberia, and Marisa Van Bulow

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1 Introduction

In the last forty years, significant literature understands changes in perceived risk due to framing as the consequence of how individuals update their beliefs about the progression of a critical event (Gneezy and Potters, 1997; Thaler et al., 1997), such as COVID-19. Frames can induce myopic responses when the messages emphasize potential gains or losses (Thaler et al., 1997; Iyengar, 1990), but competing framings can also alter risk assessments by increasing the salience of particular frame elements that may alter the potential outcome. This second line of research also provides evidence of distinctive affective partisan responses changing perceptions of risk (Iyengar and Westwood, 2015; Green et al., 2004) as well as trust in political facts and scientific evidence (Nisbet et al., 2015; Bullock et al., 2013; Kraft et al., 2015). Consequently, previous scholarship has found robust evidence suggesting that perceptions of personal risk are not immune to partisan considerations in these polarized times.

Political responses to the COVID-19 health crisis worldwide provide a concerning, but a crude example of partisanship and framing moderating mass behavior risk perceptions. In several countries, populist leaders, like Jair Bolsonaro in Brazil, Donald Trump in the United States, and Manuel Lopez Obrador in México, publicly challenged scientific recommendations and heavily criticized scientific recommendations opponents or other global leaders adoption more strict sanitary measures during the crisis. The consequences of these competing framework for managing the COVID-19 pandemic is substantively relevant. Since the beginning of the COVID-19 crisis, social distancing has become the most critical health response promoted by authorities in every country. Social distancing compliance, however, requires voters to accept collective and personal costs of the health crisis. Cognizant of this, several researchers have investigated how political beliefs and behavior interact and, consequently, how they affect individual

responses to the COVID-19 pandemic in the United States and in a comparative perspective (Kushner Gadarian et al., 2020; Allcott et al., 2020; Barrios and Hochber, 2020; Mariani et al., 2020; Ajzenman et al., 2020).

While these recent efforts use mostly observational data to show that partisanship and polarization drive citizens' perceptions of risk and compliance with health policy recommendations, our research brings new and timely survey data together with experimental social media framing instruments to understand perceptions of personal risks during the COVID-19 pandemic in Brazil. Our paper focuses on three empirical endeavors.

We start reporting descriptive evidence about partisan responses to the COVID-19 pandemic. We show how supporters of the government in Brazil report lower levels of job and health risk and greater support for the government response to the pandemic. The results are robust to several control variables and model specifications.

Then, we take advantage of random variation in the respondents' survey recruitment in our survey to model the effect of the first speech by Bolsonaro on National TV about the pandemic on risk perceptions. Using a difference-in-difference design with respondents interviewed in the two days before/after the speech, we find robust evidence of partisan updates of risk perceptions. Our results show that among opposition voters perceptions of job and health risk increased after Bolsonaro's speech compared to independents, while no changes are perceived among government's partisans.

To conclude, we extend this line of work using an experimental design, with an IRB-approved and preregistered instrument,¹ to detect the effect of social media political exposure on personal risk to the consequences of COVID-19. Our experiment exposes respondents to high-level politicians' positive and negative social media messages about COVID-19, and asks them their

¹Our pre-registration and pre-analysis plan, available here: [REDACTED]

behavioral response and risk perceptions.

Overall, we find critical partisan differences in risk perceptions and significant partisan effects after Bolsonaro’s public speech. However, evidence of framing effects from social media messages in our experiment are modest.² Similar null results from social media frames combined with large effects in observational data have been reported in the United States, raising questions about the level of sensitivity of the experimental treatments (Kushner Gadarian et al., 2020). However, we do find detectable changes on voters’ risk perceptions in response to negative messaging by the pro-government politician Eduardo Bolsonaro, congressman and son of President Jair Bolsonaro. Among the overall sample, voters of the opposition, and even among supporters’ of the government, the negative pro-government messages negatively affect support for the government, and increases job risk perceptions. In all, the actual Bolsonaro’s administration’s polarizing behavior during the crises seems to be hurting the presidential support and increasing perceptions of risk among his supporters. Further testing of this finding shows that supporters of President Bolsonaro are less likely to “retweet” and “like” negative messages on Twitter, compared to positive ones.

This article’s organization is as follows: in the following section, we discuss the Brazilian case, how the government has reacted to the COVID-19 pandemic, and partisan dynamics in the country. In section three, we present descriptive evidence of partisan differences in government performance assessments, perceptions of job security, and perceptions of health risks. The next section presents evidence from the difference-in-difference models describing Bolsonaro’s speech’s effect during our survey collection process. In section five, we introduce the hypothesis and survey instruments, testing for the effect of negative and positive social media frames on perceptions of risk. In section six, we describe our experimental findings. The last section

²Only one of our four pre-registered hypotheses is confirmed by the data

discusses the paper’s overall contribution for our understanding of how partisanship affects risk perceptions during the COVID-19 pandemic.

2 Brazilian Populism, out and about

In the first weeks of January, 2020, news about the rapid spread of COVID-19 in the Hubei province of China circulated around the world. As Chinese authorities quarantined millions of citizens, governments worldwide struggled to assess the potential domestic damage of the virus and identify the proper health emergency protocols to halt its spread. Timid responses in February of 2020, both in Europe and the United States, included travel and trade restrictions both to and from the affected areas. On March 11, 2020, the World Health Organization declared the rapidly-spreading COVID-19 virus a pandemic, likely to spread to every country on the globe.

While some governments promptly adopted social distancing protocols to mitigate the consequences of the pandemic, leaders in a few countries resisted calls for swift action. The President of the United States, Donald Trump; the President of Mexico, Lopez Obrador; and the president of Brazil, Jair Bolsonaro all asked their citizens to dismiss the threat. Among these three leaders, Bolsonaro’s response serves as a textbook example of a defiant, unflinching, and vocal challenge to scientific recommendations during the crisis. As community spread of COVID-19 was confirmed in major cities of Brazil, Bolsonaro asked citizens to maintain their regular work schedule and prop up the economy. On the offensive, he criticized the media for their “hysterical” reporting on the virus and accused the political opposition of using COVID-19 for political gain. As he actively impaired Brazil’s own federal agencies, Bolsonaro urged mayors and state governors to roll back *stay-at-home* orders and, repeatedly, defied calls for social distancing. He promoted meetings and local gatherings, walked the streets to defy *stay-at-home* orders, and

used his social media account and the bully pulpit of his office to dismiss the health consequences of the virus.

Bolsonaro’s supporters were equally vocal, sharing his social media posts, echoing his *business-as-usual* demeanor, defying *stay-in-place* orders, and minimizing the health risks of the crisis. In contrast, the opposition, the media, and most health professionals criticized the President for polarizing messages that failed to respond to the health crisis’s challenges. Anti-Bolsonaro activists pushed back against the President’s message, circulating their own distinct health messages.

As a young democracy with an extensive and fragmented menu of parties, researchers considered that partisanship in Brazil is a weak predictor of voters’ attitudes and preferences. The Brazilian party system was frequently described as *weakly institutionalized* (Mainwaring, 1991, 1999; Mainwaring and Scully, 1995), with candidate-centered incentives driving politicians’ electoral behavior (Samuels, 2003; Ames, 2001). Recent studies have begun to challenge some of these preconceptions, confirming that partisan and anti-partisan sentiments affect candidate evaluation and policy preferences (Samuels and Zucco, 2018; Power and Rodrigues-Silveira, 2018; Baker et al., 2016). Our findings bring further support to these views, with partisan preferences having measurable effects on perceptions of job and health risk during the COVID-19 crisis.

3 Partisan Risk Assessments of COVID-19

As in the United States, partisan assessments of personal job and health risks are noteworthy in Brazil. Figure 1 vividly portrays differences in perceived risks by supporters of President Bolsonaro and supporters of the opposition’s candidate Fernando Haddad.³ For our outcome variables, we consider three main questions. These questions capture perceptions about personal

³We consider respondents as Bolsonaro supporters, Haddad supporters, or independents depending on their reported preference if the presidential election “were to take place next week”.

risk during the COVID-19 pandemic, and the respondents' assessments about the government's performance during the crises ⁴

A total of 29% and 23% of respondents who support Haddad consider it very likely that they will lose their jobs or become infected with COVID-19. By contrast, Bolsonaro supporters reported a much lower probability, 22% and 12%, respectively. The differences are even more salient when reporting their evaluation of the government's response to the crisis, resulting in 20 percentage points of difference between supporters of the government and of the opposition that consider the government response very appropriate. Measures of positive and negative partisanship towards the Workers Party, (Samuels and Zucco, 2018), yield broader differences on risk assessments, with 33% of pro-PT supporters losing their job and 25% reporting being very likely to become infected by COVID-19, compared to 22% and 14% for anti-PT respondents.

We also present results from linear models regressing the three outcome variables on partisan preferences and a set of socio-demographic variables such as income, education, occupation in the labor market, and gender. Our regression estimates using both the voter choice for the last presidential election and positive and negative partisanship towards the Workers Party render similar results. These results hold when the models are estimates controlling by age, gender, income, occupation, and education of the respondents. Figure 2 presents the results.

⁴The wording of all three questions is presented below:

- **Question 1:** How likely is it that your health would be affected by COVID-19? (very likely, somewhat likely, somewhat unlikely, very unlikely)
- **Question 2:** Given the current health and economic crisis produced by the Coronavirus COVID-19, how likely is it that you could lose your job? (very likely, somewhat likely, somewhat unlikely, very unlikely)
- **Question 3:** Has the government response been appropriate when faced with the corona COVID-19? (Very appropriate, somewhat appropriate, somewhat unappropriated, very inappropriate).

Partisanship, Risk Perceptions and Government Responses to Covid in Brazil

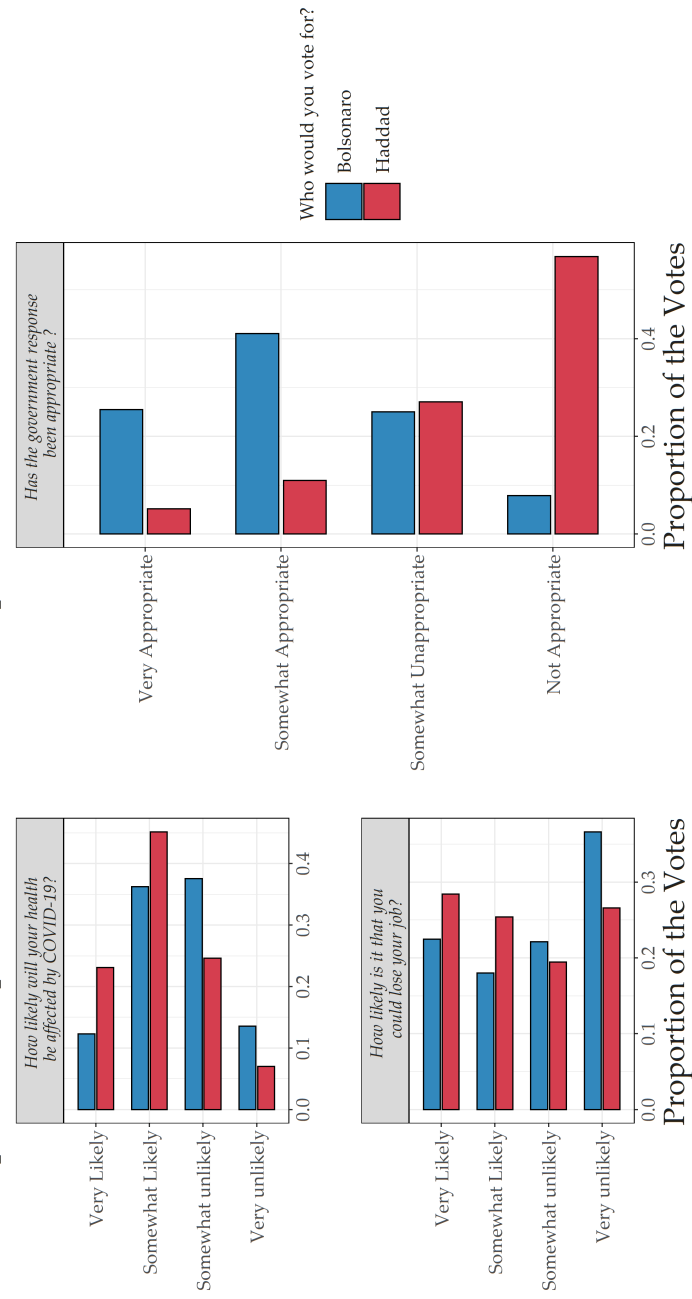
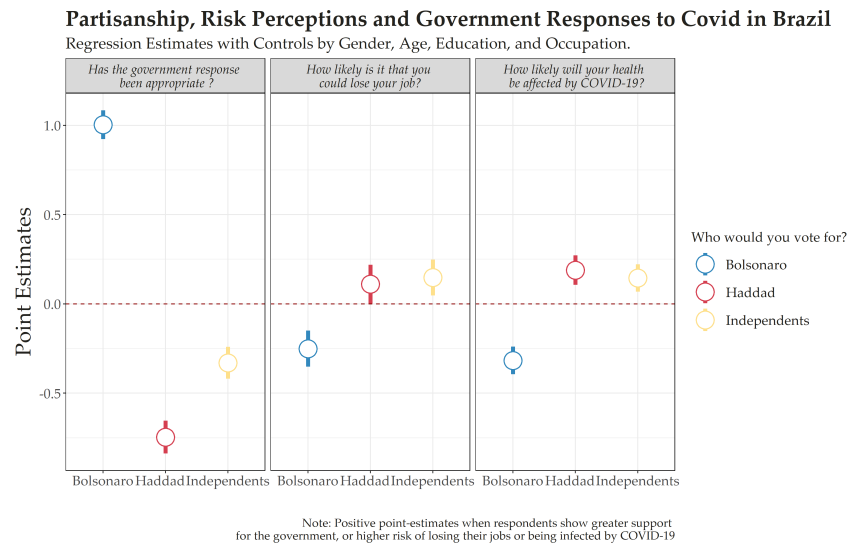
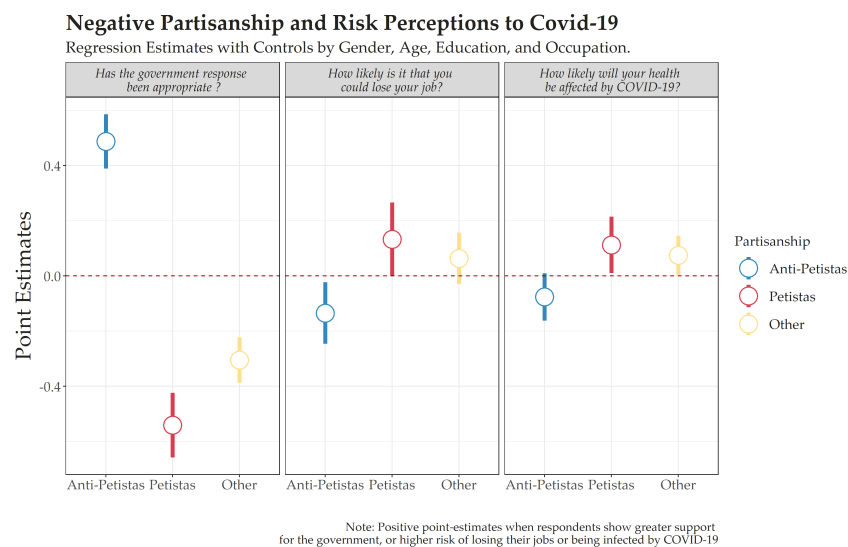


Figure 1 Survey assessments of the quality of the Government response, perceptions of personal health risk, and perceptions of personal job security, March 23 through May 4, 2020.

Figure 2 Regression Estimates for Partisan Effects on Risk Perceptions and Government Assessment during the Covid-19



a) Partisan Effects



b) Negative Partisanship

Descriptive evidence is overwhelming, with significant inter-party differences in perceptions of risk and government response assessment. In Table 4 of the appendix file, we report the effect of the controls. Controls for the models show that employed and highly educated respondents report lower perceived job risks and higher health risks than unemployed and less educated

respondents. Also, as age increases, perceptions of job and health risk increase. In particular, older voters see a considerably larger increase in their perceived likelihood of losing their job. By contrast, there are no statistically significant differences in assessments of government performance and age. Full results are presented in Section B, Table 4 of the SIF file.

4 Modeling the effects of Bolsonaro’s Speech

Descriptive results show vast partisan differences in reported job and health risks and assessment of the government responses. In this section, we take advantage of a public speech by Bolsonaro during data collection and causally identify changes in the respondents’ risk perceptions due to Bolsonaro’s discourses denying the COVID-19 pandemic.

Bolsonaro, in both social media posts and his public appearances, urged local authorities to prioritize growth, challenged (and fired) his Minister of Health, and minimized the potential health risks of the pandemic. On March 24, President Bolsonaro gave one of his more widely publicized, and dismissive, messages on the COVID-19 crisis and on his administration’s response. In a nationally televised address to the country, which was also his first presidential speech dedicated solely to the COVID-19 pandemic, Bolsonaro displayed this confrontational tone. Contrary to most pundits’ beliefs that he would moderate his attacks and hedge his political *bets*, the President accused governors of overreacting, challenged social distancing policies, criticized schools closures, described himself as an athlete who would “not even notice” if he got infected, and labelled the virus, in the worst case, as just a little flu.

We make use of the granularity of our survey data over time to model the effect of Bolsonaro’s dismissive behavior about the COVID-19 pandemic during its first days in Brazil. Modeling this event, at the beginning of the pandemic, allows us to measure risk perceptions when the number

of cases was still modest. Our survey field started on March 23, allowing us to collect a small part of our sample two days before the Presidential Pronouncement. As before, we focus the analysis on the differential effects among partisans and non-partisans of the President. To identify the effects, we use a differences-in-differences approach on a narrow window of days before and after the event, described by the following estimation.

$$y_{it} = \alpha_i + \beta_1 \cdot Haddad + \beta_2 \cdot Independents + \beta_3 \cdot Post - March - 24 + \tau \cdot Haddad * Post - March - 24 + \beta_4 \cdot Independents * Post - March - 24 + \epsilon_{it} \quad (1)$$

Where y_{it} is the survey responses on risk perceptions and assessments of government responses, and the partisan variables come answers to who the respondent would be likely to vote if elections were to be held in the following week. To make our sample before and after more comparable, we limit the analyzes for the time window between 23 and 26 of March ⁵. Our parameter of interest is τ , which measures the differences in the outcomes comparing Bolsonaro's and Haddad supporters.

The effect of Bolsonaro's speech on perceptions of risk

Table 1 presents our results. The first three (restricted) models use no control variables, while the remaining three control for the respondents' age, gender, occupation, education, and income. Among Haddad's supporters, perceptions of job and health risk increased after Bolsonaro's speech compared to government supporters. The estimates for Health Risk are statistically significant at $p < .05$, while the effects for job risk are statistically significant at $p < .1$. More

⁵Such decision reduces the chance our estimate is capturing some omitted factor varying over time. In such a small time interval, it is unlikely something else has affected perceptions of risk about the COVID other than the Presidential speech

interestingly, results show that Haddad voters did not change their overall assessment of the government's performance. By contrast, we observe a small decline of -0.441 in evaluations of the government performance among pro-government voters, significant at $p < 0.1$. The models that include all controls provide substantively similar, although slightly stronger, statistical results.

The findings provide support for the effect of contextual partisan events on perceptions of risk. Related research has found robust evidence that Bolsonaro's denial about the COVID-19 increase the spread of the disease and reduced levels of compliance to social distance in pro-government localities (Ajzenman et al., 2020; Mariani et al., 2020). Our results provide a behavioral explanation for these shocking findings; as the President sends dismissive signals about the pandemic risks, although risk perceptions overall increase, his supporters do not report the same concerns as the rest of the population. Significantly, partisans of the opposition increase their risk perceptions, while government supporters keep their business as usual, decreasing social distancing policies' effectiveness and facilitating the spread of the disease.

So far, our paper has shown robust descriptive evidence for partisanship moderating risk perceptions in Brazil. Next, we use an online experiment to discuss how partisanship interacts with framing in the context of social media positive and negative messages about the pandemic.

Table 1 The Effects of Bolsonaro's Presidential Pronouncement of March 24 on Risk Assessments

	<i>Dependent variable:</i>					
	Job Risk (1)	Health Risk (2)	Government Assessment (3)	Job Risk (4)	Health Risk (5)	Government Assessment (6)
Intercept	2.062*** (0.132)	2.538*** (0.102)	3.091*** (0.115)	1.811*** (0.393)	2.316*** (0.303)	2.427*** (0.348)
Post-March 23	-0.362 (0.272)	-0.338 (0.210)	-0.441* (0.238)	-0.393 (0.278)	-0.378* (0.215)	-0.331 (0.246)
Haddad Voters	0.524** (0.212)	0.242 (0.164)	-1.310*** (0.186)	0.589** (0.234)	0.121 (0.181)	-1.166*** (0.207)
Independent Voters	0.127 (0.197)	-0.048 (0.152)	-0.600*** (0.172)	0.129 (0.214)	-0.165 (0.166)	-0.535*** (0.190)
Post-March 23 x Haddad Voters	0.867* (0.452)	0.740** (0.350)	0.297 (0.397)	0.799* (0.468)	0.967*** (0.361)	0.246 (0.414)
Post-March 23 x Independent Voters	0.273 (0.390)	0.248 (0.301)	0.050 (0.342)	0.253 (0.398)	0.304 (0.307)	-0.119 (0.353)
Controls	No 210	No 210	No 211	Yes 195	Yes 195	Yes 195
Adjusted R ²	0.062	0.042	0.220	0.089	0.058	0.226

*p<0.1; **p<0.05; ***p<0.01

Note:

5 Framing and Risk Perceptions during the COVID-19

Following Entman (1993), we consider the concept: “to frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described” (Entman, 1993: 5). In social media networks, partisan messages frame events by altering the frequencies of words, handles, and images (frame elements) that focus the attention of users on particular partisan traits (Aruguete and Calvo, 2018; Lin et al., 2014). Posts are made accessible to users when peers publish content that makes salient moral evaluations of blame attribution by increasing the frequency of loaded terms (e.i. the “Chinese virus”), as well as cognitive assessments of likely threats (i.e. just a cold [“Uma gripezinha ou resfriadinho”]) (Banks et al., 2020). Framing is critically dependent on the willingness of individuals to share content they observe in their social media feeds (i.e. cascading activation in networks (Aruguete and Calvo, 2018)). Once activated, peers observe social media messages that “promote a particular problem definition”.

Since Kahneman and Tversky (1982) landmark studies on *framing* and *risk*, we have come to understand that presenting questions to voters in terms of losses yields responses that are substantively different from the responses produced by the same questions presented in terms of gains. Similarly, competing frames that focus the attention of distinct issues, such as job losses or health risks, alter the weights that voters attach to the negative consequences of the COVID-19 crisis.

Consider first how voters may perceive a politician’s message, such as, “we need to work together to address this crisis.” In this case, the speaker’s willingness to cooperate with political rivals provides novel information to voters about the seriousness of the crisis as well as the

importance of investing in reducing health and economic costs, thereby converting enemies into allies. Now, compare the previous message with one that attributes responsibility to *out-group* politicians, such as, “the government response has been careless.” The second message contains less information, as attacks are interpreted by constituents as a politics-as-usual jab among contenders. Negative messages, therefore, activate partisan identities and trigger a politically congruent affective response (Iyengar et al., 2012; Iyengar and Westwood, 2015; Mason, 2016). In polarized political environments, ‘cross-the-aisle’ frames and congruent messages from *in-group* politicians provide new information to voters about the severity of COVID-19. On the other hand, negative framing by *out-group* politicians activates partisan identities and reduces the informative value of political or scientific facts being reported (Nisbet et al., 2015).

As in Banks et al. (2020), our experiment presents respondents with a particular type of frame, procedural or generic, which alters the perceived legitimacy of the actors’ response to a crisis (Entman, 1993). We then inquire on the extent to which negative and positive frames alter the voter’s evaluations of government performance and, more importantly, their relative perceptions of job security and health risk. As in Iyengar and Westwood (2015) and Nisbet et al. (2015), our interest lies in understanding how partisanship shapes voters’ beliefs about likely outcomes.

5.1 Hypothesis

We develop a social media framing experiment with positive and negative partisan messages from high-level politicians to understand the effects of partisan preference and framing on risk perceptions during the COVID-19 pandemic. In this section, we present the pre-registered hypothesis and our instruments.

The first set of pre-registered hypotheses tests for the effect of social media content on per-

ceptions of risk and government performance. We consider the effects of negative and positive messages and the extent to which the effect interacts with partisan cognitive congruence or dissonance between the authors of the tweet and the respondents' preferences.

Positive messages bring to voters the willingness of political elites to cooperate with rivals to fight the COVID-19 pandemic. In an era of high polarization, these messages provide voters with novel information, reinforcing the importance of unity and cooperation to address the crises. The negative frames blame political opponents for sowing conflict and weakening the needed response to the crises. By contrast, positive messages minimize party identity responses and signal that politicians do not behave as in a "politics-as-usual" way. Consistent evidence show people weight more heavily negative messages when compared to positive information (Arceneaux and Nickerson, 2010), and, when thinking about risk, negative messages frame risks as dynamic losses for respondents affecting the attention to the topic (Kahneman and Tversky, 1982). The first hypothesis of the experiment predicts negative messages on average to increase perceptions of personal risk and induce partisan responses in reported support for the government's response to the pandemic.

- *Hypothesis 1:* We predict that negative messages, compared to positive ones, will increase perceptions of risk and decrease support for the government's response to the COVID-19 pandemic.

A broad literature in political behavior shows that partisanship is central to attitude formation, in areas as distinctive as candidates evaluation, economic perceptions, support for democracy and authoritarianism, and policy preferences (Green et al., 2004; Arceneaux, 2008; Slothuus and De Vreese, 2010; Evans and Andersen, 2006; Zaller, 1992). Based on this literature, we expect framing effect from negative and positive messages to be conditional on partisan identifies.

In our second hypothesis, we argue that a “politics-as-usual” polarizing message from elites elicits a partisan identity response from voters. We expect that cognitive dissonance between the respondents’ preferences and the author of the tweets will ensure that health risks and job losses will be interpreted as wedge issues that separate the parties. We expect cognitive dissonance to mitigate responses to the social media message when framing in a “crossing-the-aisle” style politics. Consequently, respondents who observe a “cross-the-aisle” message from a politician from a different color (T1 and T3) will decrease risk perceptions and increase support for the government, moderating partisan responses.

- *Hypothesis 2:* Cognitive dissonance and calls for greater collaboration between politicians will decrease party identity responses, decrease perceptions of risk, and increase support for the government.

We expect the opposite effects when cognitive dissonance interacts with negative social media content. As shown in (Banks et al., 2020), exposure to negative dissonant social media messages increases *contrast effects* (Merrill et al., 2003) and heightens perceived polarization, increasing party identity responses, and reducing support for the government. After being exposed to negative messages by an out-group politician, Banks et al. (2020) show that voters perceived ideological distance increases (contrast) driving responses to align further with their in-group beliefs. Similar dynamics have been found on previous studies with a focus on political behavior during health crisis (Adida et al., 2018). Following this intuition, we expect that to the extent respondents observe a dissonant partisan signal with a negative frame, partisan identity responses will be exacerbated. Opposition voters will report heightened risks and lower marks for government’s response. The opposite effects are expected from Bolsonaro supporters, lowering their risk exposure and increasing support for the government:

- *Hypothesis 3:* Cognitive dissonance and negative frames will heighten partisan identity responses. When exposed to cognitive dissonant negative frames:
 - *H3a:* Respondents aligned with the opposition will report higher health and job risks and lower performance scores for the government.
 - *H3b:* Respondents aligned with the government will report lower health and job risk, and greater performance scores for the government.

5.2 Experimental Design

Our experiment implements a four-arm treatment assignment in which each respondent is randomly exposed to one of four different tweets, with a variation on the content and the author of the message. Each respondent was exposed to only one tweet, and after the treatment assignment, responded to our outcome variables ⁶. In order to prime respondents in our experiment, we edited tweets. Although we reduce the experiment’s external validity by not using real tweets for our treatment conditions, we carefully chose the wording of the tweets based on actual public statements and social media activity to maximize the validity of the treatment conditions. Internal validity is achieved by randomization, and Section A of the appendix shows a balanced sample of respondents across a range of socio-demographic and attitudinal variables between the treatment arms.

We vary only two features of each tweet, the author and the content. For the author, we use two prominent political figures: Eduardo Bolsonaro, congressman and son of President Jair Bolsonaro, and Fernando Haddad, the front-runner candidate of the Workers’ Party in the 2018

⁶The experiment was included in a national online survey in Brazil with 2,400 respondents. The survey is fielded by Netquest-Vanderbilt, with probabilistic samples drawn by the LAPOP team in Vanderbilt from users registered with Netquest. The experiment received the approval of the University of Maryland Institutional Board Review 1552091-3

national election. We choose high-level politicians to ensure congruence or dissonance between the message and the respondents' preferences.

For the content, we vary between a positive and negative framing of COVID-19. In the positive, we use precisely the same wording for each author, in which the tweets mainly highlight the existence of a crisis and the importance of President Bolsonaro's leadership of institutional efforts to fight the pandemic. For the negative tweets, we created one for each sender, mimicking their political preferences, thus maximizing external validity for the experiment. With regard to Eduardo Bolsonaro, the tweets reinforce the argument that the crisis is not serious and that the opposition and the media are responsible for the "hysteria" around the spread of the virus. For Fernando Haddad, the tweet criticizes the government and Bolsonaro's statements, minimizing the consequences of the crises. Appendix C presents the wording of each treatment, and the tweets as the respondents read in Portuguese ⁷

6 Results: Framing Risk Perceptions

We now turn to our experimental results. We manipulate our four treatment arms to identify the effects previously described. For presentation purposes, we concentrate on describing the relevant comparisons of all treatments as reported in Figure 3, and report the p-values for the statistically significant and theoretical relevant comparison. ⁸

Earlier in the article, Figure 2 showed significant inter-party differences in evaluations of the governments and in perceptions of job and health risks. Estimates in Figure 3 manipulate those average results, showing inter-party deviations when respondents are treated with the different

⁷All the respondents were debriefed that the tweets were not factual by the end of the survey.

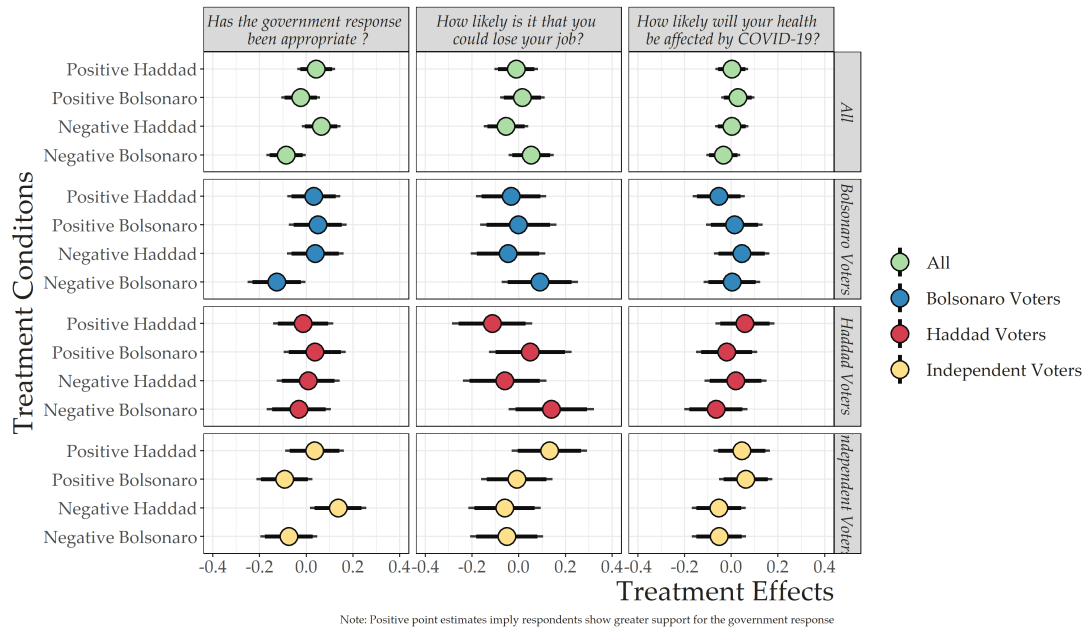
⁸In our survey, all the respondents are exposed to at least one tweet. Therefore, we do not have a classic control group with no information. For this reason, we compare each point-estimate against each other, and use a t-test to assess their statistical difference.

frames.

Consider the first row of Figure 3, which reports differences in the variables of interest for each treatment for all respondents. In the top plot of the left, we see that a negative tweet by Eduardo Bolsonaro reduces reported perceptions of government responses while a negative tweet by Fernando Haddad does the opposite. In fact, respondents move on average counter to the political leaning of the author of the tweet, with perceptions of government performance increasing when Haddad posts a message and decreasing with Bolsonaro ($p < 0.05$). Results also show that, on average, negative tweets by Bolsonaro increase perceptions of personal job risk (“losing your job”) while negative tweets by Haddad reduce job risk ($p = 0.12$). Health risks, however, do not seem affected by the different treatments.

In the second row, we present estimates for the subsample of Bolsonaro voters. Like the full sample, negative messages by Eduardo Bolsonaro decrease overall perceptions of government response to the crisis and increase perceptions of job risk. This is an unexpected result, as respondents treated with negative tweets by Eduardo Bolsonaro are not activating a partisan response by the in-group. In the third row, we present the estimates of Haddad (Workers’ Party) voters. Messages by Eduardo Bolsonaro increase perceptions of job risks. As it was the case of Bolsonaro, we find no significant results on health risks. Social media frames, therefore, have measurable effect in perceptions of job insecurity among voters of the opposition, as argued in hypothesis 3b. We find a large gap on job risk perceptions comparing negative message by Bolsonaro with positive cross-the-isle message by Haddad ($p < 0.05$).

Partisan Responses and Risk Perceptions about the Covid-19 in Brazil



Partisan Responses and Risk Perceptions:

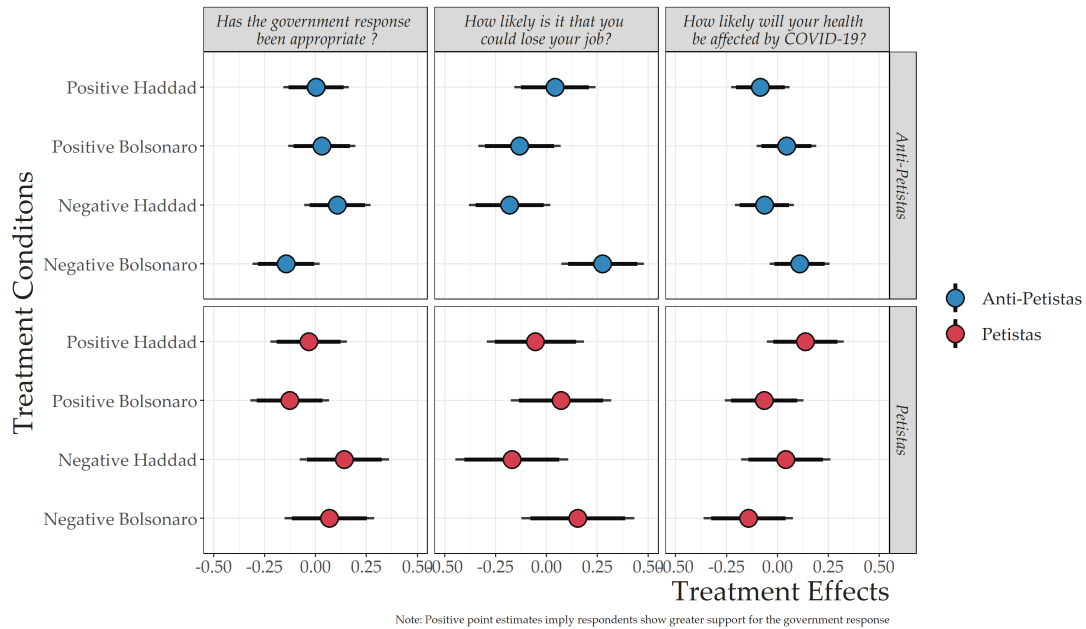
P-values for the Treatment Comparisons

	Government Support			Job Risks			Health Risks			
Negative Haddad	0.013			0.12			0.481			All
Positive Bolsonaro	0.304	0.143		0.586	0.309		0.229	0.616		
Positive Haddad	0.031	0.723	0.26	0.349	0.524	0.696	0.484	0.99	0.603	
Negative Haddad	0.062			0.243			0.632			Bolsonaro Voters
Positive Bolsonaro	0.049	0.902		0.438	0.701		0.908	0.717		
Positive Haddad	0.064	0.939	0.839	0.278	0.907	0.78	0.495	0.234	0.421	
Negative Haddad	0.689			0.126			0.385			Haddad Voters
Positive Bolsonaro	0.487	0.768		0.485	0.396		0.631	0.689		
Positive Haddad	0.853	0.821	0.596	0.048	0.671	0.196	0.19	0.669	0.4	
Negative Haddad	0.016			0.933			0.99			Independents
Positive Bolsonaro	0.829	0.008		0.703	0.64		0.167	0.162		
Positive Haddad	0.22	0.26	0.147	0.112	0.093	0.218	0.254	0.247	0.84	
	Negative Bolsonaro	Negative Haddad	Positive Bolsonaro	Negative Bolsonaro	Negative Haddad	Positive Bolsonaro	Negative Bolsonaro	Negative Haddad	Positive Bolsonaro	

P-value
 p-value < 0.05
 p-value < 0.10
 p-value > 0.10

Figure 3 Framing Estimates by likely Vote

Negative Partisanship and Risk Perceptions about the Covid-19 in Brazil



Negative Partisanship and Risk Perceptions:

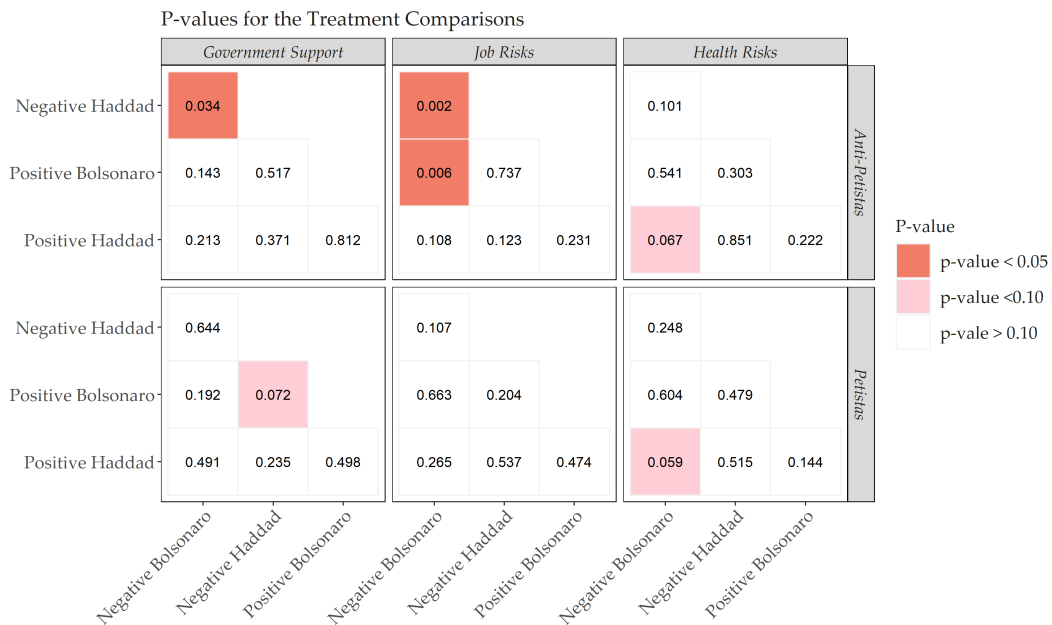


Figure 4 Framing Estimates by Negative Mass Partisanship

Finally, the fourth row presents the estimates for independent voters, who in the run-off election preferred to mark blank rather than voting for either Bolsonaro or Haddad. We had no pre-registered expectation for this group, however, we believe the discussion and results are worthy of being reported. Among independents, we see that messages by Haddad increase evaluations of the government while messages from Bolsonaro decrease them ($p < 0.05$). Different from partisans, the most interesting finding is that positive messages modestly increase perceptions of job and health risks. We interpret this as independents identifying partisan messages as posturing, thereby reducing the message’s information value while considering positive messages as informative.

Figure 4 re-estimates our models for the sub-samples of self-identified partisans of the Workers’ Party (PT), negative partisans (anti-PT), and others. Results align well with those in Figure 3. Results indicate that self-identified anti-PT respondents are particularly sensitive to the treatments, with a significant decline in support for the government and an increase in job risk assessment when treated to negative messages by Bolsonaro ($p < 0.05$). In other words, in the broader partisan group of anti-petistas, a political factor that was crucial for Bolsonaro’s election in 2018, his polarizing message is indeed increasing perceptions of risk, and hurting his support.

Overall, our survey experiment finds no robust evidence for our pre-registered hypothesis. Although we find consistent and robust partisan differences on non-experimental survey responses to risk and support for the government during the pandemic, exposure to distinct framing on social media seems to alter little how citizens’ update their beliefs. Only one of our hypothesis is confirmed: voters of the opposition fell more at risk when treated with a negative message by a high-level politician aligned the Bolsonaro’s government. Giving that we conduct multiple

tests, and do not confirm most of our pre-registered hypothesis, we report our experimental results as indicating null effects for framing. As discussed in the introduction, this finding goes in the direction of previous investigations about COVID-19 pandemic in the American context (Kushner Gadarian et al., 2020), and suggests an environment where respondents are dealing with a saturated social media environment, which would explain why framing and endorsement effects have no effects on risk perceptions.

In addition, two risk difference are robust in our experiment, and are purely exploratory since we did not pre-registered these expectations. First, among independents, positive messages are read as posturing, increasing their job risk perception and support for the government. In a polarized environment, crossing-the-isle seems to signal to independents that the crisis is rather serious. Second, negative messages minimizing the risks of COVID-19 sent by core members of the government seem to hurt Bolsonaro’s popularity, and increase job risk perceptions, among his voters, and partisans anti-petistas. All in all, our evidence show that polarization during the pandemic does not seem to bring any short-run benefits to the populist Jair Bolsonaro.

6.1 Behavioral Social Media Responses.

To further evaluate the partisan perceptions of each of the treatments, we asked respondents to indicate whether they would “like”, “retweet”, “reply”, or “ignore” each tweet. Descriptive information on figure 5 is revealing and worth exploring in some detail. First, as expected, respondents’ decisions to “like” or “retweet” follow clear partisan lines, with voters supporting the government considerably more likely to retweet both negative and positive messages by Bolsonaro. Similarly, the Workers Party (PT) supporters were considerably more likely to share messages by Haddad.

Second, more interestingly, results show a clear preference of all voters to “like” and “retweet”

positive partisan messages. While government supporters shared 43% of the negative posts by Bolsonaro, sharing increased to 63% for the positive post. Numbers also increased among Haddad voters from 11% to 22%, and among independents from 11% to 34%. Figure 5 also shows that supporters of Bolsonaro and independents were considerably more likely to share positive messages by Haddad.

Third, sharing behavior also reflects a much higher propensity by independents to share messages from Haddad compared to those of Bolsonaro. Finally, while partisan negative and cognitively dissonant messages trigger “reply” behavior by *out-group* voters, this is clearly observed among Haddad voters in response to negative Bolsonaro messages, but not government supporters in response to negative Haddad messages.

Overall, survey respondents’ sharing behavior shows that the different treatments were properly interpreted and triggered the expected responses. It is worth noticing, however, the very significant difference in the share of “liked” tweets among Bolsonaro supporters when considering positive or negative messages by Eduardo Bolsonaro, providing behavioral basis for our experimental findings.

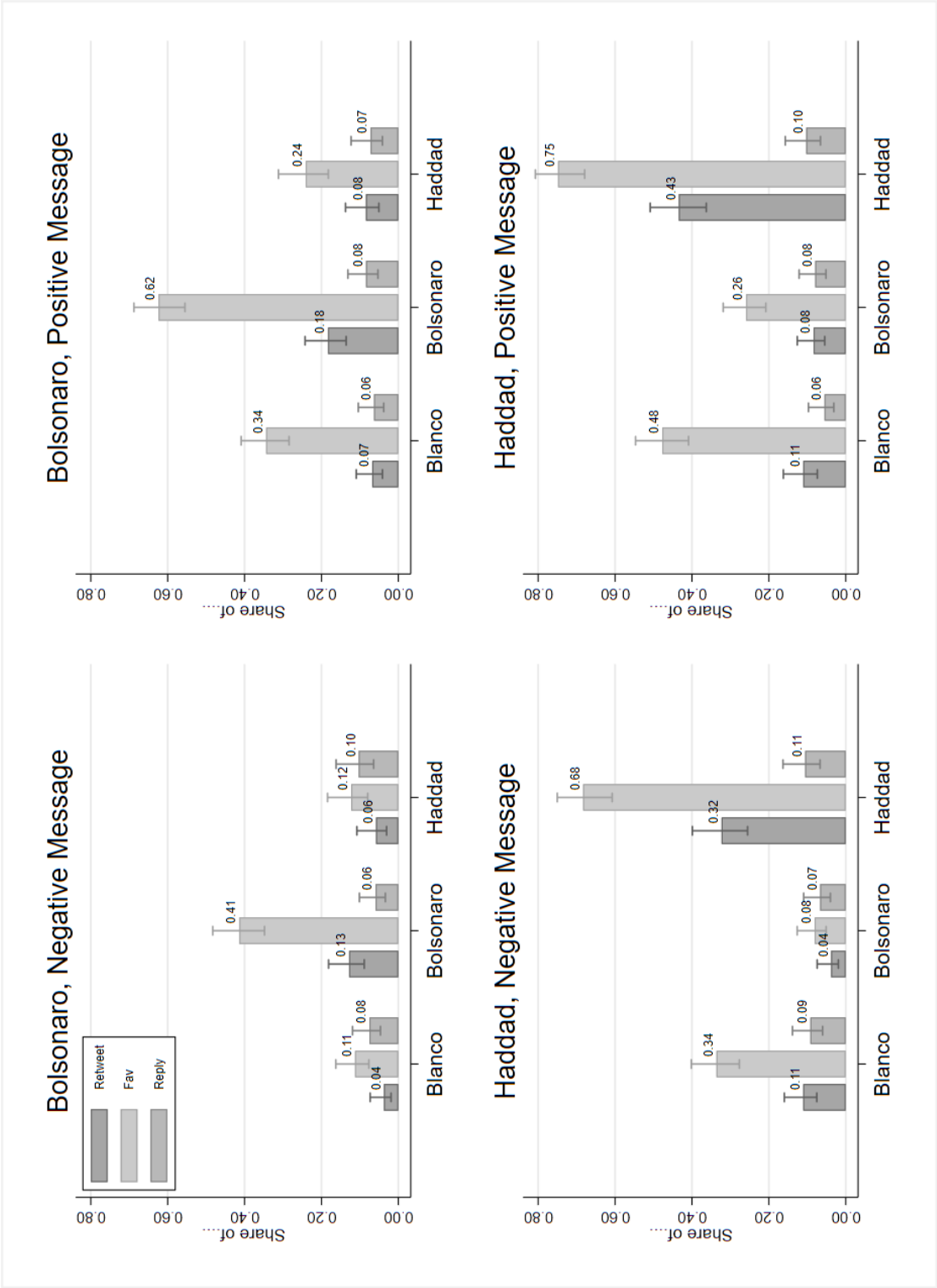


Figure 5 Favs, Retweets, Replies in response to each of the four treatments.

7 Concluding Remarks

In a time when social distancing is the primary policy response to the COVID-19 crisis, understanding how voters perceive health and job risks and assess government policies is essential. In countries such as Brazil, Mexico, and the United States, health and job policies have become deeply contested issues that separate partisans and trigger identity responses. In this article, we (1) provide descriptive evidence of large differences in perceptions of risk by pro-government and opposition voters; (2) test for the effect of public discourses by Bolsonaro on perceptions of individual risks, and (3) test for the effect of negative and positive social media frames on perceptions of individual risk; and

Our results verify the existence of partisan differences in perceptions of risks; a heightened effect of government speeches on opposition voters perceptions of personal risk; and a bounded partisan identity response to negative social media messages, particularly against pro-government messages denying responsibility for the crisis. Evidence of framing effects from social media messages in our experiment are modest, and mostly null considering our initial hypothesis for the effect of negative content and of crossing-the-isle positive social media message on risk perceptions. However, we find the existence of backlash against negative messages by in-group politicians for the government supporters in Brazil. Rather than triggering partisan responses, negative messages from in-group politicians triggered opposite responses. Bolsonaro voters exposed to negative messages by Bolsonaro increased their perceptions of job and health risks, and decrease their support for the government. Similarly, Haddad voters exposed to negative messages by Haddad reduced their perceptions of job and health risks. Therefore, while negative messages from the *others* trigger a partisan identity response, negative messages from *our own* were perceived as unacceptable posturing.

While the COVID-19 crisis lingers, political acts such as rallies, party meetings, and fundraising move to the virtual world. In a context of restricted physical mobility, social media and technologically mediated information exchanges become increasingly important. Beyond the pre-registered findings, our research provides novel evidence on the partisan online behavior of negative and positive social media messages. Measures of the social media response to our treatments provide clear evidence that positive messages were more extensively shared by all voters, in-group and out-group, and that negative messages activated a smaller number of intense voters. Negative social media messages, therefore, both induce identity responses by strong partisans but also reduce participation by less committed voters. This is an important effect that is worth exploring in future research, as it provides evidence of content in social media data being considerably more partisan than that expected from in-group voters. Therefore, at least in Brazil's case, activating partisan identities to energize the base also reduces overall support for the government among its own constituency.

References

- Adida, C. L., Dionne, K. Y., and Platas, M. R. (2018). Ebola, elections, and immigration: how politicizing an epidemic can shape public attitudes. *Politics, Groups, and Identities*, pages 1–27.
- Ajzenman, N., Cavalcanti, T., and Da Mata, D. (2020). More than Words: Leaders’ Speech and Risky Behavior During a Pandemic. *Working Paper*.
- Allcott, H., Boxell, L., Conway, J., Gentzkow, M., Thaler, M., and Yang, D. Y. (2020). Polarization and Public Health: Partisan Differences in Social Distancing during COVID-19. *Available at SSRN 3570274*.
- Ames, B. (2001). *The Deadlock of Democracy in Brazil*. University of Michigan Press, Ann Arbor.
- Arceneaux, K. (2008). Can partisan cues diminish democratic accountability? *Political Behavior*, 30(2):139–160.
- Arceneaux, K. and Nickerson, D. W. (2010). Comparing negative and positive campaign messages: Evidence from two field experiments. *American Politics Research*, 38(1):54–83.
- Aruguete, N. and Calvo, E. (2018). Time to #Protest: Selective Exposure, Cascading Activation, and Framing in Social Media. *Journal of Communication*, 68(3):480–502.
- Baker, A., Sokhey, A. E., Ames, B., and Renno, L. R. (2016). The dynamics of partisan identification when party brands change: The case of the workers party in brazil. *Journal of Politics*, 78(1).

- Banks, A., Karol, D., Calvo, E., and Telhami, S. (2020). #polarized feeds: Two experiments on polarization, framing, and social media. *International Journal of Press/Politics*.
- Barrios, J. and Hochber, Y. (2020). Risk Perception Through the Lens of Politics in the Time of the COVID-19 Pandemic. *Available at SSRN 3568766*.
- Bullock, J. G., Gerber, A. S., Hill, S. J., and Huber, G. A. (2013). Partisan bias in factual beliefs about politics. Technical report, National Bureau of Economic Research.
- Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of communication*, 43(4):51–58.
- Evans, G. and Andersen, R. (2006). The political conditioning of economic perceptions. *The Journal of Politics*, 68(1):194–207.
- Gneezy, U. and Potters, J. (1997). An experiment on risk taking and evaluation periods. *The quarterly journal of economics*, 112(2):631–645.
- Green, D. P., Palmquist, B., and Schickler, E. (2004). *Partisan hearts and minds: Political parties and the social identities of voters*. Yale University Press.
- Iyengar, S. (1990). Framing responsibility for political issues: The case of poverty. *Political behavior*, 12(1):19–40.
- Iyengar, S., Sood, G., and Lelkes, Y. (2012). Affect, not ideologya social identity perspective on polarization. *Public opinion quarterly*, 76(3):405–431.
- Iyengar, S. and Westwood, S. J. (2015). Fear and loathing across party lines: New evidence on group polarization. *American Journal of Political Science*, 59(3):690–707.

- Kahneman, D. and Tversky, A. (1982). The psychology of preferences. *Scientific American*, 246(1):160–173.
- Kraft, P. W., Lodge, M., and Taber, C. S. (2015). Why people “don’t trust the evidence” motivated reasoning and scientific beliefs. *The ANNALS of the American Academy of Political and Social Science*, 658(1):121–133.
- Kushner Gadarian, S., Goodman, S. W., and Pepinsky, T. B. (2020). Partisanship, Health Behavior, and Policy Attitudes in the Early Stages of the COVID-19 Pandemic. *Health Behavior, and Policy Attitudes in the Early Stages of the COVID-19 Pandemic (March 27, 2020)*.
- Lin, Y.-R., Keegan, B., Margolin, D., and Lazer, D. (2014). Rising tides or rising stars?: Dynamics of shared attention on Twitter during media events. *PloS one*, 9(5).
- Mainwaring, S. (1991). Politicians, Parties, and Electoral Systems: Brazil in Comparative Perspective. *Comparative Politics*, 24(1):21–43.
- Mainwaring, S. (1999). *Rethinking Party Systems in the Third Wave of Democratisation: The Case of Brazil*. Stanford University Press, Stanford, California.
- Mainwaring, S. and Scully, T. (1995). *Building democratic institutions: party systems in Latin America*. Stanford University Press, Stanford, Calif.
- Mariani, L., Gagate-Miranda, J., and Retti, P. (2020). Words can hurt: How political communication can change the pace of an epidemic. *CEPR PRESS*.
- Mason, L. (2016). A cross-cutting calm: How social sorting drives affective polarization. *Public Opinion Quarterly*, 80(S1):351–377.

- Merrill, S., Grofman, B., and Adams, J. (2003). Assimilation and contrast effects in voter projections of party locations: Evidence from norway, france, and the usa. *European Journal of Political Research*, 40(2):199–221.
- Nisbet, E. C., Cooper, K. E., and Garrett, R. K. (2015). The partisan brain: How dissonant science messages lead conservatives and liberals to (dis) trust science. *The ANNALS of the American Academy of Political and Social Science*, 658(1):36–66.
- Power, T. J. and Rodrigues-Silveira, R. (2018). The political right and party politics 1. *Routledge Handbook of Brazilian Politics*, pages 251–268.
- Samuels, D. (2003). *Ambition, federalism, and legislative politics in Brazil*. Cambridge University Press, Cambridge ; New York.
- Samuels, D. J. and Zucco, C. (2018). *Partisans, antipartisans, and nonpartisans: Voting behavior in Brazil*. Cambridge University Press.
- Slothuus, R. and De Vreese, C. H. (2010). Political parties, motivated reasoning, and issue framing effects. *The Journal of Politics*, 72(3):630–645.
- Thaler, R. H., Tversky, A., Kahneman, D., and Schwartz, A. (1997). The effect of myopia and loss aversion on risk taking: An experimental test. *The quarterly journal of economics*, 112(2):647–661.
- Zaller, J. (1992). *The nature and origins of mass opinion*. Cambridge university press.

Will I get COVID-19?
Negative Partisanship, Social Media Frames, and Perceptions of
Health Risk in Brazil
Supporting Information Files (SIF)

Section A: Socio-Demographics across the samples

We present here some socio-demographic information for our respondents across the four treatment conditions. As the reader can assess, there are no significant differences across the treatment groups in our sample. Since most of these variables are nominal, the values do not have a direct interpretation.

Table 2 Demographics Across the Treatment Arms

Variable	Quantity	Negative Bolsonaro	Negative Haddad	Positive Bolsonaro	Positive Haddad
Age	Mean	3.01	3.12	3.11	3.08
	Standard Error	3.36	3.30	3.20	3.39
Education	Mean	2.15	2.11	2.19	2.18
	Standard Error	1.50	1.55	1.54	1.56
Gender	Mean	4.36	4.57	4.50	4.50
	Standard Error	0.63	0.63	0.63	0.62
Ideological Placement	Mean	5.24	5.55	5.22	5.36
	Standard Error	1.28	1.27	1.22	1.26
Occupation	Mean	6.47	6.62	6.41	6.32
	Standard Error	0.96	0.96	0.97	0.94
Income Assistance	Mean	1.50	1.47	1.47	1.49
	Standard Error	2.18	2.00	2.12	2.02
Relative Income	Mean	1.75	1.73	1.78	1.71
	Standard Error	0.50	0.50	0.50	0.50
Total Cases					
	Total Number of Cases	571.00	588.00	590.00	613.00

Section B: Negative Partisanship and Risk Perceptions

In this section, we provide further descriptive evidence for deeper partisan divisions on risk perceptions and government assessment. We first replicate figure 1 in the paper but using a measure for negative and positive partisanship towards the Workers Party (PT). As argued by [Samuels and Zucco \(2018\)](#), mass partisanship in Brazil is strongly connected to voters' assessment about the PT. Therefore, we test for this explanation to increase the robustness of our findings.

Figure 6 presents the results. We manipulate positive and negative partisanship, as suggested in [Samuels and Zucco \(2018\)](#), and use the excluded cases as others in our sample. 32% of Pro-PT supporters report fell very likely chance of losing their job and 24% of becoming infected by COVID-19, compared respectively to 22% and 13% for anti-PT respondents. In terms of assessing government responses, half of our sample of PT supporters considered them very inappropriate, while only 29% among anti-petistas have the same assessment.

We also provide in table 3 the numerical results from the models summarized on figure 2. To make the presentation more intuitive, we use Bolsonaro voters, and Anti-Petistas, as the reference group for the models. In the main paper, we do not explore the results for the control variables, yet their interpretation provides some interesting correlational insights about factors associated with risk perceptions in Brazil. Older, wealthier men report across all the models lower risk perceptions. On the other side, more education decreases risks on the job market, but increases fear of being infected by COVID-19. A similar effect is detected when comparing employed versus unemployed respondents, with the former predicting higher health risk, and lower perception regarding the labor market.

Partisanship, Risk Perceptions and Government Responses to Covid in Brazil

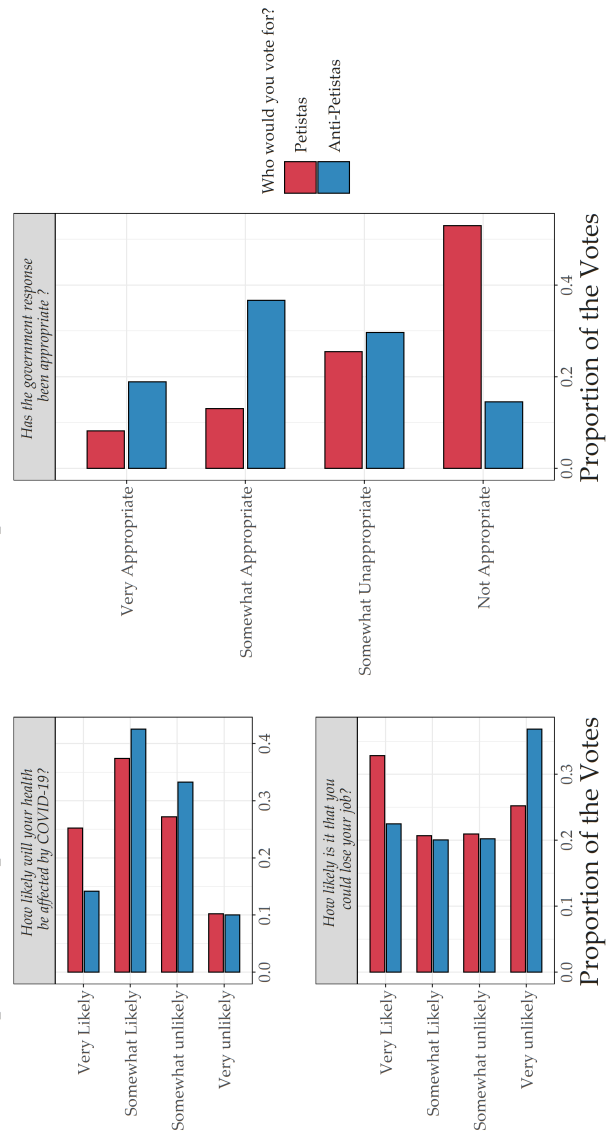


Figure 6 Survey assessments conditional on Negative Partisanship of the quality of the Government response, perceptions of personal health risk, and perceptions of personal job security, March 23 through May 4, 2020.

Table 3 Regression models of perception of risk and government assessments with full controls

	<i>Dependent variable:</i>					
	Job Risk	Health Risk	Government Assessment	Job Risk	Health Risk	Government Assessment
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	3.309*** (0.112)	2.514*** (0.084)	3.001*** (0.087)	3.349*** (0.115)	2.655*** (0.087)	2.793*** (0.097)
Voters Haddad	0.202*** (0.063)	0.337*** (0.047)	-1.203*** (0.049)			
Voters Independents	0.238*** (0.058)	0.296*** (0.044)	-0.868*** (0.046)			
Petistas				0.225*** (0.079)	0.192*** (0.059)	-0.922*** (0.067)
Others (Non-Partisans)				0.118** (0.055)	0.121*** (0.042)	-0.591*** (0.047)
Income	-0.055*** (0.012)	-0.035*** (0.009)	-0.012 (0.010)	-0.056*** (0.012)	-0.036*** (0.009)	-0.007 (0.010)
Gender:Male	-0.037 (0.050)	-0.072* (0.038)	-0.025 (0.039)	-0.052 (0.050)	-0.097** (0.038)	0.048 (0.042)
Employed	-0.155*** (0.052)	0.122*** (0.039)	0.055 (0.041)	-0.146*** (0.053)	0.132*** (0.040)	0.025 (0.045)
Education	-0.055*** (0.020)	0.055*** (0.015)	-0.039** (0.016)	-0.050** (0.020)	0.058*** (0.015)	-0.060*** (0.017)
Age	-0.140*** (0.016)	-0.038*** (0.012)	0.021 (0.013)	-0.141*** (0.017)	-0.047*** (0.013)	0.034** (0.014)
Observations	2,159	2,163	2,158	2,142	2,146	2,142
Adjusted R ²	0.074	0.057	0.247	0.070	0.035	0.115

Note:

*p<0.1; **p<0.05; ***p<0.01

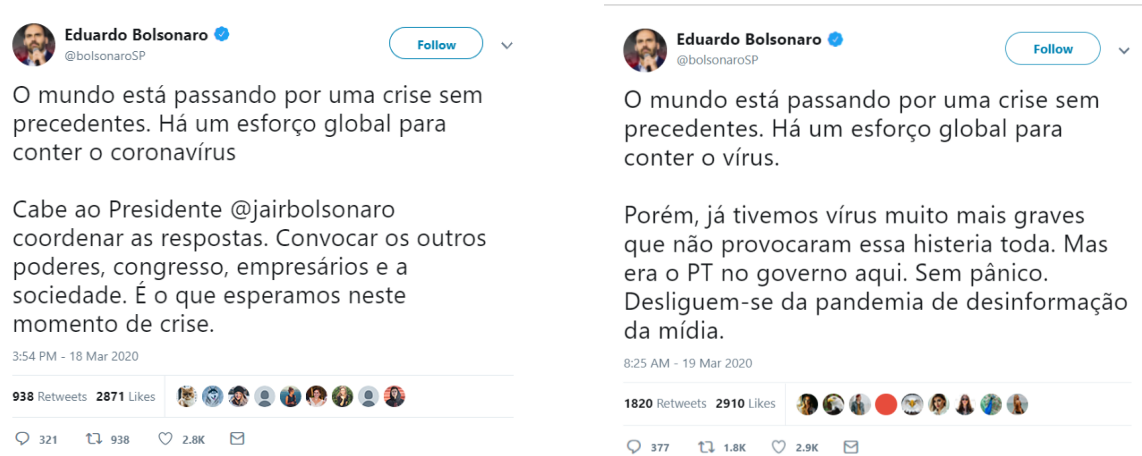
Section C: Tweets for the Treatment Conditions

Table 4 presents the treatment conditions in English. Figure 7 presents the images, as the respondents read in Portuguese, of the tweets used in each of the treatment conditions.

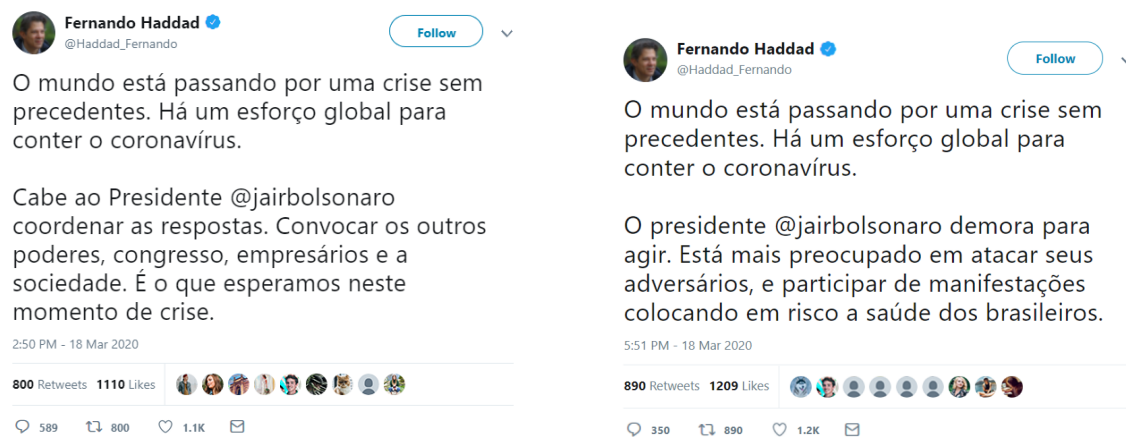
Table 4 Treatment Conditions

	Positive Tweet	Negative Tweet
Eduardo Bolsonaro	The world is currently living an unprecedented crisis. Countries all over the world rally together to fight against Coronavirus. It is the responsibility of President @jairbolsonaro to coordinate our answers. He needs to act together with Congress, Business leaders, and civil society. This is what we expect in such critical times.	The world is currently living an unprecedented crisis. Countries all over the world rally together to fight against Coronavirus. However, we have already had these types of the virus before, and it did not lead to all this hysteria. But it was the PT in the government here. No panic. Switch off from the pandemic of misinformation from the media
Fernando Haddad	The world is currently living an unprecedented crisis. Countries all over the world rally together to fight against Coronavirus. It is the responsibility of President @jairbolsonaro to coordinate our answers. He needs to act together with Congress, Business leaders, and civil society. This is what we expect in such critical times.	The world is currently living an unprecedented crisis. Countries all over the world rally together to fight against Coronavirus. President @jairbolsonaro is delayed in answering. He is more concerned about attacking his opponents and take part in protests that put in risk the health of the Brazilian people.

Figure 7 Tweets for the Treatment Conditions



a) Eduardo Bolsonaro x Positive Tweet (T1) b) Eduardo Bolsonaro x Negative Tweet (T2)



a) Fernando Haddad x Positive Tweet (T3) b) Fernando Haddad x Negative Tweet (T4)

Section E: Robustness Checks for the Effects of Bolsonaro's Speech

This section provides some robustness checks for the effects of the Bolsonaro's national pronouncement on March 24 discussed in the paper. Our results' main inferential threat comes from the chance that our measures might capture random fluctuations over time of respondents' risk perceptions. Therefore, to increase the robustness of our findings we examine the extant to

which our point estimates differ from changes in our dependent variable over time. We perform a set of placebo checks to analyze this possibility.

We estimate the same model, as in section four of the paper, but using as a placebo for the treatment effect each other day after March 24. In other words, we simulate as if Bolsonaro speech had happened in all the remaining 45 days we have in our sample. As in the main paper, we estimate the models using data from two days before, and two days for each placebo test.

Figure 8 presents the results. We color red the treatment results presented in the main paper and two other presidential pronouncements made by Bolsonaro to discuss the COVID-19 pandemic on TV. Our results suggest strong support for our argument that the effects of Bolsonaro’s speech on March 24 is hardly a random variation from respondents updating their risk assessment over time. For the Job perceptions, only the other two point-estimates, out of 45 placebos, are positive and statistically different from zero, as it is the true treatment effect. As a matter of fact, both estimates happen exactly in the following days of another pronouncement of Bolsonaro. For the Health models, only three out of 45 placebos are positive and statistically different from zero. Overall, the placebo checks give strong support for the robustness of our findings.

Figure 8 Placebo Checks for the Effects of Bolsonaro Speech on March 24.

