

Ernesto Calvo<sup>1</sup> and Tiago Ventura,<sup>2</sup> Will I get COVID-19? Partisanship, Social Media Frames, and Perceptions of Health Risk in Brazil.<sup>3</sup> *Latin American Politics and Society* vol. 63, no. 1 (Spring 2021).

## Supporting Information File

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[https://github.com/TiagoVentura/Calvo\\_Ventura\\_LAPS\\_2021](https://github.com/TiagoVentura/Calvo_Ventura_LAPS_2021)

## **Section A: Survey Information**

Our paper presents observational, quasi-experimental, and a framing experiment using novel data from a national on-line survey fielded by Netquest-Vanderbilt. The survey uses probabilistic samples drawn by the LAPOP team in Vanderbilt implemented with the panel of users registered with Netquest. The entire survey and the embedded framing experiment received the approval of the University of Maryland Institutional Board Review 1552091-3.

The survey was carried out from March 23 to May 08, 2020 from a national poll of 2,360 respondents. Completion for the survey took on average 28 minutes. We provide two different incentives for respondents to engage in the survey. Beyond the survey experiment described here, our survey asked a series of questions about trust, policy preferences, social media consumption and standard demographic information. Several of these pre-treatment variables were used and described in different sections for this paper.

Below, we present information about some of the survey variables used throughout the paper. In a later section in this appendix, we describe in detail the treatment conditions, and outcomes variables.

To guarantee that our randomization procedure worked properly, we also present below demographic information for our respondents across the four treatment conditions of our framing experiment. 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 3: Survey Questions - Demographic Information**

Variable	Wording	Responses
Age	What is your age?	Binned (From 18-25 up to more than 66)
Gender	What is your gender?	Male/Female
Education	What education level have you achieved?	Binned (From Know How to Read to Graduate Studies)
Employment	During last week, did you work or study at least one hour, in some paid activity?	Yes/No
Income	Imagine a staircase with 10 steps. In the first step, people with lower income are located, and in step 10, people with higher income are located. Where would you be located?	0-10
Income Assistance	During last month, did you or a member of your household received	Nominal with government programs

**Table 4: Survey Questions -Political Attributes and Behavioral Responses to the Treatment**

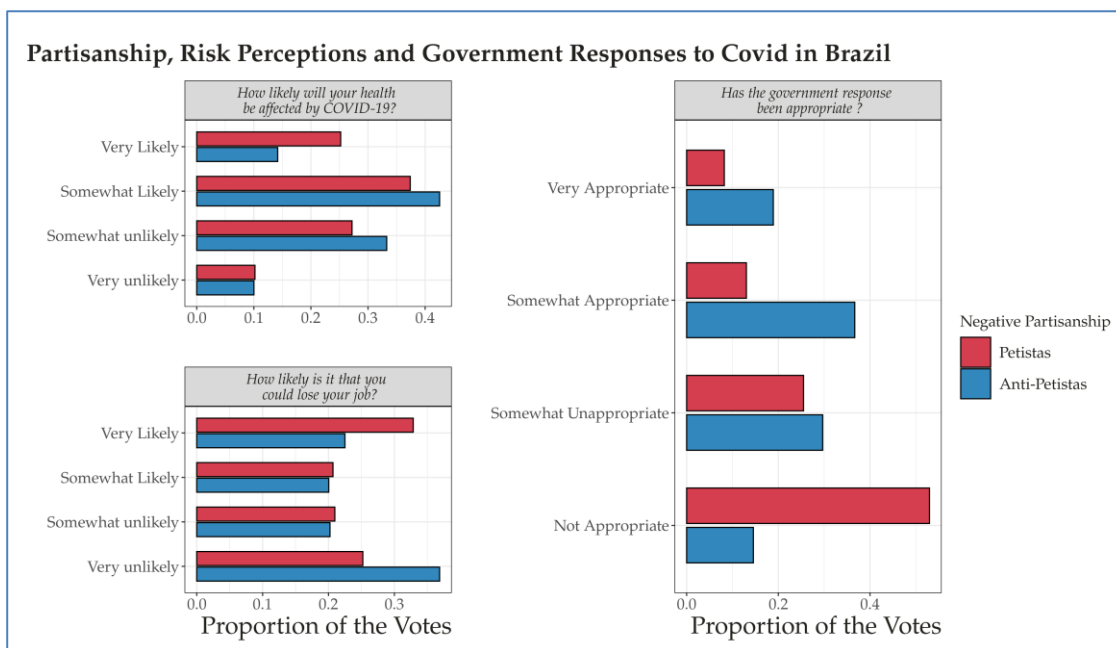
Variable	Wording	Responses
Likely to Vote (First Round)	Which candidate would you support if the presidential election ``were to take place next week" ?	All presidential candidates from 2018
Likely to Vote (Runoff)	Which candidate would you support if the runoff presidential election ``were to take place next week" ?	Jair Bolsonaro, Fernando Haddad, Null
Positive Partisanship	Which party do you like the most?	List of Political Parties in Brazil
Negative Partisanship	Which party do you dislike more ?	List of Political Parties in Brazil
Ideological Placement	Imagine a scale that goes from "very conservative" to "very progressive", were would you place yourself?	0-10
Emotions to the Treatment	Thinking about the tweet we just showed you, do you feel	Angry, Happy, Disgusted, Optimistic, Stressed, Sad, Fearful, Indifferent
Reactions to the Treatment	Thinking about the tweet we showed you. Would you?	Fav, Retweet, Reply, Ignore

**Table 5** *Demographics Across the Treatment Arms*

Variable	Quantity	Negative Bolsonaro	Negative Haddad	Positive Bolsonaro	Positive Haddad
<b>Age</b>	Mean	3.01	3.12	3.11	3.08
	Standard Error	3.36	3.3	3.2	3.39
<b>Education</b>	Mean	2.15	2.11	2.19	2.18
	Standard Error	1.5	1.55	1.54	1.56
<b>Gender</b>	Mean	4.36	4.57	4.5	4.5
	Standard Error	0.63	0.63	0.63	0.62
<b>Ideological Placement</b>	Mean	5.24	5.55	5.22	5.36
	Standard Error	1.28	1.27	1.22	1.26
<b>Occupation</b>	Mean	6.47	6.62	6.41	6.32
	Standard Error	0.96	0.96	0.97	0.94
<b>Income Assistance</b>	Mean	1.5	1.47	1.47	1.49
	Standard Error	2.18	2	2.12	2.02
<b>Relative Income</b>	Mean	1.75	1.73	1.78	1.71
	Standard Error	0.5	0.5	0.5	0.5
<b>Total Cases</b>	Total Number	571	588	590	613

## 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: 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.*

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 unappropriate, while only 29% among anti-petistas have the same assessment.

**Table 6 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 <sup>2</sup>	0.074	0.057	0.247	0.070	0.035	0.115

Note: \* p<0.1; \*\* p<0.05; \*\*\* p<0.01

We also provide in table 6 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.

## Section C: Tweets for the Treatment Conditions

Table 7 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 7: Treatment Conditions (in English)**

	<b>Negative Message</b>	<b>Positive Message</b>
<b>Eduardo Bolsonaro</b>	The world is currently living in an unprecedented crisis. Countries 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 in an unprecedented crisis. Countries rally together to fight against Coronavirus. However, we have seen other diseases before, some of them were way more dangerous than Coronavirus, and we did not see all this hysteria. Only that it was PT's government at that time. No panic. Switch off from the pandemic of misinformation from the media
<b>Fernando Haddad</b>	The world is currently living in an unprecedented crisis. Countries 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 in an unprecedented crisis. Countries rally together to fight against Coronavirus. President @jairbolsonaro is delayed in answering. He is only concerned about attacking his opponents and take part in protests that put in risk the Brazilian people.



Figure 7 Tweets for the Treatment Conditions

**Eduardo Bolsonaro** @bolsonaroSP  
O mundo está passando por uma crise sem precedentes. Há um esforço global para conter o coronavírus.

Cabe ao Presidente @jairbolsonaro coordenar as respostas. Convocar os outros poderes, congresso, empresários e a sociedade. É o que esperamos neste momento de crise.

3:54 PM - 18 Mar 2020

938 Retweets 2871 Likes

321 938 2.8K

**Eduardo Bolsonaro** @bolsonaroSP  
O mundo está passando por uma crise sem precedentes. Há um esforço global para conter o vírus.

Porém, já tivemos vírus muito mais graves que não provocaram essa histeria toda. Mas era o PT no governo aqui. Sem pânico. Desliguem-se da pandemia de desinformação da mídia.

8:25 AM - 19 Mar 2020

1820 Retweets 2910 Likes

377 1.8K 2.9K

a) Eduardo Bolsonaro x Positive Tweet (T1)

b) Eduardo Bolsonaro x Negative Tweet (T2)

**Fernando Haddad** @Haddad\_Fernando  
O mundo está passando por uma crise sem precedentes. Há um esforço global para conter o coronavírus.

Cabe ao Presidente @jairbolsonaro coordenar as respostas. Convocar os outros poderes, congresso, empresários e a sociedade. É o que esperamos neste momento de crise.

2:50 PM - 18 Mar 2020

800 Retweets 1110 Likes

589 800 1.1K

**Fernando Haddad** @Haddad\_Fernando  
O mundo está passando por uma crise sem precedentes. Há um esforço global para conter o coronavírus.

O presidente @jairbolsonaro demora para agir. Está mais preocupado em atacar seus adversários, e participar de manifestações colocando em risco a saúde dos brasileiros.

5:51 PM - 18 Mar 2020

890 Retweets 1209 Likes

350 890 1.2K

c) Fernando Haddad x Positive Tweet (T3)

d) Fernando Haddad x Negative Tweet (T4)

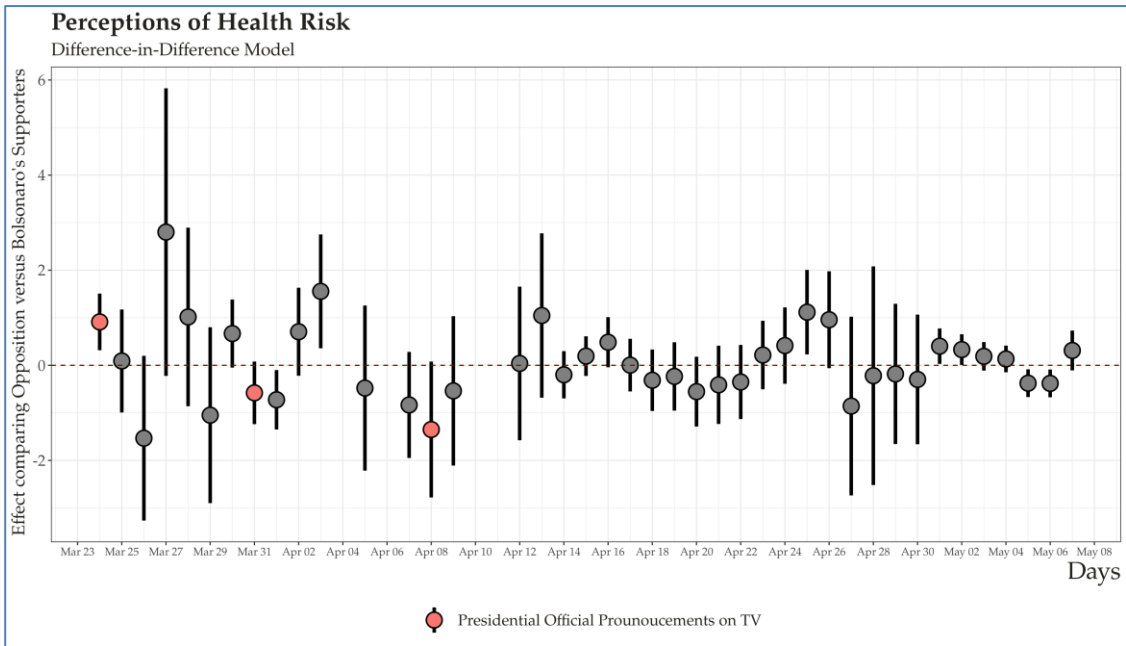
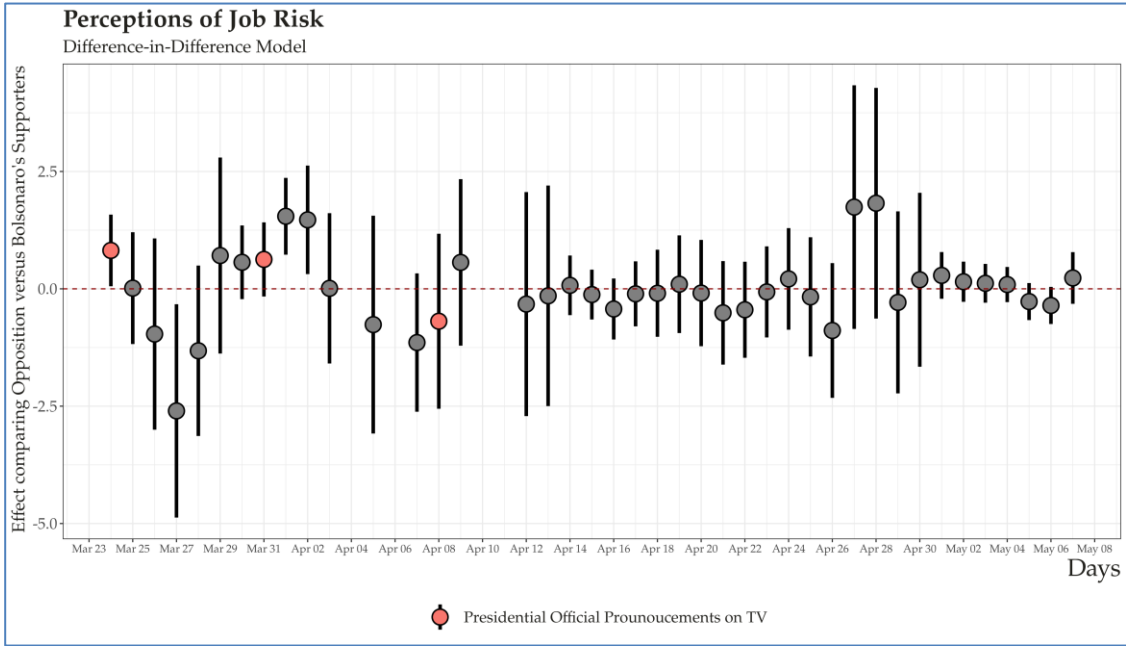
## Section E: Robustness Checks for the Effects of Bolsonaro's Speech

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 extent 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.

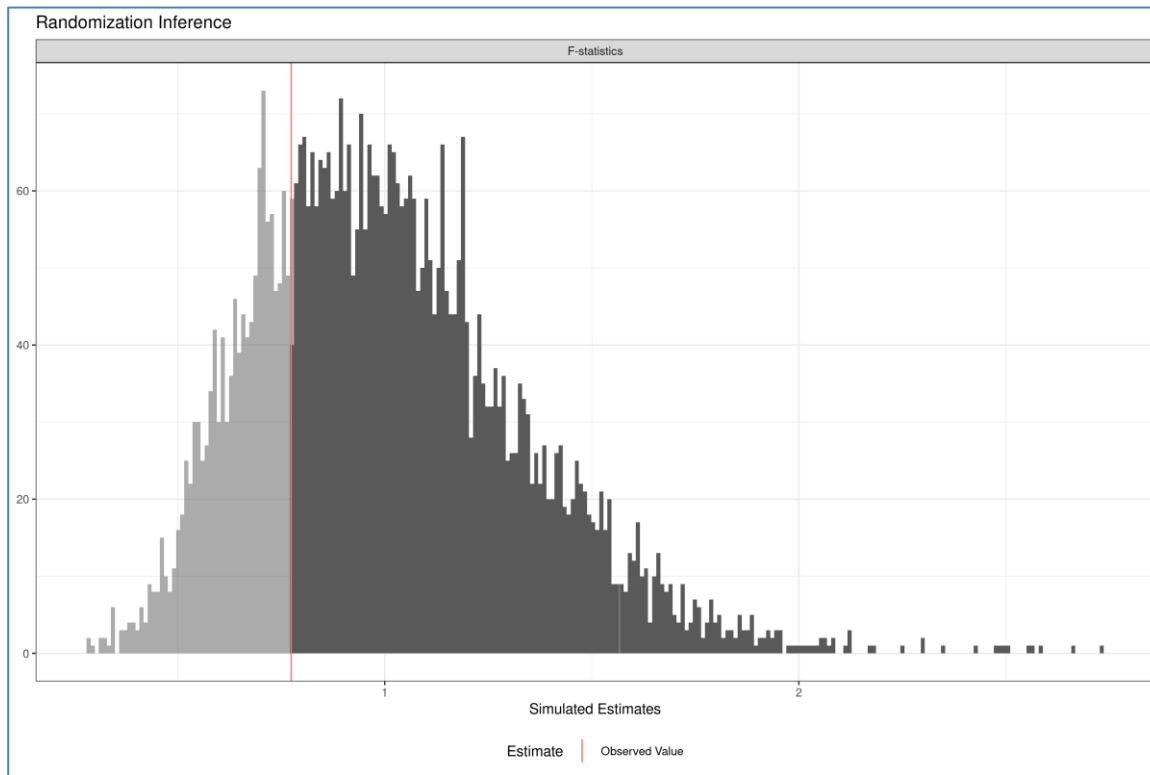
**Figure 8 Placebo Checks for the Effects of Bolsonaro Speech on March 24.**



Finally, we use randomization inference to assess covariates balance between our survey respondents before and after March 24 (Gerber and Green 2012; Coppock 2019). Figure 9 plots a histogram of the observed F-statistic, and the null distribution of F-statistics calculated through randomization inference, and using a linear probability model regressing the treatment assignment (answering the survey between March 24-25, after Bolsonaro's speech) on a set of demographic and political information collected during the survey (age, gender, occupation, education, income, ideology, positive and negative partisanship, and voting choices). As in the main models, we limit the analysis to respondents who answered two days before (control), and two days after (treatment) Bolsonaro's speech.

Randomization inference provides a strategy to calculate p-values for hypothesis test using randomization techniques. The null hypothesis for our robustness check is that a set of socio-demographics and political covariates do not explain if the respondents answered to the survey before or after March 24. The results are presented on figure 9. The distribution of F-statistics indicates that the null hypothesis (covariates have no effect on treatment assignment) cannot be rejected. Approximately 75% (P-value=0.75) of the simulated F-statistics were larger than the observed F-statistic in the true model. The vertical red line on both graphs denotes the observed F-statistic, while shaded regions denote simulated estimates more extreme than the one observed. I used 5,000 simulations under the null hypothesis, implied by random assignment, that no covariates is correlated with answering the survey before or after March 24.

Figure 9 Randomization Inference for Covariate Balance Before and After Bolsonaro's Speech.



## Section F: Effect of Frames on “Anger”

**Table 8: Regression Models: Effects of the four-frame treatments on “angry” response**

	All Sample	Bolsonaro Voters	Haddad Voters
	(1)	(2)	(3)
Constant	1.090*** (0.014)	1.020*** (0.019)	1.169*** (0.032)
Negative Bolsonaro	0.091*** (0.020)	0.044 (0.027)	0.154*** (0.045)
Negative Haddad	0.106*** (0.020)	0.161*** (0.027)	0.117*** (0.045)
Positive Haddad	-0.007 (0.020)	0.060** (0.026)	-0.049 (0.044)
Observations	2,362	855	658
Adjusted R <sup>2</sup>	0.021	0.039	0.036

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

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