Self-Interested Citizens: How Disaster Victims Modify their Political Priorities*

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Abstract

Do disaster victims care only about their personal well-being or do they also focus on collective concerns? Specifically, are they more likely to prioritize housing (i.e., individual well-being), infrastructure (i.e., social well-being), or both? I answer this question by using survey data before and after the sixth largest earthquake ever documented, and by combining a difference-in-differences strategy with matching to overcome some methodological challenges. I find that affected citizens prefer to stress the importance of individual gains but are not more likely to emphasize the distribution of collective goods. This reveals that disaster victims are self-interested and myopic: they focus exclusively on their immediate material concerns and are not able to see that they can also improve their living conditions by benefiting from public works. These findings have important political implications for learning about citizens' selfishness and altruism and for better understanding the causal mechanisms behind disaster victims' electoral decisions.

Keywords: political priorities, political preferences, observational studies, natural disasters, Chile.

1 Introduction

In seeking to understand the political consequences of natural disasters, the extant literature tends to focus on how these negative events affect the incumbent vote share. The traditional explanation for affected citizens punishing the incumbent relies on a process of (mis)attribution of responsibilities. For example, disaster victims might be myopic and always blame the incumbent (Achen and Bartels, 2016), or might only punish the current leader after their poor performance handling the disaster (Healy and Malhotra, 2010; Gasper and Reeves, 2011).[1]

These explanations, however, neglect to take into account how, before influencing victims' electoral decisions, catastrophes change these individuals' preferences and attitudes: for example, modifying their democratic values (Carlin, Love and Zechmeister, 2014) and attitudes toward civic engagement (Fair et al., 2013). Thus, in addition to the evaluation of incumbent performance, other mechanisms might also be relevant for understanding how affected citizens make electoral choices.

One such mechanism, overlooked by previous studies, is the role played by disaster victims' new priorities and concerns. These might include, for instance, the reconstruction of their houses and the repair of public infrastructure. According to the issue ownership theory of voting (Petrocik, 1996; Bélanger and Meguid, 2008), victims' electoral decisions can be influenced by the salience of particular issues: in the case of disaster victims, improving their standard of living. Therefore, affected citizens should be more likely to prefer candidates who can better address these new political priorities.

How do citizens change their priorities after a catastrophe? Do victims tend to focus more on collective or individual concerns? Though we would expect disaster victims' priorities to shift, we do not know what their top priority will be. There are two likely possibilities. First, we can imagine that disaster victims may become more likely to prioritize collective concerns, such as the improvement of community infrastructure like schools, hospitals, and railroads. A second alternative is that they will prioritize their personal welfare, by favoring initiatives like the distribution of

[1] Victims might also be incorporating new information about the incumbent (Ashworth, Bueno de Mesquita and Friedenberg, 2014).

financial relief and the construction of new housing.

To explore disaster victims' new priorities, I focus on the sixth largest earthquake ever documented. On February 2010, Chile was shattered by a massive earthquake affecting six out of the fifteen regions of the country. Chile provides a unique opportunity to test the political consequences of earthquakes: because all its regions have been affected by this type of catastrophe in the past, therefore, there is greater comparability between counties that were and that were not exposed to this particular disaster.[2] In addition, earthquakes are exogenous shocks, so they cannot be predicted or anticipated.

To study how the earthquake modified victims' priorities, I rely on survey data before and after the negative event comparing areas exposed and not exposed to the disaster. When using survey data, however, sampling variability and the use of particular geographic areas as treated and control groups can create imbalances within each group across time. This lack of balance can translate into bias when estimating a difference-in-differences (DID). It is important to remember that it is not problematic if the composition of the treated and control group is different. Results can be biased, however, if one of the two groups is different across time since it will not be possible to know if the estimate is a result of the treatment or a consequence of a different group composition. Later I show how there are significant differences across time in one of the two groups regarding their observed characteristics.

In order to reduce imbalances across time, I rely on advances in optimal matching and mathematical programming[3] to construct a synthetic panel using three waves of surveys. Two were conducted three and six months before the earthquake, and one was implemented three months after it. The synthetic panel aims to generate comparable groups of people before and after the earthquake, such that sample composition is similar across periods. I compute the intensity of the earthquake at the county level to identify exposed and control respondents.

I use a differences-in-differences (DID) approach in the synthetic panel to study how exposure

[2] The 2010 earthquake mainly affected the south-central region of the country, so neither the south nor the north were exposed.

[3] See Zubizarreta and Kilcioglu (2016).

to the 2010 earthquake affected victims' political priorities. Additionally, I implement recommendations from the statistical theory of design sensitivity (Rosenbaum, 2004), which shows that research design can help reduce sensitivity to hidden biases. In particular, I focus on the use of extreme exposures to the treatment to achieve this goal (Rosenbaum, 2011; Zubizarreta, Cerdá and Rosenbaum, 2013).

The outcome of interest are respondents' priorities. To gauge these, the survey asked respondents to select the country's three most significant problems from a pool of alternatives. After a disaster that caused massive damage to not only houses but also bridges, roads, ports, and airports (Hinrichs, Jones and Stanley, 2011), victims might be expected to be more likely to identify both housing and infrastructure as two of their three main priorities. This hypothesis only partly bears out. The findings show that exposure to the earthquake increased by 22 percentage points the likelihood of reporting housing as one of the most critical problems to be addressed by the government. Exposure to this natural disaster, however, did not increase concerns about infrastructure. Since the total cost of the disaster was estimated to be US 30 billion, or 18% of the Chilean Gross National Product (McClean, 2012), these results are surprising: despite the devastating consequences of the catastrophe, affected citizens were not more likely to prioritize infrastructure. These findings reveal to us that disaster victims have myopic interests since they prioritize the reconstruction of their homes but not the improvement of their communities.

This paper provides three main contributions to the literature about the political consequences of natural disasters. First, it focuses on an unexplored political effect of catastrophes: their impact on citizens' priorities and concerns. The extant literature mostly pays attention to victims' electoral choices, traditionally measured in terms of the incumbent vote share. These choices, however, might not only be explained by victims' evaluation of an incumbent's performance, but also by their new preferences, attitudes, and priorities, the focus of this paper. Second, the survey results discussed here allow us to better understand how citizens react to negative events: specifically, if they have individual or pro-social attitudes. Because individuals in the developing world are constantly exposed to situations that diminish their living conditions, it is important to further

illuminate how they update their political preferences in different scenarios. Finally, the paper contributes to the ongoing conversation about the design of observational studies, by using strategies that reduce some of the problems associated with using survey data for DID approaches.

2 The Political Consequences of Natural Disasters

There is a growing body of literature studying the political consequences of natural disasters. Most of this research focuses on two outcomes: incumbents' vote share (Achen and Bartels, 2004; Healy and Malhotra, 2010; Gasper and Reeves, 2011; Bechtel and Hainmueller, 2011; Cole, Healy and Werker, 2012; Remmer, 2014; Lazarev et al., 2014) or turnout (Gomez, Hansford and Krause, 2007; Sinclair, Hall and Alvarez, 2011; Chen, 2013; Lasala-Blanco, Shapiro and Rivera-Burgos, 2017).[4]

Another area of research, however, focuses on how affected citizens change their preferences and attitudes after natural disasters. In one such study, by Carlin, Love and Zechmeister (2014), of the impact of the 2010 Chilean Earthquake on democratic legitimacy, the authors find that disaster victims are less supportive of their local governments, less politically tolerant, and more supportive of military coups. In another study, Fair et al. (2013) show that the 2010 floods in Pakistan changed citizens' attitudes and civic engagement: in particular, that the disaster increased aggressive civic engagement. Studying the same floods, Kosec and Mo (2015) provide evidence that this disaster also decreased affected citizens' aspirations, especially among the poor. Finally, Healy and Malhotra (2009) use data on natural disasters, government spending, and electoral results in the US to show that voters reward the incumbent presidential party for delivering disaster relief but not for investing resources in preparedness.

In an attempt to better understand how natural disasters affect victims' political preferences, we must ask whether these events change their priorities, and if so, what their new concerns are. As we know, political priorities correspond to particular issues that are salient for citizens. For

[4] There is also a body of research that explores the process through which responsibility is attributed (Arceneaux and Stein, 2006; Malhotra and Kuo, 2008; Maestas et al., 2008; Gomez and Wilson, 2008; Atkeson and Maestas, 2012).

instance, surveys commonly ask respondents to define the most significant problem in their country. Individuals who mention crime, for example, are prioritizing this issue over others such as education and health.

The issue ownership theory of voting argues that citizens identify the party or candidate that can address the most salient issue they care about when making electoral choices. In consequence, voters should be more likely to prefer parties or candidates that fit with their main concerns (Petrocik, 1996; Bélanger and Meguid, 2008). Nevertheless, priorities are not exogenous variables, since they can be affected by long-term traits that can also determine voting decisions. For instance, right-wing voters are more likely than left-wing ones to identify crime as a crucial priority (Mayer and Tiberj, 2004). Within the context of this theory, an earthquake provides an opportunity to study how an exogenous shock can affect voters' concerns.

In this paper, I focus on two different types of priorities: individual and collective. The first refers to issues that mainly provide personal gains. These include the distribution of private goods such as food baskets, financial relief, and new housing after natural disasters, since they deliver gains to victims on an individual level.[5] The second group of priorities refers to issues of a collective nature that benefit groups of people. These include the distribution of public goods such as the repair of railroads, schools, and hospitals after natural disasters. This paper aims to answer to the following question: are affected citizens more likely to focus on individual, collective, or both types of concerns after a natural disaster?

I theorize that the combination of these priorities may generate four main types of victims. First, *unresponsive victims* will be more likely to not prioritize housing (i.e., individual concern) or infrastructure (i.e., collective concern) after a shock. Second, *self-interested victims* will only prioritize personal gains such as housing, and not the construction of public works such as infrastructure. Third, *pro-social* victims will only pay attention to collective benefits and not to personal concerns. Fourth, *attentive victims* will be more likely to focus on both dimensions of post-disaster welfare: the distribution of both private and public goods. By using an empirical strategy based on

[5] New housing can improve the quality of the neighborhood as a whole, but it is still an individual benefit.

comparing victims and non-victims before and after the earthquake, it is possible to identify which of these four categories best describes disaster victims' political preferences.

The findings of this study have meaningful implications for understanding how disaster victims make electoral decisions. For example, if they only pay attention to private benefits, they may be more likely to vote for politicians associated with the distribution of short-term handouts (e.g., clientelistic candidates) and/or with the implementation of social programs such as new housing (e.g., left-wing candidates). Conversely, if they focus on public benefits such as the repair of infrastructure, they may be more likely to pay attention to valence issues that provide information about the competence of candidates to manage and address the consequences of a catastrophe.

It is natural to ask whether post-disaster priorities are a valence or a policy concern, and I hold that they are both: housing can have a programmatic dimension since it represents a particular kind of social or welfare policy. At the same time, infrastructure can have a non-programmatic component because the reconstruction of public works can be connected with leaders' managerial capacity to handle the post-disaster scenario.

The survey results provide evidence supporting the idea that disaster victims are self-interested, according to the definition laid out above, and only focus on private benefits. Even though the earthquake has severely damaged their communities, they are not more likely to prioritize the reconstruction of public infrastructure. To understand these results, it is important to distinguish between rationality and selfishness (Edlin, Gelman and Kaplan, 2007). Voters can be rational by not prioritizing collective goods that can also improve their living conditions, because they are only focused on the reconstruction of their houses, and unable to see the problem from other angles. Simply put, disaster victims are rational but myopic.

My analysis also addresses a possible concern regarding variation in material damage experienced within the exposed group. In the affected regions some people lost their houses and essential belongings but others living in the same area did not. Because of this variation, the emphasis only on housing could be read as pro-social rather than self-interested: less affected citizens may care about the reconstruction of houses, even though they will not benefit from this program. To ad-

dress this possible concern I focus only on exposed counties that were severely affected by the earthquake. Specifically, a treated county is the one where the strength of shaking produced by the catastrophe was above a particularly high threshold. This decision helps to better identify affected respondents and reduce sensitivity to hidden biases as explained in the following section.

Another way to interpret the main findings is by understanding citizens' decision-making process as based on a trade-off between private and public goods. Victims first focus on their own home and only then do they pay attention to infrastructure. In this sense, the results might not indicate self-interested or myopic behavior. Nevertheless, it is worth remembering that the outcome is constructed using a question where respondents select three priorities and not just one. So, if there were a trade-off between priorities occurring, we might observe disaster victims selecting housing first and then infrastructure second or third, which is not the case. Affected citizens are not more likely to mention infrastructure as a first, second, or third concern. As a point of comparison, affected respondents are four times more likely to prioritize judicial reforms and almost ten times more likely to focus on combating drugs than on infrastructure. It is surprising that this issue is not a concern after a devastating earthquake with so great a magnitude that the day was shortened by 1.26 microseconds (Buis, 2010).

3 The 2010 Earthquake in Chile

The 8.8 earthquake that shook the central-southern regions of Chile in February 2010 was, according to the United States Geological Survey, the sixth largest ever documented.[6] More than 12,000 people were injured and more than 500 were killed by the catastrophe (Choi, 2012). Across Chile, six out of fifteen regions were officially declared affected areas by the government.

The disaster devastated the exposed cities and localities. Based on the official reconstruction plan, 220,000 houses suffered severe damage or were destroyed, 4,353 schools were damaged, 40 hospitals were severely damaged, and 17 hospitals were completed destroyed. In terms of public infrastructure, the country had 1,554 kilometers of damaged roads, 212 bridges destroyed or almost

[6] United States Geological Surveys, "20 Largest Earthquakes in the World."

destroyed, and nine airports that suffered different degrees of damage (Government of Chile, 2010). With such largescale destruction, we would expect disaster victims to be increasingly concerned about housing and infrastructure. The postdisaster reconstruction indeed became the most pressing challenge for the president of the country Sebastian Piñera. He proposed a reconstruction plan of US 8.431 billion distributed to the ministries of housing, education, health, and public works (Arana Araya, 2016). The state's response to this disaster can be divided into two stages: In the first, the state provided an immediate response, which took the form of emergency aid. In the second, it focused on reconstruction and rebuilding (Sehnbruch et al., 2016).

This disaster had long-term consequences in the affected regions. As the United Nations Office for Disaster Risk Reduction reports, the repercussions from the earthquake were still an issue more than two years after the shock (McClean, 2012). In 2013, the year of the subsequent presidential election and three years after the earthquake, the government was still delivering new houses in the affected counties.[7] In summary, this disaster was strong enough to modify affected citizens' priorities toward the reconstruction and repair of damaged houses and public infrastructure.

4 Research Design

To study disaster victims' political priorities, I exploit three nationally representative surveys, two implemented three and six months before the earthquake and one conducted three months after it. These surveys were implemented by the same institution and followed the same sampling strategy.[8]

I implement a difference-in-differences strategy (DID) with these three surveys. The assumption underlying this empirical strategy is that the treatment and control outcomes move in parallel trends when there is no treatment, such that any divergence from these paths can be interpreted as a treatment effect (Angrist and Pischke, 2014). According to this logic, it is possible to identify two groups in the post-disaster survey, individuals living in exposed and non-exposed areas, as well as

[7] La Nación, "Entregan 150 viviendas en Yumbel para damnificados del terremoto."
[8] Surveys from the Centro de Estudios Públicos (CEP). All use a probabilistic sampling strategy.

two groups in the pre-disaster surveys, respondents living in areas that will and will not be exposed to the earthquake. Though we might think that residents of exposed and unexposed areas are different across multiple unobserved covariates, by including pre-disaster surveys, we only need to assume that there are parallel trends within these groups across time.

Obviously, DID presents some limitations. First, when the treatment is as good as random this is an appropriate empirical strategy for avoiding common endogeneity issues (Bertrand, Duflo and Mullainathan, 2004). The treatment, in this case, is exposure to the earthquake. Because this type of natural disaster cannot be anticipated and the entirety of Chile has been exposed to earthquakes in the past, all counties are eligible for treatment. This feature increases the comparability between counties from different regions.

Second, when implementing a DID with survey data and focusing on particular regions of a country, the composition of one of the groups pre/post-intervention might not be stable across surveys due to sampling variability. This issue might threaten the validity of the DID, because groups might no longer be comparable across time. The lack of comparability, or in other words, the existence of imbalances in one of the groups, can lead to biased results since we will not know if a treatment effect is explained by the intervention or by the different group composition across time.

To address this potential issue, I use matching to construct a synthetic panel that guarantees covariate balance between the pre/post control and exposed groups, and implement a DID strategy in this matched sample.[9] To achieve covariate balance, and consequently to construct the synthetic panel, I use the designmatch package (Zubizarreta and Kilcioglu, 2016). This provides a flexible matching approach that allows us to obtain different forms of covariate balance (Resa and Zubizarreta, 2016). In this case, I use fine balance, which focuses on balancing the marginal distributions of the exposed and control groups exactly in aggregate but does not constrain who is paired with whom as exact matching does (Rosenbaum, Ross and Silber, 2007). Put simply, if in the exposed group there are five women and ten men, after using fine balance, in the matched

[9] O'Neill et al. (2016) propose adjusting for past outcomes before implementing the DID. However, that approach requires actual panel data.

control group there will be five women and ten men, but a woman does not have to be paired to a woman.[10] I use fine balance because, as oppose to mean balance, it guarantees covariate balance across multiple waves.[11] Furthermore, it is less restrictive than exact matching since it does not focus on pairing.

The process of constructing the synthetic panel has seven steps. First, I define the covariate balance requirements. There are not any pretreatment covariates available because I use survey and not panel data. In this case, it is best to use individual characteristics that will not be affected by the treatment (Rosenbaum, 1984; Gelman and Hill, 2007). I adjust for age,[12] education,[13] gender,[14] and voter registration.[15] Second, I use matching in the post-disaster survey to find a matched sample that satisfies the covariate balance requirements (i.e., fine balance). Third, I use the matched exposed group (from step 2) as a baseline to construct the synthetic panel.[16] I match that group with the control group from the first survey implemented before the earthquake (i.e., respondents living in an area that would not be exposed to the disaster). Fourth, I use the baseline group again but now match it to the exposed group from the first pre-disaster survey (i.e., respondents living in the area that would be exposed to the disaster). Fifth, I again use the baseline group, matching it to the control group from the second survey implemented before the earthquake. Sixth, I return to the baseline group and match it to the exposed group from the second pre-disaster survey. Finally, after the first six steps, I have multiple groups with the same composition of age, gender, education, and voter registration (due to the fine balance constraint). I merge them to form the synthetic panel of survey data.

[10] This assumes that there has been no pruning of observations in the treated group to achieve covariate balance.

[11] For example, if the mean balance constraint is a standardized difference of 0.1 between a group in wave 1 and wave 2, it will be possible to see a difference of 0.2 between wave 1 and wave 3.

[12] 1: Less than or equal to 29 years old, 2: 30-39 years old, 3: 40-49 years old, 4: 50-59 years old, 5: 60-69 years old, 6: greater than or equal to 70 years old.

[13] 1: no education or primary education incomplete, 2: primary education complete or secondary education incomplete, 3: secondary education complete, 4: higher education no college, 5: higher education college.

[14] 1: female, 0: male.

[15] In 2010, only registered citizens were allowed to vote. Registration was voluntary and voting mandatory for registered citizens. Therefore, this is a good proxy of interest in politics. Registration should not be affected by the earthquake because it happened in February 2010 and the next election was not until October 2012. Affected citizens did not have an incentive to register to vote three months after the disaster if the next elections were 28 months away.

[16] Using the matched exposed or control group as the baseline would be the same.

Algorithm 1 Construction of synthetic panel

1. Specify the covariate balance requirements (fine balance for placebo covariates).
2. Find a matched sample that satisfies the covariate balance requirements for the post-disaster sample.
3. Use the matched exposed group (step 2) as a reference to match it with the control group from the first pre-disaster sample.
4. Use the matched exposed group (step 2) as a reference to match it with the exposed group from the first pre-disaster sample.
5. Use the matched exposed group (step 2) as a reference to match it with the control group from the second pre-disaster sample.
6. Use the matched exposed group (step 2) as a reference to match it with the exposed group from the second pre-disaster sample.
7. Merge all the matched samples.

The synthetic panel is based on identifying a pre/post exposed and control group before conducting the matching to achieve covariate balance. To identify exposed units, I use the peak ground acceleration at the county level. This indicator measures the strength or intensity of shaking produced by the earthquake in a given geographic area. This is determined from effects on people, human structures, and the natural environment.[17] Unlike the traditional Richter scale, this metric does not capture the energy released but "how hard the earth shakes in a given geographic area" (Bhushan, 2011). The exposed counties are the ones with a peak ground acceleration (PGA) greater than 0.275 g, which is a traditional cutoff to identify localities severely affected by an earthquake (Zubizarreta, Cerdá and Rosenbaum, 2013; Visconti and Zubizarreta, 2017). The control counties correspond to all the places located in the non-affected regions based on the official reconstruction plan generated by the government (Government of Chile, 2010). Consequently, individuals living in the exposed counties are exposed units, and respondents living in the unexposed counties are control units.[18]

[17] USGS: Magnitude/Intensity Comparison

[18] The existence of spillovers could be a concern, where internal migration from exposed to unexposed coun-

Figure 1: Map of Chile. The regions that were declared affected by the government are in red. This a modified version of the map provided in the Reconstruction Plan (Ministry of Housing and Urban Development, 2010).

This strategy helps to exploit a dose-response relationship: by analyzing a subpopulation in which the treatment effect is larger we can better identify the association between the treatment and

ties could affect the results. However, the reconstruction plan attempted to avoid this situation. Its main goal was to "maintain neighborhood social networks, consolidate existing settlements, and avoid migration from rural areas" (Government of Chile, 2010). In addition, I expect any migration from affected to unaffected areas to bias the effect towards 0. Therefore, any positive effects should be a conservative estimate.

the outcome (Rosenbaum, 2017). The use of extreme treatment conditions helps reduce sensitivity to hidden biases (Rosenbaum, 2004), while the inclusion of marginal exposures can make conclusions more sensitive to unmeasured biases (Zubizarreta, Cerdá and Rosenbaum, 2013). Thus, based on the goal of comparing subpopulations experiencing very different exposures to the treatment, I focus on counties severely affected by the earthquake and counties not exposed to it.

To measure voter priorities, I use the following survey question: "Which are the three problems that the government should dedicate the greatest effort to solving?" Respondents need to enumerate three of these problems.[19] I construct two binary indicators if they mention *infrastructure and public transportation*[20] or *housing*[21] as one of three main issues the country is facing.[22] I use the following equation to estimate the effect of the 2010 earthquake on voter priorities. The units of observation are the survey respondents.

$$Y_i = \alpha + \beta_1 T_i + \beta_2 P_i + \beta_3 T * P_i + \beta_4 X_i + \sigma_n + \varepsilon_i \tag{1}$$

In this DID model, the key parameter of interest is the interaction term β_3, which captures the differences between groups and over time. Y is one of the two binary indicators for the outcome of interest (infrastructure or housing). T depicts the treatment (living in an area exposed to the earthquake or that will be exposed to the earthquake), P describes a post-disaster indicator (survey conducted after the earthquake). X corresponds to the set of covariates used to obtain balance. σ_n represents county fixed effects. I clustered standard errors at the treatment level.

The treatment is the intensity of the earthquake in a given county. The treatment, however, does not only capture damage from the disaster but also the government response to it. In other words, affected citizens both experienced the direct consequences of the earthquake as well as witnessed the government providing public and private goods to affected regions. The peak ground acceleration at the local level thus represents a compound treatment.

[19] The survey included a battery of problems to be selected such as crime, drugs, electoral reform, human rights, corruption, etc.

[20] In the case of the earthquake, this concern can be linked to the reconstruction of public schools, hospitals, and railroads.

[21] In the case of the earthquake, this concern can be linked to the provision of emergency housing.

[22] The same question is asked three times, and respondents need to identify three problems. The binary indicator captures whether infrastructure or housing are included among these three main problems.

How might this affect the interpretation of the main results? Could the main findings be a consequence of the disaster response? Specifically, if the government was only dedicating resources to the reconstruction of public infrastructure, might this explain disaster victims being more likely to prioritize housing? This was not the case in reality: the government response after the earthquake focused on both individual and collective concerns, including both the reconstruction of critical public infrastructure such as hospitals and schools, and the provision of emergency housing (Government of Chile, 2010; Samaniego et al., 2010). As a result, disaster victims should not be more likely to identify housing as a consequence of the government strategy.[23]

5 Results

Table 1 depicts the challenges of using survey data when implementing a difference-in-differences strategy. It is important to remember that if the exposed but not the control group (or vice-versa) is different before and after the intervention in term of their observed covariates, the parallel trends assumption will be hard to hold. Table 1 shows the mean voter registration in the treated and control groups (before matching), which clearly shows an unstable pattern across time for only one of the groups (see more examples using age and education in the supplementary appendix).

Table 1: Mean voter registration (before matching)

Survey	Treated	Control
August 2009	0.833	0.728
October 2009	0.814	0.774
June/July 2010	0.746	0.740

Table 2 displays the results of a t-test comparing the surveys. The evidence shows clear imbalances in respondents' voter registration across the surveys but only in the treated group (i.e., p-values lower than 0.1).

[23] The earthquake happened one week before the beginning of the academic year, so the government paid special attention to the reconstruction of schools. Furthermore, the provision of housing was a high priority since winter was only four months away.

Table 2: P-value voter registration (before matching)

Surveys	Treated	Control
August 2009 - October 2009	0.565	0.194
August 2009 - June/July 2010	0.009	0.733
October 2009 - June/July 2010	0.046	0.323

One way to obtain covariate balance and, thus, achieve comparable samples is to use matching. Figure 2 shows how fine balance works, and in particular, how these three surveys are now comparable regarding observed covariates after matching. As a result, the parallel trend assumption becomes more credible.[24]

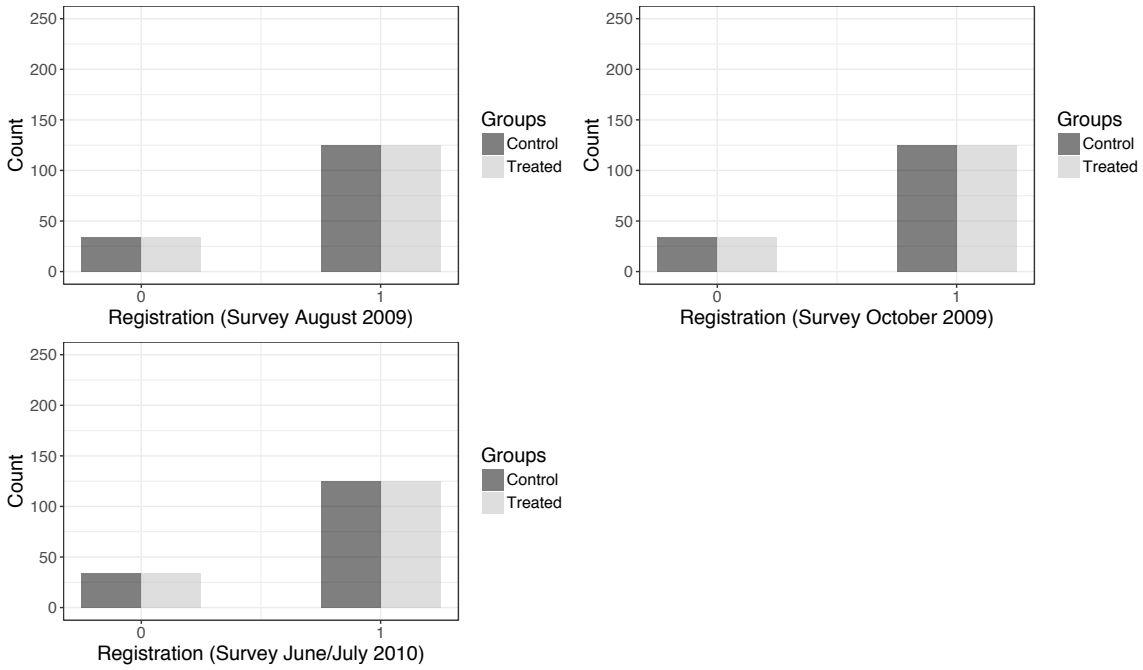

Figure 2: Fine balance after matching

The next two tables show the means and the p-values for the t-test after matching, which illustrate how these groups are now comparable across time.

[24] The matching algorithm maintains 55% of the available units in order to achieve covariate balance.

Table 3: Mean voter registration (after matching)

Survey	Treated	Control
August 2009	0.786	0.786
October 2009	0.786	0.786
June/July 2010	0.786	0.786

Table 4: P-value voter registration (after matching)

Surveys	Treated	Control
August 2009 - Survey October 2009	1.00	1.00
August 2009 - Survey January 2010	1.00	1.00
October 2009 - Survey June/July 2010	1.00	1.00

Figure 3 displays the evolution of outcomes across time using the matched sample to empirically observe voter priorities before and after the February 2010 earthquake.

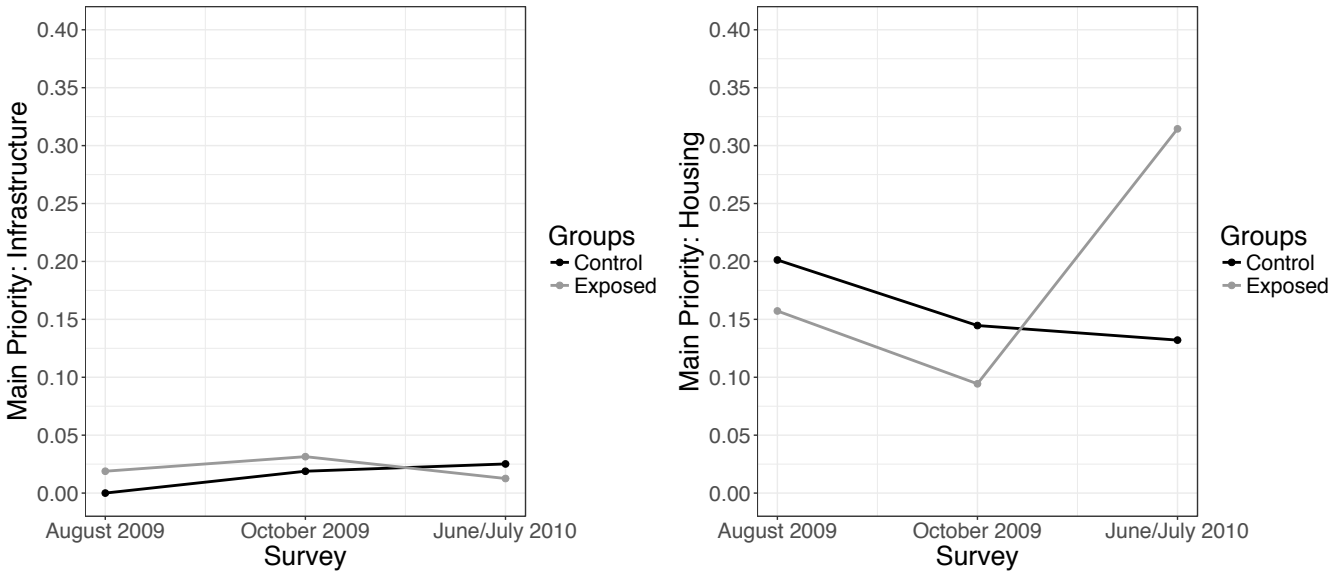

Figure 3: Priorities across time (matched sample)

This plot illustrates the stability of voter priorities about infrastructure regardless of the dev-

astating consequences of the earthquake, and how exposed respondents dramatically modify their concerns about housing after the earthquake. Table 5 reports the β_3 coefficient (interaction term) when using equation 1 in a matched sample with the post-treatment survey (three months after the disaster) and two pre-treatment surveys (three and six months before the disaster).

Table 5: Regression results

	Priorities	
	Infrastructure	Housing
	(1)	(2)
Treatment*Post (β_3)	−0.008	0.219***
	(0.016)	(0.075)
Observations	954	954

Variables not shown: treatment, post, placebo covariates, and county fixed effects.

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

The key coefficient of interest in equation 1 corresponds to the interaction term, which represents the effects of the earthquake after accounting for differences between groups and over time. The earthquake has no effect on concerns about infrastructure (column 1) but increases those about housing by 22 percentage points (column 2). Returning to the theory differentiating four types of affected citizens presented in section 2, we now have evidence to define them as *self-interested victims* who only prioritize their personal gains and are not more likely to focus on the distribution of collective goods.

6 Falsification Test

I also implement a falsification test for an effect we know to be absent (Keele, 2015). Specifically, I compare the matched samples from the surveys implemented six months and three months

before the earthquake. I use a difference-in-differences strategy where "post" is the survey conducted three months before the earthquake and "treatment" is living in a county that would be exposed to the earthquake in three or six months. We would expect the interaction term to not be significant because we are comparing pretreatment surveys.

Table 6: Regression results

	Priorities	
	Infrastructure	Housing
	(1)	(2)
Treatment*Post (β_3)	−0.005	0.011
	(0.016)	(0.066)
Observations	636	636

Variables not shown: treatment, post, placebo covariates, and county fixed effects.

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

The results show that there is no substantive nor significant distinction between these two surveys. Thus, if there is a post-treatment difference between groups, it can be attributed to the 2010 earthquake.

7 Robustness Check

If disaster victims are not more likely to focus on infrastructure, we might also expect them to not be more likely to pay attention to education and health either, two public goods directly connected with the consequences of the disaster. The earthquake damaged and destroyed schools and hospitals across the regions affected. Table 7 reports the β_3 coefficient when using education and health as outcomes.

Table 7: Regression results

	Priorities	
	Education	Health
	(1)	(2)
Treatment*Post (β_3)	0.027	−0.072
	(0.069)	(0.083)
Observations	954	954

Variables not shown: treatment, post, placebo covariates, and county fixed effects.

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

The disaster has not changed victims' focus on education or health in a substantive or significant way (interaction term), despite the massive destruction of public infrastructure. These findings provide extra evidence about affected citizens' myopia and self-interest.

8 Traditional Approach

How different are the results without using matching to reduce imbalances across time? Table 8 replicates the main results but without using a synthetic panel.

Table 8: Regression results

	Priorities	
	Infrastructure	Housing
	(1)	(2)
Treatment*Post (β_3)	−0.010	0.147***
	(0.017)	(0.045)
Observations	1776	1776

Variables not shown: treatment, post, placebo covariates, and county fixed effects.

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

As in the main results, the earthquake has a substantive and significant effect on housing but not on infrastructure. There is an important difference, however, between the results produced using the synthetic panel and the original survey data: in the latter, the effect of the earthquake on housing is smaller, decreasing from 22 to 15 percentage points. As a consequence, it is possible that in cases where the treatment does not have as large an effect as in this study, imbalances might lead to biases that can actually affect the interpretation of the evidence. In other words, the difference between both analyses could be more problematic in cases with smaller treatment effects.

9 Conclusions

Concerns about the intensity and frequency of natural disasters have increased in recent years, in particular due to studies that connect catastrophes with global warming (Van Aalst, 2006; Lippsett, 2012). Even though earthquakes are not associated with climate change, this study of the 2010 earthquake in Chile provides us with lessons to better understand victims' political preferences after other types of disasters such as floods, hurricanes, and tropical storms. All of these

events have a key commonality: they diminish residents' living conditions and, therefore, will change their top priorities.

The 2010 earthquake in Chile provides an opportunity to learn about the political consequences of natural disasters through a carefully designed observational study. Because all regions in the country have been affected by this kind of natural catastrophe, all residents are eligible to be exposed to an earthquake. This feature increases comparability between affected and unaffected people. I construct a synthetic panel to be able to use multiple surveys and to implement a difference-in-differences strategy. Additionally, I use elements of design sensitivity literature to construct a study that is less likely to be affected by unmeasured covariates. Specifically, I focus on extreme treatment conditions to achieve that goal (Rosenbaum, 2004, 2011; Zubizarreta, Cerdá and Rosenbaum, 2013). In an observational study, the findings will have more credibility when they are based on serious attempts to reduce and assess the impact of hidden biases (Rosenbaum, 2006).

The main findings show that affected citizens are self-interested since they are not more likely to cite infrastructure as one of the most significant problems in their country, even though the earthquake in question caused massive damage to public infrastructure and transportation, and even though had the chance to select their three top priorities. On the contrary, disaster victims are 22 percentage points more likely to highlight housing as a concern. These results speak directly to recent evidence that re-evaluates the relevance of voters' egotropic concerns (Murillo and Visconti, 2017; Visconti, 2017) when making electoral decisions in Latin America.

These findings are novel evidence of the political consequences of natural disasters. The extant literature tends to focus on how voters evaluate incumbents after such events. If citizens have new priorities, however, these might also affect their electoral choices. The prioritization of housing might be an important causal mechanism that allows us to better understand disaster victims' electoral preferences. The salience of new issues, like housing, might make victims more likely to vote for candidates associated with those concerns (Bélanger and Meguid, 2008). Therefore, affected voters might not focus on the evaluation of incumbent performance. If they are particularly concerned about the reconstruction of their houses, they should also select politicians connected with

the promotion of social and welfare policies such as new housing.

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