After the Flood: Natural Disasters and Electoral Choices in Chile *

Giancarlo Visconti†
Purdue University

March 1, 2019

*I thank Lonna Atkeson, Hector Bahamonde, Abhit Bhandari, Ernesto Calvo, Daniella Gitlin, Sarah Goldberg, Donald Green, Kathleen Griesbach, Kirk Hawkins, Shigeo Hirano, Macartan Humphreys, Kimuli Kasara, Juan Pablo Luna, Noam Lupu, Thomas Leavitt, Luis Maldonado, Isabela Mares, Yotam Margalit, John Marshall, Eduardo Moncada, Victoria Murillo, Anselm Rink, Viviana Rivera-Burgos, Fernando Rosenblatt, Robert Shapiro, Tara Slough, Johannes Urpelainen, Joonseok Yang, José Zubizarreta, and participants at the Midwest Political Science Association conference, the Seminar on the Study of Development Strategies, the Columbia Graduate Student Presentations seminars, the Latin American Studies Association conference, the REPAL conference, the Universidad Católica seminar, the Alberto Hurtado University seminar, the Universidad de Chile seminar, and the Columbia Causal Inference in International Political Economy class for their valuable comments and suggestions. Andrea Castellón, Beatriz Roque, Andres Rodríguez, and Matías Vallejos provided superb research assistance. The survey, conjoint experiment, and interviews were implemented under Columbia University IRB Protocol AAAP5953. The design was registered at Evidence in Governance and Politics prior to any research activities. This project was funded with two grants provided by the Political Science Department at Columbia University. All errors are my own.

†Assistant Professor, Department of Political Science, Purdue University, West Lafayette, IN 47907, email: gviscont@purdue.edu.

Abstract

What types of candidates become more attractive to voters after a natural catastrophe? Even as climate change has increased concerns about the frequency and intensity of natural disasters, the effects of these negative events on voter behavior are not yet well understood. The extant literature focuses on how voters punish or reward incumbent performance based on a model of (mis)attribution of responsibilities. However, disaster victims might also prefer specific types of candidates when making electoral choices. To analyze this hypothesis, I use a natural experiment created by the floods that occurred in Chile in 2015 to take advantage of random variation in citizens' exposure to a disaster. I then capture voters' electoral choices using a conjoint survey experiment. The findings show that material damage caused by the flood increased the probability of voters selecting left-wing candidates, who can be associated with social policies that can ameliorate the repercussions of the catastrophe.

Keywords: Political Behavior, Electoral Choices, Natural Disasters, Natural Experiments, Conjoint Experiments.

1 Introduction

Climate change has increased concerns about the frequency and intensity of natural disasters. According to NASA, global warming will increase the likelihood of these events in the future,[1] which could lead to a greater risk of inland flooding and tropical cyclones (Van Aalst, 2006). Disaster victims face a variety of negative effects on their living conditions, such as income reduction, the deterioration of public services, and post-traumatic stress disorder. Consequently, it is not surprising that there is consistent evidence showing that natural catastrophes can affect voters' electoral choices (Oliver and Reeves, 2015).

Despite these known effects, the mechanisms underlying voter behavior after natural disasters are not yet well understood. Why do citizens change their political behavior after catastrophes? The extant literature focuses on the evaluation of incumbent performance. In particular, it has mainly explored whether voters punish or reward the ruling candidate after a negative shock: for example, if the disaster increased or decreased support for the candidate or party in power, as measured through the incumbent vote share. Most of these findings have been attributed to voters' (mis)evaluations of past events.

This previous research has failed to consider that certain types of candidates might become more attractive to voters after a natural disaster. Affected citizens might not only sanction incumbents but also select political leaders based on the new context. In this paper, I show that disasters do not only affect incumbent voting as we know but also which kinds of authorities are selected.

Trying to address this puzzle presents multiple methodological challenges. First, even though the origin of natural disasters might be exogenous to incumbents' performances, these events are not randomized experiments. Indeed, damage incurred by disaster victims can be correlated with a variety of characteristics: for example, poor individuals might be more likely to live in high-risk areas, such as close to a river or near the mountains. Therefore, certain voters might have a greater chance of being exposed to a natural disaster.

[1] See: "The Impact of Climate Change on Natural Disasters."

Second, previous research designs do not tend to account for the importance of sample homogeneity for drawing more credible inferences. Ideally, an observational study should compare subjects from the same natural blocks, such as students from the same school or patients from the same hospital (Pimentel et al., 2015). By drawing units from the same homogeneous sample, the treated and control groups may have similar distributions of unobserved covariates, which will improve comparability between units and reduce sensitivity to hidden biases (Rosenbaum, 2011; Keele, 2015). Few studies, however, take this point into account: rarely do treated and control units come from homogeneous samples.

The third methodological challenge is that the characteristics of candidates might be endogenous to the disaster. For example, it is possible that parties tend to nominate candidates with certain attributes in districts exposed to catastrophes. As a consequence, it is important to isolate candidates' characteristics from the disaster itself.

My research design addresses each of these concerns, focusing on a particular case of flooding in northern Chile. In March 2015, unseasonably heavy rains in that region of the country triggered flash floods, causing severe damage in numerous cities and towns. I focus on a district called Paipote, which was severely affected by the disaster. Some parts of Paipote, however, were not exposed to the flood because of haphazard circumstances. This provides an opportunity to compare voters indirectly affected by the flood (those who experienced isolation and a scarcity of supplies for several days but no material damage) with those who were directly affected by the disaster (those who experienced material damage in addition to isolation and scarcity).

This case allows us to address two of the aforementioned methodological challenges. First, the as-if random nature of exposure to the flood enables us to better identify the political consequences of a natural disaster: unexposed people had not sorted or selected their houses based on their expectations of being affected by a disaster since the magnitude and trajectory of the flood were unpredictable. Second, because Paipote is a homogeneous low-middle income town, the comparability between voters and, therefore, our ability to draw credible inferences from the data, increases.

To better understand what candidates may become more appealing to voters after a natural disaster, I conducted an original survey with an embedded conjoint experiment in the more- and the less-affected areas of the town three months after the disaster. The main goal of the conjoint analysis was to determine how people value different candidate attributes when making electoral decisions. By randomizing candidates' characteristics, the conjoint experiment allows us to identify the effects of each of these attributes in a mayoral race (Hainmueller, Hopkins and Yamamoto, 2014). Furthermore, by using hypothetical candidates who were not nominated by political parties but rather randomly generated, this approach helps address the third methodological concern.

I argue that disaster victims are more likely to prefer candidates who can improve their living conditions and well-being after a natural catastrophe. I expect two kinds of candidates to be rewarded after natural disasters based on victims' attempts to reduce the gap between their standard of living before and after the negative shock: those who are associated with the provision of relief and/or social benefits (i.e., welfare candidates), and those who provide signals that they will competently handle the consequences of the shock (i.e., managerial candidates).

The combination of the conjoint and natural experiments shows that having experienced material damage from the flood increases the likelihood that a voter will prefer left-wing candidates over those from the right and center by 12 percentage points. This finding is consistent with the idea that citizens affected by natural disasters seek to improve their living conditions, which leads them to prioritize social policies after the catastrophe (for example, new housing), and therefore be more likely to vote for the left-wing candidates associated with such measures. Survey data from Chile shows that a majority of respondents link the distribution of public housing with left-wing politicians,[2] then this ideological label can work as a meaningful heuristic in this context. However, in countries where ideology is less salient, voters can use other shortcuts to identify the candidate that provide them the welfare they need (e.g. party labels).

Also, the evidence from the conjoint and natural experiments shows that non-ideological candidate characteristics (e.g., profession, age, and experience) are not relevant to voters when making

[2] See Visconti (2019*b*) for this evidence and a broader discussion of the role of ideology in Chile.

electoral decisions after the catastrophe. Therefore, the main findings demonstrate that affected citizens are rewarding welfare but not managerial candidates after the flood.

This paper provides four main contributions to the existing literature. First, it investigates a previously overlooked research question about what types of candidates become more attractive to voters after natural disasters. The results indicate that left-wing candidates have a natural advantage after such events. Though the selection of political leaders is a critical component of voters' electoral choices (Fearon, 1999), previous research has focused on traditional sanctioning arguments based on incumbent performance. This paper, in contrast, stresses the importance of voters' living conditions, and how disaster victims select candidates who can improve them. This logic is not limited to natural disasters, but rather can be applied to other types of adverse circumstances. Using a similar rationale but studying a different negative event, we can imagine that right-wing politicians will more likely benefit during a crime wave because voters might associate them with crime-reduction policies.

Second, this article helps illuminate a crucial question in any democratic context: do people care more about policy or competence after a negative event? On the one hand, we can expect affected citizens to reward the candidate who can provide them what they need to improve their living conditions. On the other, we can imagine disaster victims to be more likely to prefer a politician who can effectively deal with the consequences of the catastrophe. The results show that voters focus on policy rather than on competence after this negative event.

Third, this paper shows that disaster victims are changing their electoral choices and policy preferences but not their beliefs (i.e., ideological position on the left-right spectrum). This demonstrates that voters can have flexible preferences based on the particular circumstances they are facing. The context is crucial to explaining people's electoral choices: on some occasions, they might be willing to yield ground on their beliefs to get what they need.

Fourth, climate change has increased our concerns about natural catastrophes, and floods are one of the key events that can be connected to global warming. In this context, learning more about how victims react to these disasters and what they expect from the government becomes crucial.

The empirical strategy follows a design-based approach to causal inference (i.e., the combination of natural and conjoint experiments), qualitative interviews to illuminate the causal mechanisms at work, the implementation of a behavioral benchmark to compare the findings from the conjoint experiment with the real electoral results after the flood (see Appendix A), and the use of survey data from another disaster in a different region in Chile to improve external validity (see Appendix B). The study was registered at Evidence in Governance and Politics prior to the initiation of any research activities (see Appendix C).

2 The Evaluation of Incumbent Performance

Research about how natural disasters affect voters' electoral and political choices has increased in recent years. Most of this literature focuses on voter evaluation of the incumbent based on a process of (mis)attribution of responsibilities (Healy and Malhotra, 2009, 2010; Gasper and Reeves, 2011; Bechtel and Hainmueller, 2011; Remmer, 2014; Lazarev et al., 2014; Achen and Bartels, 2016), or on factors that blur the attribution of responsibility after disasters (Arceneaux and Stein, 2006; Malhotra and Kuo, 2008; Maestas et al., 2008; Gomez and Wilson, 2008; Atkeson and Maestas, 2012).[3]

There are two main arguments in the literature about attribution of responsibilities after natural disasters. The first holds that voters are myopic. For instance, Achen and Bartels (2016) argue that voters will punish the government during hard times regardless of its ideological platform or performance. Studying the electoral consequences of floods, droughts, and shark attacks in the United States, the authors find that the electorate holds incumbents responsible even for calamities beyond their control.

The second argument posits that voters reward or punish incumbents depending on their performance handling the consequences of the disaster. For example, Healy and Malhotra (2010)

[3] There is also a group of articles that study how natural disasters affect turnout (Gomez, Hansford and Krause, 2007; Sinclair, Hall and Alvarez, 2011; Chen, 2013; Lasala-Blanco, Shapiro and Rivera-Burgos, 2017), political attitudes (Abney and Hill, 1966; Fair et al., 2013; Carlin, Love and Zechmeister, 2014; Kosec and Mo, 2015; Maldonado, Kronmüller and Gutierrez, 2016), and voters' information about the incumbent (Ashworth, Bueno de Mesquita and Friedenberg, 2014).

estimate the effects of exogenous economic losses on electoral outcomes. They find that after tornadoes, voters will punish the incumbent only when no disaster declaration has been made. Therefore, voting behavior in adverse conditions seems to judge competence, rather than being a process of irrational blaming.

Traditional sanctioning arguments, however, only tell one part of the story of how disaster victims make electoral choices. For instance, when the incumbent poorly handles the disaster, we might expect voters to punish them and select another candidate from among the pool of challengers, but we do not know which candidate will be more likely to be elected. In this case, sanctioning arguments do not allow us to infer which challenger will be selected by disaster victims. In Latin America, where all the countries have multiparty competition (i.e., more than one challenger), this last point is particularly important.

3 The Selection of Candidates

What kind of leaders is the electorate looking for after a natural disaster? I argue that affected voters' choices are driven by instrumental motivations generated by the material damage caused by natural disasters. In particular, disaster victims will make rational decisions about which leader will improve their standard of living.

Affected citizens' instrumental decisions are motivated by new concerns after a natural catastrophe. This reordering of personal priorities and goals implies a reassessment of voters' electoral choices. Victims will make political decisions based on the expected benefits they will receive. That association can be done "without requiring the (probably heroic) assumption that voters actively seek out and process policy-relevant information" (Kim and Margalit, 2017, p.6), because citizens can draw on informational cues and heuristics to make simple connections between policy outcomes and candidate characteristics (Hamill, Lodge and Blake, 1985; Lau and Redlawsk, 2001).

Accordingly, I expect two different kinds of candidates to be rewarded after natural disasters

based on victims' attempts to improve their living conditions. The first profile is the "*Welfare Candidate*," a politician that gives rise to expectations of future distribution of welfare. However, welfare can take multiple forms: for instance, a candidate can provide financial relief (short-term benefits) and/or pass social policies (long-term benefits).

Regarding the short-term benefits, affected voters will prefer candidates who send strong signals about the distribution of financial aid, which can help victims buy food and recover some of their essential belongings. Financial relief, such as the distribution of food baskets, is commonly delivered after natural disasters by NGOs, private actors, and the government, regardless of its ideological affiliation. Voters' expectations of future distribution can be explained by credible promises made by candidates during the campaign or by previous interactions with the candidates.

Regarding the long-term benefits, social policies, such as new housing, become crucial for victims, resulting in their greater likelihood of voting for candidates associated with these measures. Social policies, in contrast to financial relief, fall mainly under the purview of the state, and can be associated with particular parties or ideologies. These policies include, for example, the provision of public housing. Can all candidates promise the provision of social policies after a disaster? Yes, but only some of them can make credible commitments about actually distributing them. The proxy used to identify these types of candidates may be nationally specific: for example, in the case of Chile, left-wing candidates are associated with social policies (Visconti, 2019*b*). The use of ideology as a heuristic is a flexible scope condition. In countries where ideology is less relevant, voters can use other shortcuts to connect candidates with social policies such as party labels or personal traits.

The second profile is the "*Managerial Candidate*." This is a politician who signals that they will competently handle the negative consequences of a disaster. The strength of this type of candidate is based on the idea that a negative event can modify the salience of certain valence issues for affected citizens. A valence issue is one on which all voters hold the same position (Stokes, 1963): for instance, that everyone wants more security, growth, and jobs. In the case of natural disasters, one such issue is that everyone wants a leader competent enough to handle the crisis. Also, valence

issues can become more or less salient based on the specific context (Bélanger and Meguid, 2008).

Research in governance and public management has shown that the managerial quality of local public officials has an impact on municipal performance in Latin America. Specifically, mayors' human capital and experience can explain variation in local performance (Petrovsky and Avellaneda, 2014). To measure managerial quality, the literature has used mayors' education, general experience (age), public sector experience, and job-related experience (Avellaneda and Gomes, 2017).

Therefore, certain candidate characteristics might provide information about their capacity to mitigate the effects of a natural disaster. The electorate might use these candidate characteristics as a proxy for competence and select the politician who better fits with the newly salient problem. I expect that candidates with more education and experience will be rewarded in adverse circumstances. For example, affected voters will be more inclined to vote for an old engineer that was mayor than a young gardener without political experience because the former can be associated with the skills necessary for managing a crisis.

The main findings show that victims support "welfare candidates," but no evidence that they reward "managerial candidates." This represents novel evidence about how voters modify their electoral choices after natural catastrophes, and what kind of leaders they are looking for to handle the effects of disasters.

It is important to ask whether disaster victims are changing their ideological beliefs or are only making strategic electoral choices. The evidence I provide supports the latter argument. Specifically, there is no difference between the exposed and unexposed groups in their ideological position on the left-right scale (see Appendix D). Therefore, the main results show us that victims are updating their policy preferences (i.e. new housing) and they are willing to vote for politicians that can provide them what they need (i.e. left-wing candidates), but they are not modifying their beliefs (i.e., self-placement on the ideological continuum). Accordingly, we would expect that after citizens enhance their living conditions, left-wing politicians might lose their advantage since victims

have not changed their ideological beliefs.[4]

It is also possible that unexposed citizens might modify their political behavior in response to the catastrophe. This spillover effect could be explained by the existence of empathic or altruistic feelings among unexposed citizens, upon witnessing their neighbors' suffering. I find evidence that the voting behavior of unexposed voters supports the idea that these individuals may empathize toward their victim neighbors. They are highly likely to vote for candidates who generate expectations of disaster relief (short-term benefits), and in fact are no different than victims in that regard. Unlike disaster victims, however, they are not more likely to vote for left-wing politicians, who can be associated with social policies (long-term benefits). Qualitative evidence from interviews confirms that unexposed citizens feel empathy toward victims.

4 Research Design

4.1 The 2015 Atacama Floods

The Atacama Desert in northern Chile is one of the driest regions in the world. On March 25, 2015, thunderstorms brought the equivalent of 7 years of rain to the desert in only a few hours, which caused massive flooding in several cities in northern Chile. The terrain in this region is "hard and rocky because rainfall is not frequent or abundant enough for either weathering rocks into sand or supporting the kind of ecosystem that would help turn rocks and minerals into soil. Without soil and plant cover to help absorb rainfall, it just runs off instantly as torrents of water."[5] The floods and mudslides left two dozen people dead and more than a hundred missing, and the government estimated the damage as totaling at least $1.5 billion.[6] More than 30,000 people were affected by the floods, and 3,000 had to live in emergency shelters.[7] As the deputy interior minister declared,

[4] Other negative shocks, such as unemployment and crime victimization, can also affect voters' policy preferences (Margalit, 2013; Visconti, 2019*a*).

[5] The Associated Press, "Thunderstorms Soak Chile Desert in Years of Rain and Kill at Least 9", The Weather Channel, March 27th, 2015.

[6] Taylor, Alan, "Devastating Floods Hit Northern Chile", The Atlantic, April 8th, 2015.

[7] Ford, Dana, "Chile floods: 25 dead, more than 100 missing", CNN, April 25th, 2015.

this was "the worst rain disaster to fall on the north in 80 years."[8] One of the most devastated areas was Paipote, and even though it was severely damaged, some houses in this district were not exposed to the flooding at all.

The floods came from the Andes, following a ravine that was connected downstream with the Copiapó River. However, a small bridge in Paipote stopped the water that was coming from the mountains. A mudslide brought debris, garbage, and sediment that blocked the circulation of water under the bridge. As a consequence, the ravine overflowed, generating damage in many (but not all) areas of the city (see pictures of the bridge and the ravine in Appendix E).

The difference between the more and the less affected areas was that in the former the water flooded houses and generated massive material damage. People living in the most affected sectors lost their homes (and had to live in emergency housing) and their belongings. People living in the less affected areas were isolated for a number of days and suffered from a scarcity of food and supplies. In those areas, there was only a small amount of water in the streets, and it did not enter the houses.

The research design attempts to address each of the three problems presented in the introduction. First, I use a natural experiment where the treatment as a haphazard nature. Second, I focus on a homogeneous town to increase comparability between units and reduce sensitivity to hidden biases. Third, I implement a conjoint experiment to rule out the role of parties nominating particular candidates in the affected districts.

4.2 Natural Experiment

A natural experiment is a particular and rare circumstance where some people are exposed to the treatment but others are not, and none of these individuals can predict their future treatment status. The units cannot self-select themselves into the treatment or control groups; and pretreatment covariates should be, in expectation, similar across both groups (Keele and Titiunik, 2016).

In the case of Paipote, the treatment corresponds to the existence of material damage to people's

[8] Staff and agencies in Santiago,"Floods swamp Chile's Atacama region", The Guardian, March 26th, 2015.

houses. I define as "more affected areas" the sectors where water entered the houses and people therefore suffered material damage due to the flood. I define as "less affected areas" the sectors where the flood did not enter houses and the citizens were only indirectly affected.[9]

The overflow of Paipote's ravine has two main elements that make it possible to define this situation as a natural experiment. First, the magnitude and trajectory of the flood were unpredictable; interviews show that people were not aware of the potential consequences of the rainfall the day before the disaster. Second, people were not aware of the possible negative externalities of the Paipote Bridge, because this was the largest flood in the region in 80 years and a situation like it had never happened before. Therefore, because the disaster and its consequences (due to the bridge) were not anticipated, one would not expect people to have selected their houses based on their expectations of a future natural disaster. This a critical issue because sorting is one of the main threats to any natural experiment.

The interviews help reconstruct the night of the floods, demonstrating that people living in Paipote were not able to predict which areas would be exposed. The story of Carmen, a 21-year-old mother, is a good example of the two points mentioned above.[10] Carmen lived in an unexposed area where the flood did not enter her house. On the night of the flood she heard firefighters in the streets saying that people needed to evacuate because that area would be affected by mudslides. She decided to go with her baby to her grandparents' house located near the bridge. After a few hours her new refuge was completely flooded, and they barely escaped. Her own house, however, was not affected at all since it was located in an area where water did not enter homes. The decision to move from an unexposed to an exposed area reflects the lack of information about the possible trajectory of the flood (I discuss concerns about spillovers in the next subsection).

Figure 1 shows the more and the less affected areas, the bridge, and the floods coming from the Andes. As expected, the haphazard treatment assignment produced balance in the placebo

[9] I determined if an area was more or less affected using qualitative evidence from fieldwork. This decision is confirmed by official government images (figure 1), a map marked by the local fire department after the flood, and satellite images (Appendix F).

[10] The names of the interviewees have been changed according to the IRB consent form, but the age, gender, and occupation (when reported) have not been modified.

covariates in the survey, as I show in section 5.1.

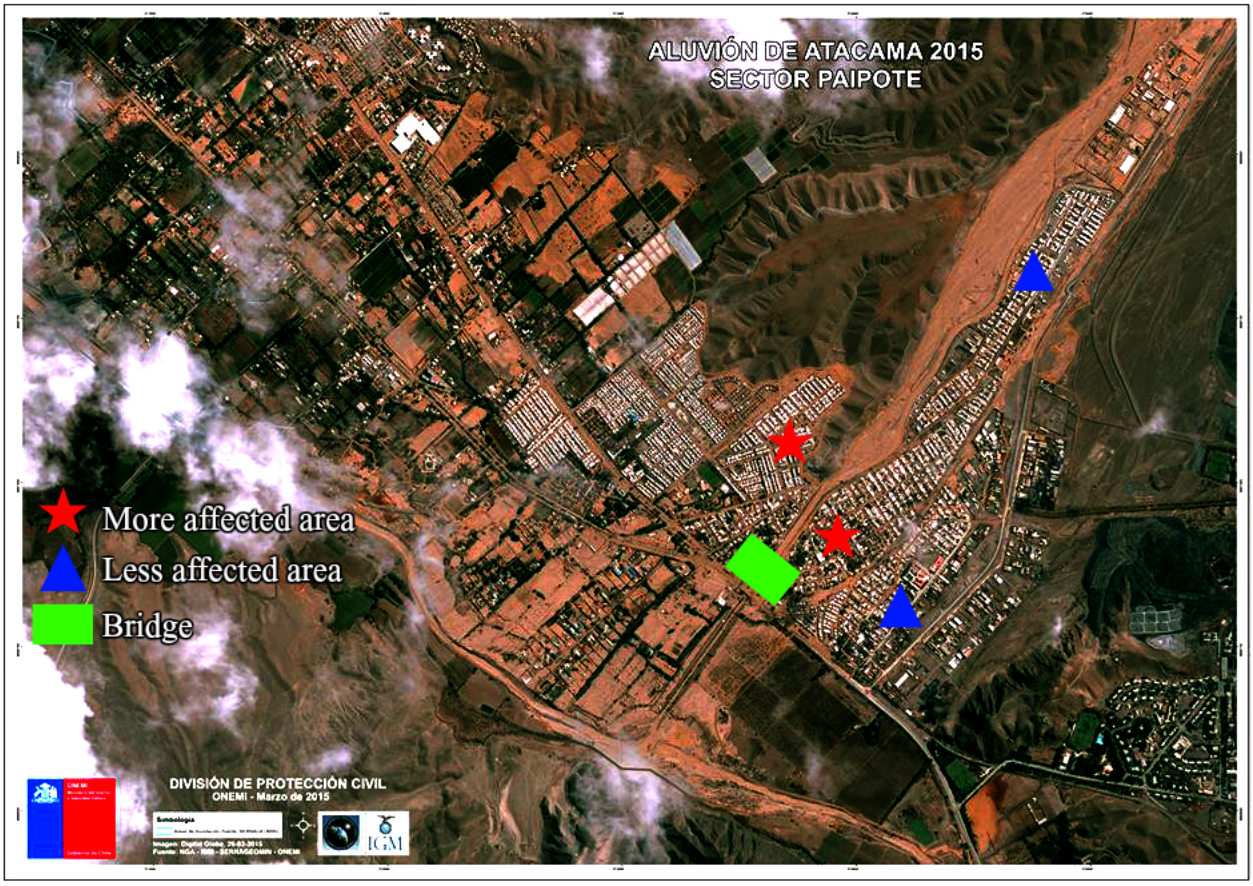

Figure 1: Map of Paipote

4.3 Spillovers

In natural experiments, the identification of causal effects relies on two core (untestable) assumptions. The first is geographic treatment ignorability (Keele and Titiunik, 2016), which means that the distribution of potential outcomes should be the same for the control and exposed areas. The second is non-interference, or in other words, potential outcomes for any subject do not vary with the treatment assigned to other subjects.

However, as described in the theoretical background, unexposed citizens might present empathic feelings, which could be understood as a spillover effect. Non-victims observe how their neighbors were affected, and they might change their preferences based on that experience. Conse-

quently, a finding of no difference between the groups could have two main interpretations: there are no treatment effects or there are spillover effects. How can we differentiate between a null result and a spillover effect? It is impossible to fully distinguish one from the other, but there are some hints that can help us. For example, it is important to inspect the results within each subgroup and provide qualitative evidence to better understand how exposed and unexposed citizens are modifying their electoral choices.

On the contrary, if we do find a difference between the groups, that can also have two main meanings: exposed citizens are changing their preferences more than unexposed people or the groups are altering preferences in opposite directions. Qualitative evidence helps us rule out the second alternative because non-victims have empathic feelings toward affected citizens (see section 6 for details), and therefore both groups should move toward the same direction. As a consequence, the violation of non-interference assumption should tend to bias the effects towards zero; therefore, any effect can be seen as a conservative estimate (Keele, Titiunik and Zubizarreta, 2015). In other words, any significant result can be seen as strong evidence of a treatment effect because this is a hard case for finding any result at all.

4.4 Reducing Sensitivity to Hidden Biases

Comparing units from the same natural block is desirable in observational studies because unmeasured covariates may be more similar within the block (Pimentel, Kelz, Silber and Rosenbaum, 2015). Paipote is a homogeneous low-middle income town -for example, 90% of the survey respondents do not have any higher education- which makes the more and the less affected citizens comparable because they are drawn from the same "natural block." Any additional data that increases heterogeneity can also increase bias (Keele, 2015). Rosenbaum (2005) shows that reducing unit heterogeneity decreases sensitivity to unmeasured biases. In particular, when there is less unit heterogeneity, there needs to be larger unmeasured biases to explain away a given effect (Sekhon, 2009). This benefit cannot be achieved by merely increasing the sample size. As Keele (2015, p.325) summarizes: "there are reasons for focusing on small samples where differ-

ences across treated and control units are reduced not by statistical means but by the design" (see Appendix G for an extra strategy to reduce sensitivity to hidden biases).

4.5 The Conjoint Experiment

Three months after the floods, I conducted a survey in Paipote with a conjoint experiment embedded in it. The sampling strategy was exactly the same across the more and less affected areas. On a given street, all households were invited to participate in the survey. By the end of the survey, almost all streets in town were included in the sampling procedure. Only one neighborhood was not incorporated in the design, because it was both partially affected and a relatively new area, so it could introduce unwanted heterogeneity (see Appendix H for more details about the survey implementation). Nine months after the flood, I interviewed 30 individuals from the same area to illuminate the causal mechanisms behind the results.[11]

I use a conjoint experiment that simultaneously tests the influence of various candidate attributes on respondents' mayoral choices. The survey experiment asked a sample of Paipote residents to decide between two hypothetical candidates running for mayor in the 2016 local elections (see Appendix I for a discussion about why I use local instead of national elections and for more background information on Chilean politics.). The respondents saw information about six attributes of these two candidates: ideological position, gender, previous political experience,[12] profession, age, and proposals for affected citizens (e.g., expectations for financial relief). These characteristics randomly varied across pairings. The outcome was the answer to the following question: if you had to vote for one of these two mayoral candidates, which would you choose? Each of the respondents evaluated eight pairs of profiles. In the analysis I cluster the standard errors by respondent.

I conducted 210 surveys, half in the more affected area of Paipote. Since each respondent rated

[11] 17 exposed and 13 unexposed citizens.

[12] One of the values of the attribute "political experience" is to have experience as "mayor," which might be contaminated by retrospective evaluations. However, in this case study, the previous mayor was still politically active during the floods. In fact, he won the next local election. As a consequence, respondents can associate the label "mayor" to any of the two mayors since both of them competed in the 2016 local election.

eight pairs of candidates, and each pair provides two outcomes (a 1 for the preferred candidate and a 0 for the non-preferred candidate), this led to 3360 observations. Following Hainmueller and Hopkins (2015), I also randomly assign the order of the attributes to rule out primacy effects for each respondent.

Tables 1 and 2 summarize the attributes used to generate candidates and provide an example of a possible pair of profiles evaluated by a respondent. Attributes in both bold and italic represent the candidate characteristics that should be rewarded in comparison to the benchmark category (the first value for each attribute) according to the theory presented in section 3. Welfare candidates are represented by ideology (i.e., left-wing politicians) and expectations of financial relief. A natural concern is if it is realistic to have candidates who promise not to provide financial relief in the aftermath of a disaster. It is important to remind that this attribute attempts to measure people's expectations about the distribution of short-term benefits, and there are no reasons to believe that voters will have uniform expectations across all candidates. Therefore, this attribute can capture this variation. Managerial candidates are described by age, political experience, and education; proxies that have been used in the literature about mayors' managerial quality in Latin America.[13] I do not have expectations about candidates' gender.

[13] See Petrovsky and Avellaneda (2014) and Avellaneda and Gomes (2017).

Table 1: Profile of candidates

Attributes	**Values**
Ideology	Right
	Center
	Independent
	Left
Profession	Gardener
	Teacher
	Engineer
Gender	Male
	Female
Age	30
	40
	50
Previous Political Experience	No experience
	Council Member
	Mayor
Proposal for affected citizens	Will NOT distribute a financial relief
	Will distribute a financial relief

Table 2: Example of experimental design

Attributes	**Candidate 1**	**Candidate 2**
Ideology	Left	Right
Gender	Female	Male
Previous Political Experience	No experience	Council Member
Profession	Gardener	Engineer
Age	30	50
Proposal for affected citizens	Will NOT distribute a financial relief	Will distribute a financial relief

Given that the attribute values were randomized, the design allows us to identify the effect of each attribute on the probability of being preferred as mayor.[14] This can be estimated by regressing the binary outcome (preferred or non-preferred) on the set of attributes for each profile.[15]

In this paper, I mainly focus on the interactions between candidate attributes and treatment

[14] I follow the approach developed by Hainmueller, Hopkins and Yamamoto (2014) to estimate the average marginal component effect (AMCE). This represents the average difference in the probability of being preferred as mayor when comparing two different attribute values: for example, a "female" candidate versus a "male" candidate. And due to the random assignment of attributes, the "female" and "male" profiles will have, on average, the same distribution for all the other attributes (Hainmueller and Hopkins, 2015).

[15] The estimator for the AMCE is nonparametric and does not require a functional form assumption (Hainmueller, Hopkins and Yamamoto, 2014).

status to identify how the damage produced by the flood affected the way people make electoral decisions. I compare the electoral choices of citizens who suffered material damage from the flood with those of citizens who did not. Equation 1 describes the main quantity of interest:

$$Y = \alpha + \beta_1 Ideology + \beta_2 Profession + \beta_3 Gender + \beta_4 Age + \beta_5 Experience + \beta_6 Expectations + \gamma Treatment + \delta_1 Ideology * Treatment + \delta_2 Profession * Treatment + \delta_3 Gender * Treatment + \delta_4 Age * Treatment + \delta_5 Experience * Treatment + \delta_6 Expectations * Treatment + \varepsilon \quad (1)$$

Y represents the candidate selected by the respondents. The coefficients β and δ are vectors, because each attribute contains different values. For example, ideology has four values, but the β vector provides only three coefficients because right-wing candidates are the reference category. The coefficient vectors β_1, β_2, β_3, β_4, β_5 and β_6 describe the effect of the candidates' attributes on the control group. Consequently, the vectors of interest are δ_1, δ_2, δ_3, δ_4, δ_5 and δ_6, because they describe the change in effect of the candidates' attributes between control and exposed conditions (see Appendix J for multiple diagnostic checks for the conjoint analysis).

4.6 Defining the Treatment

Half of the surveys and conjoint experiments were conducted in the more affected areas of Paipote. However, some flood victims moved to houses located in the less affected areas to live temporarily with relatives or friends. In particular, seven survey respondents in a less affected area were actually flood victims who lived in a more affected area the night of the disaster. Therefore, 112 respondents lived in the more affected area during the natural disaster, and 98 in the less affected one.

The haphazard nature of the flood generated two different sectors: one where people suffered extensive material damage due to the flood, and another where the mudslides did not enter homes. Table 3 reports the number of people from these two areas that reported material damage after the

flood.[16]

Table 3: Exposed and unexposed respondents

	More affected area	Less affected area	Total
Material damage reported	109	4	113
No material damage reported	3	94	97
Total	112	98	210

Material damage status is almost perfectly correlated with the area where the subjects were living. In the analysis the treatment status is equal to 1 if the respondent reported material damage, and 0 if he or she reported indirect or no damage.[17] The results are the same when using the area as the treatment (see Appendix K). The subjects who received the treatment will be referred to, from now on, as the "exposed group," and those that did not report material damage as the "unexposed or control group." Five percent of the survey respondents did not want to participate in the conjoint experiment or quit before finishing it: three in the less affected area and seven in the more affected area. I found no evidence to support the idea that the treatment affected the probability of completing the conjoint experiment (p-value: 0.30).[18] These 10 respondents are excluded from further analysis. Therefore, there are 106 individuals in the exposed group and 94 in the unexposed group, which leads to a total of 3200 observations (16 candidate-pairs evaluated by respondent.)

[16] The survey included the following question: How affected were you by the floods? The answers were categorized as follow: 1 when respondents said "nothing happened," 2 when they reported indirect consequences such as isolation, 3 when they reported partial material damage, and 4 when they reported complete material damage. The first and second categories generate the "no material damage" status, and the third and fourth the "material damage" status.

[17] It is possible to imagine that this natural experiment involves assignment to treatment into "hypothetical clusters." However, it is not clear what such a cluster would consist of with this design (a street, a group of streets, a block, a group of blocks, etc.). Additionally, because Paipote is a homogeneous town, I expect the citizens within each "hypothetical cluster" to be no more similar than citizens in other "hypothetical clusters."

[18] I tested this by regressing a binary indicator of a failed conjoint experiment on the treatment.

5 Results: Natural and Conjoint Experiment

5.1 Covariate Balance

The exposed and unexposed citizens should have similar distributions of observed and unobserved covariates. Although there are no pretreatment covariates available in this study, a number of the variables captured in the survey should not be affected by the treatment (placebo covariates), such as gender,[19] age, and education.[20] Table 4 reports the means and the standardized differences for the three placebo covariates.

Table 4: Balance of placebo covariates

Covariate	Mean exposed	Mean control	Standardized difference
Gender	1.72	1.77	0.11
Age	46.21	43.41	0.19
Education	3.20	3.01	0.14

Both groups are comparable because their standardized differences are below 0.2. One-fifth of a standard deviation is the usual rule of thumb for checking if covariate balance was achieved (Silber et al., 2013). It is also possible, however, to improve balance by constraining the standardized differences to be lower than 0.05 using optimal multivariate matching (see Appendix K). This statistical method helps reduce overt biases. Though hidden biases are still a threat in any observational study, the particularities of Paipote (specifically its being a homogeneous residential town) and the haphazard nature of the treatment assignment makes the comparison between these groups more credible.

[19] Male:1, Female:2.

[20] 1: Primary Education Incomplete, 2: Primary Education Complete, 3: Secondary Education Incomplete, 4: Secondary Education Complete, 5: College Education Incomplete, 6: College Education Complete, 7: Graduate Studies.

5.2 Voters' Electoral Choices

Figure 2 provides a graphical comparison of the electoral choices of exposed and unexposed respondents. Based on the theoretical expectations, affected citizens should be more likely to vote for welfare and managerial candidates.

The plots on the left provide the β coefficient vectors for each subgroup of citizens. The plot on the right displays the differences between the exposed and control groups (δ coefficient vectors). These results are interpreted as the effects of the flood on the attributes that explain the probability of being preferred as mayor. The dots indicate point estimates, and the lines indicate 95% confidence intervals. The reference categories are the dots without confidence intervals (the first category for each attribute).

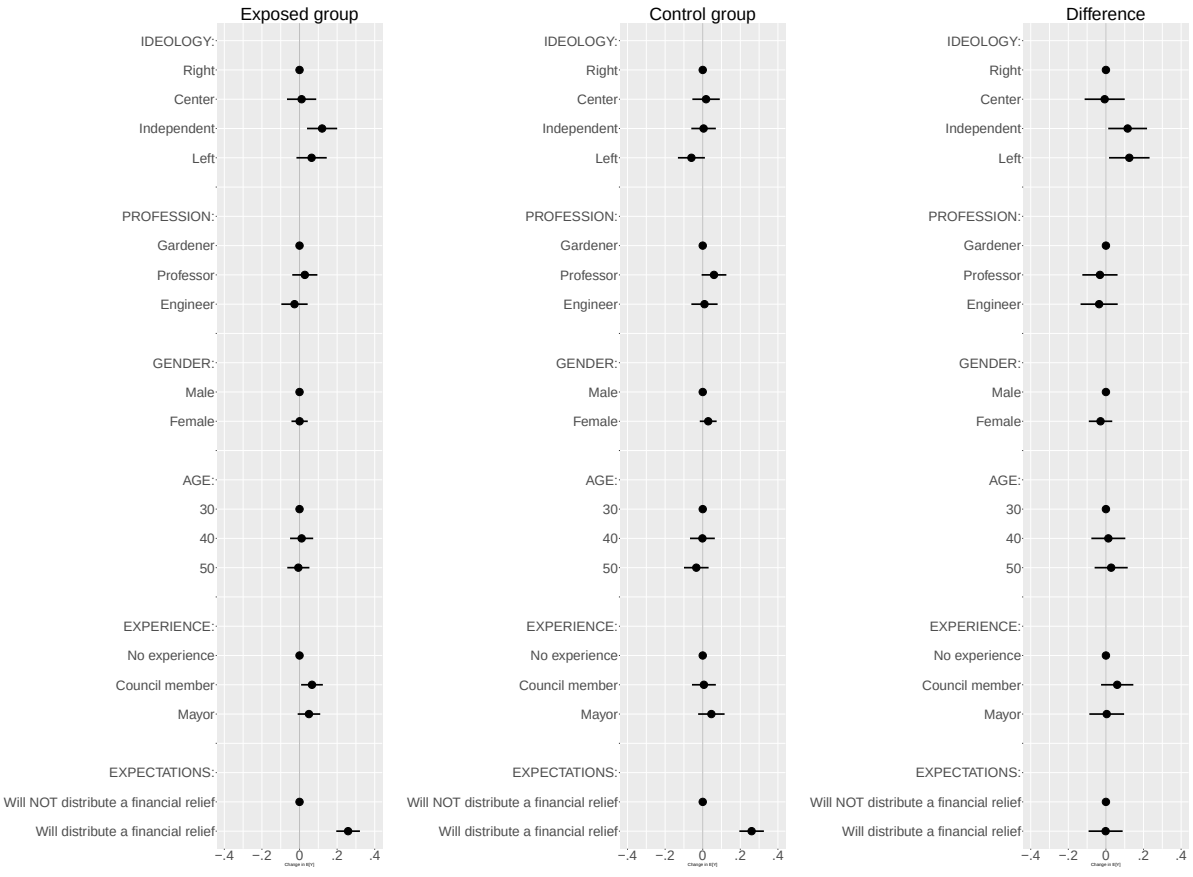

Figure 2: Effects of candidates' attributes on probability of being voted for mayor

Affected and unaffected citizens do have different ideological choices. Independent and left-wing candidates become more attractive for disaster victims. The difference plot shows that flood exposure increases the chances of preferring a left-wing candidate over a right-wing candidate by 12 percentage points. Material damage due to the flood also increases the probability of preferring a left-wing over a centrist candidate by 12 percentage points (the full regression with the β coefficients is displayed in Appendix L).

Why are disaster victims more likely to vote for left-wing candidates? There are two main answers to this question, and the conjoint experiment is not enough to understand the mechanisms involved. One response is that voters associate left-wing candidates with the mayor or the opposition and they are rewarding/punishing real politicians by using ideology as a proxy. However, the mayor of Copiapó does not hold a clear ideological position. He was a member of the Socialist party (center-left) before running as mayor, but in 2008 he switched to the PRI (center) and in 2012 and 2016 ran as an independent (without party affiliation). Therefore, it does not seem that rewarding left-wing candidates is an alternative way to punish the incumbent mayor. A second option is that they prefer left-wing politicians for the policies they can implement. I conducted interviews and provide extra survey evidence to support this former point (I discuss more alternative hypotheses in Appendix D).

Independent candidates also have an electoral advantage in exposed areas, although not over left-wing candidates (see Appendix M). Natural disasters might also modify victims' political attitudes (Fair et al., 2013; Carlin, Love and Zechmeister, 2014). Consequently, the advantage of independent candidates versus right-wing or centrist ones can be an expression of voters' new attitudes toward the political system. There are similar findings in the economic voting literature in Latin America, where negative economic conditions have been associated with the deterioration of traditional parties' vote share (Carreras, 2012; Lupu, 2014; Murillo and Visconti, 2017). Therefore, natural disasters might have the same effect on affected voters, making them more likely to support independent candidates.

Is it possible that independent candidates also provide signals of distribution of social policies? Two years before the floods, in the 2013 presidential elections, Franco Parisi, a candidate who ran using a platform that reinforced his independence from traditional politicians, was able to obtain 10 percent of the vote share. His strategy was to not be considered left or right-wing and to strongly criticizes the party system configured after the transition to democracy in 1990. When respondents evaluate an independent candidate, I expect that they may picture someone similar to Parisi: a candidate who cannot be attached to any clear ideological group or traditional political party. Therefore, there is no reason to believe that the independent label functions as a proxy for the distribution of social benefits such as housing. Independent candidates do not generate clear policy expectations in Chile.

Additionally, it is not contradictory to find that voters are more likely to reward both left-wing and independent candidates. When there is multiparty competition, both kinds of candidates can experience a boost at the same time. Natural disasters can affect citizens' political preferences through multiple causal channels. On the one hand, catastrophes can make victims select candidates that can help them enhance their living conditions (e.g. left-wing candidates). On the other hand, disasters can modify affected citizens' political attitudes and make them more likely to vote for authorities that allow them to channel their anger and frustation (e.g., independent candidates).

The results also provide evidence of voters' empathic feelings in their electoral decisions. Both exposed and unexposed citizens are highly likely to prefer candidates who want to distribute financial relief to disaster victims, even though unexposed respondents were not affected.[21] Why would victims and non-victims have similar preferences regarding the distribution of short-term benefits? This is not a pure null result because this characteristic is the most important factor explaining voters' decisions in each subgroup, but there is no difference between the exposed group and the control. This is congruent with a spillover hypothesis. Non-victims display empathic feelings towards their neighbors because they are seeing them suffer. Qualitative evidence supports

[21] An alternative option is that both groups had the same preference regarding the distribution of short-term benefits before the natural disaster, and material damage due to the flood did not change those preferences. That option seems very unlikely based on the magnitude of the catastrophe.

this argument. Also, there are no reasons to believe that the other attributes that report null results within each subgroup and between the subgroups (e.g., gender) are evidence of spillover effects.

A natural question is why would spillover effects not apply to the less-affected individuals' ideological preferences as opposed to only emerge when it comes to candidates' stances on the distribution of disaster relief? The answer to this question might rely on the importance of political ideology to understand people's vote in Chile (Zechmeister, 2015; Calvo and Murillo, 2019).[22] Less-affected citizens might be willing to vote for someone that will deliver short-term relief even if they are not benefited by the distribution of aid, but they might not be willing to vote for a left-wing politician if they are not left-wing voters. As a result, ideological considerations should be less likely to be affected by spillover effects, and should only be modified by direct exposure to the disaster.

The discussion about spillovers can be seen as a post hoc theorizing. In appendix C I discuss the pre-registration of the study, which did not consider the role of interference. The importance of the empathic feelings was something learned in the field during the interviews. I believe that we should use this new information in the interpretation of the conjoint experiment and not omit it because it was not part of the pre-fieldwork theory.[23]

Finally, there is no evidence that managerial characteristics are important to voters. They are not more likely to vote for older, more politically experienced, or more educated candidates, and there are no differences between the groups. The interviews are a useful tool for understanding these null effects. Victims strongly focus on the distribution of welfare and relief, which overcomes the importance of other factors that might also be important for citizens, such as selecting politicians with more experience or expertise.

[22] Chile has stable patterns of programmatic political competition (Roberts, 2013). The center-left parties are liberal and more pro-state, while the center-right parties are more socially conservative and pro-market (Luna, 2014). These differences have decreased over time, however, recent evidence depicts a gradual process of (re)polarization (Fábrega, González and Lindh, 2018).

[23] This discussion about spillovers corresponds to THARKing (Transparently Hypothesizing After Results Are Known), which can "promote the effectiveness and efficiency of both scientific inquiry and cumulative knowledge creation" (Hollenbeck and Wright, 2017, p.5).

6 Causal Mechanisms

I interviewed 30 affected and unaffected residents of Paipote to understand the logic behind their electoral choices after the flood (see Appendix N for interviews in Spanish). This supplements the data from the combined conjoined and natural experiment, which though particularly useful for studying the effect of the natural disaster, does not help us understand the causal mechanisms at work. I use direct content analysis to interpret the interviews, an approach based on the use of relevant research findings as guidelines when analyzing the data (Hsieh and Shannon, 2005). The main goal was to provide answers to two questions derived from the conjoint experiment. First, why do left-wing candidates become more attractive to victims? Second, why are both victims and unexposed citizens likely to vote for candidates who want to provide financial benefits to the victims?

Regarding the first question, interview responses reveal victim concern about the material damage inflicted by the flood. Most of them lost their homes or all their belongings. Daniela is a 31-year-old housewife who provides the following account of how the flood changed her life: "I had to change all the projects I had. I had to move backward. A lot of them got cut, and I had to replace them with others. [For example,] fixing my house, because we have not had any help [...]. The priority right now is the house – the other things were pushed to the background." Rosa is a 44-year-old housewife who was emotionally and materially affected by the disaster: "After the floods everything changed [...]. I had aspirations, I had dreams, and I had to put them on hold [...]. For me it's been hard. My son had to drop out of college, and that has been tough for me too [...]. On March 26th I saw my house full of mud, and I did not know where I would sleep that night. [I thought], tomorrow I'll wake up and everything will be fine, because this was only a dream." These two testimonies illustrate how victims had to focus on new concerns, and how their most critical need was to improve their living conditions by fixing, cleaning, and repairing their houses. The role of the state is crucial in this context: it is the only actor that can shrink the gap between how victims are currently living and how they lived before the disaster.

Affected citizens' new priorities have direct consequences on the policies they most care about. Pedro is a 39-year-old farmer, and he said the following: "It is not just financial relief; we also need more material support. As my brother says, we need fences, houses, a permanent home [...]. The best help would be a house, but we are not asking for a huge house, but something that we can keep improving." Daniela provides more insight into victims' policy preferences: "[We need] solutions to our problems and not stopgap measures [...]. [The government] should focus on the key things and give priority to the issues that have real relevance [. . .]. It is more important to fix a house where a child needs a home to live than a bus stop." These interviews show how victims focus on multidimensional social policies–in particular, on housing–and not on just short-term relief.

These new policy preferences (i.e, focus on housing) will affect victims' electoral choices. Manuel is a 30-year-old miner. When he was asked about what kind of candidate he would prefer for the locality, he responded: "I think that when one chooses someone, it is not because of the distribution of short-term benefits, but because of a more general commitment to the community [...]. Who benefited from a two or three *lucas*[24] handout? No one in the long run. We need something concrete because if I provide short-term aid, nothing will improve for the people. We need permanent, and not temporary, solutions." Claudia, a 23-year-old teacher, has a similar opinion about the ideal candidate for Copiapó: "I would like the next mayor to focus on people's quality of life [...], in every aspect, not just in that they give me a food basket, but in other ways too." Therefore, it is possible to expect that candidates associated with social policies should be rewarded in this specific context.

Regarding the second question about why both groups have similar preferences about candidates that will distribute disaster aid, the interviews show that unexposed citizens are motivated in part by empathy toward victims. Throughout our conversations, unexposed citizens constantly cited examples of their neighbors' suffering, indicating their empathy towards them. For example, Ana is a 33-year-old housewife who was not exposed to the flood. She mentions how difficult it was for her "to hear the testimony of the people, to hear how they survived, how [some of them]

[24] Two *lucas* are two thousand pesos or three US dollars.

had to tie themselves to a fence so the water did not sweep them away [...] and how some kids lost everything." Tania is a 40-year-old housewife and also a non-victim. She provides the following anecdote: "I remember that when I was on the bus, I met a couple of grandparents who were going to the store. I helped them to walk back to their house, and the grandmother told me she'd lost everything, and her daughter lives with them, but only the daughter got relief benefits. What do you think about that – if they are two families, they should get two benefits, but got only one?" These interviews provide evidence about how non-victims have empathic feelings towards the victims. This finding can help us to understand why both groups of citizens are equally likely to prefer candidates that will distribute disaster aid. However, those empathic feelings have a limit since victims are more likely to vote for left-wing and independent candidates.

7 Conclusions

Voters living in developing countries are frequently exposed to natural disasters and income shocks, where a lack of preparedness and lower state capacity make them very vulnerable to negative events. These voters may be even more exposed to catastrophes as global warming intensifies. Climate scientists are increasingly concerned that rising temperatures will step up the intensity and frequency of natural disasters. As the general increase in temperature has resulted in a rise in the number of hot days, warmer air fosters the evaporation of water, and may cause more intense rainfalls and snow events, which can increase the risk of certain types of natural disasters (Lippsett, 2012; Zseleczky and Yosef, 2014). These events, in turn, may contribute to a greater saliency of the politics of natural disaster.

This research provides a novel finding about voter reactions to natural disasters: victims are more likely to focus on the distribution of social benefits such as new housing, and as a consequence are more likely to vote for candidates associated with those policies (left-wing politicians in the case of Chile). Though external validity could be a concern because the primary evidence comes from one particular place, respondent characteristics (i.e., low-middle income and educa-

tional levels) accurately represent the median voter in Latin America, and experimental results are paired with real electoral outcomes (see Appendix A). In addition, evidence from a different natural disaster in a different region of Chile points in the same direction (see Appendix B).

An important challenge to address is that even though natural disasters might affect an area without deliberately targeting it, they are not randomized experiments. Nevertheless, natural experiments within natural blocks provide an opportunity to address this issue because treatment assignment has an as-if random nature due to certain unusual circumstances and homogeneous units should have more similar unmeasured covariates. I exploit the haphazard nature of the 2015 floods in Paipote, and the town's high level of homogeneity, to understand how adverse conditions affect voters' ideological choices.

The conjoint experiment shows that the treatment (material damage due to the flood) increases the probability of preferring left-wing candidates. Qualitative interviews help us understand that victims focus on multidimensional solutions to improve their living conditions and consider social policies to be the most important path toward recovery from the disaster. Therefore, left-wing candidates should have a natural advantage over right-wing politicians because the former can be linked to the policies victims would like to see implemented. In addition, unaffected voters exhibit empathy toward victims when making electoral decisions. This finding should be taken into account when studying the consequences of natural disasters.

The argument of this paper can also be applied in countries where ideology does not explain voter behavior, such as Brazil. In that particular case, however, I would expect voters to link the distribution of social policies with the PT (Workers' Party). In consequence, that party should hold an advantage over other political parties after natural disasters.

The floods in northern Chile help us learn about how disaster victims tend to reward candidates with certain characteristics. This argument, however, can be extended beyond natural catastrophes to include other types of negative shocks. As mentioned before, crime victimization might make right-wing candidates more attractive to voters because they may be more likely to implement victims' new priority policies, such as iron-fist crime-reduction policies. Disaster or crime victims

will not only focus on the incumbent's performance, as most of the previous research has argued, but will also select a political leader who they think will be able to enhance their living conditions after the negative event.

References

Abney, F Glenn and Larry B Hill. 1966. "Natural Disasters as a Political Variable: The Effect of a Hurricane on an Urban Election." *American Political Science Review* 60(04):974–981.

Achen, Christopher H and Larry M Bartels. 2016. *Democracy for Realists: Why Elections Do Not Produce Responsive Government*. Princeton University Press.

Arceneaux, Kevin and Robert M Stein. 2006. "Who is Held Responsible when Disaster Strikes? The Attribution of Responsibility for a Natural Disaster in an Urban Election." *Journal of Urban Affairs* 28(1):43–53.

Ashworth, Scott, Ethan Bueno de Mesquita and Amanda Friedenberg. 2014. "Learning About Voter Rationality." Working paper, Harris School Public Policy, University of Chicago.
URL: *http://home.uchicago.edu/ sashwort/shocks.pdf*

Atkeson, Lonna Rae and Cherie D Maestas. 2012. *Catastrophic politics: How extraordinary events redefine perceptions of government*. Cambridge University Press.

Avellaneda, Claudia N and Ricardo Corrêa Gomes. 2017. "Mayoral quality and municipal performance in Brazilian local governments." *Organizações & Sociedade* 24(83):555–579.

Bechtel, Michael M and Jens Hainmueller. 2011. "How Lasting Is Voter Gratitude? An Analysis of the Short-and Long-Term Electoral Returns to Beneficial Policy." *American Journal of Political Science* 55(4):852–868.

Bélanger, Éric and Bonnie M Meguid. 2008. "Issue Salience, Issue Ownership, and Issue-Based Vote Choice." *Electoral Studies* 27(3):477–491.

Calvo, Ernesto and Maria Victoria Murillo. 2019. *Non-policy Politics: Richer Voters, Poorer Voters, and the Diversification of Electoral Strategies*. Cambridge University Press.

Carlin, Ryan E, Gregory J Love and Elizabeth J Zechmeister. 2014. "Natural Disaster and Democratic Legitimacy The Public Opinion Consequences of Chile's 2010 Earthquake and Tsunami." *Political Research Quarterly* 67(1):3–15.

Carreras, Miguel. 2012. "The Rise of Outsiders in Latin America, 1980–2010 An Institutionalist Perspective." *Comparative Political Studies* 45(12):1451–1482.

Chen, Jowei. 2013. "Voter Partisanship and the Effect of Distributive Spending on Political Participation." *American Journal of Political Science* 57(1):200–217.

Fábrega, Jorge, Jorge González and Jaime Lindh. 2018. "Polarization and Electoral Incentives: The End of the Chilean Consensus Democracy, 1990–2014." *Latin American Politics and Society* 60(4):49–68.

Fair, C Christine, Patrick M Kuhn, Neil Malhotra and Jacob N Shapiro. 2013. "How Natural Disasters Affect Political Attitudes and Behavior: Evidence from the 2010-11 Pakistani Floods." Working Paper.
URL: *http://www.vanderbilt.edu/csdi/events/MalhotraFinal.pdf*

Fearon, James D. 1999. "Electoral Accountability and the Control of Politicians: Selecting Good Types Versus Sanctioning Poor Performance." *Democracy, Accountability, and Representation* 55:61.

Gasper, John T and Andrew Reeves. 2011. "Make it Rain? Retrospection and the Attentive Electorate in the Context of Natural Disasters." *American Journal of Political Science* 55(2):340–355.

Gomez, Brad T and J Matthew Wilson. 2008. "Political Sophistication and Attributions of Blame in the Wake of Hurricane Katrina." *Publius* pp. 633–650.

Gomez, Brad T, Thomas G Hansford and George A Krause. 2007. "The Republicans should pray for rain: Weather, turnout, and voting in US presidential elections." *Journal of Politics* 69(3):649–663.

Hainmueller, Jens and Daniel J Hopkins. 2015. "The Hidden American Immigration Consensus: A Conjoint Analysis of Attitudes Toward Immigrants." *American Journal of Political Science* 59(3):529–548.

Hainmueller, Jens, Daniel J Hopkins and Teppei Yamamoto. 2014. "Causal Inference in Conjoint Analysis: Understanding Multidimensional Choices Via Stated Preference Experiments." *Political Analysis* 22(1):1–30.

Hamill, Ruth, Milton Lodge and Frederick Blake. 1985. "The Breadth, Depth, and Utility of Class, Partisan, and Ideological Schemata." *American Journal of Political Science* pp. 850–870.

Healy, Andrew and Neil Malhotra. 2009. "Myopic Voters and Natural Disaster Policy." *American Political Science Review* 103(03):387–406.

Healy, Andrew and Neil Malhotra. 2010. "Random Events, Economic Losses, and Retrospective Voting: Implications for Democratic Competence." *Quarterly Journal of Political Science* 5(2):193–208.

Hollenbeck, John R and Patrick M Wright. 2017. "Harking, sharking, and tharking: Making the case for post hoc analysis of scientific data." *Journal of Management* 43(1):5–18.

Hsieh, Hsiu-Fang and Sarah E Shannon. 2005. "Three approaches to qualitative content analysis." *Qualitative health research* 15(9):1277–1288.

Keele, Luke. 2015. "The Statistics of Causal Inference: A View from Political Methodology." *Political Analysis* .

Keele, Luke and Rocío Titiunik. 2016. "Natural Experiments Based on Geography." *Political Science Research and Methods* 4(01):65–95.

Keele, Luke, Rocío Titiunik and José R Zubizarreta. 2015. "Enhancing a Geographic Regression Discontinuity Design through Matching to Estimate the Effect of Ballot Initiatives on Voter Turnout." *Journal of the Royal Statistical Society: Series A (Statistics in Society)* 178(1):223–239.

Kim, Sung Eun and Yotam Margalit. 2017. "Informed Preferences? The Impact of Unions on Workers' Policy Views." *American Journal of Political Science* .

Kosec, Katrina and Cecilia Hyunjung Mo. 2015. "Aspirations and the Role of Social Protection: Evidence from a Natural Disaster in Rural Pakistan." Working paper.

Lasala-Blanco, Narayani, Robert Y Shapiro and Viviana Rivera-Burgos. 2017. "Turnout and Weather Disruptions: Survey Evidence from the 2012 Presidential Elections in the Aftermath of Hurricane Sandy." *Electoral Studies* 45:141–152.

Lau, Richard R and David P Redlawsk. 2001. "Advantages and Disadvantages of Cognitive Heuristics in Political Decision Making." *American Journal of Political Science* pp. 951–971.

Lazarev, Egor, Anton Sobolev, Irina V Soboleva and Boris Sokolov. 2014. "Trial by Fire: A Natural Disaster's Impact on Support for the Authorities in Rural Russia." *World Politics* 66(04):641–668.

Lippsett, Lonny. 2012. "Storms, Floods, and Droughts." *Oceanus* 49(3):20.

Luna, Juan Pablo. 2014. *Segmented Representation: Political Party Strategies in Unequal Democracies*. Oxford University Press.

Lupu, Noam. 2014. "Brand Dilution and the Breakdown of Political Parties in Latin America." *World Politics* 66(04):561–602.

Maestas, Cherie D, Lonna Rae Atkeson, Thomas Croom and Lisa A Bryant. 2008. "Shifting the blame: Federalism, media, and public assignment of blame following Hurricane Katrina." *Publius: The Journal of Federalism* 38(4):609–632.

Maldonado, Luis, Edmundo Kronmüller and Ignacio Gutierrez. 2016. "Estrategia para la inferencia causal y planificación de estudios observacionales en las ciencias sociales: el caso de Chaitén post erupción del 2008." *Revista de ciencia política (Santiago)* 36(3):797–827.

Malhotra, Neil and Alexander G Kuo. 2008. "Attributing Blame: The Public's Response to Hurricane Katrina." *The Journal of Politics* 70(1):120–135.

Margalit, Yotam. 2013. "Explaining Social Policy Preferences: Evidence from the Great Recession." *American Political Science Review* 107(01):80–103.

Murillo, M Victoria and Giancarlo Visconti. 2017. "Economic Performance and Incumbents' Support in Latin America." *Electoral Studies* 45:180–190.

Oliver, Alexander and Andrew Reeves. 2015. The Politics of Disaster Relief. In *Emerging Trends in the Social and Behavioral Sciences: An Interdisciplinary, Searchable, and Linkable Resource*, ed. Robert Scott and Marlis Buchmann. Wiley Online Library.

Petrovsky, Nicolai and Claudia N Avellaneda. 2014. "Mayoral public sector work experience and tax collection performance in Colombian local governments." *International Public Management Journal* 17(2):145–173.

Pimentel, Samuel D, Rachel R Kelz, Jeffrey H Silber and Paul R Rosenbaum. 2015. "Large, Sparse Optimal Matching with Refined Covariate Balance in an Observational Study of the Health Outcomes Produced by New Surgeons." *Journal of the American Statistical Association* 110(510):515–527.

Remmer, Karen L. 2014. "Exogenous Shocks and Democratic Accountability Evidence From the Caribbean." *Comparative Political Studies* 47(8):1158–1185.

Roberts, Kenneth M. 2013. "Market Reform, Programmatic (De)Alignment, and Party System Stability in Latin America." *Comparative Political Studies* 46(11):1422–1452.

Rosenbaum, Paul R. 2005. "Heterogeneity and Causality: Unit Heterogeneity and Design Sensitivity in Observational Studies." *The American Statistician* 59(2):147–152.

Rosenbaum, Paul R. 2011. What Aspects of the Design of an Observational Study Affect its Sensitivity to Bias from Covariates that Were Not Observed? In *Looking Back*. Springer pp. 87–114.

Sekhon, Jasjeet S. 2009. "Opiates for the Matches: Matching Methods for Causal Inference." *Annual Review of Political Science* 12:487–508.

Silber, Jeffrey H, Paul R Rosenbaum, Richard N Ross, Orit Even-Shoshan, Rachel R Kelz, Mark D Neuman, Caroline E Reinke, Justin M Ludwig, Fabienne A Kyle and Dale W a Bratzler. 2013. "Racial Disparities in Operative Procedure TimeThe Influence of Obesity." *The Journal of the American Society of Anesthesiologists* 119(1):43–51.

Sinclair, Betsy, Thad E Hall and R Michael Alvarez. 2011. "Flooding the Vote: Hurricane Katrina and Voter Participation in New Orleans." *American Politics Research* 39(5):921–957.

Stokes, Donald E. 1963. "Spatial Models of Party Competition." *American Political Science Review* 57(02):368–377.

Van Aalst, Maarten K. 2006. "The impacts of Climate Change on the Risk of Natural Disasters." *Disasters* 30(1):5–18.

Visconti, Giancarlo. 2019*a*. "Policy Preferences after Crime Victimization: Panel and Survey Evidence from Latin America." *British Journal of Political Science* pp. 1–15.

Visconti, Giancarlo. 2019*b*. "Re-evaluating the Role of Ideology in Chile." Working paper, Purdue University.
URL: *https://bit.ly/2IvY5CL*

Zechmeister, Elizabeth. 2015. Left-Right Identifications and the Latin American Voter. In *The Latin American Voter*. The University of Michigan Press.

Zseleczky, Laura and Sivan Yosef. 2014. *Are shocks really increasing?: A selective review of the global frequency, severity, scope, and impact of five types of shocks*. Vol. 5 Intl Food Policy Res Inst.