Distributive Politics Pre-Analysis Plan

Natural Disasters, Civil Society, and the Discretionary Distribution of Relief Funds in
Mexico

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1. Introduction

1.1 Motivation and Theoretical Puzzle

According to the NGO "Reliefweb," natural disasters affected an average of 218 million individuals across the world between 1994 and 2013. The human and economic costs of earthquakes, floods, droughts, and hurricanes are immense: 1.38 million deaths in this period and billions of dollars in infrastructure damage. These numbers will likely increase as the consequences of global warming become more apparent, with particular burden on the poorest countries of the world.

National and local governments usually offer initial assistance and funds to support the reconstruction process of affected communities; indeed, these resources are essential for the recovery of regions hit by natural disasters. Even though the criteria for the distribution of disaster relief and reconstruction seem clear (the greater the "need" for external support, the higher the levels of public investment), in practice, politicians use these funds to fulfill their political agendas and to capture for personal consumption. As Chicago Mayor, Rahm Emmanuel, once said, "You never want a serious crisis to go to waste."[*]

International civil society organizations and public institutions have documented evidence of malfeasance and other practices that lead to inefficient allocations of disaster-related funds, including corruption and partisan bias. Despite the presence of this practice, research on retrospective voting shows that on average voters do care about how this money is distributed, as well as the effectiveness of public spending. For example, Healy and Malhotra (2009) finds that citizens punish incumbents when the amount of disaster-relief funds does not correspond to the levels of damaged induced by the event. However, some quasi-experimental research (e.g., Fuchs and Rodriguez-Chamussy 2014, Bechtel and Hainmueller (2011)) has found that individuals reward incumbents at the ballot box for disaster-relief funds spending.

If citizens indeed have well-defined preferences and hold the incumbents accountable for not implementing policies accordingly, why is the distribution of disaster-relief funds so flawed? That is, under what circumstances do politicians use a need-based versus a political approach? How can we reconcile this puzzle in the literature of natural disasters management?

The goal of this paper is to study the Mexican case in order to provide some insights to these questions. Our theory suggests that the use of disaster relief and reconstruction funds follows both an electoral and an economic logic: while the levels of damage should be a strong explanatory factor in the distribution of disaster funds, presidents favor swing municipalities in states where the governor is a co-partisan with local public goods and punish core municipalities of opposition states, as demonstrated in the security policy in Mexico (Diaz-Cayeros 2006; Flamand 2006; Ríos 2015; Ley 2017); moreover, previous research has shown that fiscal federalism leads to more resource distribution to interest groups (Careaga and Weingast 2003; Palmer-Rubin 2016). As such, we argue that three factors account for the variable distribution of disaster relief and reconstruction funds: (1) the levels of damage, (2) the electoral composition, and (3) the presence of interest groups.

1.2 Research Question

As mentioned before, the broad research question of the paper is: what factors explain the distribution of disaster-relief funds to affected individuals and communities? In particular, under what circumstances do

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[*]"Rahm Emanuel on the Opportunities of Crisis" *Wall Street Journal*, November 19, 2008.

politicians follow a "need- based" versus a "political" approach? In order to break this question down into observable implications, we aim to answer the following inquiries:

- For the same levels of damage, do presidents favor swing or core supporters with disaster relief and reconstruction funds? What type of funds are distributed to each group of voters?
- What is the role of federalism in the allocation of these resources? That is, what is the effect of having a co-partisan governor in the amount of resources received by a municipality?
- Is there any evidence of elite capture in the allocation of disaster-relief funds? Controlling for the intensity of the disaster, does the number and size of firms affect the likelihood of receiving aid from the federal government?

2. Background and Theory

Mexico is one of the most vulnerable countries in the world to natural disasters, with clear regional differences in terms of exposure. The north of Mexico is particularly prone to severe droughts and water scarcity, whereas floods and hurricanes are much more common in the south and southeast of the country. The central portion of Mexico, where the capital is located, is marked by earthquakes and volcanic eruptions.

As noted by the Intergovernmental Panel on Climate Change, the vulnerability of a community to natural disasters depends not only on the exposure to these events, but also their capacity for adaptation and resilience, which is in itself a function of economic development (Cardona et al. 2012). The National Institute of Ecology and Climate Change of Mexico estimates that most of the populations affected by natural disasters are located in poor neighborhoods and municipalities, which amplifies their welfare consequences and increases the likelihood of building clientelistic networks using relief and reconstruction funds.[*]

For many decades, the Mexican government has implemented programs to support affected populations. However, ample anecdotal evidence suggests that political variables distort the allocation of these funds. Perhaps the most infamous example was the severe earthquake that devastated Mexico City in 1985. First, the lackluster response of the federal PRI government contributed to the erosion of the hegemonic party regime, as citizens blamed the incumbent for the slow recovery process. Second, neighborhood organizations, which took the lead in the reconstruction efforts, quickly became a powerful interest group, which allied with the opposition party and successfully lobbied local authorities for the provision of specific urban services. Third, in order to allay the widespread criticisms against its policies, the federal government created a massive housing program, which, according to some scholars, was politically motivated [@].

In part as a response to the 1985 earthquake, the federal government reformed the institutional framework of natural disaster management, through the creation of the National Center for Disaster Prevention (CENAPRED) in charge of overseeing the National Fund for Natural Disasters (FONDEN). In the event of a natural disaster, mayors are in charge of filling up relief requests and apply to get funds from the FONDEN; then, they send their requests to the governor, who decides what municipalities will integrate the state-level aid request package. Finally, the President approves the state government's petitions of funds on a municipality-by-municipality basis. The Chamber of Deputies keeps records on all funds received and disbursed.

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[*]Instituto Nacional de Ecologia y Cambio Climatico, "Vulnerabilidad actual," November 10, 2016

2.1 Existing Literature

Broadly speaking, three different strands of research are used in evaluating the politics of natural disasters: (1) retrospective voting (Healy and Malhotra 2009; Achen and Bartels 2012; J. T. Gasper and Reeves 2011; Cole, Healy, and Werker 2012); (2) distributive politics (Garrett and Sobel 2003; J. Gasper and Reeves 2010; Gallego 2012; Shughart 2006); and (3) social network analysis (Fair et al. 2017; Cassar, Healy, and Kessler 2017; Eckel, El-Gamal, and Wilson 2009; Gunessee et al. 2017; Anushka et al. 2018; J. Z. Li et al. 2011).

The literature on retrospective voting argues that citizens punish incumbents for bad management of natural disasters, but not for the natural disaster per se. For example, in their study on the effects of tornadoes on electoral behavior in the United States, Healy and Malhotra (2009) found effects on vote shares for only the levels of economic damage, but not for the number of casualties. That is, the authors aim to discredit the theory put forth by Achen and Bartels (2012) that voters are irrational and punish incumbents for events outside their control, such as shark attacks.

The litearture focused on the distributive politics of disaster largely assesses how governments utilize natural disasters to increase their electoral returns. This strand of research is particularly strong in the United States, with a significant body of work, including papers by Shughart (2006) and Garrett and Sobel (2003) focused on explaining the allocation of FEMA funds after Hurricane Katrina. Both papers found clear evidence of politically-motivated aid distribution.

The last strand of literature focuses on the social networks that evolve in communities after a natural disaster, particularly in the absence of a sufficient government response. This research assesses the role of communities and civic and pro-social attitudes in promoting better adaptive responses to the disaster. For example, Aldrich (2012) evaluated the role of social capital in promoting resilience and, tangentially, in being able to connect with the government, or attract government support.

Although these three literatures bring valuable insights to the topic, separately they can only provide partial theories about the political dimensions of natural disasters. Our main contribution with this research is to unite these three theories. Specifically, we aim to bring the role of civil society organizations and other interest groups to the forefront of the theory: the lobbying efforts of these associations mediate between the severity of the disaster and political outcomes, including the allocation of relief and reconstruction funds as well as the salience of the disaster for retrospective voting.

2.2 Theoretical Framework

The initial point of our theory is the external shock–a natural disaster. Even though the vulnerability to earthquakes, hurricanes, floods, and droughts is not random, the specific timing of the events and the intensity of the damage are. Politicians respond to these natural disasters by distributing three types of goods: (1) in the immediate aftermath of the crisis, they provide temporal shelter, food, and medical aid and equipment, all of which effectively function as private goods, which usually are distributed discretionally; (2) in the weeks after the disaster, authorities allocate resources for reconstruction, in particular housing (either materials or houses) and local public goods, including bridges, roads, and electricity; (3) finally, in order to prevent additional damage in the future, politicians also invest in prevention, which is mostly public goods such as early warning systems and infrastructure for protection. We theorize that the amount and quality of resources received by a community or neighborhood is a function of three variables: (1) the intensity of the damage, (2) the presence of organized interest groups capable of lobbying the government for public funds (in particular economic elites), and (3) the electoral composition, in particular the incumbent

margin of victory.

However, the relative importance of these three variables changes in the different stages of the reconstruction process and across the different goods distributed. At the initial stage—immediate disaster relief—the allocation of public resources should respond mostly to (a) the severity of the damage and (b) the amount of resources available as well as the capacity to reach out to affected populations. During the reconstruction phase, politicians should pay more attention to the electoral composition of the community as well as to the presence of organized groups that lobby for more assistance. In line with previous research in Mexico (Diaz-Cayeros, Estevez, and Magaloni 2016), we expect that core municipalities receive more private goods and swing municipalities get more local public goods (pork barrel goods); moreover, following Teets (2009) and Aldrich (2012), we also theorize that municipalities with more social capital–and therefore a higher ability to organize and lobby the government for assistance–should receive more relief and reconstruction funds. Finally, we draw from the work of Palmer-Rubin (2016) on elite capture of social programs in Mexico, who suggests that the government under specific circumstances benefits small and medium firms.

In terms of the political logic of disaster-relief funds disbursement, as mentioned before, mayors prepare requests to the governors, who then decide which of these will be sent to the president. Our theory draws upon the work of scholars in Mexican federalism and suggest that the national executive favors municipalities located in states where the governor is copartisan and punishes municipalities where the governor represents the opposition.

3. Study Research Design and Empirical Strategy

In order to evaluate our hypotheses we propose a two-part research design, comprised of (1) an observational study with government data to assess the discretionary distribution of disaster relief funds over time; and (2) a conjoint experiment of local elected officials to assess what types of communities they respond to for disaster relief information requests.

3.1 Observational Study

In the observational study, we aim to evaluate the political dynamics of the National Fund of Natural Disasters, which includes resources for both immediate disaster relief and reconstruction. This part of the research design aims to establish where, when and how politicians distribute disaster relief funding. Consistent with our theory, the main claim of our study is that distributive decisions on the use of such fund are based on three variables: (1) the levels of damage after the disaster; (2) the electoral composition of the municipality; and (3) the presence of economic elites that lobby the government. Specific hypotheses include:

- Incumbent politicians should be more responsive to the needs of communities heavily affected by the earthquake ("need-based" hypothesis): the higher the levels of damage, the more the resources allocated to that community.
- At the same time, within affected communities, incumbent politicians should be more responsive to the needs of (a) swing voters and (b) local economic elites. We expect the following: (a) the lower the margins of victory in the previous election, the more the resources allocated to that municipality; and (b) the higher the number of firms in a municipality, the more the resources received.

3.1.1 Data Sources

We will rely on three types of data for the observational study: (1) electoral data; (2) damages data; and (3) disaster relief spending data. The electoral data we have dates back to 1990 and comes from Mexico's Instituto Nacional Electoral. For the damage estimates, we have official statistics from the Ministry of Interior, data from independent agencies like the National Institute of Ecology and Climate Change (for example geo-referenced data on the pathway of hurricanes), and information from NASA on flooding and droughts (from the North American Drought Monitoring). Data on disaster relief funding is publicly available, and we submitted a FOIA request act to get the entire time series since 1990.

3.1.2 Level of Analysis

The unit of analysis for the observational study is the municipality in Mexico from 1990 to 2016. We will test the hypothesis of a discretionary use of reconstruction funds in two different ways: 1) by comparing the actual levels of damage with the requests approved by the governor; and 2) evaluating the approval probability for proposals from municipalities where the mayor is co-partisan or where the governor is co-partisan.

3.1.3 Causality

The main challenge to causal inference in this setting is that other variables may cause both high levels of electoral competition/presence of economic elites and incentivize the government to invest more in particular municipalities, including income, education, the potential for corruption, among other non-observable variables.

In addition, it is also possible that the economic activity and the partisan composition of a community change as a result of the distribution of disaster relief funds. This is, in fact, the most relevant hypothesis of the retrospective voting literature. Other authors (e.g., Zucco 2013) found that the roll out of social programs, for example Bolsa Familia, shifts partisan preferences of individuals over time. For the purposes of our paper, it is also possible that the exposure to natural disaster and the continuous support from the government somehow incentivizes changes in political preferences and the location of firms.Finally, the effects of resources from the National Fund for Natural Disasters may be confounded by the effects of other social programs and economic policy tools that the government distributes to these regions. It is entirely possible that regions severely affected by natural disasters also tend to receive more benefits from other government initiatives—especially given that most of them are also poorer relatively to the country average.

In order to allay these concerns, we use two statistical techniques to improve our causal inference claims: matching and instrumental variables. As mentioned before, there are a few confounders and potential reverse causation in the relationship between electoral composition/social capital and the amount of resources received by a municipality. We follow the research of Zucco (2013) on the electoral returns of Bolsa Familia and employ covariate balancing propensity score (CBPS), a technique developed by Imai and Ratkovic (2014). The fundamental idea of CBPS is the same as the regular propensity score matching predict the probability of treatment and match treated and untreated units based upon this probability, or propensity score. The main difference is that CBPS allow for a continuous treatment. In other words, our goal is to balance the treatment and control groups in terms of their probability of margin of victory for the incumbent as well as in the probability of having a certain number of firms.

Then, we can estimate the effects of margin of victory on the amount of resources received by the municipality. After obtaining a balanced sample, we can regress the amount of resources received by a municipality on the two main treatments; the electoral variable will be interacted with a dummy variable for whether the governor of the state in which the municipality is located is a copartisan of the president or not.

A second empirical test that we will implement is a difference-in-difference design. We would compare the spending trends for municipalities with low margins of competitiveness and high margins of electoral competitiveness, for the periods before and after gubernatorial and municipal elections. The electoral calendar for Mexico is defined exogenously by the national electoral commission and it's independent of decisions of spending. We will measure two outcomes: (1) the amount of money allocated for disaster-relief from the federal government per capita; and (2) the amount of money allocated for reconstruction from the federal government per capita.

3.2 Conjoint Experiment with Politicians

As another avenue for evaluating this hypothesis, we propose an conjoint experiment where an individual requests information about disaster relief efforts in a municipality from Deputies in the Legislative Branch, and varies a range of characteristics of the requestor (e.g., is their municipality a swing district, is it a wealthy district, and do they mention an NGO). This follows a similar empirical approach detailed by Hemker and Rink (2017), in a study on discrimination in the German bureaucracy. The experimental evidence will not only reinforce our observational findings, but also help determine when and how interest groups play a role.

The level of analysis for this experiment will be the deputy-level. In particular, we are interested in whether or not deputies' offices respond to a request for information based on the varying characteristics of the individual making the request. In addition, conditional on response, we are interested in the quality of that response.

3.2.1 Treatment

The unit of analysis will be individual information requests, all of which will have the same identical items—asking the representative to send/share information about the actual levels of damage in the neighborhood, the actions proposed to mitigate the damage, and some measure of progress in the rollout of the relief programs. The requests will emphasize the sense of urgency to improve the reconstruction efforts. We will randomize four aspects of the individual sending the request: (1) damages in the municipality they come from; (2) co-partisanship of the municipality they come from; (3) wealth of the municipality they come from; and (4) whether they have been in touch with an NGO. These variables are highlighted below:

Characteristic	Treatment	Control
Damages	High Damages	Low/No Damages
Partisanship	Co-Partisan	Non Co-Partisan
Wealth	Yes	No
NGO Endorsement	Yes	No

3.2.2 Hypotheses

Per our theory above, we expect the following:

- Deputies' offices are more likely to respond with details about disaster relief funding in areas where damages were high.
- Within high-damage municipalities, Deputies' offices are more likely to respond to individuals from municipalities that are co-partisan.
- Within high-damage municipalities, Deputies' offices are more likely to respond to individuals from municipalities that are wealthier.
- Within high-damage municipalities, Deputies' offices are more likely to respond to individuals that reference the work of an NGO.

3.2.3 Randomization

Our sample includes 300 members of the Chamber of Deputies in the Legislative Branch. These 300 deputies are elected by relative majority in single member districts. While each of Mexico's 31 states has at least two representatives, some have up to 40 members. In 2017, 727 municipalities out of a total of 2,448 were hit particularly hard by natural disaster. As mentioned above, this is a particularly salient topic in the elections this year. Members in the Chamber of Deputies represent multiple municipalities, some of which are co-partisan and some of which suffered more severe or less severe damage. Conditional on municipalities that Deputies represent at the national level, we will randomize the characteristics above in our requests. Each deputy will receive one request from randomly generated profile, for a total of 300 observations. Prior to running this experiment, we will seek approval from the Institutional Review Board at UCLA.

3.2.4 Outcome Measure

We aim to measure the probability that a request will receive a response from the authorities and that such response effectively addresses the information requirements. We will record the following outcomes:
- **Response:** Whether or not the representatives' office responded
- **Response Quality:** Whether or not they responded with the appropriate information
- **Friendliness:** The tone of their response

It's important to mention that we will conduct field work over the first few days of the summer in order to determine what is the best way to contact representatives and what are the most suitable way to reach out to individual offices—-phone calls, letter, or email.

3.2.5 Treatment Effect

To estimate our treatment effect, we will run OLS and Probit regressions with and without covariate adjustments. We will estimate the effect of our treatments (damages, partisanship, wealth, and NGO endorsement) on the outcomes mentioned above (response, response quality, and friendliness).

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