Natural disasters, political economy, and the discipline of politicians
The case of Mexico’s Natural Disaster Fund

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Econometric results as of: December 11, 2014
Note to the reviewer:

The results included in this presentation were current as of December 2014. I am currently cleaning the data to implement my intended empirical strategy, a regression discontinuity design. I would be presenting the R.D. results at the May 2015 workshop.

I am also slightly re-positioning the work, so the motivation slide does not map directly into the questions and background.
Motivation

- It is hard to measure the effectivenss of government institutions in disciplining politicians.
- Furthermore, careful gaming of the institutional system by politicians can be difficult to detect.
- I take advantage of a unique institutional design to evaluate the effectiveness of a government institution, Mexico’s Natural Disaster Fund, in disciplining politicians. My RDD takes advantage of parametric thresholds used to determine eligibility to access the fund.
- I also use the thresholds to study politically-motivated gaming of the system.
My questions

Voter behavior

- How do voters respond to the occurrence of natural disasters? Do they reward high-quality responses or transfers in the guise of reconstruction funding?
- Is voters’ behavior affected by risk reduction and preparedness spending?

Politician behavior

- Do state governors request more natural disaster declarations during election years for political gain? Does the federal government declare more natural disasters during election years for political gain?
- Do state governors fail to request eligible municipalities for disaster declarations (for strategic reasons)? If so, what descriptive evidence exists on what municipalities are less likely to be requested?
- Does the federal government allocate more funds during election years? Does the political competitiveness of a state matter?
- Has the FONDEN, an institution designed in part to discipline politicians, been effective at doing so?

Social Welfare Effects

- What are the social welfare implications?
Preliminary Results

- Mexican voters punish politicians for the occurrence of natural disasters.
  - 1 S.D. increase in number of disaster declarations leads to a 1.3% decrease in incumbent vote share at state-level, and a 2.4% decrease in incumbent vote share at municipal-level.

- Governors request more natural disaster declarations during presidential election years, but not gubernatorial election years. Might be that incentives linked to political party are more important during federal election years.
  - Point estimates suggest 4.4-9% more likely to request in federal election years.

- Federal Government declares more natural disasters during presidential election years, but not gubernatorial election years (controlling for the number requested). Have yet to determine whether this changes over time.
Presentation Outline

- Theory and framework
- Mexico and the FONDEN
- Empirical strategy and data
- Results
- Next steps
Theory and framework: Voter behavior

- A long history in political economy of debating voter competence and implications for electoral accountability (Campbell et al. (1960); Key (1966)).

- One camp view voters as myopic, biased, and misinformed, voting responsively to exogenous events:

- Others view voters as rational but having incomplete information:
  - Besley and Burgess (2002): Same updating of beliefs, but only by voters affected by a natural disasters (others vote ideologically).
Theory and framework: Politician behavior

- Similarly, some view governments’ responses and post-disaster aid as signalling high-quality:
  - Cole et al. (2012): "...it is entirely possible that voters are able to infer more about government competence by observing state response to a crisis than they can from other indicators..."
  - Besley and Burgess (2002): Model altruistic, selfish, and opportunistic incumbents as responding differentially to natural disasters.

- Others primarily view governments/government officials as opportunists:
  - Gasper and Reeves (2012): Governors up for re-election opportunistically leverage their states’ electoral importance to the president when requesting aid.
  - Healy and Malhotra (2009): Disaster relief spending significantly higher in counties where incumbent had greater voteshare in previous election.
Gaps in literature

- Clear empirical support for voters punishing disasters and rewarding spending in election years. And governments are more responsive in these years. Somewhat different behavior in India/U.S.
- Authors’ empirics limited; typically have data to view/analyze one aspect of the overall context.
- I have also not found assessments of institutions designed to discipline politicians in light of suboptimal incentives provided by voters in these contexts.
My framework

- Build on models of voter behavior (Cole et al. (2012)) and government behavior (Cohen and Werker (2008); Besley and Burgess (2002)).
- Develop model with citizens, state politicians, and federal governments; introduce an institution to discipline politicians.
  - Citizens have utility over income, a function of high-quality politicians, state of the world; also over transfers from politicians and negative externalities of others’ transfers.
  - Politicians do not run for re-election, so political party gains must drive behavior.
  - Tension between state politicians and federal governments (maximizing different utility functions).
  - Introduce an institution that raises the cost of opportunistic behavior to both levels of government.
Mexico and the FONDEN: Political System

- Mexico is a federation with 31 states and 1 federal district comprised of 2,447 municipalities.
- Presidents and governors eligible to serve one six-year term, elected in “first-past-the-post” elections.

Source: http://commons.wikimedia.org/wiki/File%3APolitical_divisions_of_Mexico-en.svg
Mexico and the FONDEN: Politics

- Institutional Revolutionary Party (PRI), so called “Party of Patronage,” held Mexico from 1929-2000.
- Recently, two other major parties have also emerged:
  - Party of the Democratic Revolution (PRD) runner up in ‘06 election.
- While recent changes in power at federal level, state governorships have remained mostly PRI, but a lot of turnover.
Mexico and the FONDEN: Natural disaster policy

- In 1996, the Federal Government of Mexico (FGM) established the National Natural Disaster Fund, FONDEN.
- FONDEN became operational with the first operating rules and guidelines published in 1999.
  - Head of FONDEN is a political appointee of federal government.
- FONDEN primarily finances reconstruction of public assets and low-income housing; annual budget about US$800 mil (always overrun).
- Also has windows for immediate response and disaster prevention.
Mexico and the FONDEN: Natural disaster policy

- Natural disaster declaration and funding allocation governed by two-stage process.

**Disaster Declaration**
- Event Governor requests technical agency to evaluate hazard in X municipalities.
- Technical agency uses predetermined index of physical event parameters and thresholds to determine eligible municipalities.

**Funding Allocation**
- Damage Assessment Committee (DAC) installed with federal, state, and technical members of the gov't.
- DAC submits damage report; negotiation until project list approved.
- Ministry of Finance approves project list.
Empirical Strategy: Regression Discontinuity

RDD will allow me to study:

- **Political behavior**
  - Does the distribution of requests in election years shift? Are thresholds enforced in election years? Or do governors request more events that lack clear thresholds in these years?
  - Do governors fail to request eligible municipalities to be declared? If so, what descriptive evidence is there about what types of municipalities are marginalized?
  - Does distance to threshold from below (requests and declarations) diminish over time, controlling for past deviations (i.e., is there evidence that FONDEN has been effective at disciplining politicians)?

- **Voter behavior**
  - How is the incumbent’s voteshare affected in municipalities just above versus below the threshold?
  - If there are municipalities below the threshold that get declared, what happens to the incumbent’s voteshare in these counties?
Empirical Strategy: FONDEN Thresholds

- FONDEN Guidelines specify specific thresholds for some perils but not for others.
- Thresholds sometimes change over time.
  - Drought, forest fire thresholds well-specified from the first published guidelines (also frost, hail, snow to some extent).
  - Geophysical perils do not have specific thresholds in any of the guidelines.
Empirical Strategy: FONDEN Thresholds

- **Extreme rainfall** is a good peril to start with for a RDD (48.4% of FONDEN spending through 2011)

<table>
<thead>
<tr>
<th>Year</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>None</td>
</tr>
<tr>
<td>2000</td>
<td>Amount of water precipitated in a given period exceeds maximum historical values in the same region and time of year <strong>OR</strong> Greater than 1 standard deviation above the historical average of the affected region (calculated using the best information available) (<strong>&amp;</strong> occurrence of damage)</td>
</tr>
<tr>
<td>2004</td>
<td>(Daily rainfall:) Compared with daily rainfall data for the same month for the last 30 years, or all data available at the same station, the daily rainfall is above 90% of the values in the sample. If no reference weather station in the affected region, the amount of rainfall will be estimated by interpolation techniques using data from neighboring stations located at the center of the disaster zone.</td>
</tr>
<tr>
<td>2006</td>
<td>No change.</td>
</tr>
<tr>
<td>2009</td>
<td>No change. Add that if no reference weather station in the affected region, magnitude of interpolated rainfall will be corroborated using satellite imagery and radar and will be analyzed in reference to the statistics for the region.</td>
</tr>
<tr>
<td>2011</td>
<td>No change.</td>
</tr>
</tbody>
</table>
DOF: 10/10/2001

DECLARATORIA de Desastre Natural para efectos de las Reglas de Operación del Fondo de Desastres Naturales (FONDEN), por los daños provocados por las lluvias atípicas e imprevistas ocurridas entre el 17 y el 18 de septiembre de 2001 en el Municipio de Tapachula del Estado de Chiapas.

Se declara cerrado con el Estado Nacional, que dice: Estado Unidos Mexicanos, Secretaría de Gobernación.

DECLARATORIA de DESASTRE NATURAL PARA EFECTOS DE LAS REGLAS DE OPERACIÓN DEL FONDO DE DESASTRES NATURALES (FONDEN), POR LOS DAÑOS PROVOCADOS POR LAS LLUVIAS ATÍPICAS E IMPREVISTAS OCURRIDAS ENTRE EL 17 Y EL 16 DE SEPTIEMBRE DE 2001 EN EL MUNICIPIO DE TAPACHULA DEL ESTADO DE CHIAPAS.

SANTIAGO CREEL MIRANDA, Secretario de Gobernación, asistido por María del Carmen Segura Rangel, Coordinadora General de Protección Civil de dicha Secretaría, con fundamento en lo dispuesto por los artículos 27 fracción XXIV de la Ley Orgánica de la Administración Pública Federal; 12 fracción IX y 29 al 37 de la Ley General de Protección Civil; 5 fracciones 1 y 22 al 10 del Reglamento Interior de la Secretaría de Gobernación; y numerales 43, 44 y 45 del Acuerdo que establece las Reglas de Operación del Fondo de Desastres Naturales (FONDEN), y

CONSIDERANDO

Que el acuerdo que establece las reglas de operación del Fondo de Desastres Naturales (FONDEN) vigentes, precisa que el FONDEN tiene como objetivo atender los efectos de desastres naturales imprevistos, cuya magnitud supera la capacidad de respuesta de las dependencias y entidades federales, así como de las autoridades de las entidades federativas y que es un complemento de las acciones que deben llevarse a cabo para la prevención de desastres naturales.

Que por petición escrita a la Secretaría de Gobernación, el C. Gobernador del Estado de Chiapas, mediante oficio expedido el 21 de septiembre de 2001, solicitó la emisión de la Declaratoria de Desastre Natural y el apoyo del Gobierno Federal, a fin de que con recursos del Fondo de Desastres Naturales se instruyere un programa emergente, que permita reparar los daños provocados por las lluvias torrenciales e inundaciones ocurridas del 17 al 18 de septiembre de 2001 y que causaron daños severos no previstos en los municipios de Satiltepec y Tapachula de dicha Entidad.

Asimismo, en la referida petición, el C. Gobernador del Estado de Chiapas, señala que los daños presentados superan la capacidad operativa y financiera de las autoridades estatales y municipales. De igual forma manifestó su acuerdo con los condicionantes y fórmulas de coparticipación del pago que se establecen en las Reglas de Operación del Fondo de Desastres Naturales.

Que para efectos de emitir la presente Declaratoria, en acatamiento al numeral 46 de las Reglas de Operación del FONDEN, previamente la Secretaría de Gobernación solicitó la opinión de la Comisión Nacional del Agua, misma que mediante oficio número BC-003, recibido el 8 de octubre de 2001, señaló que la estadística histórica de lluvias, para el día 17 de septiembre, de la estación El Porvenir, del Municipio de Satiltepec presenta una media de 11.6 mm, una desviación estándar de 13 mm y una máxima de 46 mm; la lluvia medida fue de 23 mm, por lo que no se considera atípica e imprevista. Por otra parte, la estadística histórica de lluvia, para el día 16 de septiembre, de la estación Tapachula, del municipio del mismo nombre presenta una media de 16.6 mm, una desviación estándar de 22.1 mm y una máxima de 91.9 mm; como la lluvia medida fue de 120 mm, se infiere que fue atípica e imprevista. Cabe señalar que en ambos municipios, se reportaron desviaciones y daños a los sistemas de agua potable de algunas localidades, mismos que ya fueron verificados por personal de la Comisión Reguladora del Agua, de este Organo Desconcentrado...
**Jist of request:** Que por petición escrita a la Secretaría de Gobernación, el C. Gobernador del Estado de Chiapas...solicitó la emisión de la Declaratoria de Desastre Natural y el apoyo del Gobierno Federal, a fin de que con recursos del Fondo de Desastres Naturales...que permita reparar los danos provocados por las lluvias torrenciales e inundaciones ocurridas del 17 al 18 de septiembre de 2001 y que causaron danos severos no previsibles en los municipios de Siltepec y Tapachula de dicha Entidad.

**Technical assessment:** la Secretaría de Gobernación solicitó la opinión de la Comisión Nacional del Agua...senaló, que la estadística histórica de lluvia, para el día 17 de septiembre, de la estación El Porvenir, del Municipio de Siltepec presenta una media de 11.6 mm, una desviación estándar de 13 mm y una máxima de 46 mm; la lluvia medida fue de 23 mm, por lo que no se considera atípica e impredecible. Por otra parte, la estadística histórica de lluvia, para el día 16 de septiembre, de la estación Tapachula, del municipio del mismo nombre presenta una media de 15.6 mm, una desviación estándar de 22.1 mm y una máxima de 91.9 mm; como la lluvia medida fue de 120 mm, se infiere que fue atípica e impredecible.
Empirical Strategy: Regression Discontinuity

- RDD challenges:
  - Limited number of observations: Of declarations with both number requested and declared reported: 10799 requested, 6790 declared. Accounting for NA values, there are many more of each. I am seeking these data.
  - Some thresholds undefined: FONDEN OGs more specific for some types of events than others. Appear to be specific where it matters (i.e., hydromet events), but might not be enough.
Empirical Strategy, in the meantime...

- I am waiting on the index data from the technical agencies and still cleaning the threshold data from the O.G. (N.B.: It has arrived! I am currently working on cleaning it.)
- In the meantime, I assume the use of the underlying index to determine natural disaster declarations and study voter and politician behavior.
Empirical Strategy: Natural Disaster Data

- FONDEN Operating Rules and Guidelines from 1999-2011 (most recent update) from DOF and Ministry of Interior.
- Natural disaster declarations from 1999-2013; obtained from DOF via webscraping/programming
  - I don’t see requests that are completely denied, but according to former head of FONDEN, very rare.
  - 547 unique disaster declarations from 5/99-12/13, not counting emergency and agricultural disaster declarations.
  - LOTS OF WORK! Finally have a municipal-level data set, but I was mostly unable to analyze it in time for today.
Empirical Strategy: Natural Disaster Data – unfortunate finding
Empirical Strategy: Natural Disaster Data

- FONDEN expenditures from 1999-2014
  - Currently: Per state-per event-per sector funding allocations from FONDEN, State Government
  - In process: Complete data set of approved reconstruction projects, funding amounts, disbursement amounts and timing, insurance status of assets, etc.

- I have not been able to extend analysis to expenditures yet. But to give a sense of the numbers:
  - In constant 2013 terms; total government spending 99-13 on natural disaster reconstruction related to FONDEN: 246.70 billion pesos (USD$18.9 billion).
  - FONDEN expenditures: 153.59 billion pesos (USD$11.8 billion)
  - Total state expenditures: 91.45 billion pesos (USD$7.0 billion)
  - Total additional federal expenditures: 1.66 billion pesos (USD$0.12 billion)
Empirical Strategy: Voting and other data

- Gubernatorial election results at the state level through 2011 courtesy of Alejandro del Valle/Banamex/CIDAC
  - Seeking municipal-level gubernatorial election results in case anyone in the room have seen these data compiled!
Summary Statistics

<table>
<thead>
<tr>
<th>Statistic</th>
<th>N</th>
<th>Mean</th>
<th>St. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Federal Election Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incumbent voteshare</td>
<td>96</td>
<td>0.335</td>
<td>0.111</td>
<td>0.035</td>
<td>0.640</td>
</tr>
<tr>
<td>Winner-loser gap</td>
<td>96</td>
<td>0.112</td>
<td>0.088</td>
<td>0.0005</td>
<td>0.402</td>
</tr>
<tr>
<td><strong>Gubernatorial Election Results</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incumbent voteshare</td>
<td>57</td>
<td>0.449</td>
<td>0.114</td>
<td>0.025</td>
<td>0.620</td>
</tr>
<tr>
<td>Winner-loser gap</td>
<td>57</td>
<td>0.107</td>
<td>0.095</td>
<td>0.005</td>
<td>0.410</td>
</tr>
<tr>
<td><strong>Natural Disaster Declarations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State: Year and Month</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yearly Num Req</td>
<td>480</td>
<td>24.962</td>
<td>67.641</td>
<td>0</td>
<td>642</td>
</tr>
<tr>
<td>Yearly Num Dec</td>
<td>480</td>
<td>16.322</td>
<td>41.404</td>
<td>0</td>
<td>347</td>
</tr>
<tr>
<td>Monthly Num Req</td>
<td>4,978</td>
<td>2.086</td>
<td>15.358</td>
<td>0</td>
<td>510</td>
</tr>
<tr>
<td>Monthly Num Dec</td>
<td>4,990</td>
<td>1.361</td>
<td>9.469</td>
<td>0</td>
<td>258</td>
</tr>
<tr>
<td><strong>Municipality: Full Period</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Num Requests</td>
<td>2,275</td>
<td>4.587†</td>
<td>3.7369</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Num Decs</td>
<td>2,275</td>
<td>2.644†</td>
<td>2.3858</td>
<td>0</td>
<td>23</td>
</tr>
</tbody>
</table>

Notes: (i) Gubernatorial election data only available through 2011; (ii) Natural disaster declaration data excludes years 1999 and 2000 due to missing values.
† Means and standard deviations calculated using only municipalities that are not missing either request or declared fields.
Summary Statistics

Note: 2000 and 2001 underestimated due to missing values.

Note: Disaster declarations with missing values excluded.
Summary Statistics

Note: 1999 and 2000 not shown due to missing values.
Voters’ Response to Natural Disasters

\[ \text{VoteShare}_{spt} = \alpha + \beta \text{DisDec}_{st-1} + \gamma_s + \lambda_t + \varepsilon_{st} \]

- \( s \) denotes state, \( p \) denotes the incumbent party, and \( t \) denotes election year
- \( \text{VoteShare} \) is the incumbent party’s voteshare in state \( s \) in election at time \( t \)
- \( \text{DisDec}_{st-1} \) is the standard score of disaster declarations in state \( s \) in the year leading up to the election
- \( \gamma \) and \( \lambda \) are state and time fixed effects, respectively
- Standard errors are clustered at the state level in all regressions
Coalitions across political parties are extremely common in gubernatorial elections, which poses two main challenges:

- Difficult to identify the correct incumbent when coalitions change across elections;
- Coalition formation is endogenous and could respond to the occurrence of a natural disaster.

In light of these identification challenges, I do not expect gubernatorial regression results to be as informative as presidential (in which political parties are more stable).
Natural disasters, political economy, and institutions

### Table: Voter Response to Natural Disaster Declarations

<table>
<thead>
<tr>
<th></th>
<th>Presidential (1)</th>
<th>Gubernatorial (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State-level analysis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Score</td>
<td>−0.013*</td>
<td>−0.012</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.031)</td>
</tr>
<tr>
<td><strong>Municipal-level analysis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Score</td>
<td>−0.024*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>62</td>
<td>61</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>4,885</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

- *****Significant at the 1 percent level.**
- ****Significant at the 5 percent level.
- *Significant at the 10 percent level.

Municipal-level results consistent with Cole et al. (2012), who estimate that a 1 standard-deviation decline in rainfall decreases incumbent voteshare by 2.6% at a comparable political division in India.
Governors’ Disaster Dec. Requests

\[ \text{GovReq}_{sym} = \alpha + \beta \text{ElectionYr}_{sy} + \gamma_s + \lambda_y + \lambda_m + \varepsilon_{sym} \]

- \( s \) denotes state, \( y \) denotes year, and \( m \) denotes month
- \( \text{GovReq} \) is either an indicator or a count variable equal to (i) 1 if a governor requests a disaster declaration in state \( s \) during year \( y \) in month \( m \) or to (ii) the number of municipalities requested by a governor in state \( s \) during year \( y \) in month \( m \)
- \( \text{ElectionYr}_{sy} \) is an indicator for an election year, either federal or state
- Regressions include state, year, and month fixed effects
- Standard errors are clustered at the state level
## Table: Governor Disaster Dec. Requests During Election Years

<table>
<thead>
<tr>
<th></th>
<th>Federal Election Year</th>
<th>Probit M.E.</th>
<th>Gub. Election Year</th>
<th>Probit M.E.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear Model</td>
<td>1.080**</td>
<td></td>
<td>−0.253</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.507</td>
<td></td>
<td>(0.539)</td>
<td></td>
</tr>
<tr>
<td>Linear Prob. Model</td>
<td>0.044***</td>
<td></td>
<td>−0.003</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td></td>
<td>(0.011)</td>
<td></td>
</tr>
<tr>
<td>Probit</td>
<td>0.467***</td>
<td>0.091***</td>
<td>−0.018</td>
<td>0.041***</td>
</tr>
<tr>
<td></td>
<td>(0.104)</td>
<td>(0.013)</td>
<td>(0.127)</td>
<td>(0.010)</td>
</tr>
</tbody>
</table>

**Notes:**

*** Significant at the 1 percent level.
** Significant at the 5 percent level.
* Significant at the 10 percent level.
Federal Government’s Disaster Declarations

\[ \text{NumDec}_{sym} = \alpha + \beta_1 \text{ElectionYr}_{sy} + \beta_2 \text{NumReq}_{sym} + \gamma_s + \lambda_y + \lambda_m + \varepsilon_{sym} \]

- \( s \) denotes state, \( y \) denotes year, and \( m \) denotes month.
- \( \text{NumDec} \) is the number of municipalities declared as a natural disaster in state \( s \) during year \( y \) in month \( m \).
- \( \text{ElectionYr}_{sy} \) is an indicator for an election year.
- \( \text{NumReq}_{sym} \) is the number of requested municipalities in state \( s \) during year \( y \) in month \( m \).
- Regressions include state, year, and month fixed effects.
- Standard errors are clustered at the state level.
Federal Government’s Disaster Declarations

### Table: Federal Natural Disaster Declarations in Election Years

<table>
<thead>
<tr>
<th></th>
<th>Presidential (1)</th>
<th>Gubernatorial (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fed Elect Yr</td>
<td>0.909**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.413)</td>
<td></td>
</tr>
<tr>
<td>State Elect Yr</td>
<td></td>
<td>−0.115 (0.280)</td>
</tr>
<tr>
<td>Num Requested</td>
<td>0.503***</td>
<td>0.503***</td>
</tr>
<tr>
<td></td>
<td>(0.014)</td>
<td>(0.014)</td>
</tr>
<tr>
<td>N</td>
<td>4,822</td>
<td>4,822</td>
</tr>
</tbody>
</table>

**Notes:**

***Significant at the 1 percent level.
**Significant at the 5 percent level.
*Significant at the 10 percent level.
Remarks

Preliminary evidence that:

- Voters punish politicians for the occurrence of natural disasters. I need to clarify their response and to determine the role of post-disaster aid.

- Governors request more natural disaster declarations during presidential election years, but not gubernatorial election years. Might be that incentives linked to political party are more important during federal election years.

- Federal Government declares more natural disasters during presidential election years, but not gubernatorial election years. Have yet to determine whether this changes over time.
Next steps

- Develop a formal model that will sharpen my predictions.
- Obtain indices for disaster events from CONAGUA and other technical agencies. (CHECK)
- Obtain more municipal-level FONDEN expenditure database, incorporate expenditures into the analysis. (Still waiting)
- Consider the role of information.
Thank you!

1985 Mexico City Earthquake was major impetus for overhaul of natural disaster policy in Mexico, including establishment of the FONDEN. The main general hospital, pictured here, was one of 13 major hospitals to collapse.

http://upload.wikimedia.org/wikipedia/commons/7/7c/1985_Mexico_Earthquake_-_Collapsed_General_Hospital.jpg