The Politics of Disaster Relief

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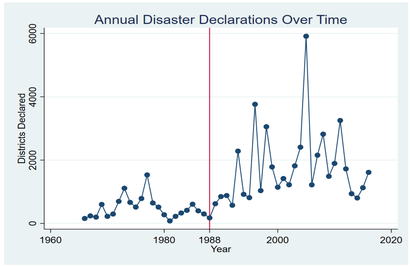
Research Question: Do US presidents use disaster relief to support the election of politically aligned congressmembers?

Introduction

- Previous authors have studied the political influences behind intergovernmental transfers (Asher and Novosad, 2017; Berry, Burden and Howell, 2010; Brollo and Nannicini, 2012)
- In the United States, the president decides which requests for federal disaster relief are granted, a process reinforced by the Stafford Act in 1988
- Disaster relief is a highly volatile form of discretionary spending. It has risen sharply since the passing of the Stafford Act and the introduction of "emergency declarations"



Dataset

Panel data on United States congressional districts from 1966 to 2016

- Natural disaster data from FEMA *Disaster Declarations Summaries V2* and NOAA *Storm Events Database* at the county level
  - Matched to districts with Missouri Census Data Center GEOCORR applications and district shapefiles from Jeffery Lewis (2013)
- Voting data from MIT Election Lab and Lee, Moretti, and Butler (2004)
- *Presidential Support Scores* for first year in term from *Voteview.com*
- District-level Census data from IPUMS NHGIS and Scott Adler (2003)

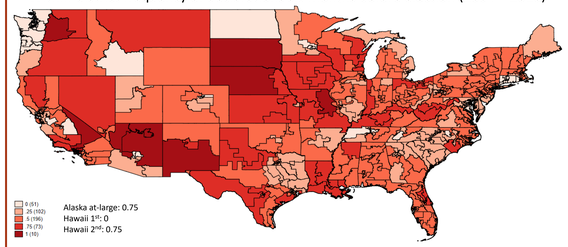
Table 1: Summary Statistics by Incumbent Congressmember/President Party Alignment

N = 9,072	Party Unaligned N = 4,588		Party Aligned N = 4,484	
	Mean	Std.Dev	Mean	Std.Dev
Panel A: Pre-Election Disaster Variables				
Disaster Declaration 2 Months Before Election	0.069	0.243	0.069	0.240
6 Months Before	0.179	0.367	0.188	0.374
Major Weather Event 2 Months Before Election	0.312	0.455	0.276	0.438
6 Months Before	0.580	0.489	0.563	0.489
Panel B: Political Variables				
Incumbent Democrat Representative	0.528	0.499	0.580	0.494
Competitive District	0.612	0.281	0.627	0.270
Presidential Support Score	0.307	0.151	0.728	0.150

Note: All variables bounded between 0 and 1. Presidential support score mean and standard deviation for the pooled sample are 0.517 and 0.259 respectively. Other summary stats are similar in the pooled sample

Geographic Distribution of Declarations

Within-district frequency of declarations six months before election (2004 – 2010)

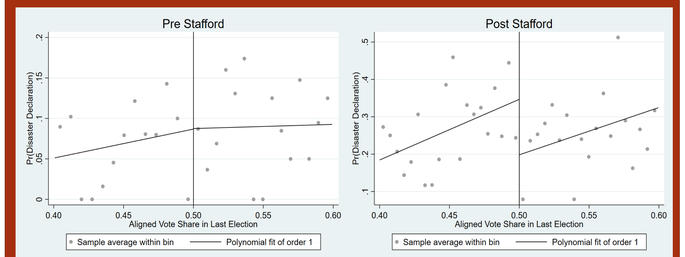


From 1966 to 2016, each district received a disaster declaration two(six) months before the general election in 10%(25%) of the election years they appear in the sample

Key Findings

1. **The president gives more declarations to aligned districts with a strong political base**
   - OLS associates party alignment with a 3% higher likelihood of receiving a declaration two months before the election
2. **In competitive districts, the president gives more declarations to the unaligned**
   - OLS associates a one standard deviation increase in competitiveness with a 1.3% higher likelihood of receiving a declaration 2 months before the election; this relationship is strongest for the unaligned districts
   - RD estimates a LATE of at most 14% lower likelihood of receiving a declaration 6 months before the election for aligned districts within a 10% bandwidth
   - **Interpretation**: the president seeks to flip these districts by increasing his party's popularity because voters attribute disaster relief to the president
3. **This political behavior arises after the passing of the Stafford Act in 1988**
   - Significant heterogeneity found in analyses with interactions and split samples
   - Note: This study does not rule out simultaneous events or differing pre-trends

Effect of Party Alignment Pre and Post Stafford Act



Main Variables

d: Congressional District t: General Election Year

- $Declared_{dt}^{T}$: Probability of receiving at least one disaster declaration 'T' months prior to general election
- $Disaster_{dt}^{T}$: Probability of experiencing at least one major weather event* 'T' months prior to general election
- $Aligned_{dt}$: Dummy indicator for incumbent congressmember same party as incumbent president
- $Competitive_{dt}$: 'Closeness' of last congressional election, defined as $(1 - (2 \times (WinningVoteShare_{dt-1} - 0.5))$
- $Vote_{dt-1}$: Two-party vote share of the president's party in the previous congressional election

*Examples: Flood, Hurricane, Tornado, Wildfire, Blizzard, Drought, Landslide

Empirical Strategy

Twofold research approach establishes broad correlations (OLS) and a local average treatment effect (RD) in competitive districts

- **Fixed-Effects OLS Regression**

$$Declared_{dt}^{2} = \alpha + \beta_1 Aligned_{dt} + \beta_2 Competitive_{dt} + \beta_3 (Aligned_{dt} \times Competitive_{dt}) + \beta_4 Disaster_{dt}^{2} + \lambda X'_{dt} + \rho FixedEffects + \epsilon_{dt} \quad (1)$$

- **Close Election Local Linear Regression Discontinuity**: Restrict observations to MSE-optimal bandwidth around threshold $Vote_{dt-1}$ = 50% and estimate:

$$Declared_{dt}^{6} = \theta + \gamma_1 Vote_{dt-1} + \gamma_2 Aligned_{dt} + \gamma_3 (Vote_{dt-1} \times Aligned_{dt}) + \mu_{dt} \quad (2)$$

- **Identification Assumption**: When the election is close enough, whether the aligned or unaligned party wins and becomes the next incumbent is as good as randomly assigned
- Treatment: $Aligned_{dt} = 1 \Leftrightarrow Vote_{dt-1} > 50\%$
- Coefficient of Interest: $\boldsymbol{\gamma_2}$ is the LATE of being in the President's party on receiving a disaster declaration

OLS Results

Table 2: OLS Regression of Disaster Declarations on Party Alignment and Competitiveness

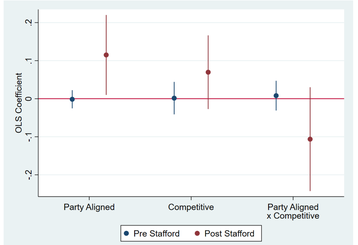
Dependent Variable: Probability of receiving a disaster declaration two months prior to election

Fixed Effects	State		District		District-Decade	
	(1)	(2)	(3)	(4)	(5)	(6)
Party Aligned	0.023* (0.011)	0.025* (0.012)	0.025* (0.012)	0.027* (0.013)	0.045+ (0.023)	0.051* (0.021)
Competitive	0.050*** (0.011)	0.046*** (0.012)	0.055*** (0.013)	0.052*** (0.014)	0.039* (0.019)	0.038+ (0.019)
Party Aligned x Competitive	-0.020 (0.019)	-0.022 (0.020)	-0.021 (0.019)	-0.024 (0.020)	-0.040 (0.032)	-0.049+ (0.029)
Major Weather Event	0.100*** (0.015)	0.095*** (0.015)	0.093*** (0.016)	0.093*** (0.016)	0.080*** (0.022)	0.082*** (0.023)
Controls	No	Yes	No	Yes	No	Yes
N	9,072	8,960	9,072	8,960	9,072	8,960
Adj. R^2	0.120	0.123	0.099	0.101	0.058	0.064

Note: Standard errors in parentheses. Standard errors are clustered at the state level. All regressions include election year fixed effects. District level controls: log real median income, percent urban, percent black, percent urban, percent high school graduate, percent over 65.
$^{+}p < 0.1$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

OLS: Stafford Act Effect

Split Sample into pre Stafford (1966-1998) and post Stafford (1990 – 2016) periods, estimate Eq (1) with district-decade fixed effects, and plot main coefficients



Political behavior only exists in the post Stafford sample

RD Results

Table 3: RD Effect of Party Alignment on Disaster Declarations in Competitive Districts

Dependent Variable: Probability of receiving a disaster declaration 6 months prior to election

	CCT Optimal		Controls	Quadratic	
	BW	N	(1)	(2)	(3)
Post Stafford	0.102	1,305	-0.143* (0.061)	-0.127* (0.059)	-0.053* (0.045)
Pre Stafford	0.134	1,749	0.055 (0.038)	0.049 (0.040)	0.051 (0.042)
Whole Sample	0.102	2,662	-0.057 (0.038)	-0.049 (0.038)	-0.061 (0.146)

Note: Cells in columns (1) through (3) report the bias-corrected coefficient of a separate RD with robust standard errors in parentheses (Calonico, Cattaneo, and Titiunik, 2014). "BW" and "N" report the MSE-optimal bandwidth and the resulting total effective number off observations around that bandwidth used for estimates in column (1). All regressions use the MSE-optimal bandwidth. Column (3) estimates a local quadratic regression. District level controls: at least one major weather event 6 months prior to election, log real median income, percent urban, percent black, percent urban, percent high school graduate, percent over 65, Census region.
$^{+}p < 0.1$, $^{*}p < 0.05$, $^{**}p < 0.01$

OLS: Legislative Alignment

- *Presidential Support Scores* measures the fraction of times congressmembers' roll call votes are in line with the President's position
- Estimate Eq (1) with this alternative measure of "legislative alignment"

Table 4: OLS Regression of Disaster Declarations on Legislative Alignment and Competitiveness

Dependent Variable: Probability of receiving a disaster declaration two months prior to election

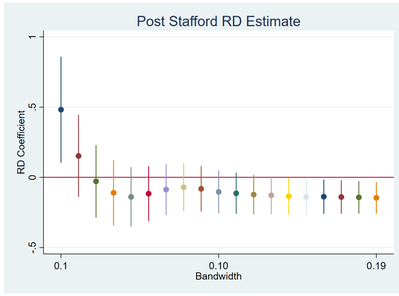
Fixed Effects	State		District		District-Decade	
	(1)	(2)	(3)	(4)	(5)	(6)
President Support	0.095** (0.028)	0.097** (0.028)	0.091** (0.030)	0.093** (0.030)	0.175** (0.051)	0.176** (0.051)
Competitive	0.077** (0.023)	0.071** (0.024)	0.078** (0.026)	0.074** (0.026)	0.101** (0.033)	0.099** (0.035)
President Support x Competitive	-0.077+ (0.041)	-0.076+ (0.042)	-0.072 (0.045)	-0.073 (0.045)	-0.153* (0.065)	-0.157* (0.065)
Major Weather Event	0.094*** (0.015)	0.090*** (0.015)	0.087*** (0.016)	0.087*** (0.015)	0.080*** (0.023)	0.083*** (0.024)
Controls	No	Yes	No	Yes	No	Yes
N	8,479	8,382	8,479	8,382	8,479	8,382
Adj. R^2	0.122	0.127	0.098	0.102	0.030	0.039

Note: Standard errors in parentheses. Standard errors are clustered at the state level. All regressions include election year fixed effects. District level controls: log real median income, percent urban, percent black, percent urban, percent high school graduate, percent over 65.
$^{+}p < 0.1$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

One standard deviation increase in support is associated with a 3% higher likelihood of receiving a disaster declaration

RD: Bandwidth Sensitivity

Estimate Eq (2) for post Stafford period across several bandwidths



Outliers at smallest bandwidths either driven by outliers near threshold or heterogeneous effects in razor-close elections; OLS estimates suggest the former hypothesis.

Future Work

- Study the effects of major weather events and disaster declarations on election results; compare effects on congressional, presidential, and gubernatorial results to see who voters blame and/or reward
- Separately analyze "major disaster declarations" and "emergency declarations," which are vaguely defined and more prone to political abuse

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