



TEXAS A&M UNIVERSITY

Hazard Reduction & Recovery Center

WHAT DISASTER CHARACTERISTICS INCREASE THE LIKELIHOOD OF COMMUNITY DEVELOPMENT BLOCK GRANT - DISASTER RECOVERY FUNDING?

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Introduction

As hazards become more intense and frequent, so to does the impact on the affected communities. Recovery efforts are long and expensive processes. Funding disaster recovery is a complex process with many different actors. Focusing solely on the federal level, the President has the responsibility to issue declarations regarding a disaster, which are tied to various recovery programs. Once a presidential declaration has been issued, Congress has the opportunity to approve supplemental funding for different recovery programs, such as the Community Development Block Grant - Disaster Recovery (CDBG-DR) from the Department of Housing and Urban Development (HUD). However, Congress does not always approve CDBG-DR funding for every presidentially declared disaster.

Research Question and Hypotheses

What characteristics of a disaster that receives a Presidential Declaration increase the likelihood of receiving supplemental funding appropriation from Congress for the CDBG-DR program?

- If a disaster causes high rates of property damage, then the impacted state will be more likely to receive CDBG-DR funds.
- If a disaster causes high rates of fatalities, then the impacted state will be more likely to receive CDBG-DR funds.
- If a disaster-affected area has representatives on the appropriations committees, then the impacted state will be more likely to receive CDBG-DR funds.
- If a disaster-affected area has higher rates of homeowners in the population, then the impacted state will be more likely to receive CDBG-DR funds.
- If a disaster-affected area has lower rates of undocumented residents within the population, then the impacted state will be more likely to receive CDBG-DR funds.

Methodology

I combined various data sources to create a dataset for a logit regression predicting likelihood of receiving CDBG-DR appropriation.

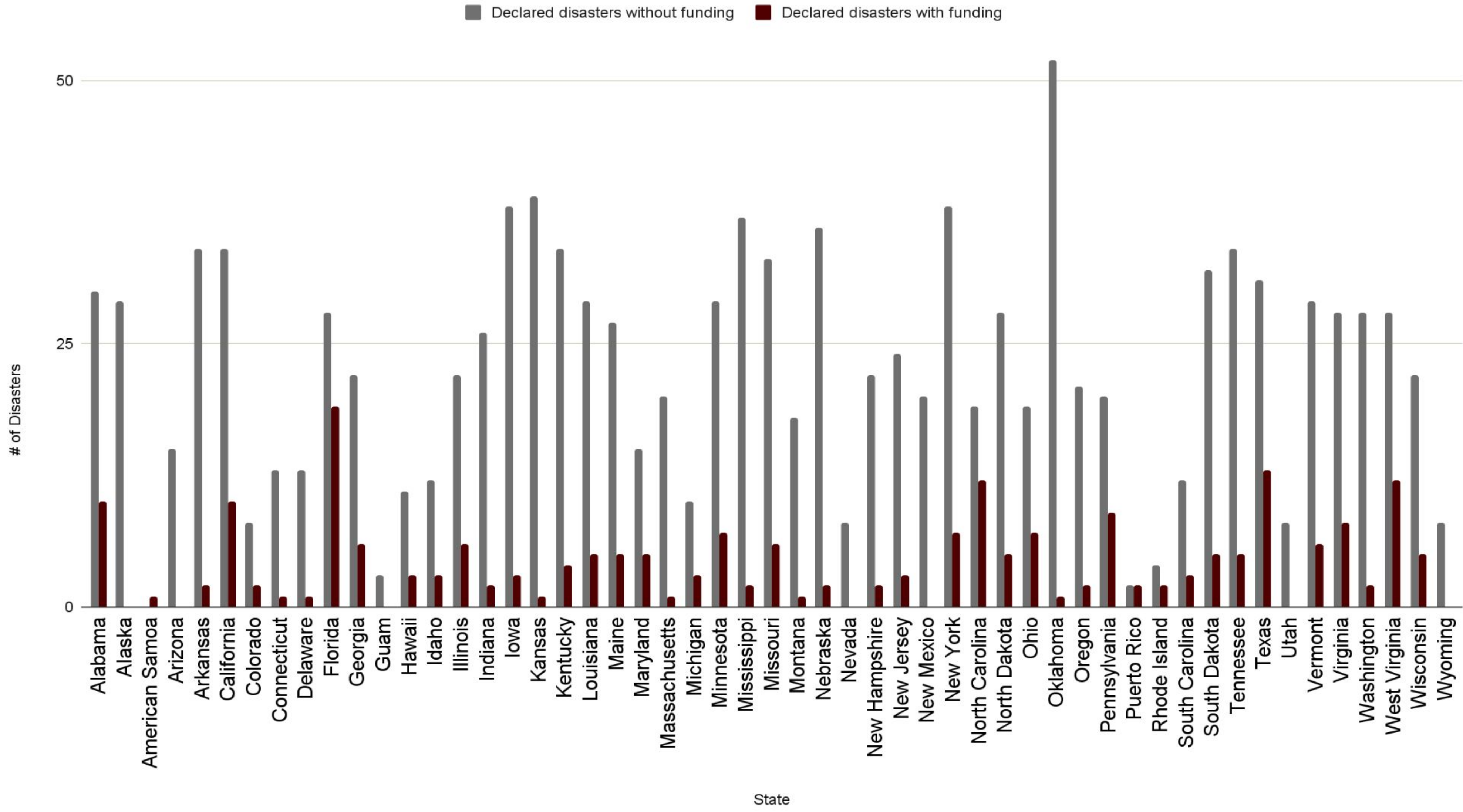
Table 1. Variable Groupings and their Data Sources

Variable Groupings	Data Source	Data Host
Disaster Declaration	Disaster Declarations Summaries V2	Federal Emergency Management Agency
Disaster Damage	SHELDUS™	Arizona State University' Center for Emergency Management and Homeland Security
Community Development Block Grant - Disaster Recovery	HUD Notices	U.S. Federal Register
Committee Representation	Congressional Directories	House and Senate Historians Offices
Controls	U.S. Census and American Community Survey	Census Social Explorer

- Unit of Analysis:** Presidentially-declared disasters by state (each disaster is delineated by states impacted).
- Sample Timeframe:** 20001 - 2018
- Dependent variable:** If CDBG-DR funds were granted
- Control Variables:** Using the year the disaster occurred, control variables were matched based on the 5 year interval or 10 year interval.

CDBG-DR Funding Overview by State

Table 2. Number of disasters by state that are granted CDBG-DR funds



This chart breaks down the number of presidentially declared disasters by state from 2000 to 2018. It further indicates how many disasters in the state were awarded CDBG-DR supplemental appropriations compared to the number of those that did not receive any additional funding.

Total Sample	1424
Declared disasters without CDBG-DR	1202
Declared disasters with CDBG-DR	222

Regression Results and Model Interpretations

Table 3. Logit regression results represented in Log-Odds form

*** p<0.01, ** p<0.05, * p<0.1

	Model 1	Model 2	Model 3	Model 4
Independent Variables				
\$100,000,000 in Crop Damage (adj 2018)	6.87%	6.65%	6.85%	6.64%
\$100,000,000 in Property Damage (adj 2018)	4.19%***	4.11%***	4.10%***	4.03%***
Total Injuries	0.02%	0.01%	0.001%	0.01%
Total Fatalities	5.73%***	5.54%***	5.74%***	5.91%***
1 Senator from impacted county on Senate Appropriations Committee	47.26%	41.62%	47.55%	45.5%
1 Representative from impacted county on House Appropriations Committee	-16.05%	-18.05%	-19.51%	-19.10%
2 Representatives from impacted county on House Appropriations Committee	15.37%	21.53%	25.36%	23.74%
Percentage of state population that is a homeowner	-1.71%	-2.12%	-.93%	-1.22%
Percentage of state population that is an undocumented resident	6.74%*	5.27%	8.33%	8.30%
Control Variables				
FEMA grants IA program	94.64%**	106.06%**	100.37%**	99.57%**
Disaster is either severe storm, hurricane, or flood	190.66%**	192.12%**	172.64%**	172.92%**
Disaster occurred in FEMA Region 3	352.22%***	364.13%***	235.01%***	240.08%***
Disaster occurred in FEMA Region 4	65.699%	45.94%	14.34%	2.26%
Disaster occurred in FEMA Region 8	-52.05%	-48.42%	-15.89%	-13.06%
Percent of state population that is under 18 and living in poverty		5.13%	1.67%	1.80%
Percent of state population that is 18 to 64 and living in poverty		-2.26%	5.18%	4.49%
Percent of state population that is 65+ and living in poverty		-1.87%	-6.27%	-5.64%
Percent of state population that identifies as white			-.33%	-.06%
Percent of state population that identifies as hispanic			-.66%	-.52%
Percent of state population that identifies as female			74.02%**	62.91%*
Disaster occurred in cultural region 4				-23.05%
Disaster occurred in cultural region 6				21.29%
BIC	-6606.69	-6587.661	-6571.633	-6558.232

THE STRONGEST MODEL IS MODEL 1

- Hypothesis 1 supported:** with each \$100 million increase in property damage, the odds of the disaster receiving an allocation of CDBG-DR funds increases by 4.19%.
- Hypothesis 2 supported:** each additional fatality is associated with a 5.73% increase in odds of receiving CDBG-DR funds from HUD.
- Hypothesis 3 unsupported:** If the impacted community had representatives on the appropriations committee was found to be statistically insignificant.
- Hypothesis 4 unsupported:** If the impacted community had higher rates of homeownership was found to be statistically insignificant.
- Hypothesis 5 supported:** for each additional percentage increase of undocumented residents within the population is associated with a 6.74% increase in odds of receiving CDBG-DR funds from HUD.

Additional Findings

- If the hazard is a hurricane, severe storm, or flood there is a 190.66% increase associated with the odds of a disaster with a presidential declaration receiving CDBG-DR funds from HUD.
- If FEMA makes the IA program available to the same disaster, it is associated with a 94.64% increase in odds of a disaster with a presidential declaration receiving CDBG-DR funds from HUD.
- If the hazard occurs in FEMA Region 3 (Delaware, Maryland, Pennsylvania, Virginia, or West Virginia) 352.22% increase associated with the odds of a disaster with a presidential declaration receiving CDBG-DR funds from HUD.