AN ASSESSMENT OF THE SANDY RECOVERY IMPROVEMENT ACT

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EXECUTIVE SUMMARY

The Federal Emergency Management Agency is the entity tasked with coordinating the U.S. Federal Government's role in preventing and responding to disasters. One of its major duties is to obligate federal recovery funds to individuals and communities through the Individual Assistance and Public Assistance grant programs. The process for awarding these grants has historically been periodically reviewed and revised, and most recently major changes were made in the wake of Hurricane Sandy.

The Sandy Recovery Improvement Act (SRIA), signed on January 29, 2013, sought to use lessons learned from the historic storm to guide statutory changes that would lead to more effective and timely responses to future disasters. The Act's main goals were to "[reduce] the costs to the Federal Government," "[increase] flexibility" and "[expedite] the provision" of assistance, and "[provide] financial incentives …for the timely and cost-effective completion of projects," (SRIA Sec. 1102). SRIA's provisions are guided by the understanding that FEMA's ultimate mission is to help victims of disasters, and that consequently any procedural changes should be crafted with the aim of helping applicants.

The purpose of this analysis is to assess whether SRIA successfully improved the process by which FEMA obligates Public Assistance awards. "Improvement" is defined here by three metrics: the average federal share of an award; the average number of project worksheets per applicant per disaster; and the number of days between a disaster declaration and when an award is obligated. An increase in federal share, and a reduction in the number of projects and number of days elapsed would all be evidence that SRIA has had its desired impact on the targeted population.

SRIA's impact on these three measures was established through multiple linear regressions. SRIA was found to have successfully increased the average federal share awarded to state, local, and tribal governments by 40%, and to have reduced the average number of projects per applicant by 6%. The Act was also, however, associated with an unintended 4.8% increase in the average number of days it took to obligate an award.

Having established that SRIA did not accomplish one of its goals of expediting assistance to victims, I recommend that FEMA conduct an inquiry into where in the obligation process a delay has emerged. Based on SRIA's specific provisions, I theorize that the increased threshold for small projects and the ability to bundle projects from different categories of work are most likely responsible for slowing down the obligation process, and are prime areas for further analysis using FEMA's internal data.

BACKGROUND

Hurricane Sandy (also known as "Superstorm Sandy") hit the East Coast of the United States in late October 2012. The strength of the storm and the devastation it left behind made it the second most expensive hurricane to ever strike the U.S., behind only infamous Hurricane Katrina in 2005.

Hurricane Katrina set a precedent for making dramatic changes to the structure and operational protocol of the Federal Emergency Management Agency (FEMA), the federal entity tasked with leading the response to federally-declared emergencies and disasters. Formally established as an independent agency that fused together multiple administration offices and programs in 1979, by the time Katrina hit FEMA was a sub-component of the new Department of Homeland Security, established two years prior.

Public frustration and anger with the quality of the response to Katrina prompted Congress to pass the Post-Katrina Emergency Management Reform Act (PKEMRA). This act reformed FEMA's internal structure and policies and is largely credited with improving FEMA's response to post-Act events. Most importantly, PKEMRA made the FEMA Administrator a direct report to the Secretary of Homeland Security, removing the layers of bureaucratic interference that had complicated FEMA's efforts to effectively respond to Katrina. Equally critical, PKEMRA amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act, which since 1988 has provided the President of the United States the legal authority, via FEMA, to respond to federally-declared disasters.

In the wake of similar displeasure with the limited amount of funding and resources available in areas damaged by Sandy—and in particular, the states of New Jersey and New York—Congress decided to once again amend the Stafford Act in an effort to further improve responses to disasters and emergencies.

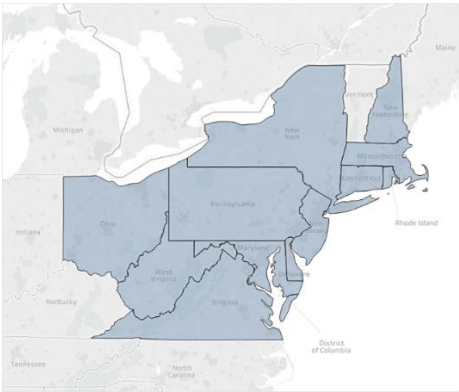


Figure 1: The 12 states with Hurricane Sandy disaster declarations.

Public Law 113-2 was passed in the 113th United States Congress. The law was comprised of the Disaster Relief Appropriations Act of 2013, which appropriated supplemental funds for Sandy-related assistance, and the Sandy Recovery Improvement Act of 2013 (SRIA). SRIA's purpose was to use lessons learned from Sandy and other disasters to make changes to the process with which FEMA distributes grants to communities (Public Assistance, or PA) and citizens (Individual Assistance, or IA). Specifically, SRIA was intended to improve the process by making it quicker, less costly, and more reflective of unique applicant needs.

SRIA has nine provisions for new programs or practices, five of which relate directly to the PA award process. Some of these provisions made immediate changes to rules or definitions that impacted all PA applicants; others created pilot programs for testing new application and obligation procedures. All of these pilot programs are required to be reassessed after a specified period of time, in order to evaluate whether or not they are meeting SRIA's goal of improving the provision of assistance to disaster victims.

SRIA: PUBLIC ASSISTANCE MEASURES IN BRIEF		
	Before SRIA	After SRIA
Public Assistance Program Alternative Procedures	Permanent Work: • Awards based on actual cost of project • 10% funding penalty for alternate projects Debris Removal: • Recycling revenues count against federal share • Same reimbursement share as Categories B-G	Permanent Work: • Awards based on fixed cost estimates • Awardees can keep excess funds • Independent expert panel available to assess and validate cost estimates • Projects for Categories C-G can be bundled Debris Removal: • No penalty for recycling revenues • Sliding scale for federal share • One-time federal share increase for debris management plans
Dispute Resolution Pilot Program	Second round of appeals go through Public Assistance Appeals Branch	Second round of appeals can go through binding arbitration before an independent review panel
Simplified Procedures	Small projects threshold of $1,000 - $68,500	Threshold increased to $3,000 - $120,000, adjusted annually based on CPI
Essential Assistance	Federal government only reimburses for overtime for emergency protective measures	Federal government reimburses for straight-time and overtime costs for emergency protective measures
Tribal Requests	Tribes only receive disaster funding as part of state request	Tribes can request disaster declaration directly from President

In detail, the provisions are as follows:

> **Sec. 1102, *Public Assistance Program Alternative Procedures***, authorizes the implementation of two new methods of approving PA projects, and initiates a set of pilot programs to test the effectiveness of these "alternative procedures."

The first pilot program is for permanent works projects (Damage Categories C through G). Under standard procedures, permanent work awards are obligated based on their actual cost, and obligations are adjusted higher and lower as needed once the final cost is determined. The key component—and a required feature—of the SRIA permanent works alternative procedures is obligations based on fixed cost estimates. Grant awardees using the alternative procedures are now allowed to keep any excess funds, provided that they are used for permitted PA purposes. The caveat, however, is that if a project costs more than expected, FEMA will not provide any additional money.[1]

The permanent works alternative procedures also establish an independent expert panel to assess and validate an applicant's estimated project costs, and allows the consolidation of multiple Categories C through G projects into a single project worksheet for funding purposes. The permanent works alternative procedures also remove the 10% funding penalty for alternate projects (projects where a sub-awardee decides not to restore a damaged facility and instead uses the money for another recovery purpose) (FEMA P-1011, p. 50).

The second pilot program is for debris removal (Damage Category A projects), and includes provisions intended to incentivize the quicker removal of debris and increase recycling. Under these alternative procedures, FEMA will use a sliding scale to determine how much to reimburse a project: The Federal Government will cover 85% of the costs if completed within 30 days, 80% if completed within 31-90 days, and the standard 75% federal share if the removal is completed within 91-180 days (FEMA Debris Fact Sheet). Award recipients using alternative procedures are now allowed to retain any revenue earned from recycling debris without their grant from FEMA being negatively impacted. The recycling revenues must, however, go to an approved PA project. Finally, award sub-recipients who had a debris management plan reviewed and approved by FEMA in place before the disaster are eligible for a one-time 2% increase in the share that the Federal Government will cover.

The goal of these pilot programs, like the goal of SRIA overall, is to improve the process for obligating awards. Sec. 1102 defines "improved" as:

1. "Reducing the costs to the Federal Government of providing such assistance;"
2. "Increasing flexibility in the administration of such assistance;"
3. "Expediting the provision of such assistance to a State, tribal, or local government, or owner or operator of a private nonprofit facility;"

[1] The main exception to this rule is if any expected insurance reimbursements are not paid out to a sub-awardee.

4. "Providing financial incentives and disincentives for a State, tribal or local government, or owner or operator of a private nonprofit facility for the timely and cost-effective completion of projects with such assistance." (SRIA Sec. 1102)

Sec. 1105, *Dispute Resolution Pilot Program*, creates an alternative to a second round of appeals within the FEMA PA Program for applicants whose initial funding requests are denied. Provided the amount argued over is 1 million dollars[2] or more, an applicant can request a binding arbitration decision by an independent review panel.

Sec. 1107, *Simplified Procedures*, directed FEMA to assess the appropriateness of raising the threshold for qualifying as a "small project," and orders it to keep the threshold in line with the Consumer Price Index going forward. Based on its review, FEMA determined that an increase in the cap for small projects was appropriate. The FY 2014 allowable small project sized ranged from $1,000 to $68,500. As a result of FEMA's analysis, the minimum rose to $3,000 as of February 26, 2014, and the maximum to $120,000 (FEMA.gov). The amounts have continued to be adjusted for inflation ever since.

Sec. 1108, *Essential Assistance*, directs FEMA to reimburse state, tribal, and local governments for base pay, benefits, overtime, and hazardous duty compensation of employees who help with Category B Emergency Protective Measures.

Sec. 1110, *Tribal Requests for a Major Disaster or Emergency Declaration Under the Stafford Act*, enables federally-recognized Indian tribal governments to request a disaster or emergency declaration directly from the Federal Government, without seeking funding as a sub-applicant to a state request.

President Barack Obama signed the Act into law on January 29, 2013, a day after its formal approval by the U.S. Senate.

[2] This minimum is adjusted annually for inflation.

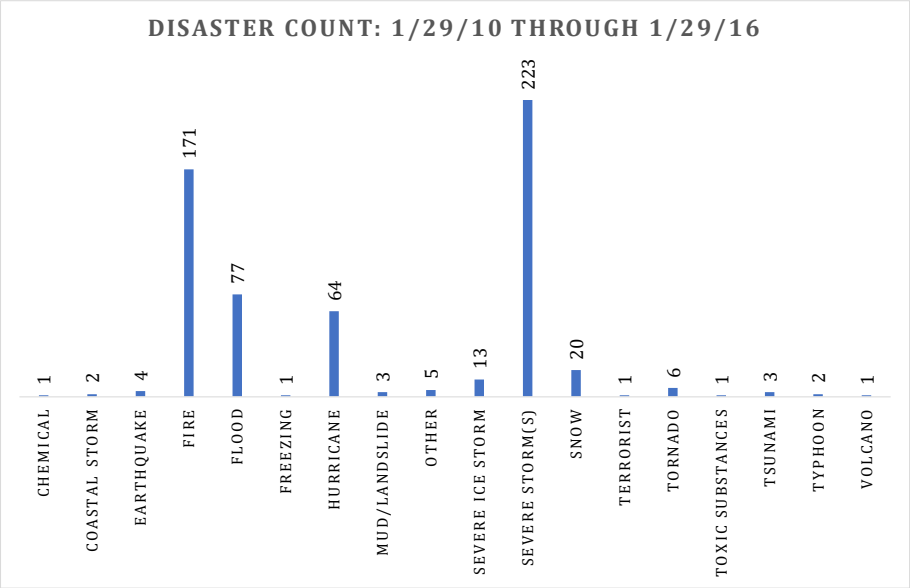
METHODOLOGY

Data Context

Term	Definition
Observation	A unique record in the dataset.
Obligation	An award/grant for an applicant/sub-grantee/sub-awardee.
Declaration	A formal federal recognition of a major disaster or emergency covering a specific geographic area (typically at the state or county level).
Incident	An event with a single title that may be broken up into multiple declarations.
Example: Hurricane Sandy was a single incident. There were fourteen declarations titled "Hurricane Sandy": one major disaster declaration each for CT, DE, DC, MD, MA, NH, NJ, NY, PA, RI, VA, and WV, and then an emergency declaration each for NH and WV. Within the state of Connecticut, there were 485 awards obligated, or obligations. Some sub-grantees received more than one of these 485 awards. Each obligation is also an individual observation within this dataset, with its own unique records for the dependent and independent variables of interest.	

The purpose of this analysis is to assess whether SRIA has improved the process by which FEMA obligates PA awards in the wake of a federally-declared disaster or emergency. "Improvement" will be determined by SRIA's impact on average award size, the number of average project worksheets an applicant submits per disaster, and the number of days it takes to obligate the average award. A decrease in the length of time and number of project worksheets, and an increase in award size would all signal improvement.

The time period in question is from January 29, 2010 through January 29, 2016—three years prior to and three years after the enactment of SRIA. During this time period, a total of 598 disaster declarations, spread across 18 different incident types, were made. These declarations encompassed the 50 U.S. states, the District of Columbia, American Samoa, Guam, Puerto Rico, the Northern Mariana Islands, and the U.S. Virgin Islands.



During the six-year time period, the 10 FEMA geographic regions were not equally affected by disasters. The number of disaster declarations per region ranged from a low of 30 declarations in Region 5 to a high of 148 declarations in Region 6.

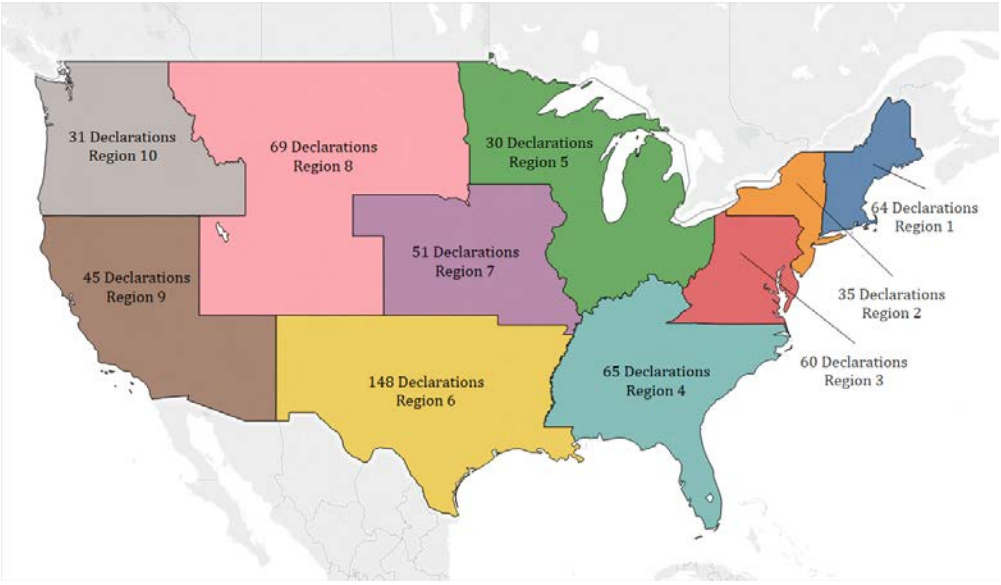


Figure 1: Disaster Declaration Count by Region (showing only the contiguous United States)

Likewise, the 598 declarations were not equally divided between incident type, nor were they equally distributed across years. There were more severe storm declarations than any other incident type (223 separate declarations), and 2011 had the highest amount of declarations (240).

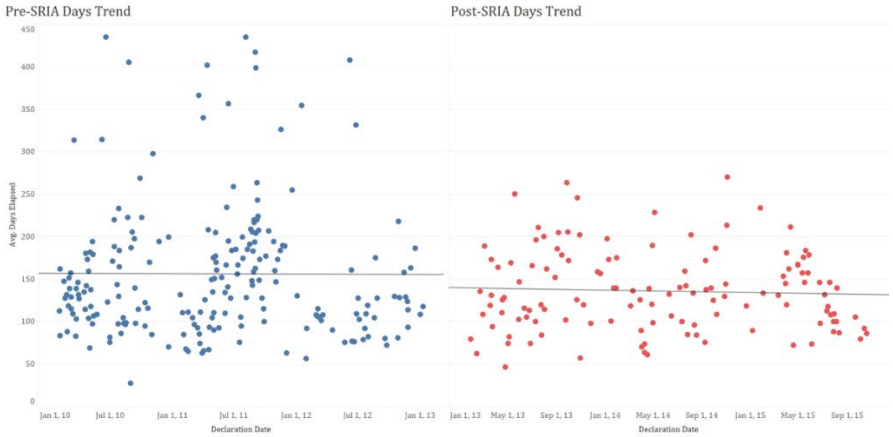
Incident Type	2010	2011	2012	2013	2014	2015	2016	Total
Chemical					1			**1**
Coastal Storm		1				1		**2**
Earthquake	1	2			1			**4**
Fire	18	116	28	4	2	3		**171**
Flood	9	27	3	17	10	9	2	**77**
Freezing				1				**1**
Hurricane	5	28	29	2				**64**
Mud/Landslide				1	2			**3**
Other	1		1	2		1		**5**
Severe Ice Storm	1			1	9	2		**13**
Severe Storm(s)	57	57	25	35	23	23	3	**223**
Snow	11	5		1	1	2		**20**
Terrorist				1				**1**
Tornado	2	1		1	1	1		**6**
Toxic Substances							1	**1**
Tsunami		3						**3**
Typhoon						2		**2**
Volcano					1			**1**
Total	**105**	**240**	**86**	**66**	**51**	**44**	**6**	**598**

Figure 2:Disaster Count by Type & By Year

The aforementioned criteria for improvement will serve as the dependent variables in this analysis (i.e., the federal share of a grant obligated, the number of projects per applicant per

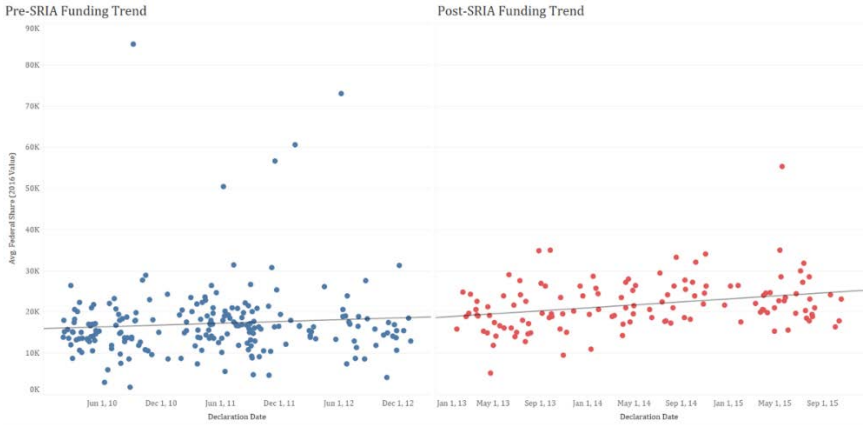
disaster, and the number of days elapsed). Using data made publicly available on OpenFEMA, FEMA's portal for promoting open and transparent government through the publication of mission data, I calculated the values of these three variables for 112,956 disaster obligations between January 29, 2010 and January 29, 2016. On a very superficial level, if one were to rely solely on the numbers, it appears that post-SRIA the average variable measures moved in the direction the legislation was seeking to achieve.

The trends for all three variables before and after SRIA's enactment are plotted side-by-side on the same axes below. Visually, the trendline for the number of days elapsed seems to be falling more steeply after SRIA's enactment (-.0011x before vs. -.0076 after), while the trendline for the federal share appears to be rising at a steeper rate after SRIA's enactment (2.38x before vs. 5.95x after). The trendline for the number of projects post-SRIA intersects with the y-axis at a lower point than does the pre-SRIA trendline (.4 before vs. .04 after), and is rising at a much lower rate (4.83 before vs. 1.17 after).



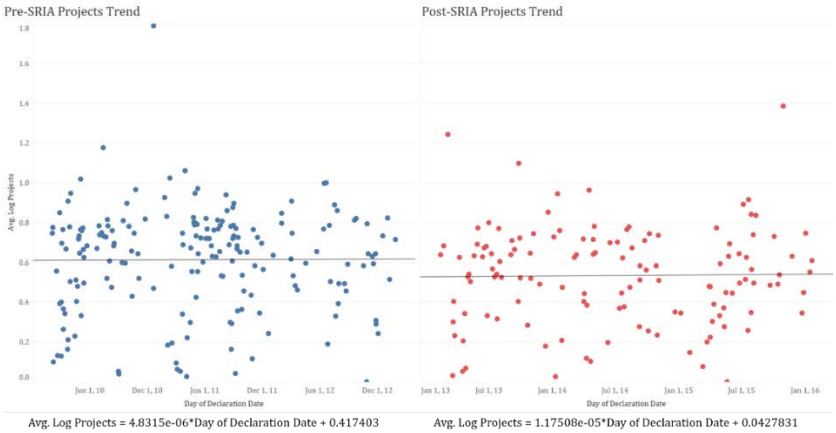
Avg. Days Elapsed = -0.0011235*Day of Declaration Date + 201.665

Avg. Days Elapsed = -0.00766559*Day of Declaration Date + 455.928



Avg. FederalShare2016Value = 2.38065*Day of Declaration Date + -79642.4

Avg. FederalShare2016Value = 5.95318*Day of Declaration Date + -226915



However, looking exclusively at these visualizations does not allow for any change to be directly attributed to SRIA because the plots do not take into account any factors that might have influenced the results. Thus, in order to assess whether there is a causal relationship between SRIA and the post-SRIA patterns, I ran a series of regressions to isolate the influence of SRIA from the impact of characteristics of the applicants and disasters.

Regression Process

In order to achieve meaningful regression results, which is dependent on certain assumptions about the dependent variables (including the normality of residuals), all three variables were log-transformed before being regressed. The resulting coefficients are interpreted as representing percentage changes in the dependent variable. The specific formula used for turning a regression coefficient into a percentage change is: "100*(Coef.-1)".

Additionally, in order to further ensure that the assumptions of linear regression held, outliers were removed from the dataset prior to regression. Consequently, the maximum number of days elapsed used in the analysis is 438, and the largest single obligation amount is $90,423.53 (in 2016 dollars). This restriction was critical for ensuring that regression results were not unduly biased by, for instance, awards obligated within the six-year time frame for disasters that occurred 10 years, or the historically large grants obligated for Hurricane Sandy recovery. In the wake of Sandy, for example, the NYU Langone Medical Center received $1.13 billion from FEMA—an amount necessary for rebuilding an important facility in NYC, but also one that would dramatically distort any regression findings related to federal shares obligated (NY Times).

The criteria for having had the treatment of SRIA varied between the dependent variables. When analyzing the number of projects and days elapsed, observations were considered to have had the treatment if SRIA was in effect as of their disaster declaration date. Observations used for analyzing average federal share, in contrast, were considered to have the treatment based on the obligation date of their award.

- Analysis of federal share used obligation dates because SRIA's authors allowed its provisions to apply to any awards that were not yet obligated as of January 29, 2013. Categorizing treatment or lack of treatment based on obligation date allows for the inclusion of all disasters declared after SRIA's enactment as well as those Sandy grants obligated after January 29, 2013 and which potentially could have made use of the Act's provisions.
- Analysis of the number of projects per applicant by necessity must use declaration date. Multiple projects for a single applicant are combined into an individual observation in the relevant dataset, and thus there is not necessarily one obligation date to attribute to each observation.
- Analysis of days elapsed uses declaration date because SRIA went into effect nearly three months after Hurricane Sandy struck. SRIA could not have a retroactive effect on the obligation process for Sandy grants in terms of days elapsed, and thus it would be illogical to base the SRIA treatment on obligation date.

SRIA (both based on obligation date and declaration date) covers all of SRIA's PA provisions. There were minimal time gaps between SRIA's signing and, for example, the Permanent Works Pilot Program and the Debris Pilot Program went into effect (four and five months, respectively). Consequently, separating post-SRIA observations into different treatment categories based on which provisions were active would lead to inaccurate and misleading regression results due to a high degree of collinearity between these potential sub-categories.

FINDINGS

Findings Overview

SUMMARY TABLE OF FINDINGS		
	Finding	Recommendation
Federal Share	≈ 40% increase	Take no action
Number of Projects	≈ 6% decrease	Take no action
Days Elapsed	≈ 4.8% increase	Isolate impact of higher small project threshold and project bundling on days elapsed

The following discussion will establish that the Sandy Recovery Improvement Act successfully achieved its desired outcomes in two of the three metrics that this analysis uses to define "improvement" in the Public Assistance award process (namely, Federal Share and Number of Projects). The magnitudes of these changes demonstrate the extent to which administrative approaches to a variety of challenges that FEMA faces can lead to meaningful, positive outcomes for targeted populations.

In the third metric, Days Elapsed, SRIA was not successful in meeting its goal. Moreover, within all three metrics there exist some undesirable disparities between certain categories of applicants and disasters. This section seeks to both acknowledge and quantify these disparities, as well as to offer possible explanations for why they exist at all.

SRIA's Impact on Federal Share

One of the most valuable roles that the Federal Government plays in the aftermath of a disaster is as a source of financial support for stricken states and communities. Successful post-disaster recovery often depends on a recipient receiving sufficient funding so that, when combined with a state or local government's own resources, a recipient has enough money to pay for recovery projects. Accordingly, several of SRIA's provisions intend to affect the award size that grant recipients can receive.

Primarily, these changes seek to enable recipients to receive more money than they did pre-SRIA, while placing no additional administrative costs—and ideally even lessening them—on the Federal Government. For example, recipients who opt-in to the Alternative Procedures are eligible to keep left-over grant money, and to receive higher reimbursements

from the Federal Government the faster they complete any necessary debris removal. By adjusting the definition of a "small project," applicants should be able to obtain larger sums of necessary recovery funding through a process that is more streamlined, and thus hopefully less cumbersome, to both FEMA and the applicant. Finally, the change to rules about reimbursements for Emergency Protective Measures means that applicants can now request and qualify for higher federal obligations for Category B projects.

Evidence that this combination of provisions has successfully enabled state, local, and tribal governments to receive larger awards in the aftermath of disasters is apparent when comparing the pre- and post-SRIA average federal shares per award. When accounting for whether or not an obligation was both part of a Sandy declaration and obligated on or after SRIA came into effect, SRIA is associated with an average 40% increase in the federal share per award. There is minor fluctuation in this coefficient when additional controls are added in, but it never drops below 33%.

Significantly, an award for a Hurricane Sandy project that is obligated after SRIA went into effect is associated with, on average, a 50% reduction in the expected federal share compared to an obligation that met neither of those conditions. Based on the data, this difference seems to be partially explained by the nature of how and when Hurricane Sandy grants were obligated. Out of a total of 15,543 Sandy awards obligated within the six-year time period, only 586, or 3.77%, were obligated before January 29, 2013—the day on which SRIA was signed and, more importantly, the Disaster Relief Appropriations Act of 2013 obligated $5.4 billion for FEMA's Disaster Relief Fund (DRF).

In other words, the DRF was essentially short on cash before DRAA, and although it was able to obligate money—over $684 million—before SRIA, it did so over a very small number of grants, with an average award of over $1.16 million. Post-SRIA, the DRF had far more money to allocate, which means that in addition to giving out more large project grants, it also gave out many small project grants, which reduced its average award amount. Specifically, there were a total of 14,957 Sandy-related grants obligated between January 29, 2013 and January 29, 2016, totaling over $14 billion. The average award amount in this time period was approximately $949 thousand, or about 82% of what it was in the pre-SRIA period.

This same disparity in number and value of awards is seen in the dataset in which all federal share outliers have been removed. Of the Sandy-related awards that were within the acceptable range for federal share, 3.72% were obligated before January 29, 2013. Over $7.2 million was allocated in this pre-SRIA time period for an average award of about $16 thousand, compared to a total of approximately $173 million allocated post-SRIA at an average award of $14.9 thousand.

Despite the fact that the average post-SRIA Sandy-related obligation is lower than the average pre-SRIA, the data clearly shows that SRIA is associated with a successful overall

increase in the average federal share per obligation. This finding shows that SRIA met one of its goals for improving the PA award process.

Differences in Average Federal Share Amongst Applicants and Disasters

Not all disasters are created equal, and a fluctuating average federal share between different disasters reflects this fact. Specifically, distinct categories of applicants and disasters within the dataset exhibit differences in average federal share regardless of whether or not SRIA is in effect. Although these differences are not due to SRIA, acknowledgement and understanding of their magnitudes and potential causes is critical to any future improvements that FEMA may wish to make to the PA award process. Fortunately, the context within which these differences surface may help explain—at least partially—why such variation persists.

Between Damage Categories: When applying for grants, applicants characterize the work for which they are seeking funds using seven different FEMA-defined damage categories.[3] Over the six-year time period, the most commonly used damage category in assistance applications was Damage Category B, Emergency Protective Measures. Consequently, the other six categories were compared against this baseline. Through this comparison, substantial differences in the average federal share per disaster obligation become apparent.

Compared to Damage Category B		
	% Difference	Expected Federal Share
A	19.07	$7,206
B	--	*$6,052*
C	68.17	$10,177
D	79.56	$10,866
E	-48.85	$3,096
F	29.18	$7,817
G	-7.14	$5,620

A funding request under Damage Category C, Roads and Bridges, is expected to have federal shares that are on average 68% higher than those for Category B., while Damage Category D applications, Water Control Facilities, are estimated to have federal shares nearly 80% higher. These considerable differences are likely attributable to the complex nature of such projects. Included under Category D, for example, are dams and reservoirs, aqueducts, and pumping facilities—repairs to any of these facilities are no easy task, and require both time and extensive expertise to accomplish. In fact, the average expected federal shares for these two categories would likely be even higher if not for the fact that major would-be projects within each category are often covered by other federal agencies. The Federal Highway

[3] Damage Category A: Debris Removal; Damage Category B: Emergency Protective Measures; Damage Category C: Roads and Bridges; Damage Category D: Water Control Facilities; Damage Category E: Public Buildings; Damage Category F: Public Utilities; Damage Category G: Recreational or Other Facilities.

Administration, for example, is responsible for funding the repairs of highways and strategic routes that fall under the National Highway System, while the Army Corps of Engineers has domain over many water facilities designed for flood control (FEMA, FP 104-009-2).

On the opposite end of the spectrum, Damage Category E (Public Buildings) obligations are associated with nearly half the average federal share of Category B obligations, and by far the smallest average federal share of all seven categories. This difference may be partially due to the likelihood that physical buildings are insured. FEMA does not duplicate funds for insurance payouts, and thus the federal share of an obligation is lowered by the amount that an applicant expects to receive from their insurance company.

Between Incident Types: Major differences exist between the average expected federal share for the 17 different incident types that were represented by the obligations in the dataset. Comparing 16 incident types against Severe Storms (the most common incident type), ten types had statistically significant different expected federal shares.

	Compared to Severe Storms	
	% Difference	Expected Federal Share
Chemical	-33.43	$4,659
Coastal Storm	73.60	$12,150
Earthquake	46.58	$10,258
Fire	38.18	$9,671
Flood	21.53	$8,505
Freezing	124.36	$15,702
Hurricane	36.11	$9,526
Severe Storm	--	*$6,998*
Tornado	-16.33	$5,856
Tsunami	46.31	$10,239
Volcano	146.49	$17,250

Freezing incidents and volcano-related incidents have, on average, the highest federal share per obligation. Although the result for "Freezing" was statistically significant, there was only a single incident within the dataset: Disaster 4104, declared statewide in Arizona. Both obligations under this declaration were for the Navajo Nation Reservation, a federally recognized tribe. As will be discussed below in "Between Applicant Characteristics," tribal applicants typically receive much larger obligations than do non-tribal applicants, and thus the extreme size of average federal obligations for freezing incidents is undoubtedly impacted by this fact.[4]

There was also only a single volcanic incident within the dataset, but the nearly 150% difference compared to severe storm obligations is more likely in this case to be attributable to the nature of the specific disaster. In 2014, lava flow from the Pu'u O'o vent of the Kilauea Volcano on Hawaii's largest island threatened a town and raised fears that local residents would become trapped (Australian Broadcasting Corporation). All 12 grants given under the

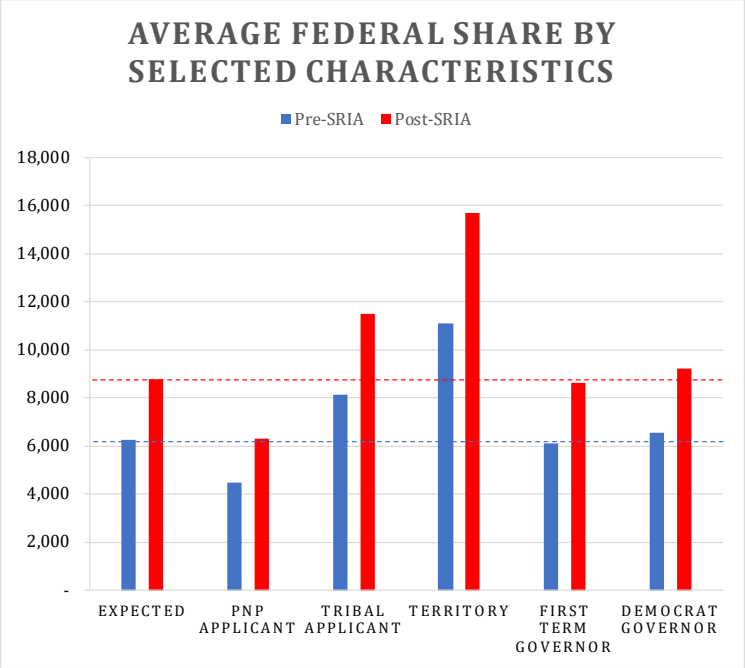
[4] Of note, Disaster 4104 was the first time that a tribe "west of the Mississippi" used the SRIA provision that allows tribal governments to directly ask the President for a disaster declaration (FEMA.gov).

Pu'u O'o declaration were Category B (Emergency Protective Measures) funding requests, to cover the costs of warding off a potential tragedy.

Chemical incidents have the lowest predicted federal share, which may be a function of their limited geographical nature—typically, chemical emergencies are not experienced beyond the local level. Consequently, state and local governments may be better able to cover more of the associated recovery costs than, say, an earthquake that affects half of a state. Of the seven chemical and biological incidents that have occurred since 1968,[5] only two involved declarations in more than two counties (OpenFEMA). In the case of the single chemical incident within the dataset, the 2014 Elk River chemical spill in West Virginia, federal funds were primarily used to cover the costs of trucking in and distributing potable water to impacted residents (FEMA.gov).

Between Applicant Characteristics: Certain types of applicants appear more likely to get higher or lower than average awards. Private Nonprofit obligations are, on average, 28% lower than non-PNP obligations. An obligation to an applicant in a state or territory with a first term governor is also on average expected to have a lower federal share, although the difference is minute, at only 1.7%. This finding, while not practically significant for small projects, does matter for larger obligations—for example, such a difference might mean an additional $10,000 for a $1 million grant.

Average obligations for tribal and territory applicants are far larger than those for their non-tribal and territory counterparts: tribal applicants are expected to have grant obligations 30% greater than non-tribal applicants, while territories are associated with a 78% increase in average grant size. These findings may be due to the financial status of these categories of applicants. Overall, there is only a modest (3%) increase in the average federal share of a grant for every additional $10,000 in a state or territory's median household income. It stands to reason, however, that territory and tribal applicants are somewhat



[5] Records for disasters declared prior to August of 1968 do not typically differentiate between statewide and county-based declarations.

exceptional cases, as the following explanation details.

Of the 56 states and territories that experienced disasters within the six-year time period, American Samoa, the Northern Mariana Islands, and Puerto Rico had the lowest median household incomes, and the Virgin Islands ranked tenth lowest. Guam ranked markedly better than the other four territories, at 22 out of 56. The average median household income for all five territories is $32,795, which is below 53 of the 56 states and territories.[6] Individuals in the U.S. who are of exclusively Native American or Alaskan Native descent had an average median household income of $36,327, which is just above the average territorial median household income in the ranking list. Overall, both applicant groups have far lower median household incomes, and thus likely lower overall wealth, than do non-territory or tribal applicants. Because these applicant groups presumably have fewer resources, they may be more likely to need federal support—and thus a formalized disaster or emergency declaration—after a devastating incident, and in higher amounts.

Whether or not a state or territory had a governor of the same political party as the President at the time a grant was obligated had a minor impact, increasing the average federal share by a little under 5% (again, such a difference becomes more practically significant as the amount of money at stake rises). As I will discuss in the "Findings" section, this difference likely relates to a reduction in friction between different levels of government when the state executive and President are of the same party.

SRIA's Impact on Number of Projects

One of the key changes SRIA made was to allow applicants to bundle different categories of work into a single project, per the Permanent Work Alternative Procedures provision. Such consolidation intends to help reduce the costs to the Federal Government of reviewing project worksheets, and quickening the obligation process by enabling faster project approval through a single worksheet. Evidence that this provision was successful would appear as a decrease in the average number of project worksheets that an applicant submits per disaster after SRIA's enactment.

Overall, SRIA is associated with a decrease in the average number of projects per applicant per disaster. This difference ranges from a decrease of 6% when only accounting for SRIA's impact, to a decrease of a little under 13% when controlling for incident type. Controlling for additional applicant characteristics revealed that an applicant with a first term governor produced, on average, 8% more projects. A $10,000 increase in average median household income, conversely, was associated with a 5% reduction in average number of projects.

[6] Of the 982 obligations made to territories in the data set, only 46, or 4.7%, were for applicants in Guam.

Compared to Severe Storms		
	% Difference	Expected Number of Projects
Chemical	-36.15	1.13
Coastal Storm	-15.16	1.50
Fire	8.19	1.91
Flood	4.57	1.85
Freezing	118.83	3.87
Severe Ice Storm	12.41	1.99
Severe Storm	--	*1.77*
Snow	-37.23	1.11
Terrorist	-33.99	1.17
Tornado	9.81	1.94
Tsunami	-31.30	1.22

Between Incident Types: In order to examine differences in the average number of projects between incident types, Severe Storms serves as the baseline category: not only did it have the highest number of obligations, but of the ten types with statistically significant differences to it, five have a lower average, and five have a higher average, placing Severe Storms squarely in the middle.

Of the ten incident types with a statistically significant different expected number of projects compared to Severe Storms, the Freezing category stood out as exceptional. This is the only incident type in which the expected number of projects, controlling for whether SRIA is in effect, is over two. As mentioned in the discussion on SRIA's impact on federal share, there was only one freezing incident in the dataset, Declaration 4104. This declaration was one of the first times that a federally-recognized tribe used the SRIA Tribal Requests provision to seek a disaster declaration directly from the President. Previous declarations concerning the Navajo Nation Reservation of Arizona involved the state government, and it stands to reason that there would be a learning curve when a Tribal applicant chooses to take on additional responsibilities in the process for the first time.

Chemical, snow, terrorist, and tsunami incidents were all associated with, on average, about 34% fewer projects. A partial explanation for this finding may be that chemical and terrorist incidents are usually limited in geographical scope, and produce damages that do not vary extensively in type. Consequently, applicants might be better positioned to group projects by location or damage category more easily. The data supports this theory, since there was only one category of damage for all chemical incidents and all terrorist obligations.

The possible connection between a limited number of damage categories per disaster and a reduction in the average number of project worksheets is further supported by the range of damage categories for the three other incident types with below-average number of worksheets. Every damage category was represented among all Snow, Tsunami, and Coastal Storm obligations, but each had a single category (Category B) that made up over 50% of the obligations (88%, 72%, and 58%, respectively). The only other incident type with a single damage category accounting for over 50% of obligations was Fire, with 74% Category B awards.

In sum, the data suggests that the nature of some types of disasters makes them better suited for bundling projects into fewer project worksheets, but that overall SRIA was able to achieve a reduction in the average number of worksheets per applicant per disaster, regardless of type.

SRIA's Impact on Days Elapsed

Mindful that post-disaster rebuilding cannot commence if a state, local, or tribal government does not have the resources to pay for recovery costs, SRIA sought to increase the speed at which public assistance grants are obligated (without compromising the quality and integrity of the process). SRIA primarily pursued this goal through the establishment of the Alternative Procedures pilot programs and adjustments to the small project criteria.

Evidence that SRIA successfully expedited aid to recipients would manifest as a decrease in the average number of days it took post-SRIA to obligate a grant, and at first glance it appears that SRIA met this goal: the average number of days between a disaster declaration and obligation of funds post-SRIA is 8.62% lower than the average number of days elapsed pre-SRIA. It is unclear whether or not this change represents evidence that SRIA was responsible for expediting grant obligations, however, because it neglects to account for the difference in workload level[7] before and after SRIA went into effect. Accounting for workload is important in order to see how much of the perceived decline stems from FEMA being less-burdened and having more resources available at a single point in time, and how much of the change is attributable to SRIA's components.

The post-SRIA period had only 1/5th the number of obligations the pre-SRIA period had:

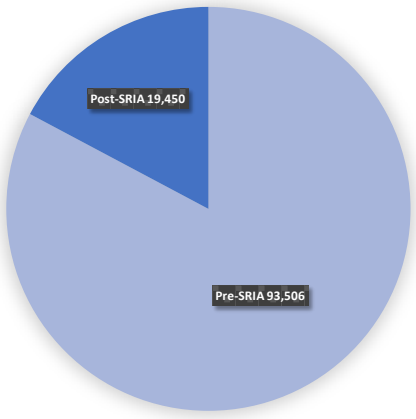
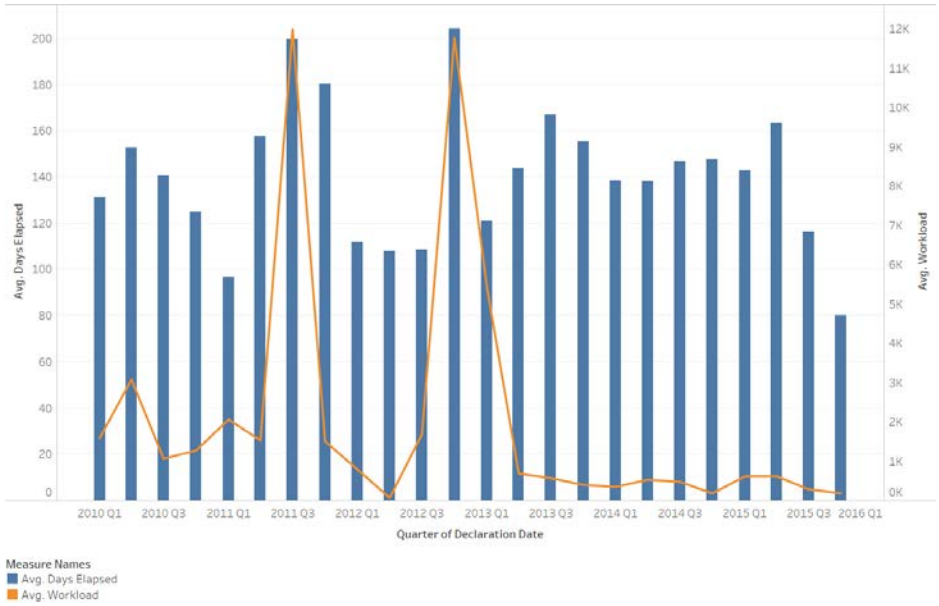


Figure 5: Obligation Totals Pre- and Post-SRIA

[7] "Workload" in this context means the number of obligations per incident—for example, the number of obligations for all Hurricane Sandy declarations combined.

As the number of obligations fell, there was also a reduction in average workload. However, the average number of days elapsed does not appear to drop in sync with average workload:



This apparent trend is confirmed upon evaluating SRIA's influence on the average number of days elapsed in the context of changing workload levels. When controlling for workload level, SRIA is actually associated with an average 4.8% *increase* in days elapsed. SRIA consistently proved to be associated with an approximately 5-10% increase in the average number of days it took to obligate a grant while controlling for additional factors, including a state's population size, median household income, governor's term in office, region, damage category, and type of disaster.

Based on the data, it is possible to conclude that although the average number of days elapsed among all post-SRIA obligations is lower than the average among pre-SRIA obligations, it is taking longer than expected to obligate a grant given that fewer obligations are being assessed simultaneously. In other words, grants of the same size were typically obligated faster pre-SRIA than they are now, refuting the claim that SRIA was successful in speeding up the obligation process. Reasons for why this finding might be and potential methods for reducing the effect are covered in the "Recommendations" section of this analysis.

Differences in Average Days Elapsed Amongst Applicants and Disasters

The data also reveals important differences in average days elapsed between distinct categories of applicants and disasters that exist both before and after SRIA was in effect. When evaluated in their proper context, many of these differences appear logical and at times even predictable. For example, an obligation for an applicant with a first term governor

took on average 10% longer to award than an obligation for an applicant with a governor in a second or later term: this finding points to the reasonable influence that a leader's experience—or lack thereof—can have on how well the state carries out its side of the obligation process, should a governor decide to take an active, principal role in disaster-response alongside more seasoned career officials.

Compared to Region 2		
	% Difference	Expected Days
Region 1	-8.68	120
Region 2	--	*131*
Region 3	-10.48	118
Region 4	-18.53	107
Region 5	-21.00	104
Region 8	8.38	142
Region 9	-19.44	106
Region 10	-27.76	95

***Between Regions*:** Because Region 2 had the most awards obligated over the six-year period, it served as a baseline against which to compare the other nine regions. Seven of the nine regions have statistically significant differences in terms of days elapsed compared to Region 2, and six of those seven average fewer days elapsed.

Hurricane Sandy is a reasonable partial explanatory factor for this finding: New Jersey and New York had the most widespread and costly Hurricane Sandy damage, and both states are in FEMA Region 2. The Disaster Relief Fund was virtually emptied after Sandy struck, and the need to authorize supplementary funds delayed the obligation of many Sandy PA awards. Because over 33% of all Region 2 obligations in the dataset were for Hurricane Sandy, the delay would rationally impact the average number of days elapsed of all Region 2 obligations. This explanation about Sandy's influence on days elapsed between regions is seemingly supported by the fact that the remaining states impacted by Hurricane Sandy were in Regions 1 and 3, which had the third and fourth greatest average number of days elapsed, respectively.

Compared to Damage Category B		
	% Difference	Expected Days
A	7.35	95
B	--	*89*
C	26.16	112
D	44.35	128
E	25.66	112
F	22.63	109
G	25.40	112

***Between Damage Categories*:**[8] Category B, the most common category, was used as a baseline to compare the seven other FEMA-defined categories of work. All six non-baseline categories had a higher expected average number of days elapsed than did Category B. Although these other categories on average take more days for a grant obligation—as much as 44% more, in the case of Category D—this expected relationship is not necessarily cause for concern, as the following discussion will explain.

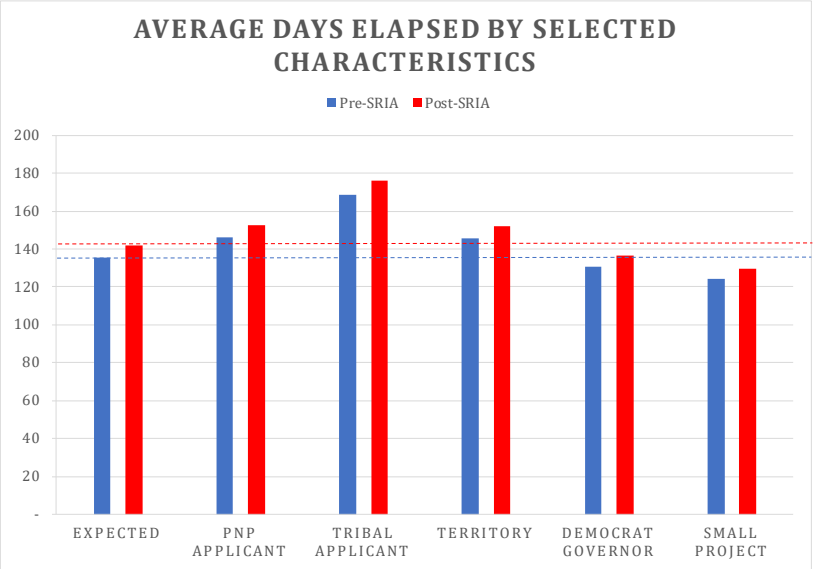
[8] Damage Category A: Debris Removal; Damage Category B: Emergency Protective Measures; Damage Category C: Roads and Bridges; Damage Category D: Water Control Facilities; Damage Category E: Public Buildings; Damage Category F: Public Utilities; Damage Category G: Recreational or Other Facilities.

Obligations for Category B work are, as defined by FEMA, "Measures taken *before, during, and after* a disaster to eliminate/reduce an immediate threat to life, public health, or safety, or to eliminate/reduce an immediate threat of significant damage to improved public and private property through cost-effective measures," (emphasis added) (FEMA Daily PA Grants Award Activity, Metadata). Given that Category B is one of only two damage categories that directly relates to immediate public safety concerns, and the only type of award which may be obligated before a disaster occurs—i.e. before funding requests for all other damage categories begin to pour in—it is logical that Category B obligations would be given higher priority and obligated at a swifter pace.

The small percentage increase in days elapsed for Category A obligations supports this conclusion. Category A is the only other category of Emergency Work, and the only category besides Category B that is eligible for expedited funding known as Immediate Needs Funding (FEMA.gov). Categories C-G are permanent work, which is usually carried out over a longer period of time. Category A, Debris Removal, cannot begin before a disaster like Category B work, but it also should reasonably have a high prioritization in as much as it is emergency work, and is necessary for getting a disaster-impacted area safe for human activity again.

***Between Applicant Characteristics*:** Analysis of the data showed that applicant characteristics impacted the average amount of time for an award to be obligated, which may be attributed to particular capabilities, resources, and/or qualities of an applicant.

Compared to the predicted baseline number of days to obligate an award before and after SRIA, grants for tribal applicants took much longer to obligate (24.5%), while grants for Private Nonprofits and territories were expected took a moderate amount of time longer, with the average for both predicted to be about 7.5% longer.



Obligation of grants for small projects took, on average, 8% fewer days than grants for large projects. Logically, small projects should indeed be obligated faster than large projects, since the process for seeking and getting approval of such grants is more streamlined.

Applicants from states and territories where the Governor and the President are from the same party receive awards 3.5% more quickly. As will be discussed in the "Recommendations" section of this analysis, this finding most likely relates to the tendency for disasters to be politicized.

Compared to Income Quartile 1		
	Pre-SRIA	Post-SRIA
Income Quartile 1	*108*	*112*
Income Quartile 2	122	127
Income Quartile 3	100	104
Income Quartile 4	114	119

Finally, median household income appears to play a meaningful role in the average number of days it takes to obligate a grant. When considered as a single variable, a $1,000 increase in a state or territory's median household income is associated with at most a 2% increase in days elapsed. When comparing between different levels of income, however, significant variances become apparent. The most practically significant finding is that both pre- and post-SRIA, states and territories that rank in the second highest quarter for median household income on average wait over three weeks longer than states and territories in the third quarter to receive their obligations.

Importantly, the effect of median income on days elapsed is not linear. The average number of days elapsed increases when moving from Income Quartile 1 to Income Quartile 2, but then drops when moving to Income Quartile 3, and finally increases again when going to Income Quartile 4. Such a finding suggests that the differences in average days elapsed are due to particular characteristics of each income quartile, as opposed to a function of a static relationship between days elapsed and median household income.

RECOMMENDATIONS

Reducing Days Elapsed

The findings of this analysis offer evidence that the provisions of SRIA have enabled FEMA to provide state, local, and tribal governments larger sums of money with which to rebuild and restore communities after disasters. SRIA has also made the obligation process more streamlined by allowing applicants to bundle together various projects into a single project worksheet as part of the PA alternative procedures, resulting in a reduced average amount of project worksheets per applicant per disaster.

The discouraging finding of this analysis comes from the average length of time it takes for a grant to be obligated: when factoring in the decreased number of awards obligated post-SRIA, SRIA appears to be associated with a 4.8% increase in the number of days elapsed.

In order to reduce the days elapsed in the post-SRIA period, accounting for the reduced workload level, FEMA must understand where snags are occurring in the obligation process, and why. Is it that applicants are falling behind on their responsibilities, or is FEMA taking longer to obligate approved funds?

The Application and Obligation Process

The PA Program has time limits for each step of the implementation timeline: a Request for Public Assistance (RPA) must be submitted within 30 days of a federal declaration. After the RPA is submitted and approved, a Kickoff Meeting is held within 21 days to provide the applicant with individualized assistance in navigating the PA process (FEMA P-1011). Following the Kickoff Meeting, the applicant has 60 days to submit its project worksheets to FEMA, complete with identification of damages and project estimates. Per CFR Title 44 §206.202, FEMA then has 45 days to obligate the funds for approved proposals. In theory, based on this timeline a maximum of 156 days should elapse from declaration to obligation.

The post-SRIA period has a higher percentage of obligations, 62% compared to 54% pre-SRIA, obligated within this deadline, reflecting the fact that the average days elapsed in the post-SRIA period is lower than in the pre-SRIA period. But, as controlling for workload showed, given the reduced workload post-SRIA, we should expect the average number of days elapsed to be even lower. Of grants obligated within 156 days, the average number of days elapsed pre-SRIA was 103.4, and the average post-SRIA was 102.3, a difference of a little over a day. Among the grants that took longer than 156 days to obligate, the pre-SRIA average was 232.23, and in the post-SRIA period it dropped by 8 days to 223.9.

Based on these numbers, it seems that although a greater proportion of awards are being approved and obligated within 156 days, there are more observations on the higher end of that range than on the lower end. I theorize that this difference is partially attributable to the

SRIA provision related to small projects: namely, that the increased threshold for small projects has had a direct impact on increasing the average days elapsed in the small project category. Model 7 of Regression Table 2 appears to confirm this theory that small projects are taking longer to obligate: before SRIA, the estimated number of days elapsed for a small project obligation was 124.16 days, while it rose to 129.72 days after SRIA came into effect.

I present here two possible mechanisms by which the increased small projects threshold may have increased average days elapsed:

Theory One: Increased Applicant Errors

First, because of the increased Simplified Procedures threshold cap, more projects now qualify as small projects. Compared to the process for approving large projects, the process for small projects is simpler—hence the term "simplified procedures." There is, however, an element to the process that could hinder the expedited obligation of funds. The standard process for small projects is that an official validator reviews 20% of the project worksheets submitted within 30 days to check the overall accuracy of damage descriptions, cost estimates, and other components of the worksheets. This validation process involves the validator reviewing the damage sites and going over documentation records. If the validator finds that the 20% sample is not sufficiently accurate, a second 20% sample is assessed.

A hitch in the process occurs when the second 20% sample does not pass review, in which case FEMA assigns a specialist to work with the applicant to fix their worksheets. FEMA acknowledges that the complexity of a project seems to increase in line with its cost (FEMA.gov): The cap for small projects nearly doubled after the passage of SRIA, going from $68,500 to $120,000, which means that more complicated projects (such as ones greater in scope or the magnitude of the damage) are being allowed to use simplified procedures. The logic for this change is clear, as such an increase ensures that more grants can be obligated faster—provided, that is, that applicants do not make errors that bring the process to a halt. If validators are finding more mistakes in funding applications, leading to the need for specialists to assist in revising entire groups of projects, this complication could explain the slowdown in obligating small project grants.

Theory Two: Delayed Worksheet Submission

My second theory also relates to the significantly increased cap for small projects. FEMA's procedures say that "normally, projects submitted after 30 days will be subject to 100% validation," (FEMA.gov). It may be that applicants are submitting mostly accurate project worksheets, but because of the higher amounts they are requesting—which are presumably of increased complexity—they are simply taking longer to turn them into FEMA. As detailed above, FEMA puts a 60-day deadline on submitting project worksheets after a Kickoff Meeting, and so a project worksheet that takes 31-60 days to submit will still be in the allowable limits, but subject to more enhanced scrutiny. If an applicant turns in all of their project worksheets more than 30 days after the Kickoff Meeting, instead of having 20% of

their projects open to validation, 100% may be validated. As FEMA consequently must validate many more project worksheets, the time it takes for FEMA to approve them will naturally increase.

An Additional Factor and Moving Forward

A third possibility for why the average number of days between disaster declaration and grant obligation has increased relates to the provision in SRIA concerning permanent work alternative procedures. This section allows for the consolidation of Categories C-G projects into a single project. According to FEMA, even if the individual projects merged into a single worksheet are each within the small project range, if their total is above the small project threshold the project will count as a large project, (FEMA FAQ #18). Large project estimates are developed in a joint effort between the applicant and FEMA, and so inherently take longer. If applicants are indeed opting to use this SRIA provision, more projects may be now treated as large projects that would otherwise have used the faster small projects process.

I recommend that FEMA uses internal data to determine, based on applicants who have opted for alternative procedures, to what extent, if any, these three conjectures are responsible for the increase in days elapsed, given the reduced overall workload. Finding which changes may be the most responsible for increasing the expected number of days elapsed will allow FEMA to target possible solutions.

Considerations for Special Applicant Categories

Although on average SRIA was associated with an average increase of between 35-40% in the amount of an award, an average 6% reduction in the number of project worksheets per applicant, and a 4.7% increase in the number of days elapsed between an observation's declaration date and obligation date, these results were not constant for all categories of applicants.

Certain applicants tend to fare better in terms of federal share, number of projects, or days elapsed, which means that others fare worse. A few groups of applicants performed significantly less well in only one of these areas, while others appear to have performed poorer across the board. FEMA should be aware of differences between the following categories of applicants and those applicants who do not fall into one of these groups:

- States with **1st term governors** on the day of a disaster declaration received smaller awards that took longer to obligate and were spread out over more projects.
    - Hurricane Katrina provided a classic example of the role that a governor can take in leading a state's response to a crisis, possibly to the detriment of the recovery effort. FEMA should take into account the level of involvement that a 1st term state governor intends to have in a disaster, and provide additional

guidance accordingly. Although state-level emergency response employees do not necessarily change with the election of a new governor, as state employees they are obligated to take their ultimate orders from the state executive, regardless of what their own experience and expertise would guide them to do.

- **Private Nonprofit applicants** took longer than average to receive their obligations, and received smaller amounts than non-PNP applicants.
    - FEMA allows certain Private Nonprofits to receive PA grants in recognition of the often-critical roles they play in communities, (FEMA.gov, PNP Facility Eligibility). Of the 9,001 obligations given to PNPs in the dataset, 21% were for medical related organizations (such as hospitals and ambulance systems); 17% were for utilities (such as water and electric cooperatives); and 19% were for emergency services (including volunteer fire departments and EMS squads). Unlike state, local, and tribal governments, non-profits do not have the authority to raise revenue through taxes, and thus post-disaster may not have the same tools to recover resources at their disposal. Consequently, FEMA may need to devote additional resources to what it categorizes as PNP "critical services," in order to help them better navigate the obligation process.
- Awards **for tribal applicants** took much longer to obligate, and awards for **territories** took moderately longer to obligate.
    - The increased obligation process duration for tribal applicant may be a function of the status of SRIA Sec. 1110. This section authorized tribal applicants to apply directly to the federal government for disaster and emergency declarations. During the three post-SRIA years in the dataset, tribal governments were allowed to make these requests, but specific guidelines for doing so had not yet been issued. Once these guidelines are issued, and after a multi-year period in which they are utilized, FEMA should reassess whether tribal applicants continue to wait longer than other groups for their obligations. FEMA should be sure to distinguish between tribes that appeal directly to the President for a declaration, and those that receive aid as part of a state-initiated request.
    - FEMA should also keep in mind that because of the limited financial resources of most territories and many federally-recognized tribes, the emergency management infrastructure (in terms of both physical and personal resources) may be particularly under strain after a disaster. An additional FEMA expert sent to the territory or tribe in such a circumstance may be

warranted, as compared to disasters in wealthy states with extensive emergency response apparatuses.

- Applicants whose governor was of a **different party** than the President on average received moderately less money and waited longer for it.
    - Disaster response and recovery can be a highly political event. Individual politicians at any level of government may complicate the obligation process and pose an excess hurdle for FEMA to work through when assessing and obligating awards. FEMA alone does not have the power to prevent such conflicts, but awareness of this trend is important in being prepared to respond to it.

CONCLUDING THOUGHTS

SRIA's provisions were not aimed exclusively at FEMA nor exclusively at applicants: rather, the Act intended for both groups to change how they approach disaster recovery, in order to better enable communities to recover as fast as possible from future disasters. Because once funding is given to an applicant the speed at which a project progresses depends on factors largely beyond FEMA's control, this analysis did not attempt to assess whether the incentives and disincentives SRIA created actually led applicants to carry out recovery projects in a more timely and cost-efficient manner. Instead, it focused on the part of the disaster recovery process that FEMA does have substantial control over: namely, the Public Assistance obligation process.

FEMA may not have a leading role in the entire recovery process, but the part that it plays in obligating funds is absolutely critical. Without federal assistance, many cash-strapped state, local, and tribal governments would have a far more difficult time accumulating the money needed to even begin planning a recovery project. Thus, as the provisions of SRIA reflect, FEMA can make a great deal of difference for disaster victims by obligating sufficient sums of money at a swift speed and through an easily-accessible process.

The post-SRIA increase in the average federal award share and the reduction in the average number of project worksheets an applicant submits per disaster are successes that will have meaningful impacts on the experiences of future victims. Although SRIA did not bring about the results it hoped to see in terms of expediting the obligation process, a reduction in days elapsed should not be considered a lost cause: a 4.8% increase, while not ideal, is not insurmountable. If the reasons for the delays can be pinpointed (such as by examining the suspect areas discussed above in "Recommendations"), FEMA should be able to make adjustments to the process that will erase the increases in time, and ideally even drop the number of days elapsed to below pre-SRIA levels.

APPENDIX I: REGRESSION VARIABLES

Dependent Variables

- **LogFedShare** is a continuous dependent variable used for assessing SRIA's effectiveness in increasing the amount of money given through public assistance grants. It is a log-transformation of the original variable, FederalShareObligated2016, which is the amount of each grant in 2016 dollars.

- **LogProjects** is a continuous dependent variable used for assessing whether SRIA has made the grant application process less onerous for both applicants and FEMA. It is the log-transformation of the original variable, NumberofProjects, which counts the number of project worksheets an applicant submitted for a single disaster.

- **LogDaysElapsed** is a continuous dependent variable used for assessing SRIA's effectiveness in speeding up the grant obligation process. It is a log-transformation of the original variable, DaysElapsed, which measures the number of days within an observation between when a disaster declaration was made and when a federal grant was obligated, with "1" equal to an obligation being made the next day following a declaration.

Independent Variables

- **SRIA-DD** is a dummy variable indicating whether or not SRIA was in effect as of an observation's declaration date. "1" indicates an observation's declaration date occurred on or after January 29, 2013, and "0" indicates that an observation's declaration date occurred before that day.

- **SRIA-OD** is a dummy variable indicating whether or not SRIA was in effect as of an observation's obligation date. "1" indicates an observation's obligation date occurred on or after January 29, 2013, and "0" indicates that an observation's obligation date occurred before that day.

- **Workload** is a continuous variable representing the number of grants awarded for the observation's incident. Based on date and location, multiple disaster numbers fall within the same incident and contribute to its overall workload level.

- **Population** is a continuous variable measuring a state or territory's average population between 2010-2016 (in hundreds of thousands).

- **Income** is a continuous variable giving a state or territory's average median household income between 2010-2015 (in tens of thousands).

- **Income Quartile 1** is a dummy variable, where "1" indicates that an applicant's state or territory ranks 1-14 of all 56 states and territories in terms of median household income.

- **Income Quartile 2** is a dummy variable, where "1" indicates that an applicant's state or territory ranks 15-28 of all 56 states and territories in terms of median household income.

- **Income Quartile 3** is a dummy variable, where "1" indicates that an applicant's state or territory ranks 29-42 of all 56 states and territories in terms of median household income.

- **Income Quartile 4** is a dummy variable, where "1" indicates that an applicant's state or territory ranks 43-56 of all 56 states and territories in terms of median household income.

- **Tribal** is a dummy variable, where "1" indicates that an applicant is a Federally Recognized Tribe. An applicant was categorized as a tribal applicant based on the context of the inclusion of any of the following terms in its name: "Tribe;" "Tribal;" "Indian;" "Reservation;" "Rancheria;" "Band;" "Pueblo;" "OTSA;" "ANV/ANVSA;" and "Village" (if Alaskan).

- **Territory** is a dummy variable, where "1" indicates that an applicant is an official territory of the United States, and "0" indicates an applicant is one of the 50 states or the District of Columbia.

- **PNP** is a dummy variable, where "1" indicates that an applicant is a Private Nonprofit that is eligible for and received PA obligations.

- **Small Project** is a dummy variable, where "1" indicates that an award amount is within the small project threshold for that fiscal year.

- **GovTerm1** is a dummy variable, where "1" indicates that the governor at the time of an observation's disaster declaration date was in his or her first term in office. "0" indicates that the governor had been in office for two or more terms.

- **Hurricane Sandy** is a dummy variable, where "1" indicates that an observation had a Hurricane Sandy declaration number, and "0" indicates that it did not.

- **SandySRIA** is an interaction variable, where "1" indicates that an observation was both a Hurricane Sandy obligation and was obligated on or after January 29, 2013. "0" indicates that one or both of these conditions did not hold.

- **Same Party** is a dummy variable, where "1" indicates that the governor at the time of an observation's declaration date shared a party affiliation with the President of the United States.

- **Region 1** is a dummy variable, where "1" indicates that an observation occurred in FEMA Region 1, encompassing Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

- **Region 2** is a dummy variable, where "1" indicates that an observation occurred in FEMA Region 2, encompassing New Jersey, New York, Puerto Rico, and the U.S. Virgin Islands.

- **Region 3** is a dummy variable, where "1" indicates that an observation occurred in FEMA Region 3, encompassing Delaware, the District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia.

- **Region 4** is a dummy variable, where "1" indicates that an observation occurred in FEMA Region 4, encompassing Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee.

- **Region 5** is a dummy variable, where "1" indicates that an observation occurred in FEMA Region 5, encompassing Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

- **Region 6** is a dummy variable, where "1" indicates that an observation occurred in FEMA Region 6, encompassing Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

- **Region 7** is a dummy variable, where "1" indicates that an observation occurred in FEMA Region 7, encompassing Iowa, Kansas, Missouri, and Nebraska.

- **Region 8** is a dummy variable, where "1" indicates that an observation occurred in FEMA Region 8, encompassing Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

- **Region 9** is a dummy variable, where "1" indicates that an observation occurred in FEMA Region 9, encompassing American Samoa, Arizona, California, Guam, Hawaii, Nevada, and the Northern Mariana Islands.

- **Region 10** is a dummy variable, where "1" indicates that an observation occurred in FEMA Region 10, encompassing Alaska, Idaho, Oregon, and Washington.

- **Damage Category A** is a dummy variable, where "1" indicates a debris removal obligation.

- **Damage Category B** is a dummy variable, where "1" indicates an emergency protective measures obligation.

- **Damage Category C** is a dummy variable, where "1" indicates an obligation for roads and bridges.
- **Damage Category D** is a dummy variable, where "1" indicates an obligation for water control facilities.
- **Damage Category E** is a dummy variable, where "1" indicates an obligation for public buildings.
- **Damage Category F** is a dummy variable, where "1" indicates an obligation for public utilities.
- **Damage Category G** is a dummy variable, where "1" indicates an obligation for recreational or other facilities.
- **Chemical** is a dummy variable, with "1" indicating that the obligation was for a chemical incident.
- **Coastal Storm** is a dummy variable, with "1" indicating that the obligation was for a coastal storm.
- **Earthquake** is a dummy variable, with "1" indicating that the obligation was for an earthquake.
- **Fire** is a dummy variable, with "1" indicating that the obligation was for a fire.
- **Flood** is a dummy variable, with "1" indicating that the obligation was for a flood.
- **Freezing** is a dummy variable, with "1" indicating that the obligation was for a freezing incident.
- **Hurricane** is a dummy variable, with "1" indicating that the obligation was for a hurricane.
- **Mud/Landslide** is a dummy variable, with "1" indicating that the obligation was for a mud and/or landslide.
- **Other** is a dummy variable, with "1" indicating that the obligation was for an incident type not covered by the other categories.
- **Severe Ice Storm** is a dummy variable, with "1" indicating that the obligation was for a severe ice storm.
- **Severe Storm** is a dummy variable, with "1" indicating that the obligation was for a severe storm.

- **Snow** is a dummy variable, with "1" indicating that the obligation was for a snow incident.
- **Terrorist** is a dummy variable, with "1" indicating that the obligation was for a terrorist attack.
- **Tornado** is a dummy variable, with "1" indicating that the obligation was for a tornado.
- **Tsunami** is a dummy variable, with "1" indicating that the obligation was for a tsunami.
- **Typhoon** is a dummy variable, with "1" indicating that the obligation was for a typhoon.
- **Volcano** is a dummy variable, with "1" indicating that the obligation was for a volcanic eruption or event.

APPENDIX II: REGRESSION DESIGNS

Federal Share Regression Designs

Model 1: $Y_{logfedshare} = \beta_0 + \beta_1(_{sriaod}) + \beta_2(_{hurricanesandy}) + \beta_3(_{sandysria})$

Model 1 looks for any evidence of a relationship between the grant award amount (the dependent variable) and SRIA being in effect on or after the observation's grant obligation date. The model controls for whether or not an event is Hurricane Sandy-related, and whether an obligation was made after SRIA was enacted. The Disaster Relief Appropriations Act, 2013, was enacted within the same law—113-2—as SRIA. The DRAA allocated $5.37 billion directly to FEMA's DRF to be used for Hurricane Sandy recovery, (DRAA 2013) and as such SRIA's impact on LogFedShare can reasonably be expected to be different for Hurricane Sandy obligations than it is for non-Sandy obligations.

Model 2: $Y_{logfedshare} = \beta_0 + \beta_1(_{sriaod}) + \beta_2(_{hurricanesandy}) + \beta_3(_{sandysria}) + \beta_4(_{workload}) + \beta_5(_{population})$

Model 2 adds in two further variables: workload and population. Workload is a characteristic dependent on the disaster, and population is a characteristic of the applicant.

Models 3-5 control for additional characteristics specific to the disaster.

Model 3: $Y_{logfedshare} = \beta_0 + \beta_1(_{sriaod}) + \beta_2(_{hurricanesandy}) + \beta_3(_{sandysria}) + \beta_4(_{workload}) + \beta_5(_{population}) + \beta_6(_{region1}) + \beta_7(_{region3}) + \beta_8(_{region4}) + \beta_9(_{region5}) + \beta_{10}(_{region6}) + \beta_{11}(_{region7}) + \beta_{12}(_{region8}) + \beta_{13}(_{region9}) + \beta_{14}(_{region10})$

Model 3 adds in controls for the FEMA region in which an applicant is located. Region 2 is omitted from this model (due to it having the highest observation count), which allows the regression to assess—holding the previously included variables constant—how much LogFedShare is expected to vary between other regions in comparison to Region 2.

Model 4: $Y_{logfedshare} = \beta_0 + \beta_1(_{sriaod}) + \beta_2(_{hurricanesandy}) + \beta_3(_{sandysria}) + \beta_4(_{workload}) + \beta_5(_{population}) + \beta_6(_{damagecategorya}) + \beta_7(_{damagecategoryc}) + \beta_8(_{damagecategoryd}) + \beta_9(_{damagecategorye}) + \beta_{10}(_{damagecategoryf}) + \beta_{11}(_{damagecategoryg})$

Model 4 adds in controls for the damage category for which a grant is obligated, with Damage Category B serving as the omitted variable. Model 4 makes it possible to examine the relationship between LogFedShare and SRIA-OD, holding constant the damage category. Model 4 also assesses—holding the previously included variables constant—how much LogFedShare is expected

to vary between different damage categories in comparison to Damage Category B.

Model 5: $Y_{logfedshare} = \beta_0 + \beta_1(_{sriaod}) + \beta_2(_{hurricanesandy}) + \beta_3(_{sandysria}) + \beta_4(_{workload}) + \beta_5(_{population}) + \beta_6(_{chemical}) + \beta_7(_{coastalstorm}) + \beta_8(_{earthquake}) + \beta_9(_{fire}) + \beta_{10}(_{flood}) + \beta_{11}(_{freezing}) + \beta_{12}(_{hurricane}) + \beta_{13}(_{mud/landslide}) + \beta_{14}(_{other}) + \beta_{15}(_{severeicestorm}) + \beta_{16}(_{snow}) + \beta_{17}(_{terrorist}) + \beta_{18}(_{tornado}) + \beta_{19}(_{tsunami}) + \beta_{20}(_{typhoon}) + \beta_{21}(_{volcano})$

Model 5 adds in controls for incident type, with Severe Storms (the most common incident type) serving as the omitted variable. Model 5 allows for an examination of the relationship between LogFedShare and SRIA-OD, accounting for differences among disaster types. Model 5 also allows for assessment of how the LogFedShare varies between disaster types and Severe Storms, holding previously included variables constant.

Model 6 includes variables that impact federal share but at a smaller level than the previously included variables.

Model 6: $Y_{logfedshare} = \beta_0 + \beta_1(_{sriaod}) + \beta_2(_{hurricanesandy}) + \beta_3(_{sandysria}) + \beta_4(_{pnp}) + \beta_5(_{tribal}) + \beta_6(_{territory}) + \beta_7(_{income}) + \beta_8(_{govterm1}) + \beta_9(_{sameparty})$

Model 6 controls for five variables that, based on context, are reasonably likely to have a measurable impact on LogFedShare.

Number of Projects Regression Designs

Model 1: $Y_{logprojects} = \beta_0 + \beta_1(_{sriadd})$

Model 1 looks for any evidence of a relationship between the number of project worksheets per applicant in a given disaster (the dependent variable) and SRIA being in effect on or after the observation's disaster declaration date.

Model 2: $Y_{logprojects} = \beta_0 + \beta_1(_{sriadd}) + \beta_2(_{govterm1}) + \beta_3(_{workload}) + \beta_4(_{income})$

Model 2 adds in three further variables: governor's first term, workload, and average median household income.

Models 3-4 control for additional characteristics specific to the disaster.

Model 3: $Y_{logprojects} = \beta_0 + \beta_1(_{sriadd}) + \beta_2(_{govterm1}) + \beta_3(_{workload}) + \beta_4(_{income}) + \beta_5(_{region1}) + \beta_6(_{region3}) + \beta_7(_{region4}) + \beta_8(_{region5}) + \beta_9(_{region6}) + \beta_{10}(_{region7}) + \beta_{11}(_{region8}) + \beta_{12}(_{region9}) + \beta_{13}(_{region10})$

Model 3 adds in controls for the FEMA region that an applicant is located in. Region 2 is omitted from this model (due to it having the highest observation

count), which allows the regression to assess—holding the previously included variables constant—how much LogProjects is expected to vary between other regions in comparison to Region 2.

Model 4: $Y_{logprojects} = \beta_0 + \beta_1(_{sriadd}) + \beta_2(_{govterm1}) + \beta_3(_{workload}) + \beta_4(_{income}) + \beta_5(_{chemical}) + \beta_6(_{coastalstorm}) + \beta_7(_{earthquake}) + \beta_8(_{fire}) + \beta_9(_{flood}) + \beta_{10}(_{freezing}) + \beta_{11}(_{hurricane}) + \beta_{12}(_{mud/landslide}) + \beta_{13}(_{other}) + \beta_{14}(_{severeicestorm}) + \beta_{15}(_{snow}) + \beta_{16}(_{terrorist}) + \beta_{17}(_{tornado}) + \beta_{18}(_{tsunami}) + \beta_{19}(_{typhoon}) + \beta_{20}(_{volcano})$

Model 4 adds in controls for incident type, with Severe Storms (the most common incident type) serving as the omitted variable. Model 5 allows for examining the relationship between LogProjects and SRIA-DD, accounting for differences among disaster types. Model 4 also allows for assessment of how the LogProjects varies between disaster types and Severe Storms, holding previously included variables constant.

Days Elapsed Regression Designs

Model 1: $Y_{logdayselapsed} = \beta_0 + \beta_1(_{sriadd})$

Model 1 looks exclusively for any evidence of a relationship between the number of days it takes a grant to be obligated (the dependent variable) and SRIA being in effect on or after the observation's declaration day.

Model 2: $Y_{logdayselapsed} = \beta_0 + \beta_1(_{sriadd}) + \beta_2(_{workload})$

Model 2 adds the variable measuring workload. This regression assesses the correlation between LogDaysElapsed and SRIA-DD while controlling for the workload level at the given time.

Model 3: $Y_{logdayselapsed} = \beta_0 + \beta_1(_{sriadd}) + \beta_2(_{workload}) + \beta_3(_{population}) + \beta_4(_{income}) + \beta_5(_{govterm1})$

Model 3 adds in three further variables: population, income, and governor's first term. This model assesses the relationship between LogDaysElapsed and SRIA-DD while still controlling for workload level, along with these additional variables that relate to characteristics of the applicant itself.

Models 4-6 continue to account for characteristics of an applicant that may impact the relationship between Days Elapsed and SRIA, but now also control for additional characteristics specific to the disaster.

Model 4: $Y_{logdayselapsed} = \beta_0 + \beta_1(_{sriadd}) + \beta_2(_{workload}) + \beta_3(_{population}) + \beta_4(_{income}) + \beta_5(_{govterm1}) + \beta_6(_{region1}) + \beta_7(_{region3}) + \beta_8(_{region4}) + \beta_9(_{region5}) + \beta_{10}(_{region6}) + \beta_{11}(_{region7}) + \beta_{12}(_{region8}) + \beta_{13}(_{region9}) + \beta_{14}(_{region10})$

Model 4 adds in controls for the FEMA region that an applicant is located in. Region 2 is omitted from this model (due to it having the highest observation count), which allows the regression to assess—holding characteristics of the applicant constant—how much LogDaysElapsed is expected to vary between other regions in comparison to Region 2.

Model 5: $Y_{logdayselapsed} = \beta_0 + \beta_1(_{sriadd}) + \beta_2(_{workload}) + \beta_3(_{population}) + \beta_4(_{income}) + \beta_5(_{govterm1}) + \beta_6(_{damagecategorya}) + \beta_7(_{damagecategoryc}) + \beta_8(_{damagecategoryd}) + \beta_9(_{damagecategorye}) + \beta_{10}(_{damagecategoryf}) + \beta_{11}(_{damagecategoryg})$

Model 5 adds in controls for the damage category for which a grant is obligated, with Damage Category B serving as the omitted variable. Model 5 examines the relationship between LogDaysElapsed and SRIA-DD, holding constant the damage category. Model 5 also assesses—holding characteristics of the applicant constant—how much LogDaysElapsed is expected to vary between different damage categories in comparison to Damage Category B.

Model 6: $Y_{logdayselapsed} = \beta_0 + \beta_1(_{sriadd}) + \beta_2(_{workload}) + \beta_3(_{population}) + \beta_4(_{income}) + \beta_5(_{govterm1}) + \beta_7(_{chemical}) + \beta_8(_{coastalstorm}) + \beta_9(_{earthquake}) + \beta_{10}(_{fire}) + \beta_{11}(_{flood}) + \beta_{12}(_{freezing}) + \beta_{13}(_{hurricane}) + \beta_{14}(_{mud/landslide}) + \beta_{15}(_{other}) + \beta_{16}(_{severeicestorm}) + \beta_{17}(_{snow}) + \beta_{18}(_{terrorist}) + \beta_{19}(_{tornado}) + \beta_{20}(_{tsunami}) + \beta_{21}(_{typhoon}) + \beta_{22}(_{volcano})$

Model 5 adds in controls for incident type, with Severe Storms (the most common incident type) serving as the omitted variable. Model 5 examines the relationship between LogDaysElapsed and SRIA-DD, accounting for differences among disaster types. Model 5 also assesses how LogDaysElapsed varies between different disaster types and Severe Storms, holding characteristics of the applicant constant.

Model 7 includes variables that impact Days Elapsed but at a smaller level than the previously included variables.

Model 7: $Y_{logdayselapsed} = \beta_0 + \beta_1(_{sriadd}) + \beta_2(_{workload}) + \beta_3(_{pnp}) + \beta_4(_{tribal}) + \beta_5(_{territory}) + \beta_6(_{sameparty}) + \beta_7(_{smallproject})$

Model 7 controls for five variables that, based on context, are reasonably likely to have some impact on LogDaysElapsed.

Model 8 includes separate variables for four different income quartiles:

Model 8: $Y_{logdayselapsed} = \beta_0 + \beta_1(_{sriadd}) + \beta_2(_{workload}) + \beta_3(_{population}) + \beta_4(_{incomequartile2}) + \beta_5(_{incomequartile3}) + \beta_6(_{incomequartile4}) + \beta_7(_{govterm1})$

Model 8 controls for a state or territory's median household income, based on where it ranks among all states and territories. Income Quartile 1 serves as the omitted variable.

APPENDIX III: REGRESSION TABLES

TABLE I--LogFedShare					
Variable		Model 1	Model 2	Model 3	Model 4	Model 5
SRIA-OD		0.3365***	0.3139***	0.3042***	0.3177***	0.2894***
Hurricane Sandy		0.0671	0.1194	0.1007	0.2018	0.0219
SandySRIA		-0.7207***	-0.7225***	-0.7131***	-0.6514***	-0.6915***
Workload			-0.000007***	-0.000011***	-0.000002***	0.0000***
Population			0.0006***	0.0009***	0.0009***	0.0004***
Region						
	Region 1			0.1399***		
	Region 2			Omitted		
	Region 3			-0.1259***		
	Region 4			-0.1115***		
	Region 5			-0.2693***		
	Region 6			0.0392**		
	Region 7			-0.1605***		
	Region 8			0.2319***		
	Region 9			0.0850**		
	Region 10			-0.0670*		
Damage Category						
	A				0.1745***	
	B				Omitted	
	C				0.5198***	
	D				0.5853***	
	E				-0.6704***	
	F				0.2560***	
	G				-0.0741***	
Incident Type						
	Chemical					-0.4069**
	Coastal Storm					0.5516***
	Earthquake					0.3824***
	Fire					0.3234***
	Flood					0.1950***
	Freezing					0.8081**
	Hurricane					0.3083***
	Mud/Landslide					-0.1225
	Other					-0.2187
	Severe Ice Storm					0.0140
	Severe Storm					Omitted
	Snow					-0.0040
	Terrorist					-0.2611
	Tornado					-0.1782***
	Tsunami					0.3805***
	Typhoon					0.1859
	Volcano					0.9021***
Constant		8.8869***	8.8720***	8.9153***	8.7081***	8.8534***
R2		0.0153	0.0166	0.0260	0.0756	0.0211
**** p<0.10, ** p<0.05, *** p<0.01***						

TABLE II—LogFedShare Continued			
Variable	Model 1	Model 2	Model 6
SRIA-OD	0.3365***	0.3139***	0.3450***
Hurricane Sandy	0.0671	0.1194	0.0532
SandySRIA	-0.7207***	-0.7225***	-0.6898***
PNP		-0.00001***	-0.3325***
Tribal		0.0006***	0.2673***
Territory			0.5778***
Income			0.0277***
GovTerm1			-0.0171**
Same Party			0.0471***
Constant	8.8869***	8.8720***	8.7368***
R2	0.0153	0.0166	0.0212
**** p<0.10, ** p<0.05, *** p<0.01***			

TABLE III--LogProjects				
Variable	Model 1	Model 2	Model 3	Model 4
SRIA-DD	-0.0628***	-0.0176***	-0.0446***	-0.1389***
GovTerm1		0.0777***	0.0579***	0.0210***
Workload		0.000013***	0.000016***	0.000005***
Income		-0.0520***	-0.0016	0.0056*
Region				
Region 1			-0.0778***	
Region 2			Omitted	
Region 3			-0.1521***	
Region 4			0.2153***	
Region 5			-0.0945***	
Region 6			0.1841***	
Region 7			0.0518***	
Region 8			0.1433***	
Region 9			0.2048***	
Region 10			0.2464***	
Incident Type				
Chemical				-0.4486***
Coastal Storm				-0.1644*
Earthquake				0.0576
Fire				0.0788***
Flood				0.0447***
Freezing				0.7831***
Hurricane				-0.0031
Mud/Landslide				-0.0822
Other				-0.0045
Severe Ice Storm				0.1170***
Severe Storm				Omitted
Snow				-0.4658***
Terrorist				-0.4154***
Tornado				0.0935**
Tsunami				-0.3754***
Typhoon				0.1064
Volcano				0.2450
Constant	0.5329***	0.7118***	0.4411***	0.5708***
R2	0.0023	0.0213	0.0562	0.1127
**** p<0.10, ** p<0.05, *** p<0.01***				

TABLE IV—LogDaysElapsed						
Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
SRIA-DD	-0.0902***	0.0473***	0.0537***	0.0485***	0.0497***	0.0173***
Workload		0.00003***	0.00002***	0.00002***	0.00002***	0.00003***
Population			0.0007***	0.0009***	0.0007***	0.0007***
Income			0.0002***	-0.0127	0.0201***	0.0153***
GovTerm1			0.0966***	0.0659***	0.0823***	0.0728***
Region						
Region 1				-0.0908***		
Region 2				Omitted		
Region 3				-0.1107***		
Region 4				-0.2050***		
Region 5				-0.2357***		
Region 6				0.0118		
Region 7				-0.0085		
Region 8				0.0805***		
Region 9				-0.2161***		
Region 10				-0.3251***		
Damage Category						
A					0.0709***	
B					Omitted	
C					0.2324***	
D					0.3671***	
E					0.2284***	
F					0.2040***	
G					0.2264***	
Incident Type						
Chemical						0.3469***
Coastal Storm						0.3021***
Earthquake						-0.0446*
Fire						0.3458***
Flood						0.1990***
Freezing						0.4089**
Hurricane						-0.1063***
Mud/Landslide						-0.3723***
Other						-0.7083***
Severe Ice Storm						-0.0487***
Severe Storm						Omitted
Snow						-0.3061***
Terrorist						-0.1187***
Tornado						0.0568**
Tsunami						-0.1751**
Typhoon						-0.3268***
Volcano						0.4744***
Constant	4.9731***	4.8215***	4.7071***	4.8774***	4.4877***	4.6308***
R2	0.0045	0.0909	0.1097	0.1482	0.1549	0.1699

**** p<0.10, ** p<0.05, *** p<0.01***

TABLE V—LogDaysElapsed Continued.			
Variable	Model 1	Model 2	Model 7
SRIA-DD	-0.0902***	0.0473***	0.0438***
Workload		0.00003***	0.00003***
PNP			0.0746***
Tribal			0.2192***
Territory			0.0712***
Same Party			-0.0364***
Small Project			-0.0878***
Constant	4.9731***	4.8215***	4.9094***
R2	0.0045	0.0909	0.0989
**** p<0.10, ** p<0.05, *** p<0.01***			

TABLE VI—LogDaysElapsed Continued			
Variable	Model 1	Model 2	Model 8
SRIA-DD	-0.0902***	0.0473***	0.0442***
Workload		0.00003***	0.00002***
Population			0.0005***
Income Quartile 2			0.1222***
Income Quartile 3			-0.0749***
Income Quartile 4			0.0587***
GovTerm1			0.1072***
Constant	4.9731***	4.8215***	4.6779***
R2	0.0045	0.0909	0.1277
**** p<0.10, ** p<0.05, *** p<0.01***			

APPENDIX IV: DATA SOURCES AND DATA LIMITATIONS

Primary Sources

The primary sources of data for this analysis are records made publicly available by FEMA at OpenFEMA, FEMA's online data portal.

The dataset "FEMA Disaster Declarations Summary" provides details on every federal disaster declaration dating back to 1953. This analysis made use of the information about a disaster's state or territory, declaration date, incident type, title, and declared county/area.

The information provided in "FEMA Disaster Declarations Summary" is not entirely error-proof. Instructions to the user acknowledge that "This is raw, unedited data…and as such is subject to a small percentage of human error." Most notably, the record for EM-3333, Hurricane Irene in New Hampshire, is missing from the dataset; I was able to complete the record for EM-3333 using Federal Register notices about the disaster and Hurricane Irene disaster declarations for other states (FEMA.gov, Disaster 3333).

The dataset type, "Daily Public Assistance Grant Awards Activity," is a collection of spreadsheets that gives the current grants obligated as of a certain day. FEMA uploads new spreadsheets on a frequent basis as new awards are obligated. The obligation details most pertinent to this analysis are applicant region, damage category, federal share obligated, and date obligated.

Using Microsoft Access, I combined the information from the "FEMA Disaster Declarations Summary" dataset and the "Daily Public Assistance Grant Awards Activity" datasets to create a database that lists, in one location, all of the pertinent details for every obligation in the time period at which I looked. For example, the first dataset provided information on a disaster's declaration date. The second dataset then showed the amount of money given to a specific applicant impacted by that disaster, as well as the date on which it was obligated. Using these two pieces of information, I was then able to calculate the number of days that elapsed between declaration and obligation.

The third FEMA-sourced dataset, "FEMA Public Assistance Sub Grantees," was used for analysis related to the dependent variable "Number of Projects." This dataset provided the number of project worksheets per applicant per disaster, with records going back to 1998.

Secondary Sources

Data from non-FEMA sources was used to compile information on state and territory population and income levels. Following the recommendations of the U.S. Census Bureau (Census.gov, Guidance), data on median household income levels for the 50 U.S. states, District of Columbia, and Puerto Rico was sourced from the American Community Survey's

"Median Household Income" datasets (Census.gov, Table ID R1901). Using the estimates for 2010-2015 (the most recent year with estimations), an average median household income was compiled for each geographic area.

The American Community Survey does not estimate median household income for American Samoa, Guam, the Northern Mariana Islands, or the U.S. Virgin Islands. Estimates for the median household income levels in these territories came from the U.S. Department of Housing and Urban Development's Income Limits Documentation System. The page for each territory listed HUD's estimate of the then-current (2016) median household income in that geographic region based on 2010 levels, as well as provided its methodology for obtaining the estimate (HUDuser.gov). Using this data, I compiled an average median household income for each territory over the time period in question.

Population data for the 50 U.S. states, the District of Columbia, and Puerto Rico originated from the U.S. Census Bureau's dataset, "National, State, and Puerto Rico Commonwealth Totals Datasets: Population, Population Change, and Estimated Components of Population Change: April 1, 2010 to July 1, 2016." Using the Census Bureau's estimated population levels for each state/territory from 2010-2016, I obtained each area's average population over the six-year time period. The Census Bureau bases its population estimates off of official numbers of births, deaths, and net/loss migration. Although these estimates are by nature imperfect (for instance, many undocumented immigrants will not appear on official immigration records), the Census Bureau is arguably one of the most reliable sources from which to collect these estimates, and its methodology for annual population estimates is clearly detailed on its website (Census.gov, Methodology).

The U.S. Census Bureau does not make domestic annual estimates of population levels in American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands. Estimates for these territories were instead obtained from the U.S. Census Bureau's International Data Base. This information was used to compile the average population level for each of these four territories over the six-year period of interest.

APPENDIX V: DATA CLEANING AND TRANSFORMATIONS

238,464 Original
68,284 Outside Obligation Date
8,068 Outside Declaration Date
7,707 Negative Obligations
10,900 Zero-Value Obligations
5,108 Categories H and Z
195 Fire Management
108 No Obligation Dates
18,447 Federal Share Outliers
6,691 Days Elapsed Outliers
112,956 Final

The original dataset obtained from FEMA detailing public assistance obligations contained 238,464 observations. A final count of 112,956 observations was obtained through a process of limiting and cleaning the data of 100,370 observations:

- Only disasters that were declared between January 29, 2010 and January 29, 2016 were kept in the dataset. Additionally, only federal awards that were obligated between January 29, 2010 and January 29, 2016 were kept in the dataset. The original dataset had disaster declarations dating back to 1999, and this limitation removed a total of 76,352 observations: 68,284 outside the obligation date range, and then a further 8,068 that were outside the declaration date range. This total accounted for approximately 32% of the original dataset.
- 7,707 negative federal share values were removed from the dataset, as these values represented de-obligations as opposed to obligations.
- 10,900 observations with $0.00 obligated were removed from the dataset. These obligations represent incidences of project errors or changes, and not an actual amount given to an applicant by FEMA.
- 5,108 Damage Category H and Z obligations were removed, because these categories do not technically fall directly under the Public Assistance program.
- 195 Fire Management observations were removed from the dataset, as these events are separate from the PA program.
- 108 observations were removed because they did not have obligation dates listed.
- Federal Obligation outliers were removed by finding the values of Quartiles 1 and 3, calculating the Interquartile Range, and then removing any values that were 1.5*IQR

below Quartile 1 and 1.5*IQR above Quartile 3. The minimum value permitted was -$48,746.64 (all negative amounts had already been removed, however), and the maximum allowable amount was $90,436.13. Approximately 13% of the observations were removed from the dataset for falling outside of these bounds (a total of 18,447 observations).

- Approximately 6% of the remaining observations were cut for being outliers in terms of Days Elapsed. Based on the IQR method, the minimum number of days elapsed was -95 (a technical impossibility), and the maximum number was 438 days.
- Some observations were incomplete and missing pieces of data. These gaps were filled in by using other observations from the same disaster number, and when necessary information from the FEMA website about the specific disaster.

Within the dataset that details the number of projects per applicant per disaster, outliers for the number of projects were calculated by finding Quartiles 1 and 3, and then removing any project total that was 1.5*IQR below Quartile 1 and 1.5*IQR above Quartile 3. The minimum number of projects from a single applicant allowed was -2 (a technical impossibility), and the maximum allowed was 6. Out of 48,538 original observations that were within the desired six-year time frame, 5,528 observations were removed for being outliers.

Before a meaningful analysis could be performed, several of the variables in one or both datasets had to undergo transformation.

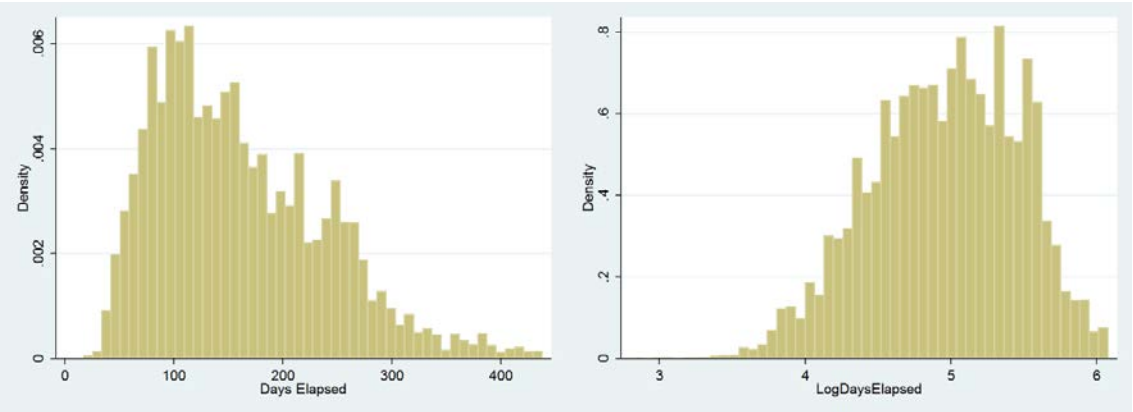
All Federal Share Obligated values were put into 2016 terms using the Bureau of Labor Statistics' official 2016 annual Consumer Price Index of 240.007 in order to compare like to like (BLS CPI). The formulas for each year were as follows:

- 2010= (240.007/218.056)* FEDERALSHARE
- 2011= (240.007/224.939)*FEDERALSHARE
- 2012= (240.007/229.594)* FEDERALSHARE
- 2013= (240.007/232.957)* FEDERALSHARE
- 2014= (240.007/236.736)* FEDERALSHARE
- 2015= (240.007/237.017)* FEDERALSHARE
- 2016 Jan = (240.007/236.916)* FEDERALSHARE (Awards obligated in January of 2016 were adjusted using the full year CPI.)

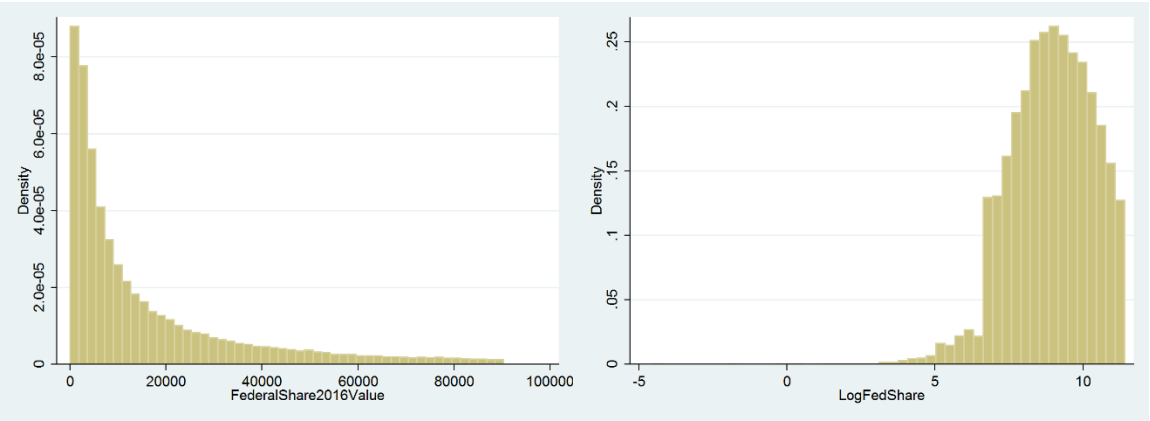
In their original forms, the dependent variable DaysElapsed was moderately skewed and the dependent variable FederalShareObligated2016Value was heavily skewed, which violated the regression assumption that residuals be normally distributed. To resolve this problem,

both variables were log-transformed by obtaining the natural log of each original value, resulting in a skewness value between -0.5 and .5.

The log-transformation of DaysElapsed reduced its skewness value from 0.772 (left image) to -0.26 (right image).



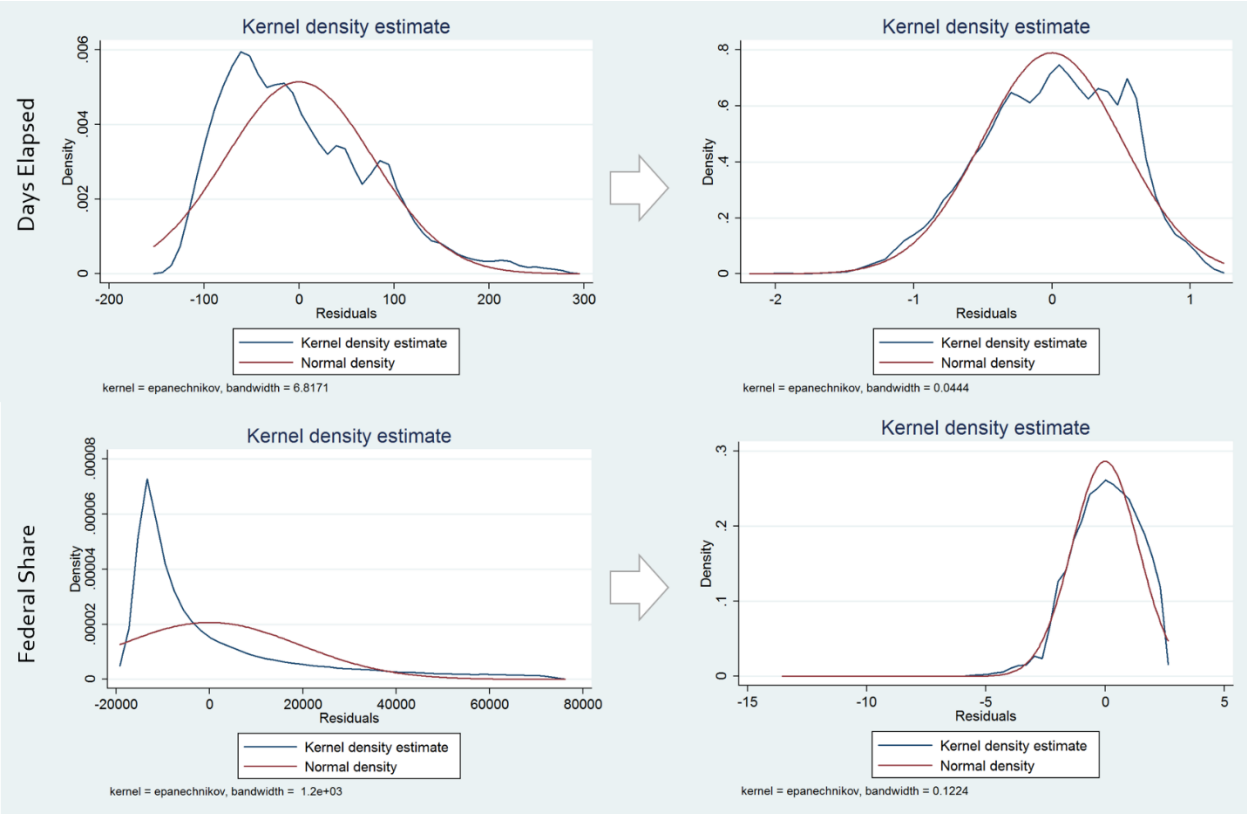
The log-transformation of FederalShareObligated2016Value reduced its skewness value from 1.77 (left image) to -0.48 (right image).



The dependent variable NumberofProjects was also log-transformed, changing its skewness value from 1.34 to 0.61. Because the final skewness values for all three dependent variables are between -1 and 1, we can assume that, although not perfectly normally distributed, the distributions of these variables are within acceptable ranges for regressing.

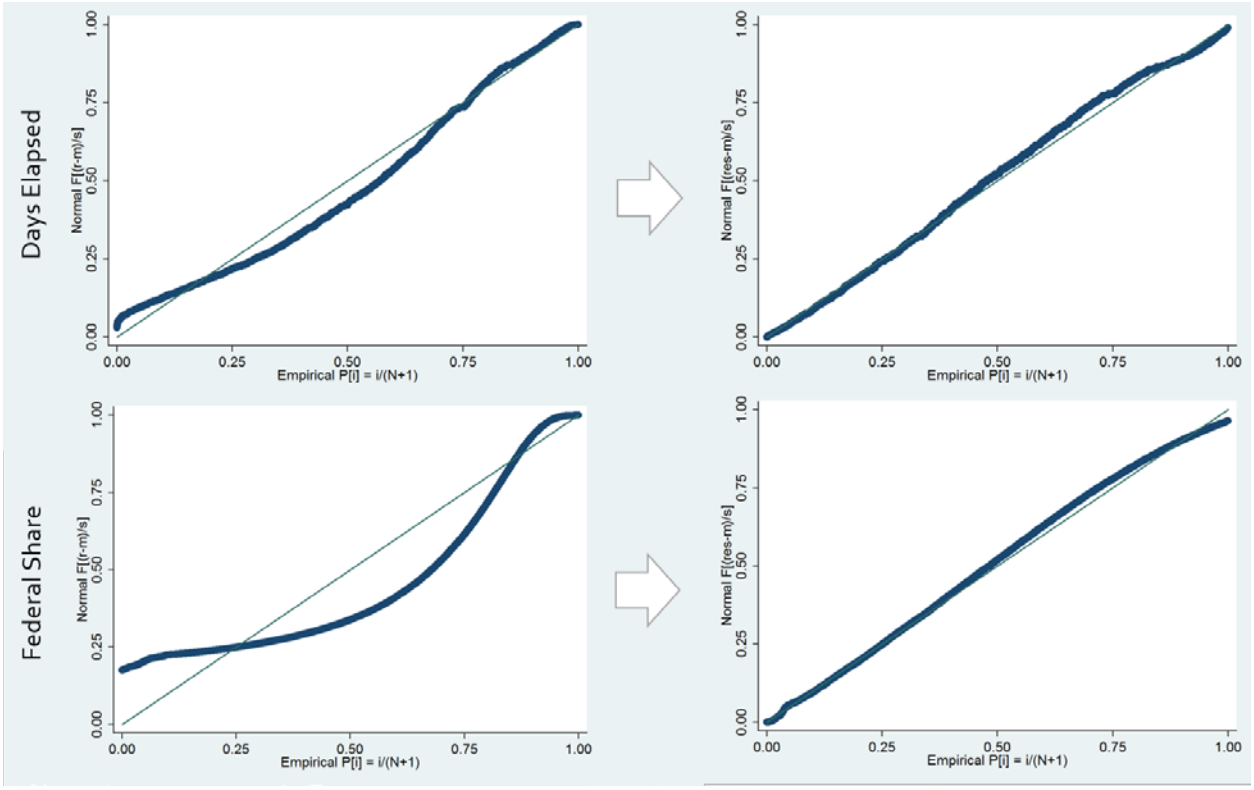
In order to check that the assumption that the residuals are normally distributed holds true, DaysElapsed and FederalShareObligated were regressed in both their original and log-transformed forms against the independent variable SRIA, and residuals were generated from each regression. A kernel density plot was created for each set of residuals, showing the plot of the residuals atop a normal density. The closer the kernel density estimate aligns to the normal density, the more normally distributed the residuals are.

The top two plots below show the kernel density estimates for the original DaysElapsed (on the left) and the log-transformed value LogDaysElapsed (on the right). The lower two plots show the kernel density estimates for the original FederalShareObligated2016Value variable (on the left) and the log-transformed value LogFedShare (on the right).



A standardized normal probability plot was then created for the residuals of both the original and log-transformed versions of the DaysElapsed and FederalShareObligated variables. This plot serves to assess whether the middle range of residuals are normal: as with the kernel density estimates, the closer the residuals align with the normal probability plot, the more normally distributed they are.

The top two plots below show the standardized normal probability plots for the original DaysElapsed (on the left) and the log-transformed variable LogDaysElapsed (on the right). The lower two plots show the standardized normal probability plots for the original FederalShareObligated2016Value variable (on the left) and LogFedShare (on the right).


Days Elapsed
Federal Share
Normal F[(r-m)/s]
Normal F[(res-m)/s]
Empirical P[i] = i/(N+1)
0.00
0.25
0.50
0.75
1.00

APPENDIX VI: ADDITIONAL FINDINGS

Impact of Region on Federal Share:

Compared to Region 2		
	% Difference	Expected Federal Share
Region 1	15.01	$8,563
Region 2		$7,445
Region 3	-11.83	$6,564
Region 4	-10.55	$6,660
Region 5	-23.61	$5,688
Region 6	4.00	$7,743
Region 7	-14.83	$6,341
Region 8	26.10	$9,388
Region 9	8.87	$8,106
Region 10	-6.48	$6,963

Impact of Region on Number of Projects:

Compared to Region 2		
	% Difference	Expected Number of Projects
Region 1	-7.48	1.44
Region 2	--	*1.55*
Region 3	-14.11	1.34
Region 4	24.02	1.93
Region 5	-9.01	1.41
Region 6	20.22	1.87
Region 7	5.32	1.64
Region 8	15.40	1.79
Region 9	22.73	1.91
Region 10	27.94	1.99

Impact of Incident Type on Days Elapsed:

Compared to Severe Storms		
	% Difference	Expected Days
Chemical	41.47	145
Coastal Storm	35.27	139
Earthquake	-4.36	98
Fire	41.31	145
Flood	22.02	125
Freezing	50.52	154
Hurricane	-10.08	92
Mud/Landslide	-31.08	71
Other	-50.75	51
Severe Ice Storm	-4.76	98
Severe Storm		*103*
Snow	-26.37	76
Terrorist	-11.19	91
Tornado	5.84	109
Tsunami	-16.06	86
Typhoon	-27.88	74
Volcano	60.71	165

APPENDIX VII: PUBLIC LAW 113–2, SANDY RECOVERY IMPROVEMENT ACT OF 2013

DIVISION B—SANDY RECOVERY IMPROVEMENT ACT OF 2013

Sandy Recovery Improvement Act of 2013.

SEC. 1101. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This division may be cited as the ''Sandy Recovery Improvement Act of 2013''. 42 USC 5121note.

(b) TABLE OF CONTENTS.—The table of contents for this division is as follows:

Sec. 1101. Short title; table of contents.

Sec. 1102. Public assistance program alternative procedures. Sec. 1103. Federal assistance to individuals and households. Sec. 1104. Hazard mitigation.

Sec. 1105. Dispute resolution pilot program. Sec. 1106. Unified Federal review.

Sec. 1107. Simplified procedures. Sec. 1108. Essential assistance.

Sec. 1109. Individual assistance factors.

Sec. 1110. Tribal requests for a major disaster or emergency declaration under the Stafford Act.

Sec. 1111. Recommendations for reducing costs of future disasters.

SEC. 1102. PUBLIC ASSISTANCE PROGRAM ALTERNATIVE PROCEDURES.

Title IV of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.) is amended—

(1) by redesignating the second section 425 (relating to essential service providers) as section 427; and 42 USC 5189e.

(2) by adding at the end the following:

"SEC. 428. PUBLIC ASSISTANCE PROGRAM ALTERNATIVE PROCEDURES. 42 USC 5189f.

"(a) APPROVAL OF PROJECTS.—The President, acting through the Administrator of the Federal Emergency Management Agency, may approve projects under the alternative procedures adopted under this section for any major disaster or emergency declared on or after the date of enactment of this section. The Administrator may also apply the alternate procedures adopted under this section to a major disaster or emergency declared before enactment of this Act for which construction has not begun as of the date of enactment of this Act.

"(b) ADOPTION.—The Administrator, in coordination with States, tribal and local governments, and owners or operators of private nonprofit facilities, may adopt alternative procedures to administer assistance provided under sections 403(a)(3)(A), 406, 407, and 502(a)(5).

"(c) GOALS OF PROCEDURES.—The alternative procedures adopted under subsection (a) shall further the goals of—

"(1) reducing the costs to the Federal Government of pro- viding such assistance;

"(2) increasing flexibility in the administration of such assistance;

"(3) expediting the provision of such assistance to a State, tribal or local government, or owner or operator of a private nonprofit facility; and

"(4) providing financial incentives and disincentives for a State, tribal or local government, or owner or operator of a private nonprofit facility for the timely and cost-effective completion of projects with such assistance.

"(d) PARTICIPATION.—Participation in the alternative procedures adopted under this section shall be at the election of a State, tribal or local government, or owner or operator of a private non- profit facility consistent with procedures determined by the Administrator.

"(e) MINIMUM PROCEDURES.—The alternative procedures adopted under this section shall include the following:

"(1) For repair, restoration, and replacement of damaged facilities under section 406—

"(A) making grants on the basis of fixed estimates, if the State, tribal or local government, or owner or operator of the private nonprofit facility agrees to be responsible for any actual costs that exceed the estimate;

"(B) providing an option for a State, tribal or local government, or owner or operator of a private nonprofit facility to elect to receive an in-lieu contribution, without reduction, on the basis of estimates of—

"(i) the cost of repair, restoration, reconstruction, or replacement of a public facility owned or controlled by the State, tribal or local government or owner or operator of a private nonprofit facility; and

"(ii) management expenses;

"(C) consolidating, to the extent determined appro- priate by the Administrator, the facilities of a State, tribal or local government, or owner or operator of a private nonprofit facility as a single project based upon the esti- mates adopted under the procedures;

"(D) if the actual costs of a project completed under the procedures are less than the estimated costs thereof, the Administrator may permit a grantee or subgrantee to use all or part of the excess funds for—

"(i) cost-effective activities that reduce the risk of future damage, hardship, or suffering from a major disaster; and

"(ii) other activities to improve future Public Assistance operations or planning;

"(E) in determining eligible costs under section 406, the Administrator shall make available, at an applicant's request and where the Administrator or the certified cost

estimate prepared by the applicant's professionally licensed engineers has estimated an eligible Federal share for a project of at least $5,000,000, an independent expert panel to validate the estimated eligible cost consistent with applicable regulations and policies implementing this sec- tion; and

"(F) in determining eligible costs under section 406, the Administrator shall, at the applicant's request, consider properly conducted and certified cost estimates prepared by professionally licensed engineers (mutually agreed upon by the Administrator and the applicant), to the extent that such estimates comply with applicable regulations, policy, and guidance.

"(2) For debris removal under sections 403(a)(3)(A), 407, and 502(a)(5)—

"(A) making grants on the basis of fixed estimates to provide financial incentives and disincentives for the timely or cost-effective completion if the State, tribal or local government, or owner or operator of the private non- profit facility agrees to be responsible to pay for any actual costs that exceed the estimate;

"(B) using a sliding scale for determining the Federal share for removal of debris and wreckage based on the time it takes to complete debris and wreckage removal; "(C) allowing use of program income from recycled debris without offset to the grant amount;

"(D) reimbursing base and overtime wages for employees and extra hires of a State, tribal or local govern- ment, or owner or operator of a private nonprofit facility performing or administering debris and wreckage removal;

"(E) providing incentives to a State or tribal or local government to have a debris management plan approved by the Administrator and have pre-qualified 1 or more debris and wreckage removal contractors before the date of declaration of the major disaster; and

"(F) if the actual costs of projects under subparagraph (A) are less than the estimated costs of the project, the Administrator may permit a grantee or subgrantee to use all or part of the excess funds for—

"(i) debris management planning;

"(ii) acquisition of debris management equipment for current or future use; and

"(iii) other activities to improve future debris removal operations, as determined by the Adminis- trator.

"(f) WAIVER AUTHORITY.—Until such time as the Administrator promulgates regulations to implement this section, the Adminis- trator may—

"(1) waive notice and comment rulemaking, if the Administrator determines the waiver is necessary to expeditiously implement this section; and

Determination.

"(2) carry out the alternative procedures under this section as a pilot program.

"(g) OVERTIME PAYMENTS.—The guidelines for reimbursement for costs under subsection (e)(2)(D) shall ensure that no State or local government is denied reimbursement for overtime payments

Guidelines.

that are required pursuant to the Fair Labor Standards Act of 1938 (29 U.S.C. 201 et seq.).

''(h) REPORT.—

"(1) IN GENERAL.—Not earlier than 3 years, and not later than 5 years, after the date of enactment of this section, the Inspector General of the Department of Homeland Security shall submit to the Committee on Homeland Security and Governmental Affairs of the Senate and the Committee on Transportation and Infrastructure of the House of Representa- tives a report on the alternative procedures for the repair, restoration, and replacement of damaged facilities under section 406 authorized under this section.

"(2) CONTENTS.—The report shall contain an assessment of the effectiveness of the alternative procedures, including— "(A) whether the alternative procedures helped to improve the general speed of disaster recovery; "(B) the accuracy of the estimates relied upon;

"(C) whether the financial incentives and disincentives were effective;

"(D) whether the alternative procedures were cost effective;

"(E) whether the independent expert panel described in subsection (e)(1)(E) was effective; and

"(F) recommendations for whether the alternative procedures should be continued and any recommendations for changes to the alternative procedures.".

SEC. 1103. FEDERAL ASSISTANCE TO INDIVIDUALS AND HOUSEHOLDS.

Section 408(c)(1)(B) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5174(c)(1)(B)) is amended—

(1) by redesignating clauses (ii) and (iii) as clauses (iii) and (iv), respectively;

(2) by inserting after clause (i) the following:

''(ii) LEASE AND REPAIR OF RENTAL UNITS FOR TEMPORARY HOUSING.—

President. Determination.

"(I) IN GENERAL.—The President, to the extent the President determines it would be a cost-effec- tive alternative to other temporary housing options, may—

"(aa) enter into lease agreements with owners of multifamily rental property located in areas covered by a major disaster declara- tion to house individuals and households eligible for assistance under this section; and "(bb) make repairs or improvements to properties under such lease agreements, to the extent necessary to serve as safe and adequate temporary housing.

''(II) IMPROVEMENTS OR REPAIRS.—Under the terms of any lease agreement for property entered into under this subsection, the value of the improvements or repairs—

"(aa) shall be deducted from the value of the lease agreement; and

"(bb) may not exceed the value of the lease agreement."; and

(3) in clause (iv) (as so redesignated) by striking ''clause (ii)'' and inserting ''clause (iii)''.

SEC. 1104. HAZARD MITIGATION.

(a) STREAMLINED PROCEDURES; ADVANCE ASSISTANCE.—Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assist- ance Act (42 U.S.C. 5170c) is amended by adding at the end the following:

''(d) STREAMLINED PROCEDURES.—

"(1) IN GENERAL.—For the purpose of providing assistance under this section, the President shall ensure that— President.

"(A) adequate resources are devoted to ensure that applicable environmental reviews under the National Environmental Policy Act of 1969 and historic preservation reviews under the National Historic Preservation Act are completed on an expeditious basis; and

"(B) the shortest existing applicable process under the National Environmental Policy Act of 1969 and the National Historic Preservation Act is utilized.

''(2) AUTHORITY FOR OTHER EXPEDITED PROCEDURES.—The President may utilize expedited procedures in addition to those required under paragraph (1) for the purpose of providing assistance under this section, such as procedures under the Prototype Programmatic Agreement of the Federal Emergency Management Agency, for the consideration of multiple struc- tures as a group and for an analysis of the cost-effectiveness and fulfillment of cost-share requirements for proposed hazard mitigation measures.

"(e) ADVANCE ASSISTANCE.—The President may provide not more than 25 percent of the amount of the estimated cost of hazard mitigation measures to a State grantee eligible for a grant under this section before eligible costs are incurred.".

(b) ESTABLISHMENT OF CRITERIA RELATING TO ADMINISTRATION OF HAZARD MITIGATION ASSISTANCE BY STATES.—Section 404(c)(2) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170c(c)(2)) is amended by inserting after ''applica- tions submitted under paragraph (1).'' the following: ''Until such time as the Administrator promulgates regulations to implement this paragraph, the Administrator may waive notice and comment rulemaking, if the Administrator determines doing so is necessary to expeditiously implement this section, and may carry out this section as a pilot program.''. Regulations. Waiver authority. Determination.

(c) APPLICABILITY.—The authority under the amendments made by this section shall apply to— 42 USC 5170c note.

(1) any major disaster or emergency declared under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.) on or after the date of enactment of this division; and

(2) a major disaster or emergency declared under that Act before the date of enactment of this division for which the period for processing requests for assistance has not ended as of the date of enactment of this division.

SEC. 1105. DISPUTE RESOLUTION PILOT PROGRAM.

(a) DEFINITIONS.—In this section, the following definitions apply: 42 USC 5189a note.

(1) ADMINISTRATOR.—The term ''Administrator'' means the Administrator of the Federal Emergency Management Agency.

(2) ELIGIBLE ASSISTANCE.—The term ''eligible assistance'' means assistance—

(A) under section 403, 406, or 407 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170b, 5172, 5173);

(B) for which the legitimate amount in dispute is not less than $1,000,000, which sum the Administrator shall adjust annually to reflect changes in the Consumer Price Index for all Urban Consumers published by the Depart- ment of Labor;

(C) for which the applicant has a non-Federal share; and

(D) for which the applicant has received a decision on a first appeal.

(b) PROCEDURES.—

Deadline.

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this section, and in order to facilitate an effi- cient recovery from major disasters, the Administrator shall establish procedures under which an applicant may request the use of alternative dispute resolution, including arbitration by an independent review panel, to resolve disputes relating to eligible assistance.

(2) BINDING EFFECT.—A decision by an independent review panel under this section shall be binding upon the parties to the dispute.

(3) CONSIDERATIONS.—The procedures established under this section shall—

(A) allow a party of a dispute relating to eligible assist- ance to request an independent review panel for the review;

(B) require a party requesting an independent review panel as described in subparagraph (A) to agree to forgo rights to any further appeal of the dispute relating to any eligible assistance;

(C) require that the sponsor of an independent review panel for any alternative dispute resolution under this section be—

(i) an individual or entity unaffiliated with the dispute (which may include a Federal agency, an administrative law judge, or a reemployed annuitant who was an employee of the Federal Government) selected by the Administrator; and

(ii) responsible for identifying and maintaining an adequate number of independent experts qualified to review and resolve disputes under this section;

(D) require an independent review panel to—

(i) resolve any remaining disputed issue in accord- ance with all applicable laws, regulations, and Agency interpretations of those laws through its published poli- cies and guidance;

(ii) consider only evidence contained in the administrative record, as it existed at the time at which the Agency made its initial decision;

(iii) only set aside a decision of the Agency found to be arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law; and

(iv) in the case of a finding of material fact adverse to the claimant made on first appeal, only set aside

or reverse such finding if the finding is clearly erroneous;

(E) require an independent review panel to expedi- tiously issue a written decision for any alternative dispute resolution under this section; and

(F) direct that if an independent review panel for any alternative dispute resolution under this section determines that the basis upon which a party submits a request for alternative dispute resolution is frivolous, the independent review panel shall direct the party to pay the reasonable costs to the Federal Emergency Management Agency relating to the review by the independent review panel. Any funds received by the Federal Emergency Management Agency under the authority of this section shall be depos- ited to the credit of the appropriation or appropriations available for the eligible assistance in dispute on the date on which the funds are received.

(c) SUNSET.—A request for review by an independent review panel under this section may not be made after December 31, 2015.

(d) REPORT.—

(1) IN GENERAL.—Not later than 270 days after the termi- nation of authority under this section under subsection (c), the Comptroller General of the United States shall submit to the Committee on Homeland Security and Governmental Affairs of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report analyzing the effectiveness of the program under this section.

(2) CONTENTS.—The report submitted under paragraph (1) shall include—

(A) a determination of the availability of data required to complete the report;

(B) an assessment of the effectiveness of the program under this section, including an assessment of whether the program expedited or delayed the disaster recovery process;

(C) an assessment of whether the program increased or decreased costs to administer section 403, 406, or 407 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act;

(D) an assessment of the procedures and safeguards that the independent review panels established to ensure objectivity and accuracy, and the extent to which they followed those procedures and safeguards;

(E) a recommendation as to whether any aspect of the program under this section should be made a perma- nent authority; and

(F) recommendations for any modifications to the authority or the administration of the authority under this section in order to improve the disaster recovery process.

SEC. 1106. UNIFIED FEDERAL REVIEW.

Title IV of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (as amended by this division) is further amended by adding at the end the following:

42 USC 5189g.

"SEC. 429. UNIFIED FEDERAL REVIEW.

Deadline.
Consultation.
President.

"(a) IN GENERAL.—Not later than 18 months after the date of enactment of this section, and in consultation with the Council on Environmental Quality and the Advisory Council on Historic Preservation, the President shall establish an expedited and unified interagency review process to ensure compliance with environ- mental and historic requirements under Federal law relating to disaster recovery projects, in order to expedite the recovery process, consistent with applicable law.

"(b) CONTENTS.—The review process established under this sec- tion shall include mechanisms to expeditiously address delays that may occur during the recovery from a major disaster and be updated, as appropriate, consistent with applicable law.".

SEC. 1107. SIMPLIFIED PROCEDURES.

Section 422 of the Robert T. Stafford Disaster Relief and Emer- gency Assistance Act (42 U.S.C. 5189) is amended—

(1) by striking ''If the Federal estimate'' and inserting ''(a) IN GENERAL.—If the Federal estimate'';

(2) by inserting ''(or, if the Administrator has established a threshold under subsection (b), the amount established under subsection (b))'' after ''$35,000'' the first place it appears;

(3) by inserting ''or, if applicable, the amount established under subsection (b),'' after ''$35,000 amount'' the second place it appears; and

(4) by adding at the end the following:

President.

''(b) THRESHOLD.—

"(1) REPORT.—Not later than 1 year after the date of enact- ment of this subsection, the President, acting through the Administrator of the Federal Emergency Management Agency (in this section referred to as the 'Administrator'), shall—

Analysis.

"(A) complete an analysis to determine whether an increase in the threshold for eligibility under subsection (a) is appropriate, which shall include consideration of cost-effectiveness, speed of recovery, capacity of grantees, past performance, and accountability measures; and

"(B) submit to the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Homeland Security and Governmental Affairs of the Senate a report regarding the analysis con- ducted under subparagraph (A).

Deadlines.

"(2) AMOUNT.—After the Administrator submits the report required under paragraph (1), the President shall direct the Administrator to—

"(A) immediately establish a threshold for eligibility under this section in an appropriate amount, without regard to chapter 5 of title 5, United States Code; and "(B) adjust the threshold annually to reflect changes in the Consumer Price Index for all Urban Consumers published by the Department of Labor.

"(3) REVIEW.—Not later than 3 years after the date on which the Administrator establishes a threshold under para- graph (2), and every 3 years thereafter, the President, acting through the Administrator, shall review the threshold for eligi- bility under this section.".

SEC. 1108. ESSENTIAL ASSISTANCE.

(a) OTHER NEEDS ASSISTANCE.—Section 408(e)(1) of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5174(e)(1)) is amended—

(1) in the paragraph heading by inserting ''CHILD CARE,'' after ''DENTAL,''; and

(2) by inserting ''child care,'' after ''dental,''.

(b) SALARIES AND BENEFITS.—Section 403 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170b) is amended by adding at the end the following:

''(d) SALARIES AND BENEFITS.—

"(1) IN GENERAL.—If the President declares a major disaster or emergency for an area within the jurisdiction of a State, tribal, or local government, the President may reimburse the State, tribal, or local government for costs relating to—

"(A) basic pay and benefits for permanent employees of the State, tribal, or local government conducting emer- gency protective measures under this section, if—

"(i) the work is not typically performed by the employees; and

"(ii) the type of work may otherwise be carried out by contract or agreement with private organiza- tions, firms, or individuals.; or

"(B) overtime and hazardous duty compensation for permanent employees of the State, tribal, or local govern- ment conducting emergency protective measures under this section.

"(2) OVERTIME.—The guidelines for reimbursement for costs under paragraph (1) shall ensure that no State, tribal, or local government is denied reimbursement for overtime payments that are required pursuant to the Fair Labor Standards Act of 1938 (29 U.S.C. 201 et seq.). Guidelines.

''(3) NO EFFECT ON MUTUAL AID PACTS.—Nothing in this subsection shall affect the ability of the President to reimburse labor force expenses provided pursuant to an authorized mutual aid pact.".

SEC. 1109. INDIVIDUAL ASSISTANCE FACTORS.

Deadline. Review. Regulations. 42 USC 5170 note.

In order to provide more objective criteria for evaluating the need for assistance to individuals, to clarify the threshold for eligi- bility and to speed a declaration of a major disaster or emergency under the Robert T. Stafford Disaster Relief and Emergency Assist- ance Act (42 U.S.C. 5121 et seq.), not later than 1 year after the date of enactment of this division, the Administrator of the Federal Emergency Management Agency, in cooperation with rep- resentatives of State, tribal, and local emergency management agen- cies, shall review, update, and revise through rulemaking the factors considered under section 206.48 of title 44, Code of Federal Regula- tions (including section 206.48(b)(2) of such title relating to trauma and the specific conditions or losses that contribute to trauma), to measure the severity, magnitude, and impact of a disaster.

SEC. 1110. TRIBAL REQUESTS FOR A MAJOR DISASTER OR EMERGENCY DECLARATION UNDER THE STAFFORD ACT.

(a) MAJOR DISASTER REQUESTS.—Section 401 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5170) is amended—

(1) by striking ''All requests for a declaration'' and inserting ''(a) IN GENERAL.—All requests for a declaration''; and

(2) by adding at the end the following:

''(b) INDIAN TRIBAL GOVERNMENT REQUESTS.—

"(1) IN GENERAL.—The Chief Executive of an affected Indian tribal government may submit a request for a declaration by the President that a major disaster exists consistent with the requirements of subsection (a).

"(2) REFERENCES.—In implementing assistance authorized by the President under this Act in response to a request of the Chief Executive of an affected Indian tribal government for a major disaster declaration, any reference in this title or title III (except sections 310 and 326) to a State or the Governor of a State is deemed to refer to an affected Indian tribal government or the Chief Executive of an affected Indian tribal government, as appropriate.

"(3) SAVINGS PROVISION.—Nothing in this subsection shall prohibit an Indian tribal government from receiving assistance under this title through a declaration made by the President at the request of a State under subsection (a) if the President does not make a declaration under this subsection for the same incident.

President.

''(c) COST SHARE ADJUSTMENTS FOR INDIAN TRIBAL GOVERNMENTS.—

Waiver authority.

"(1) IN GENERAL.—In providing assistance to an Indian tribal government under this title, the President may waive or adjust any payment of a non-Federal contribution with respect to the assistance if—

"(A) the President has the authority to waive or adjust the payment under another provision of this title; and "(B) the President determines that the waiver or adjustment is necessary and appropriate.

''(2) CRITERIA FOR MAKING DETERMINATIONS.—The President shall establish criteria for making determinations under paragraph (1)(B).".

(b) EMERGENCY REQUESTS.—Section 501 of the Robert T. Staf- ford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5191) is amended by adding at the end the following:

''(c) INDIAN TRIBAL GOVERNMENT REQUESTS.—

"(1) IN GENERAL.—The Chief Executive of an affected Indian tribal government may submit a request for a declaration by the President that an emergency exists consistent with the requirements of subsection (a).

"(2) REFERENCES.—In implementing assistance authorized by the President under this title in response to a request of the Chief Executive of an affected Indian tribal government for an emergency declaration, any reference in this title or title III (except sections 310 and 326) to a State or the Governor of a State is deemed to refer to an affected Indian tribal government or the Chief Executive of an affected Indian tribal government, as appropriate.

"(3) SAVINGS PROVISION.—Nothing in this subsection shall prohibit an Indian tribal government from receiving assistance under this title through a declaration made by the President at the request of a State under subsection (a) if the President does not make a declaration under this subsection for the same incident.".

(c) DEFINITIONS.—Section 102 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5122) is amended—

(1) in paragraph (7)(B) by striking ''; and'' and inserting ''; that is not an Indian tribal government as defined in para- graph (6); and'';

(2) by redesignating paragraphs (6) through (10) as para- graphs (7) through (11), respectively;

(3) by inserting after paragraph (5) the following:

"(6) INDIAN TRIBAL GOVERNMENT.—The term 'Indian tribal government' means the governing body of any Indian or Alaska Native tribe, band, nation, pueblo, village, or community that the Secretary of the Interior acknowledges to exist as an Indian tribe under the Federally Recognized Indian Tribe List Act of 1994 (25 U.S.C. 479a et seq.).''; and

(4) by adding at the end the following:

"(12) CHIEF EXECUTIVE.—The term 'Chief Executive' means the person who is the Chief, Chairman, Governor, President, or similar executive official of an Indian tribal government.''.

(d) REFERENCES.—Title I of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.) is amended by adding after section 102 the following:

"SEC. 103. REFERENCES. 42 USC 5123.

"Except as otherwise specifically provided, any reference in this Act to 'State and local', 'State or local', 'State, and local', 'State, or local', or 'State, local' (including plurals) with respect to governments or officials and any reference to a 'local government' in sections 406(d)(3) and 417 is deemed to refer also to Indian tribal governments and officials, as appropriate.''.

(e) REGULATIONS.— President. 42 USC5122 note.

(1) ISSUANCE.—The President shall issue regulations to carry out the amendments made by this section.

(2) FACTORS.—In issuing the regulations, the President shall consider the unique conditions that affect the general welfare of Indian tribal governments.

SEC. 1111. RECOMMENDATIONS FOR REDUCING COSTS OF FUTURE DISASTERS.

(a) REPORT TO CONGRESS.—Not later than 180 days after the date of enactment of this division, the Administrator of the Federal Emergency Management Agency shall submit to Congress rec- ommendations for the development of a national strategy for reducing future costs, loss of life, and injuries associated with extreme disaster events in vulnerable areas of the United States.

(b) NATIONAL STRATEGY.—The national strategy should—

(1) respect the constitutional role and responsibilities of Federal, State, and local governments and the private sector;

(2) consider the vulnerability of the United States to dam- age from flooding, severe weather events, and other hazards;

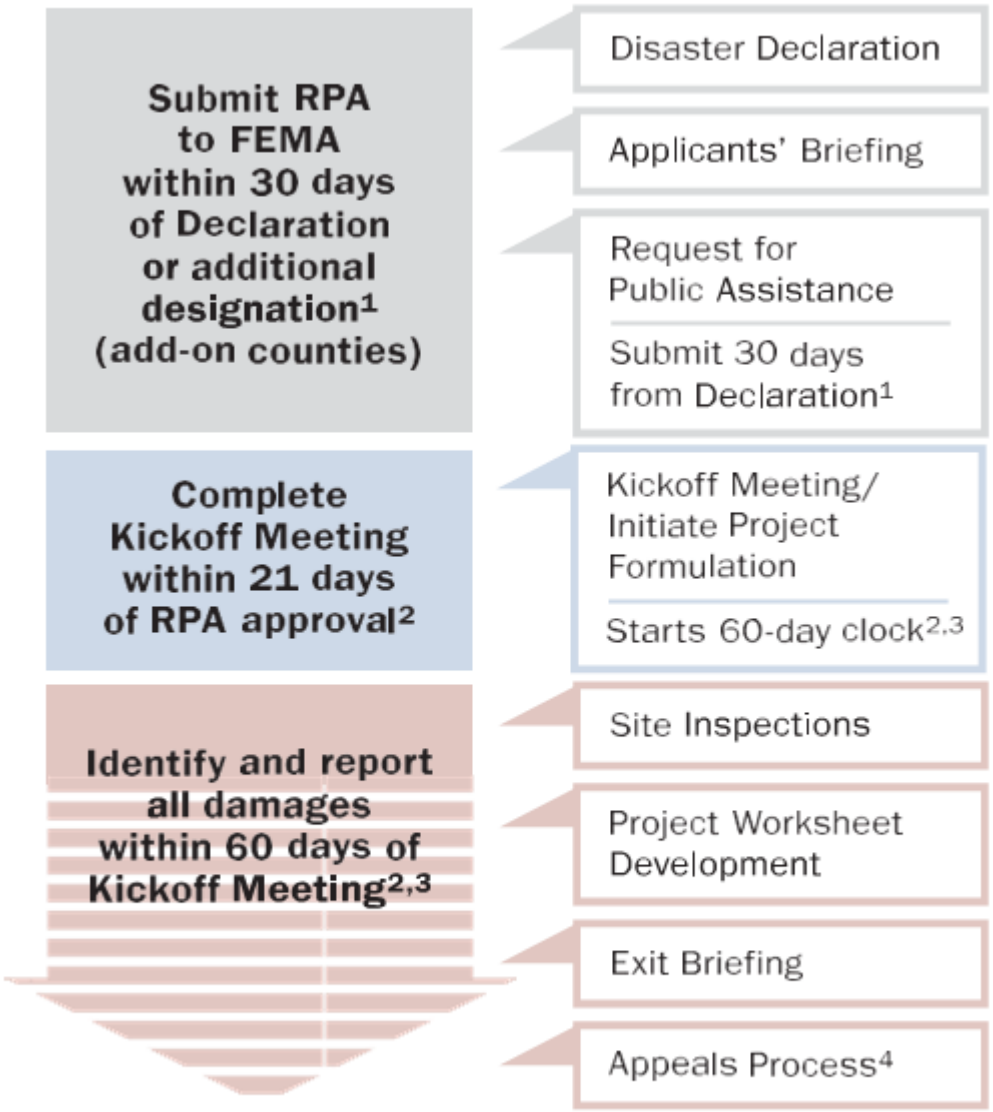
(3) analyze gaps and duplication of emergency prepared- ness, response, recovery, and mitigation measures provided by Federal, State, and local entities; and

(4) include recommendations on how to improve the resil- iency of local communities and States for the purpose of low- ering future costs of disaster response and recovery.

Approved January 29, 2013.

APPENDIX VII: PA PROGRAM IMPLEMENTATION TIMELINE

Source: Page 39 of FEMA P-1011: Public Assistance Program Field Operations Pocket Guide



1. Refer to 44 CFR 202.202c
2. Kickoff Meeting is considered first substantive meeting with FEMA/State
3. Refer to 44 CFR 206.202d.1.ii
4. Refer to 44 CFR 206.206

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