

Who'll Stop the Rain?  
Repeated Disasters and Attitudes Towards Government

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December 19, 2018

Forthcoming, *Social Science Quarterly*

Abstract

*Objectives.* We examine how prior experience with government agencies shapes citizens' assessments of government performance. In Louisiana, two extreme weather events, 11 years apart, required intervention from the state and federal government: Hurricane Katrina in 2005 and the 2016 floods. Were Louisianans' attitudes towards government response shaped by their prior experiences during a natural disaster? *Methods.* We use an original survey of Louisianans to assess the role of Katrina experience in performance assessments of FEMA and the Louisiana state government in 2016. *Results.* We find a significant negative relationship: flood aid applicants in 2016 rated state government much lower, but only if they also applied for Katrina aid. *Conclusions.* Those with personal experience with FEMA hold lower expectations of state government performance, which deteriorated under the Jindal administration, and look to the federal government for support. Prior experience with government agencies establishes expectations of responsibility that endure years later.

The attribution of political responsibility has long been of interest to those who study public opinion about the government. Individual-level characteristics, media consumption, and prior experiences are all possible determinants of judgments regarding the cause of an event and the effectiveness of the government response to that event (Iyengar, 1989; Powell and Whitten, 1993; Thompson, 1980). Much research focuses on respondent characteristics such as partisanship, political knowledge, media consumption, and racial identity (Anderson, 2006; Arceneaux, 2006; Lay, 2009; Rudolph, 1990; Tilley and Hobolt, 2011), though studies of “policy feedback” suggest that prior experience with government shapes future evaluations and expectations of governmental response (Pierson, 1993; Soss and Schram, 2007; Mettler, 2002). Scholars have found experience with government agencies to be associated with public attitudes across a range of policies, including welfare (Soss and Schram, 2007), health care (Hacker, 1998), pensions (Myles and Pierson, 2001), education (Karch, 2009), and veterans’ benefits (Mettler, 2002). These feedback effects can be positive or negative, reinforcing or undermining policy implementation and governing authority over time (Jacobs and Weaver, 2014).

In this article, we examine policy feedback in the context of prior experience with government response to natural disasters. Disasters are valuable subjects for social science because they affect broad cross-sections of society, and people across a range of characteristics share an experience with government (Reinhardt and Ross, 2018). Unexpected events, such as natural disasters, can be powerful engines of political change with lasting electoral and policy consequences (Mayhew, 2007). Following a natural disaster, individuals rely upon the government for the most crucial aspects of their life, such as housing, medical care, labor opportunities, and schools, and these direct interactions should have lasting effects, what policy feedback scholars refer to as interpretative effects, on how those individuals evaluate

government actions and attribute blame and praise for government performance (Canales, Pope, and Maestas, 2018; Mettler and SoRelle, 2014). Scholars have found that the direct personal impact of the disaster affects assessments of the government's response (Arceneaux and Stein, 2007), and that disasters alter patterns of public opinion and voting and assessments of government competence, which may lead to political turnover and enduring shifts in political opinions (Achen and Bartels, 2016; Arceneaux and Stein, 2007; Gasper and Reeves, 2011; Healy and Malhotra, 2009). People may also evaluate recovery efforts differently depending on their party identification vis-à-vis the party in control of disaster relief (Bechtel and Hainmueller, 2011; Maestas et al., 2008; Malhotra and Kuo, 2008).

Political knowledge also plays a role in opinion formation: individual evaluation of governmental response to disasters varies based upon an individual's level of knowledge of *local* government (Arceneaux and Stein, 2007) and their general level of political sophistication (Gomez and Wilson, 2008). Changes in levels of information about officials' responsibilities and expectations regarding government response to disasters affect evaluations of that response (Schneider, 2008; Malholtra and Kuo, 2008). Individuals may experience multiple interactions with disaster response agencies in their lifetime. Prior experience with disaster relief, as with any government agency or program, can serve as a powerful force for setting expectations and informing people about who bears responsibility (Reinhardt, 2015).

Our analyses exploit a rare example of repeated government response to natural disasters over a decade apart, to examine the impact of these events on attitudes towards government. In the state of Louisiana, two extreme weather events required intervention from the Federal Emergency Management Agency (FEMA) and the Louisiana agency for disaster response, the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP). The first was

Hurricane Katrina in 2005, and the second was the floods of August 2016, a 1-in-1,000 year event that attracted national attention and damaged nearly 150,000 homes (Yeo and Knox, 2018).

We find that personal experience with receiving aid in a previous natural disaster shaped Louisianans' attitudes towards governmental response to subsequent disasters: those who applied for flood aid in 2016 rated state government much lower if they also applied for Katrina aid, but did not rate FEMA similarly low. We argue that this relationship is explained by expectations: those with FEMA experience may expect less from the state government, which deteriorated under the Jindal administration, and look instead to the federal government for support.

We might expect those who did and did not apply for federal aid in the 2016 floods to differ in their assessments of government performance; however, our analyses reveal that prior experience is an important moderator of those attitudes. A single interaction with a federal disaster response agency does not predict lower assessments of government performance, but repeated interactions do. These findings may be particularly informative in disaster-prone areas of the United States. Federal response may be looked upon more favorably in a one-off event than in a recurring context, and the more commonly communities are forced to rely upon federal assistance, the less favorably they may view their state government's ability to respond to those same issues. Prior experience with government sets up expectations that endure years later.

Though Louisiana has suffered multiple recent disasters, it should not be viewed as an anomaly. Trends in the extremity of climate conditions, and the ever-present threat of earthquakes in California or the impact of rising sea levels in coastal cities like New York and Miami, are evidence that other areas of the country may be susceptible to the dynamics we observe as climate change spurs the need for adaptation (Plein, 2018). As these disasters strike, we should expect the public's reaction to be impacted by expectations developed following prior

response efforts. Individual-level factors like partisanship and political knowledge may influence opinions, but without a clear sense of previous experience with government, our understanding of their influence on public opinion formation may be incomplete.

### **Louisiana Context: State and Federal Capacity**

In the United States, the federal, state, and local government are responsible for responding to the aftermath of a natural disaster and the federal government typically coordinates that response. The majority of funding and organizational expertise come from FEMA, but states also have agencies responsible for natural disaster preparation and response, and may use “rainy day funds” to assist in recovery when available (Pope and Leland, 2018). Citizens may have trouble knowing where in the federalized system to attribute responsibility for those effects unless they can rely on previous experiences and political knowledge to determine where to seek help (Birkland and Waterman, 2008). Given the 11-year gap between Hurricane Katrina in 2005 and the Louisiana floods in 2016, it is worth reviewing changes in the state’s disaster recovery policy. Disaster response policy changes in Louisiana since Hurricane Katrina have divested state responsibility and funding in favor of the federal government, part of the 14 percent cuts in state spending under the governorship of Bobby Jindal (Landry, 2015).

Louisiana’s diminished capacity since Hurricane Katrina should contribute to perceptions of ineffective state government response, particularly if Louisianans experienced federal assistance during Katrina. The Governor’s Office of Homeland Security and Emergency Preparedness (GOHSEP) led Louisiana’s response to both the 2016 floods and Hurricane Katrina. Created in 1993, GOHSEP’s authority was last amended in 2003 (GOHSEP, 2017). Over the past decade, GOHSEP’s budget has been cut despite multiple warnings of potential negative impact by state emergency officials (Carr, 2013; Cunningham, 2013). An audit in 2014

revealed that the state owed the federal government \$23.1 million from overpayments for Hurricane Katrina recovery efforts. Republican Governor Bobby Jindal (2007-2015) began to address this issue in the last year of his term, by which time the state also owed roughly \$7 million in interest (Office of Inspector General, 2014). The state repaid out of the budget for GOHSEP, thus reducing the funds available for agency use (Governor's Executive Budget, 2015). Overall, Jindal reduced state financing of GOHSEP from over \$58 million in his first budget to just over \$13 million by the time he left office, placing more responsibility for disaster recovery on the federal government following Hurricane Katrina.

The governmental response to Hurricane Katrina was widely criticized for failures at all levels. In a Gallup poll from October 2005, only 31 percent of Louisiana residents offered positive evaluations of FEMA's response to Hurricane Katrina, while 37 percent rated it poor. Evaluation of the state response in Louisiana mirrored evaluation of FEMA, with 30 percent rating the response positively and 37 percent rating it poor (Gallup, 2005). In the aftermath of Hurricane Katrina, then-Governor Kathleen Blanco was blamed for broad inadequacies of the overall disaster response. Blanco's approval rating dropped precipitously after the hurricane, from 70 to 32 percent. Despite the general dissatisfaction with governmental response, when asked to identify which government agencies were most helpful to them in Katrina's aftermath, 57 percent of Louisianans (and 69 percent of New Orleanians) named FEMA. Only about one percent of respondents identified the state emergency agency as the most helpful (Gallup, 2005).

The governmental response to the Baton Rouge flooding was judged much more favorably than the response to Katrina. FEMA was singled out for praise for its relatively quick and effective response (Rainey, 2016). Aware of the turbulent history of FEMA disaster response in the area, FEMA officials made a conscious effort to distinguish its response to the Louisiana

floods from the response to Hurricane Katrina (Crisp, 2016). The difference in response was acknowledged by state leaders: Commissioner of Administration Jay Dardenne noted, “This is not your 2005 FEMA .... They have been much more responsive” (Grace, 2016a; Grace, 2016b). Though not viewed favorably, in a poll Louisianans affected by Hurricane Katrina, FEMA was rated the most helpful agency (Gallup, 2005). Following the decimation of GOHSEP by the Jindal administration, even greater responsibility was placed on the federal government for subsequent disaster response efforts. Particularly considering the state’s recent history of accepting federal aid and under-delivering state aid, we expect opinions of the state government response to a natural disaster to be significantly lower among those with prior personal experience with disaster aid from the federal government. Those respondents with experience applying for federal disaster aid should (correctly) determine that the federal government is better prepared to assist after a disaster than the state, and rate the state response less positively.

*Hypothesis: Prior experience with federal aid during a natural disaster will be associated with lower ratings of state government response in future disasters.*

### **Data and Methods**

The data for this study comes from a survey conducted by a survey center at a large state university in the South, using a randomly selected sample of adult Louisiana residents from January 8 through February 6, 2017. This survey presented a rare opportunity to study those affected by natural disasters by oversampling the flooded area in addition to measuring opinions in the entire state. The sample included live-interviewer surveys of 418 respondents contacted by landline telephone and 661 respondents contacted by cell phone (1,079 respondents total). The response rate was 19.1 percent of eligible residential households or personal cell phones in the sample for which an interview was completed, calculated according to the American Association

for Public Opinion Research (AAPOR)'s Response Rate 3. The Baton Rouge area, which was disproportionately impacted by the 2016 flooding, was oversampled in the study: 361 residents of East Baton Rouge Parish, Ascension Parish, and Livingston Parish were sampled (including 108 landline interviews and 252 cell phone interviews), and separate weights were computed for those residents. The landline and cell phone sample were weighted using raking, an iterative procedure matching race, education, household income, gender, and age to the adult population of Louisiana in the statewide sample and the population profiles of East Baton Rouge, Ascension, and Livingston Parishes for the Baton Rouge Area Sample, as found in the Census Bureau's American Community Survey 2015 one-year estimates. Margins of error were +/- 3.1 percent for the Louisiana sample and +/- 5.2 percent for the Baton Rouge Area sample.<sup>1</sup>

We had the opportunity to field four questions in this survey, measuring respondents' past interactions with FEMA and their experience during Hurricane Katrina in 2005.<sup>2</sup> These questions, listed in Table A1 in Supplemental Appendix, assessed respondents' ratings of the response by FEMA and the Louisiana state government, as well as their experiences with FEMA in 2016 and 2005. The Baton Rouge area was largely spared by Hurricane Katrina in 2005 while New Orleans was devastated, and the opposite dynamic played out in the 2016 floods. Baton

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<sup>1</sup> The design effect for the study was 1.39. These margins of error do not include the design effects. Our analyses below account for design effects through the use of the 'svy' procedure in Stata. We did not model the probability of sample selection for individuals who own both a landline and a cell phone in our weighting, which is a potential source of error. In 2016, Louisiana's population was 49.7 percent cell-only, 6.9 percent landline only, and 43.4 percent both (National Center for Health Statistics, 2017), while our weighted sample was 45 percent cell-only, 2.8 percent land-only, and 52.2 percent both. If there is error in our weighted sample, it likely comes from undersampling landline-only residents. We present the weighted and unweighted demographics of both samples, compared to data from the 2015 American Community Survey (the source for the weights), in Table A1 of the Supplemental Appendix.

<sup>2</sup> It should be noted that the survey did not capture intermediate disasters that occurred between 2005 and 2016, such as Hurricane Gustav in 2008, which may also have impacted opinions.



Rouge Area respondents, particularly those with high levels of traditional media consumption, should know most about the state government (Delli Carpini, Keeter, and Kenamer, 1994). Several analyses show that the population of East Baton Rouge Parish spiked by nearly 18,000 at the end of 2005, and many of those people stayed (Mitchell, 2015). It is difficult to determine the permanent movement of Katrina evacuees and the number of those in the parishes we sampled that were affected by Katrina (Mitchell, 2015; Bliss 2015). However, given this substantial subpopulation affected by both storms, as our survey respondents reflect, we could exploit variation between those with and without experience with federal disaster response agencies in the statewide and local samples.<sup>3</sup>

Responses to these questions were used to create our primary dependent and independent variables: assessments (0-100) of FEMA and state government responses to the 2016 floods and dummy variables indicating applications for aid following the 2016 floods and Hurricane Katrina. We use weighted ordinary least squares regression (using weights calculated for each sample) with the `-svy-` command in Stata, and include an interaction term to assess the relative impact of each experience on voters' opinions of state government and FEMA disaster response according to the specification in Equation 1 below:

$$y_i = \alpha + \beta_1 \text{Aid16}_i + \beta_2 \text{AidK05}_i + \beta_3 (\text{Aid16} \times \text{AidK05}_i) + \Gamma_1 \text{Ind}_i + \varepsilon_i \quad (1)$$

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<sup>3</sup> Misreporting in self-reported surveys is always a concern, particularly when the event in question took place so long ago. Given the substantial resettlement within the state and the lasting legacy of Hurricane Katrina, we feel sufficiently confident in the validity of our measures to proceed. It may be possible to use FEMA records to match those who were resettled from New Orleans to the greater Baton Rouge area and applied for funds in 2016; we leave that question to future research.

where  $Aid16$  represents an application for aid following the 2016 floods;  $AidK05$  represents an application for aid following Hurricane Katrina in 2005;  $\Gamma_1 Ind_i$  represents an array of individual-level control variables, described below; and  $\varepsilon_i$  is a stochastic disturbance term.

A set of covariates attempt to account for other possible influences on opinions of government response and political attitudes. A dummy variable captures whether a respondent is African-American, which is important to consider given to the racialized response to Hurricane Katrina (Doherty, 2015). Education and family income were also included as standard predictors of socioeconomic status, as well as a gender variable, since these are known moderators of government trust (Reinhardt, 2018). Party was accounted for with a dummy variable indicating whether the respondent identified as a Democrat. Renting a home was also included: home renters were particularly negatively affected by the 2016 floods, given their lack of insurance recourse and a limited housing supply after the storm.

Respondents' use of "new" and "old" media, forms of communication which often differ during disasters, was also assessed (Pudlo, Robinson, and Wehde, 2018). Social media was a crucial source of information during the 2016 floods, as viral videos of rescues, flooded neighborhoods, and "Cajun Navy" rescues spread through social media networks (Simon, Goldberg, and Adini, 2015). Social media is also used as a platform to process how individuals interact with government during disaster events; a recent study shows tweets during Hurricane Sandy centered on blaming federal, rather than state and local, actors (Canales, Pope, and Maestas, 2018). Further, social media use may reflect generational differences that predict attitudes towards climate issues (Ross, Rouse, and Mobley, 2018). Older forms of media, such as newspapers and television, were assessed separately because they may be better indicators of political knowledge and interest (Zaller, 1992). These continuous indices, coded from zero to

one, were constructed by creating a scale from the responses to individual questions asking about social media, online news, printed news, and television news, and combining social and online into the “new” media index and print and television into the “old” media index. Combined with traditional markers of socioeconomic status and partisanship, we believe our model accounts for political sophistication and attitudes adequately for an observational study.

### Results

The model in Equation 1 was estimated separately for analyses of FEMA approval and state government approval, measured 0 to 100, in the full Louisiana sample and the Baton Rouge Area samples. In the statewide sample, 324 respondents previously applied for Katrina aid; 210 applied for aid following the 2016 floods; and 68 applied for aid after both disasters. In the Baton Rouge oversample, 76 respondents previously applied for Katrina aid; 135 applied for aid following the 2016 floods; and 37 applied for both.<sup>4</sup> The only differences in the models were the weights, which differed for the Louisiana and Baton Rouge Area samples. Full results from all four analyses are presented in Table 1, below.

[Insert Table 1 here]

Table 1 reveals a substantial and significant divide in favorability towards the state government response to the 2016 Louisiana floods according to respondents’ experience with FEMA following Hurricane Katrina, 11 years earlier. Feelings towards FEMA itself are more inconsistent, differing between the Louisiana sample and the Baton Rouge Area sample. In Column 1, assessing FEMA approval in the Louisiana sample, there are no significant effects of 2016 or Hurricane Katrina experience, or their interaction, on FEMA approval. Approval of state

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<sup>4</sup> We include results from an additive model in Table A2 of the Supplemental Appendix to help with the interpretation of the interaction coefficients.

government's response, in Column 2, was significantly negative for the interaction term ( $p < 0.05$ ). Experience with federal disaster response may set up expectations that state government is ineffective in the wake of natural disasters.

While opinions towards state government's 2016 response remain, on average, more favorable than FEMA opinions, the results in Columns 3 and 4 of Table 1 show that those in the area directly affected by the 2016 floods were even more strongly affected by prior experience with government agencies. Those who applied for post-Katrina aid and were unaffected by the 2016 floods actually held higher opinions of both FEMA ( $b = 16.92, se = 8.15$ ) and state government ( $b = 19.48, se = 7.52$ ), while applying for 2016 flood aid alone did not significantly impact opinions of either FEMA or state government. The interaction terms, denoting those who applied for federal aid following both Hurricane Katrina and the 2016 floods, reveals even stronger effects in the Baton Rouge Area sample, for both FEMA approval ( $b = -24.46, se = 10.97$ ) and state government approval ( $b = -36.14, se = 9.92$ ).

Interaction terms are difficult to interpret substantively. To assist in understanding the implications and magnitude of these findings, we calculated the results from Table 1 as predicted probabilities, using the `-margins-` and `-marginsplot-` commands in Stata. The results presented in Figure 1, below, represent the opinions of those who applied for Katrina aid, separated by whether or not they also applied for 2016 floods aid.

[Insert Figure 1 here]

Those who applied for 2016 floods aid without prior experience in Hurricane Katrina hold substantively different opinions from those who did not apply for post-Katrina aid but applied for aid after the 2016 floods. Though this gap is not statistically significant in the statewide sample for FEMA or the state government, the relationship is consistently negative

when comparing those with and without Katrina experience: those with Katrina experience hold opinions of FEMA that are 7.12 points lower and opinions of state government that are 11.28 points lower (i.e. those who had not applied for post-Katrina aid had 56.8 percent approval of the state government, while those who did were only predicted to rate the state government at 45.7 percent approval). Previous experience with a disaster response agency is an important moderating factor in opinions about current governmental performance.<sup>5</sup>

In the statewide sample, prior experience with a federal disaster agency had large effects on opinions towards state government. Notably, opinions of state government were, on average, higher than those of FEMA. The large gap between those with and without post-Katrina aid applications suggests that those with prior experience receiving federal aid may look to the federal government for those services, and view state government as irrelevant or ineffectual. The 2016 Louisiana floods, which disproportionately impacted the capital city of Baton Rouge, provide a particularly valuable test case of this phenomenon.

The differences in opinions of the state's response between those with and without Katrina experience are largest in the Baton Rouge Area sample: among those who applied for 2016 floods aid, those who also applied for aid post-Katrina rated the state government response to the 2016 floods nearly 17 points lower, a statistically significant difference ( $p < 0.05$ ) in a pairwise test of these marginal effects. Those most likely to be familiar with the state government, residents of the capital area (Delli Carpini, Keeter, and Kenamer, 1994), are significantly more likely to rate it poorly after a disaster—but only when they have prior experience with federal assistance.

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<sup>5</sup> Our survey questions do not allow us to determine valence of this previous experience, so our results reflect that prior experience – either positive and negative – moderate current opinions.

Based on the marginal effects plots in Figure 1, it seems that much of the significant difference is explained by a higher rating of state government among Baton Rouge residents who did not apply for Katrina assistance. Experience with federal disaster aid, even years later, significantly influenced these residents' opinions by lowering their estimation of state government. Baton Rouge area respondents were likely not responding only to the depletions of GOHSEP by the Jindal administration, due to their greater familiarity with state government, but were influenced most powerfully by their ability to draw from personal experience. Those without that personal experience were somewhat more inclined to rate state government highly.

In Table A3 in the Supplemental Appendix, we test an additional possibility: that merely being flooded in 2016, not applying for aid following that flooding, is responsible for the effects. While many coefficients are similar in size and direction, the interaction term for state government approval in the Baton Rouge area sample is around 8 points lower in magnitude than in Table 1 (27 compared to 35). Prior interaction with government agencies, not mere experience in a disaster, explains much of the difference in attitudes towards state government and FEMA.

These gaps reveal a substantial role for prior experience with federal disaster response agencies in opinion formation. With eleven years of hindsight, people hold more positive attitudes towards government; however, when forced to interact with government again, people are perhaps reminded of the parts of the process that they did not enjoy, and assess that agency far more negatively. In either case, these results show that experience with these agencies is clearly an important moderating variable in determining present attitudes.

### **Conclusion**

The observed gap in state government assessment between those with and without personal experience with federal disaster relief holds important implications for federalism and

opinion formation. When natural disasters strike, governors and states ask the federal government for help and refer citizens to FEMA for compensation and assistance. Once that relationship is established in the minds of citizens, through prior experience with natural disasters, federal assistance becomes the expectation. Louisianans who needed the federal government again, eleven years after Katrina, saw the state government as much more ineffective, possibly because they knew not to expect direct assistance. These effects are strongest in the Baton Rouge area, which was most directly affected by flooding in 2016 and whose residents are more likely to be familiar with state government. Our results are a case study in the unique context of Louisiana, and as such our study may have limited generalizability. Gov. Jindal's decimation of the state disaster funds following the federal government's post-Katrina interventions is a factor inseparable from Louisianans' attitudes towards disaster response. The state's susceptibility to natural disasters, however, makes it an ideal case for this sort of study.

Future studies should ask standard political knowledge questions along with the performance thermometers we use to disentangle the role of political knowledge from previous experience more effectively. The study was not able to capture other disasters that occurred between 2005 and 2016, such as Hurricane Gustav in 2008. Our survey also did not allow us to distinguish between the experience of applying for aid and related experiences, such as being evacuated, that might also affect perceptions of government. Future research is needed to better track opinion shifts related to repeated disaster experiences and to uncover confounding experiences that come with applying for aid in order to assess their effect on opinions over time.

We assume, but cannot directly test with our available questions, that prior experience increases policy-specific knowledge, and believe this area is ripe for future research. Additionally, our survey does not include a measure of respondents' evaluation of their prior

experiences with government disaster response agency. We suspect that the valence of respondents' evaluation of this prior experience likely affects future expectations. Further research testing the effect of the valence of prior experience would also likely be useful in sharpening our understanding of how these experiences change expectations.

Natural disasters force Americans into direct contact with and reliance upon their government. While many policies and political events may seem distant to some Americans, it is impossible to ignore the central role of government in this context. No region of the United States is immune, but some areas of the country are more prone to disaster, and our findings raise a heretofore underexplored possibility: that previous experience with governmental disaster aid influences opinion formation in subsequent disasters. Combined with the decreased state-level funding for disaster relief in Louisiana, the post-Katrina experience seems to have solidified the idea that the federal government is better suited to respond to natural disasters: applicants for FEMA aid following Hurricane Katrina in 2005 were much likelier to disparage the state's response in 2016 if they needed assistance again.

Prior experience with government agencies cannot be ignored when assessing attitudes towards those agencies, even if interaction with those agencies is rare (Reinhardt, 2015). Policy feedback is a crucial process in political attitude formation. In a response to a natural disaster, the time when affected Americans are most directly dependent upon their government, past is prologue: those with prior experience and knowledge of how government agencies coordinate and share power will develop conceptions of federalism and government responsibility that are indelibly influenced by what they went through.



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**Table 1.** Approval of the state and federal government response to the 2016 Louisiana floods, by current flood aid and history of federal disaster aid.

	Louisiana sample		Baton Rouge metro sample	
	(1)	(2)	(3)	(4)
	FEMA approval (0-100)	State gov't approval (0-100)	FEMA approval (0-100)	State gov't approval (0-100)
Applied for 2016 flood aid	-7.838*	-5.285	3.336	-6.057
	(4.593)	(4.511)	(5.699)	(5.430)
Applied for Katrina aid	1.145	4.336	16.685**	19.130**
	(3.603)	(2.948)	(8.117)	(7.522)
Applied for 2016 flood aid X Applied for Katrina aid	-8.266	-15.623**	-24.237**	-35.805***
	(7.892)	(7.595)	(10.937)	(9.887)
Black	3.210	2.169	4.590	-1.391
	(3.919)	(3.585)	(6.219)	(5.799)
Social and online media use index	-1.679	2.138	-21.752***	-12.462
	(5.368)	(4.823)	(7.515)	(7.908)
Print and TV media use index	0.091	8.449	-4.174	14.738
	(6.427)	(5.836)	(9.980)	(10.565)
Education (H.S. or less omitted)				
Some college	-4.029	-1.538	14.027**	6.808
	(3.478)	(3.188)	(5.503)	(5.268)

B.A. or above	0.499	3.851	19.670***	14.900**
	(3.711)	(3.215)	(6.097)	(6.072)
Family income				
(\$0 - \$25k omitted)				
\$25k – \$50k	-1.799	-1.646	-2.862	-2.735
	(4.238)	(3.890)	(7.111)	(7.287)
\$50k – \$100k	2.470	4.346	4.064	1.013
	(4.433)	(4.032)	(7.704)	(7.349)
\$100k +	-4.280	-0.818	-4.061	-1.319
	(4.931)	(4.296)	(7.920)	(7.448)
Rents home	6.034	3.265	2.577	-0.154
	(3.730)	(3.423)	(6.722)	(6.748)
Female	1.034	5.202**	-4.390	2.116
	(2.939)	(2.523)	(4.397)	(4.417)
Democrat	3.704	3.902	-2.234	-0.735
	(3.532)	(3.153)	(5.434)	(5.551)
Constant	53.302	51.322	40.170	49.933
	(5.640)	(5.145)	(9.215)	(8.978)
Observations	690	744	255	260
R-squared	0.049	0.072	0.118	0.166

*Note.* Standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .



**Figure 1.** Opinions of FEMA and state government response to the 2016 Louisiana Floods among those who applied for 2016 Floods aid, Louisiana statewide sample and Baton Rouge area oversample.

