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## SHOWING UP AFTER THE STORM: OUR “FICKLE” BLEEDING HEART?

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### **Abstract:**

*While usually lauded, “empathic giving” may actually lead to suboptimal outcomes due in part to the enhancement of tribal sentiments in individual interactions, as well as by decisions driven more by emotional, rather than rational, considerations in the giving process. This point is linked to recent suggestions that government should reform social safety nets in order to decrease these negative interactions, and increase their efficacy. To this end, we use analyses of the September Supplements to the Current Population Survey in order to explore and find a negative change in individual-level volunteering subsequent to hurricanes Katrina and Ike, but not after hurricane Charley. We also find variations by region, and in particular, in “Deep Blue” states, as well as by whether individuals were located in the hurricane-affected states. Our findings are consistent with the notion that empathy may lead to more problems, including burnout and stratified giving, with implications for a public or private call to action.*

**Key words:** *Volunteering, Hurricanes, Empathic Giving, Current Population Survey*

### **1. Introduction**

In 2005, Hurricane Katrina left staggering damage in its wake. Although estimates in both lives lost and total property damage vary widely, it is generally accepted that 1330-1836 people perished, and between \$96-\$200 Billion in property damage was incurred (Chappell, Forgette, Swanson, & Van Boening, 2007; Congleton, 2006; Koliba, Mills, & Zia, 2011). Katrina left more damage in its wake than any other modern-day natural disaster. While the unprecedented breach of the levees in New Orleans, and subsequent flooding of homes - particularly of lower-income, disabled, and elderly domiciles - is often cited as a major reason for the size of the disaster (Congleton, 2006; Koliba et al, 2011), it is clear that there at least several other factors at play.

The politics of disaster recovery leads to the reality that the amount of damage and lives lost are at least partially endogenous to the nature of the response. This is particularly true of the governmental response, with at least half of aid disbursed based on political considerations rather than actual need (Chappell et al., 2007; Congleton, 2006; Garrett and Sobel, 2003). Perhaps if the government responses had been faster, larger, or more targeted, Katrina would not figure quite so prominently among our national disasters. If the incentives of local mayors and politicians were not so dispersed, or led to competing recriminations over the failure of the levees, then there may also have been a better response. Perhaps if less effort was expended to diffuse responsibility between the different parties involved, it would have diminished the perception of Katrina as the worst breakdown of government in modern history (Congleton, 2006; Koliba et al., 2011).

While these questions have been extensively pondered in various sources, it has been taken for granted that the size of the citizen-level response was tremendous, and was a bright spot following the storm. Some authors have found that private giving was the main reason citizens in New Orleans received assistance, and they suggest that community-level responses in the future should receive more attention and support in light of their effectiveness compared with the official efforts (Brennan, Barnett, & Flint, 2005; Chappell et al., 2007; Forgette, Dettrey, Boening, & Swanson, 2009). Unfortunately, however, it is often these very social networks that are eroded by disasters, and particularly for individuals and communities with a higher representation of minorities, disabled, and elderly individuals (Forgette et al., 2009). It is also true that relying on nongovernmental aid may lead to additional confusion and uncertainty (Gajewski, Bell, Lein, & Angel, 2011).

Implicit in the positive view of community responses is the assumption that the benefit gained from mobilizing community members outweighs the costs that are incurred by turning to private sources for disaster relief. In fact, there have been some problems suggested in regards to volunteering, which include: (1) “volunteer fatigue” or backlash/burnout effects, (2) “exhausted empathy”, (3) diversification by nature of victims, and (4) the way individuals are asked to give.

Recently, Bloom (2017) wrote about some of the problems with empathy, and suggested a more rational response to problems relating to social inequality. Consistent with this idea have been suggested reforms by some legislators, notably Speaker of the US House Paul Ryan, which call for a less impassioned and empathic response that could suffer from these kinds of issues, and a more rational effort for social change (better.gop, 2016). One of the ideas here is that giving which is motivated by emotion is more susceptible to fatigue and various other emotional issues as opposed to a more rational and consistent type of government response.

In this context, several relevant terms bear defining. Specifically, volunteer fatigue means that individuals donating their time may begin to feel overly taxed. There is ample evidence for this effect in experimental work, with one study examining the response of Texans versus Minnesotans who were willing to give to relief efforts after having a number of pleas for attention either closer (Texas) or further (Minnesota) from

their homes (Eckel, Grossman, & Milano, 2007; Koliba et al., 2011). Individuals from Texas who had already given and housed individuals who were victims of the storm due to the previous relief effort were less willing to keep giving than Minnesotans who had not yet given anything to the relief efforts. Similarly, exhausted empathy is a psychological response occurring a prolonged time after the initial disaster, wherein the potential donors think that affected individuals should already be self-sufficient and not need additional help (Raggio and Folse, 2011).

Another often overlooked aspect is that individual volunteers and donors respond differently based on the characteristics of the victim. Simply having an identifiable victim appears to matter, as does the size of the affected group (Eckel et al., 2007). It is also true that individuals are more likely to help others who appear to be similar to themselves, or who are more attractive (Cuddy, Rock, and Norton, 2007). Given that individuals affected by Katrina were often poor, disabled, elderly and had a higher fraction of minorities relative to the general population, this dichotomizing force is important to consider. Furthermore, one must wonder whether eliciting and priming this feeling of diversity will cause less volunteering to occur in the future. It is clear then that these emotional elements of the giving process are potentially detrimental in defining our policy to affect optimal change.

As a final point, the nature of how individuals are asked to give seems to matter in their ultimate decision to donate time or money. Individuals who are given economic incentives to give, asked “door to door” versus “cold-called”, and thanked for their efforts appear to be more likely to give and to persist in their giving (Landry, Lange, List, & Price, 2010; Raggio and Folse, 2011). Due to the nature of the storm, presumably individuals who needed help may have been unable to express appreciation on a national level, nor were organizations likely to go door-to-door. One question to consider is whether this lack of individual incentives created lower rates of volunteering during Katrina, and also encouraged lower levels of volunteering in the near future.

To this end, the longer-term reaction to these calls for help and disaster relief have rarely been considered. If individuals are asked to volunteer, is their response over the next several years—including the time of the disaster—more positive, negative, or neutrally affected by the fact that there was a disaster in the midst of the time period, compared with non-disaster times? This could be due to any of the aforementioned reasons, including all of burnout due to actual work, exhaustion of empathy, or a focus on the (potentially “tribal”) differences between themselves and the individuals needing their support. Regardless of which of these specific theoretical mechanism may be at play, the resultant effect is important for determining how disasters impact private choices and our ultimate perception of private giving as a viable and stable source of support.

From a pure public goods perspective, one might think that a highly publicized disaster would tend to encourage individuals to do less volunteering, since it is clear in the case of such a large disaster that others will presumably be picking up the slack (Freeman, 1997; Samuelson, 1954). On the other hand, when a larger number of

people are seen to volunteer in particular, it has been shown that individuals are more likely to also do so (Neymotin, 2016), whether from a desire for prestige, networking and relationships, or from increased warm glow effects (Andreoni, 1990; Harbaugh, 1998; Prouteau and Wolff, 2008). Thus, the initial *a priori* assumption regarding the direction of effects immediately resulting from a disaster like a hurricane is not obvious given these countervailing neoclassical and behavioral economic forces. It is also not obvious from any of these theories how continued later-period responses may change as a result of the initial impact of the storm on volunteering rates. Furthermore, given the emerging literature on volunteering and charity in the wake of stress and terrorism (Berrebi and Yonah, 2016), this analysis provides a slightly different angle by examining the ways in which individuals respond to a particular type of disaster.

In the present work, we consider whether total levels of giving have changed in a particular direction due to hurricane disasters—looking at the three most severe in the United States: Katrina, Charley, and Ike. An examination is made of both the overall U.S. change in volunteering during the relevant time periods, as well as changes specific to (1) hurricane-affected states, and (2) politically left-leaning states, termed here “Deep Blue” states. In particular, in order to create a discontinuity design, the focus is on volunteering two years before the hurricane, along with three years afterwards. To be more precise, the coding is two years before and two years after, with the year the hurricane occurred being coded as “after” the storm. Notice that three years is chosen in keeping with the literature examining volunteering responses to a disaster for up to fifteen months beyond its initial occurrence (Raggio and Folse, 2011; Eckel et al., 2007), as well as to eliminate the possibility of including periods of The Great Recession into the analysis for Katrina. The types of volunteering are also explored, with a focus on religious, children’s, and community volunteering, due both to the nature of the question being asked and patterns of volunteering after the disaster more frequently occurring through religious social networks (Eckel et al., 2007).

An important assumption is that Hurricane Katrina eclipsed other highly visible events when eliciting volunteers. It is also true that this analysis is restricted to the donation of time rather than money due to the national data employed in the current analysis. It is still possible that there were substitution effects between time and monetary donations that do not show up in an analysis that is restricted to this one form of giving.

In summary, determining the direction of effects which has prevailed is important in determining whether natural disasters affect the public perception of giving in a net positive or in a net negative fashion. This is a crucial aspect of establishing community resiliency in response to disaster, since a finding of negative effects of utilization may inhibit plans for future community rebuilding and resiliency (Colten, Kates, & Laska, 2008). Why this study matters in a more practical sense is because a finding of the emotionally-laden hurricane disasters deterring volunteering in later years means that social programs reliant on individual giving may be much more sensitive to individual emotions and the facts regarding the transiency of framing and surrounding empathy (or even variation in eliciting a pure public goods response) than has

previously been realized. A finding of this type would, due to all of the vagaries and unpredictability of emotions, undermine the contention that we should move towards an empathetic “private giving” model rather than employing public governmental support programs.

## **2. Methodology**

### **2.1. Data**

The analysis employed the Current Population Survey (CPS) September Supplement for the years 2002-2010. The Census runs this survey and, as such, permits anonymous informational disclosure. As such, our procedures are in keeping with Institutional Review Board guidelines. The data is available online publicly through the National Bureau of Economic Research.

Over 700,000 individuals were included for these nine survey years. Information on demographic characteristics employed in the analysis included income, age, education, race, and gender. Individuals missing information on any of these categories were excluded from the regression analysis.

Volunteering information included the binary decision of whether or not to volunteer in the previous year—starting from the prior October and continuing to the month of September, when the survey was administered—as well as a breakdown of the types of volunteering chosen by the individual volunteers. Specifically, the full set of seventeen volunteering organizational choices were: (1) religious, (2) children’s groups, (3) (non-children’s) educational groups, (4) social and community service, (5) civic organization, (6) cultural or arts organization, (7) environmental or animal care organization, (8) health research or education, (9) hospital, clinic, or healthcare organization, (10) immigrant or refugee assistance—absent until 2008 CPS, (11) international, (12) labor union, business or professional group, (13) political party or advocacy, (14) public safety, (15) sports or hobby group, (16) youth services group, (17) other. We chose not to employ levels of volunteering due to concerns regarding more serious endogeneity in the relationship between volunteering and hours with the decision to be employed, and the number of hours. This concern is less serious with the binary decision to volunteer or not (Hamermesh and Trejo, 2013). However, this may have caused us to undercount a portion of the variation in volunteering due to the storm.

Geographic information on state of residence of the respondent was crucial for several purposes, and was available for essentially all individuals who were included in the CPS survey. State was used for assigning region of residence, using the Census Bureau’s classification into one of either Northeast, Midwest, South, or West. State was also used in determining whether the individual was in a hurricane-affected state. The historical assumption employed was that Katrina strongly impacted Louisiana, Mississippi, Alabama and (parts of) Florida, Ike affected Texas, and Charley affected the Carolinas and Florida. Finally, to determine whether individuals resided in a (deep)

blue state, a variety of techniques were attempted due to various definitions of what constitutes “Blue”. For the purpose of the current study, a state was labeled “Deep Blue” if their 2015 legislature had a Democratic majority. These states were carried by a Democrat in all of the last seven Presidential elections (except for Iowa). This puts an emphasis on the very highly Democratic states in the country rather than those that could be slightly more moderate in political nature. While this is not the only possible methodology, it has the advantage of only using a very small subset of states in the “Deep Blue” category, so that the individuals residing in those states are likely to be those with some of the stronger left-leaning beliefs. In particular, California, Connecticut, Delaware, District of Columbia, Hawaii, Illinois, Iowa, Maryland, Massachusetts, Minnesota, New Jersey, Oregon, Rhode Island, and Vermont were all coded as “Deep Blue”. If individuals with these beliefs are also distinct in terms of their emotional giving, a topic of analysis in the present study, then this distinction is also quite appropriate.

The retrospective survey years chosen for each analysis were 2003-2007 for Katrina, 2002-2006 for Charley, and 2006-2010 for Ike. Notice that neither Katrina nor Charley includes data from the Great Recession, while Ike does include several years of the Great Recession. For this reason, it is unlikely that a decline in volunteering due solely to recessionary reasons is responsible for the main results in the present analysis.

## **2.2. Structure**

The goal of this study was to determine the relationship between the decision to volunteer and geographic as well as timing effects related to hurricanes. Specifically, the general decision for individual  $i$  can be modelled as:

$$Vol_i = f(Demog_i, HurricaneState_i, PostHurricane_i, BlueState_i)$$

Where  $Vol$  is either the binary decision of whether to volunteer in general, or, in some of the robustness checks, any of the decisions of whether to volunteer for a particular type of organization.  $Demog$  includes all of age, gender, race, education, and income;  $HurricaneState$  is a binary indicator for whether the individual resides in a state that was potentially impacted by one of the hurricanes—Ike, Katrina and Charley are each used in separate regressions;  $PostHurricane$  is a binary indicator which is set to one for the three years immediately after the hurricane occurs (including the year of the storm) and zero for the two years immediately prior. This structure is more in keeping with a regression discontinuity design, and aims to identify the effect of the hurricanes, rather than a long-run time-trend in the data. The variable  $BlueState$  is a binary indicator for whether or not the individual resides in a Deep Blue state, as explained above.

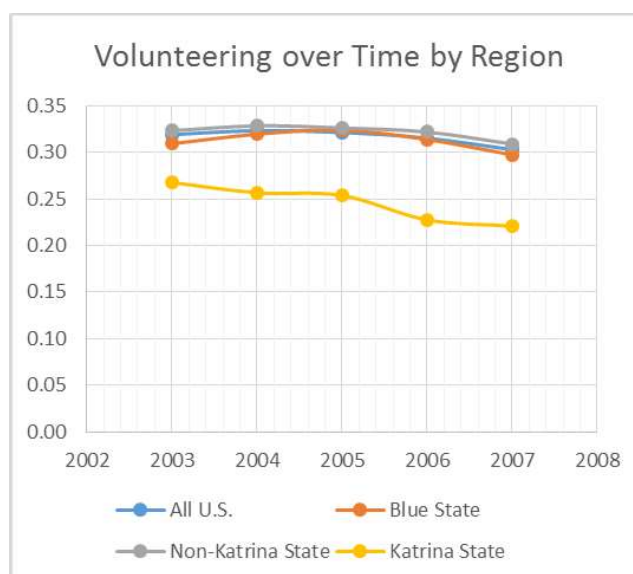
The baseline structure is a Probit model examining the effect of hurricanes on the general decision to volunteer. Robustness checks include (1) Fixed effects at the state level in a panel structure to account for other possible characteristics of states which will affect the decision to volunteer. Impacting the fixed effects may be patterns

in state-level income, education, or attitudes towards volunteering, to name just a few possibilities. Employing fixed effects is the generally accepted methodology for accounting for these issues. Notice that a linearized structure must be employed due to some additional considerations and restrictions apparent in using a fixed-effects model. Alternatively, random effects are employed to determine an alternative pattern without some of the issues inherent in the fixed effects model. (2) Stratifying by region allows for a consideration of the differential impacts of hurricanes at a higher geographic level of variation. (3) The outcome of volunteering for a particular type of organization is examined in detail, with the main focus on the largest types of volunteering. These are religious, children's, or social and community service-focused volunteering.

### 3. Results

#### 3.1. Summary Statistics

To begin, Figure 1 establishes the pattern of volunteering over time during the period of analysis for the Katrina regressions. Separate trends are shown for the entire United States, Deep Blue states, Katrina-affected states, and non-Katrina affected states. Two points are apparent from this figure. First, there was a marked drop-off in volunteering subsequent to 2005, and this was distinct in Katrina-affected states, while other states displayed a relatively similar level of decline. Second, there are overall (unadjusted) higher levels of volunteering in Deep Blue and non-Katrina states relative to those states affected by hurricane Katrina. These results help to establish an initial sense that states directed impacted by Katrina did experience a change in overall volunteering, and that, while mirrored throughout the United States, it is likely that the storm was responsible for at least a part of this change.



**Figure 1. Volunteering over Time by Region**

**Table 1: Sample Means**

<i>Demographics:</i>		<i>Region:</i>	
<b>Female</b>	52.0%	<b>Northeast</b>	18.6%
<b>Age</b>	44.3	<b>Midwest</b>	24.1%
<b>&lt;\$15K</b>	12.5%	<b>South</b>	32.1%
<b>\$15K-\$40K</b>	28.8%	<b>West</b>	25.2%
<b>\$40K-\$150K</b>	53.3%		
<b>&gt;\$150K</b>	5.5%	<i>Volunteering:</i>	
<b>White</b>	74.1%	<b>Generally</b>	30.7%
<b>Black</b>	8.9%	<b>Religious</b>	41.0%
<b>Amer. Ind.</b>	1.0%	<b>Children</b>	25.6%
<b>Asian</b>	3.8%	<b>Other Education</b>	6.3%
<b>Hawaiian</b>	0.3%	<b>Social/Community</b>	19.5%
<b>White-Black</b>	0.2%	<b>Civic</b>	6.3%
<b>White-AI</b>	0.7%	<b>Cultural/Arts</b>	3.1%
<b>White-Asian</b>	0.2%	<b>Environment/Animal</b>	3.1%
<b>White-HP</b>	0.1%	<b>Health Research</b>	6.3%
<b>Hispanic</b>	10.8%	<b>Hospital</b>	6.0%
<b>No High School</b>	4.9%	<b>Immigrant</b>	0.5%
<b>Some High School</b>	12.9%	<b>International</b>	0.9%
<b>Some College</b>	48.0%	<b>Professional</b>	1.5%
<b>College Degree</b>	25.4%	<b>Political</b>	1.7%
<b>Post-B.S.</b>	8.8%	<b>Public Safety</b>	1.8%
		<b>Sports/Hobby</b>	2.8%
		<b>Youth Service</b>	3.8%
		<b>Other Volunteer</b>	4.8%

In Table 1, we chose to explore the makeup of the sample in order to determine how well it represented the United States population, and what we can expect regarding patterns of volunteering. We see that, during the 2002-2010 time period, just over 30% of individuals volunteered. Of these volunteers, the largest number chose to donate their time to religious organizations. This is followed by children’s organization volunteering and social or community work. In contrast, none of the other types of volunteering were performed by more than about 5 or 6% of the population of volunteers. For this reason, the regression analysis takes a particular interest in these three largest types of volunteering.

In terms of the regional analysis, there is an almost equal representation, with a slight overrepresentation of the South (32.1%) and underrepresentation of the Northeast (18.6%). This imbalance is not so extreme, but does allow us to have an overweighted sample of individuals from the South, considering that a brunt of hurricanes was felt by that region in the analysis.

Finally, the demographic characteristics of the sample are in line with expectations, with just over half of the sample being Female, and the average



individual in their mid-forties. Income is somewhat evenly distributed, with, unsurprisingly given national data in this time period, about 5% of households having an income of over \$150K. The racial makeup of the data is also representative of other Census data, with just under 9% of the sample being (solely) African American, 4% Asian, and under 1% of any of the other races in the data. We have about half of the same with a high school degree and no college degree (48%), and approximately one third with college or more.

Overall, this sample is typical for what we would expect during this time period, and should give us a reasonably good sense of what the community trends in volunteering were during the time period in question.

### **3.2. Regression Analysis**

The main regression analysis is presented in Table 2, with auxiliary tests by region and type of volunteering presented in Tables 3 and 4, respectively. Table 3 explores the effect of Hurricane Katrina's advent on the volunteering decision of individuals both generally, and particular to their state of interest. Effects of each hurricane are explored separately, with, alternatively, the baseline, the fixed effects, and random effects model used in each of the three columns allocated to that particular hurricane. As an example, fixed effects regressions are displayed in columns 2 (Katrina), 5 (Ike), and 8 (Charley).

As evidenced from this regression, there was a clear effect of Katrina and Ike in decreasing the overall volunteering of individuals after the storms. This effect did not, however, occur after hurricane Charley. It is possible that this reflects the high fraction of effects of Charlie in Florida, where first-responders and hurricane preparedness is traditionally quite high, and where they also did quite well after Katrina (Congleton, 2006). Notice that the similarity of effects in both Katrina and Ike, despite Ike's landfall very close to the start of The Great Recession, points to the possibility that economic factors are not the main reason for the patterns of volunteering changing, and we may see the effect of the hurricanes on volunteering even apart from financial considerations.

It is also true that hurricane-affected states were themselves more negatively impacted by both hurricanes Ike and Katrina—but once again, not Charley. This was true even despite the fact that Ike appears to have occurred in a location that generally has higher overall rates of volunteering than in the United States as a whole. It is also true that the random-effects model appears somewhat closer to the baseline regression than the fixed-effects model. This is to be expected since (a) the fixed-effects model may be accounting for more individual heterogeneity in states, and (b) the fixed-effects model employs a linearized regression structure rather than a Probit used, as in the other two regression models. Notice, however, that even in the fixed effects model, all of the regressions where the state and hurricane effects were significant in the baseline and random effects model continue to be significant, albeit with smaller coefficients.

Table 2: Effect of Hurricanes on Volunteering

	Fixed Effects		Random Effects							
	NO	YES	NO	NO	YES	NO	NO	YES	NO	
	NO	NO	YES	NO	NO	YES	NO	NO	YES	
	Katrina			Ike			Charley			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
After Hurricane	-0.05	-0.02	-0.05	-0.06	-0.02	-0.06	0.00	0.00	-0.01	
	[-8.47]**	[-8.5]**	[-8.37]**	[-11.37]**	[-11.03]**	[-11.04]**	[-0.66]	[-1.06]	[-1.08]	
Hurricane State	-0.14	-	-0.12	0.03	-	0.00	-0.13	-	-0.10	
	[-10.48]**	-	[-1.59]	[1.89]+	-	[-0.01]	[-9.93]**	-	[-1.16]	
In Hurricane State (After)	-0.08	-0.02	-0.07	-0.04	-0.01	-0.04	-0.01	0.00	-0.01	
	[-4.23]**	[-3.53]**	[-4.12]**	[-1.89]+	[-1.81]+	[-2]*	[-0.54]	[-0.89]	[-0.81]	
Blue State	-0.06	-	-0.07	-0.04	-	-0.06	-0.07	-	-0.07	
	[-8.63]**	-	[-1.54]	[-4.67]**	-	[-1.27]	[-9.22]**	-	[-1.49]	
Blue State After	0.02	0.00	0.01	0.04	0.01	0.04	0.02	0.01	0.02	
	[1.62]+	[0.58]	[0.56]	[3.82]**	[3.67]**	[3.72]**	[2.68]**	[1.74]+	[1.74]+	
Female	0.25	0.08	0.25	0.23	0.08	0.24	0.25	0.09	0.26	
	[57.35]**	[58.67]**	[58.14]**	[54.06]**	[55.19]**	[54.74]**	[59.22]**	[60.77]**	[60.11]**	
Age	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	[3.77]**	[7.01]**	[4.08]**	[7.29]**	[10.39]**	[7.48]**	[4.11]**	[7.5]**	[4.64]**	
Age <sup>2</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	[-4.78]**	[-7.58]**	[-4.68]**	[-8.08]**	[-10.64]**	[-7.79]**	[-5.76]**	[-8.67]**	[-5.85]**	
\$15K-\$40K	0.15	0.04	0.16	0.12	0.03	0.12	0.17	0.05	0.17	
	[19.25]**	[17.59]**	[19.63]**	[14.27]**	[12.68]**	[14.46]**	[22.09]**	[20.15]**	[22.43]**	
\$40K-\$150K	0.39	0.13	0.42	0.36	0.11	0.37	0.40	0.13	0.42	
	[51.63]**	[54.22]**	[54.08]**	[46.51]**	[47.85]**	[48.05]**	[53.8]**	[56.29]**	[56.25]**	
>\$150K	0.54	0.19	0.59	0.51	0.18	0.56	0.54	0.19	0.59	
	[45.84]**	[49.22]**	[49.9]**	[48.2]**	[52.33]**	[52.15]**	[41]**	[43.43]**	[44.58]**	
Black	-0.24	-0.06	-0.19	-0.25	-0.05	-0.17	-0.24	-0.06	-0.19	
	[-29.17]**	[-21.08]**	[-21.61]**	[-30.36]**	[-19.66]**	[-20.16]**	[-29.66]**	[-21.02]**	[-21.53]**	
Amer. Ind.	-0.19	-0.09	-0.25	-0.17	-0.08	-0.24	-0.18	-0.08	-0.24	
	[-8.11]**	[-11.5]**	[-10.67]**	[-7.01]**	[-10.67]**	[-9.84]**	[-7.94]**	[-11.4]**	[-10.61]**	
Asian	-0.53	-0.16	-0.51	-0.50	-0.15	-0.47	-0.52	-0.16	-0.51	
	[-41.08]**	[-39.67]**	[-38.06]**	[-41.63]**	[-38.98]**	[-37.37]**	[-40.54]**	[-39.55]**	[-38]**	
Hawaiian	-0.11	-0.05	-0.15	-0.15	-0.06	-0.17	-0.12	-0.06	-0.17	
	[-2.7]**	[-3.91]**	[-3.61]**	[-3.9]**	[-4.66]**	[-4.4]**	[-2.51]*	[-3.92]**	[-3.63]**	
White-Black	-0.11	-0.03	-0.08	-0.07	-0.02	-0.05	-0.09	-0.03	-0.08	
	[-1.88]+	[-1.57]	[-1.49]	[-1.55]	[-1.29]	[-1.11]	[-1.43]	[-1.34]	[-1.22]	
White-AI	0.06	0.01	0.03	0.05	0.00	0.01	0.07	0.01	0.04	
	[2.66]**	[1.12]	[1.44]	[1.86]+	[0.13]	[0.51]	[2.7]**	[1.4]	[1.65]+	
White-Asian	-0.06	-0.03	-0.08	0.00	0.00	-0.01	-0.08	-0.04	-0.10	
	[-1.22]	[-1.75]+	[-1.64]+	[-0.04]	[-0.13]	[-0.16]	[-1.45]	[-2.04]*	[-1.91]	
White-HP	-0.06	-0.05	-0.12	-0.06	-0.03	-0.09	-0.08	-0.06	-0.16	
	[-0.82]	[-1.76]+	[-1.61]	[-0.69]	[-1.22]	[-1.08]	[-0.91]	[-1.98]*	[-1.86]+	
Hispanic	-0.37	-0.09	-0.32	-0.36	-0.08	-0.30	-0.36	-0.09	-0.31	
	[-44.74]**	[-33.56]**	[-36.26]**	[-45.09]**	[-32.82]**	[-35.46]**	[-43.62]**	[-33.37]**	[-35.75]**	
Some High School	0.37	0.07	0.37	0.33	0.06	0.33	0.36	0.07	0.36	
	[25.66]**	[18.24]**	[25.35]**	[22.32]**	[15.94]**	[22.19]**	[25.69]**	[18.32]**	[25.46]**	
Some College	0.46	0.09	0.45	0.40	0.08	0.40	0.45	0.09	0.44	
	[34.44]**	[25.96]**	[33.75]**	[29.24]**	[21.46]**	[28.75]**	[34.88]**	[26.31]**	[34.12]**	
College Degree	0.82	0.22	0.81	0.77	0.20	0.76	0.81	0.22	0.80	
	[59.45]**	[59.21]**	[58.58]**	[53.96]**	[54.57]**	[53.51]**	[60.64]**	[60.36]**	[59.71]**	
Post-B.S.	1.04	0.31	1.05	1.00	0.30	1.01	1.04	0.31	1.05	
	[69.75]**	[73.66]**	[69.82]**	[65.57]**	[70.99]**	[65.75]**	[71.25]**	[75.24]**	[71.44]**	
Constant	-1.39	0.05	-1.41	-1.44	0.04	-1.45	-1.41	0.04	-1.44	
	[-69.87]**	[9.03]**	[-43.8]**	[-70.57]**	[7.44]**	[-46.41]**	[-71.98]**	[7.56]**	[-44.78]**	
N	396087		396087		408512		408512		402425	

Note: Coefficients are shown with T-statistics in brackets beneath. All regressions are run with robust standard errors. Regressions with fixed effects on state are run as a linearized model, while random effects on state and regressions with no effects are run as a probit model. + indicates significance at the 10% level, \*

Turning finally to the political side of the matter, it appears that there is some evidence that Deep Blue states may have been more positively impacted in beginning to volunteer rather than their Red state counterparts. While Figure 1 shows that Deep Blue state residents have higher overall rates of volunteering, after accounting for individual and state-level factors, we see a lower overall regression-adjusted tendency for individuals in Blue states to volunteer over time. While these effects are not particularly consistent, with significance bordering on just above 10%, or even lower in some of the random- or fixed-effects models, the fact that there is a pattern by political affiliation at all is interesting and needs to be explored.

One possible explanation, which is in keeping with the literature, is that individuals in Deep Blue states were typically unaffected by the hurricanes, and their geographic and perhaps emotional distance allowed them to not be overwhelmed by requests for help pouring in after the disasters. Alternatively, once Katrina's initial impact had passed and mainly hit the Red states, it served as a politically-minded fund-raising opportunity. To this end, a different effect for Deep Blue states may be expected since they should have responded more to calls for individual aid in the wake of a perceived failed Bush administration response (Stivers, 2007). In contrast, the fatigue encountered by actually experiencing the storm and its direct aftermath may have overpowered the more politically-oriented elements of giving in other states. Furthermore, if the perception of liberal-minded individuals as "more emotional" is correct, then their response should indeed have been more variable based on these emotional calls to action.

In order to explore these location-specific effects in more detail, in Table 3 we examined the same regression structure by region with a focus on hurricane Katrina in particular. Notice that the effects of the hurricane were negative in each of the four regions, with, perhaps, a somewhat larger negative impact in the West and the Northeast. Because of Katrina's location, only the South had own-location effects explored, and we can then see for this region that, once again, residing in a Katrina-affected state led to a stronger negative impact on subsequent decisions to volunteer.

**Table 3: Regional Effect of Katrina on Volunteering**

	Northeast	Midwest	South	West
<b>After Hurricane</b>	-0.07 [-6.57]**	-0.03 [-2.98]**	-0.02 [-2.29]*	-0.06 [-6.8]**
<b>Hurricane State</b>	-	-	-0.07 [-4.88]**	-
<b>In Hurricane State (After)</b>	-	-	-0.11 [-5.51]**	-
<b>Female</b>	0.24 [23.33]**	0.26 [30.61]**	0.24 [31.04]**	0.25 [29.59]**
<b>Age</b>	0.01 [3.99]**	0.00 [1.72]+	0.00 [0.75]	0.00 [3.45]**

<b>Age<sup>2</sup></b>	0.00	0.00	0.00	0.00
	[-4.72]**	[-0.38]	[-1.32]	[-5.45]**
<b>\$15K-\$40K</b>	0.13	0.17	0.18	0.10
	[6.08]**	[10.98]**	[13.04]**	[6.49]**
<b>\$40K-\$150K</b>	0.35	0.42	0.44	0.33
	[17.69]**	[28.41]**	[33.41]**	[21.51]**
<b>&gt;\$150K</b>	0.50	0.61	0.64	0.43
	[18.57]**	[23.74]**	[30.39]**	[18.27]**
<b>Black</b>	-0.32	-0.25	-0.17	-0.32
	[-13.98]**	[-13.5]**	[-15.3]**	[-12.09]**
<b>Amer. Ind.</b>	-0.08	-0.23	-0.15	-0.25
	[-0.7]	[-5.13]**	[-2.52]*	[-7.51]**
<b>Asian</b>	-0.64	-0.51	-0.49	-0.55
	[-19.67]**	[-15.44]**	[-15.67]**	[-30.76]**
<b>Hawaiian</b>	-0.43	-0.46	-0.12	-0.13
	[-1.95]+	[-2.6]*	[-0.92]	[-2.98]**
<b>White-Black</b>	-0.17	-0.03	-0.21	-0.05
	[-1.21]	[-0.23]	[-1.99]*	[-0.44]
<b>White-AI</b>	0.15	0.07	0.06	0.03
	[2.23]*	[1.4]	[1.45]	[0.7]
<b>White-Asian</b>	0.09	0.10	-0.08	-0.17
	[0.61]	[0.7]	[-0.66]	[-2.75]**
<b>White-HP</b>	1.06	-0.01	-0.60	-0.13
	[2.1]*	[-0.04]	[-1.42]	[-1.55]
<b>Hispanic</b>	-0.48	-0.36	-0.35	-0.38
	[-20.96]**	[-14.87]**	[-23.18]**	[-28.8]**
<b>Some High School</b>	0.48	0.31	0.35	0.39
	[12.66]**	[10.45]**	[14.35]**	[13.81]**
<b>Some College</b>	0.47	0.37	0.48	0.50
	[13.2]**	[13.5]**	[21.27]**	[19]**
<b>College Degree</b>	0.82	0.75	0.85	0.84
	[22.56]**	[26.42]**	[36.12]**	[31.01]**
<b>Post-B.S.</b>	1.04	1.00	1.08	1.06
	[27.28]**	[32.23]**	[42.14]**	[35.78]**
<b>Constant</b>	-1.57	-1.33	-1.49	-1.33
	[-31.14]**	[-34.63]**	[-43.29]**	[-32.93]**
<b>N</b>	71926	96934	127120	100107

**Note:** Coefficients are shown with T-statistics in brackets beneath. All (Probit) regressions are run with robust standard errors. + indicates significance at the 10% level, \* indicates significance at the 5% level, and \*\* indicates significance at the 1% level.

Lastly, in Table 4 we were interested in determining whether Katrina's main impact occurred through documented sources of volunteering. What we instead found was that for religious and social or community volunteering, the reverse was seen for the rates of volunteering, with post-hurricane volunteering increased. Only for children's groups did we find at least some evidence that volunteering diminished after hurricane Katrina. One possibility for this result was that hurricane Katrina caused individuals to increase their volunteering in particular directions, however, due to this increased observable religious and community volunteering, the overall level of volunteering in communities decreased.

**Table 4: Effect of Katrina on Volunteering (by Type)**

	<i>Type of Volunteering Outcome</i>		
	<i>Religious</i>	<i>Children's</i>	<i>Social/Comm.</i>
<b>After Hurricane</b>	0.02 [2.28]*	-0.02 [-1.92]+	0.03 [2.97]**
<b>Hurricane State</b>	0.01 [0.28]	-0.01 [-0.46]	-0.09 [-3.05]**
<b>In Hurricane State (After)</b>	0.02 [0.61]	-0.04 [-1.23]	-0.02 [-0.53]
<b>Blue State</b>	-0.20 [-15.91]**	0.06 [4.04]**	0.02 [1.15]
<b>Blue State After</b>	0.03 [1.71]+	0.00 [-0.24]	0.00 [0.1]
<b>Female</b>	0.08 [10.2]**	0.16 [19.54]**	0.00 [0.27]
<b>Age</b>	0.00 [2.9]**	0.07 [35.06]**	-0.02 [-11.28]**
<b>Age<sup>2</sup></b>	0.00 [5.71]**	0.00 [-43.03]**	0.00 [15.39]**
<b>\$15K-\$40K</b>	0.14 [9.15]**	0.00 [0.24]	-0.10 [-5.99]**
<b>\$40K-\$150K</b>	0.16 [10.88]**	0.13 [7.7]**	-0.12 [-6.99]**
<b>&gt;\$150K</b>	0.06	0.24	-0.01

	[3]**	[10.83]**	[-0.68]
<b>Black</b>	0.28	-0.09	-0.09
	[18.31]**	[-5.21]**	[-4.91]**
<b>Amer. Ind.</b>	-0.45	0.18	0.09
	[-9.43]**	[3.8]**	[1.83]+
<b>Asian</b>	0.07	-0.15	-0.16
	[2.74]**	[-5.75]**	[-5.56]**
<b>Hawaiian</b>	0.19	0.07	-0.22
	[2.79]**	[1.03]	[-2.48]*
<b>White-Black</b>	-0.13	0.08	0.18
	[-1.23]	[0.8]	[1.67]+
<b>White-AI</b>	-0.21	0.01	0.10
	[-5.61]**	[0.17]	[2.54]*
<b>White-Asian</b>	-0.14	0.04	0.21
	[-1.65]+	[0.46]	[2.45]*
<b>White-HP</b>	-0.10	0.50	-0.25
	[-0.71]	[3.62]**	[-1.52]
<b>Hispanic</b>	-0.01	0.05	-0.14
	[-0.69]	[3.02]**	[-6.85]**
<b>Some High School</b>	-0.23	0.20	0.09
	[-7.11]**	[5.04]**	[2.4]*
<b>Some College</b>	-0.35	-0.03	0.14
	[-11.4]	[-0.89]	[4]**
<b>College Degree</b>	-0.33	0.01	0.24
	[-10.67]**	[0.27]	[6.57]**
<b>Post-B.S.</b>	-0.39	0.01	0.29
	[-12.23]**	[0.24]	[7.74]**
<b>Constant</b>	-0.37	-1.71	-0.78
	[-9.06]**	[-32.41]**	[-16.73]**

N

**Note:** Coefficients are shown with T-statistics in brackets beneath. All (Probit) regressions are run with robust standard errors. + indicates significance at the 10% level, \* indicates significance at the 5% level, and \*\* indicates significance at the 1% level.

One explanation we would like to offer for our various results is that volunteering is both a semi-public and private-value good. In terms of its purely public nature, a very clear signal—perhaps even by way of “virtue” signaling the enhanced moral value of the need to volunteer (Payne, Moore, Bell, & Zachary, 2013)—increasing the volunteering of others in the community should, in fact, decrease the overall levels of volunteering that would be observed as a whole. While this is not the only possible explanation, it is an interesting one that ties in well with the existing work in the area. It is also possible that while religious volunteering was mobilized as a result of direct efforts of religious groups and leaders, there was a great deal of frustration regarding how to help and be involved. This was in addition to the effects of government crowd-out of individual volunteering, even if that aid was widely viewed as ineffective. Taken together, it appears that the very disasters and community events that should mobilize individuals together, at least for hurricanes, seem to relate to a decline in community involvement in the intermediate term.

#### **4. Conclusions**

In seeking to determine the effect of devastating hurricanes on community responses, we have opened up a question that has often been ignored, namely, what occurs as a result of mobilizing volunteers, and perhaps as a result of their overuse. This is an important part of answering the current question regarding how empathy and emotions affect private giving in the United States. The large, nationally representative sample of the CPS Supplements represents the first attempt to answer this question from a historical viewpoint using more than anecdotal or small-sample responses. Our finding of a detrimental relationship between hurricanes and subsequent volunteering rates is in keeping with several different hypotheses, most notably the pure public goods model with fully observable information, as well as government crowd-out. Our finding of increased religious volunteering, however, would lead us to believe that greater emphasis was being placed on helping after the advent of the hurricanes.

While it is possible that economic concerns explain the downward trend in volunteering in the post-Katrina period, the very similar results seen with Ike and Katrina, despite Ike’s timing right before the great recession, would make this seem unlikely. Furthermore, while we have endeavored to include fixed or random effects for state-level variations, as this is a standard in the current state of the literature, and we have found the same pattern of effects, it is always possible that this methodology is not entirely correct. It is also possible, as in any case of a discontinuity framework, that there is some other factor at play. While we present this as a possibility for completeness, we find this to be highly doubtful, given the similarity of results as mentioned, and given the stability of significance between the various models presented.

It is also the case that different regions responded differently to the hurricanes, with the “Deep Blue” states seeing a more positive impact of hurricanes on their giving

than that witnessed by the other states. The stereotype of the “Bleeding heart liberal” is important here, and there may be some evidence for it in the literature, as evidenced in Weiner, Osborne, & Rudolph (2010). In particular, if the stereotype is actually true, it implies that the effects of calls to action in Deep Blue states fell upon more emotional and, thus, apparently more ‘variably-giving’ ears. While this result is also likely tied to political motivations in giving, as well as geographic elements in who was affected by the storm, we feel compelled to point out that this emotionally-directed response is consistent with the study’s results. This is important since, in addition to eliciting the pure-public goods motivation for any one individuals ‘not’ to give, it implies that relying on private giving is a tricky element in the social safety net. Overall, we feel that our work makes important inroads into an emerging literature exploring the effects that calls for community involvement have on subsequent emotionally-volatile reactions in a typically biased and resource-constrained situation.

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