Research Article

Leaving home isn't easy: Local government hurricane evacuation orders and policy compliance

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Abstract: Although local officials often issue policy directives and urge residents to comply, many policy directives lack monitoring or enforcement mechanisms. Without strong enforcement mechanisms, how can public officials increase citizen cooperation? We examine this question in the context of hurricane evacuation orders. Do different communication frames impact public compliance with evacuation orders? Analyzing data on Florida residents, the results of a survey experiment show that respondents exposed to a statement lacking certainty were significantly less willing to evacuate than the control group, and other communication strategies-including describing incentives and potential enforcement mechanisms-had no impact on willingness to cooperate with an evacuation order. The results suggest that uncertain government messaging may decrease policy compliance in cases lacking strong enforcement mechanisms.

Supplements: [Open data](#)

W hether public policies achieve their intended goals depends in part on citizen compliance. Although some public policies include strong enforcement mechanisms whereby government agents monitor, measure, and punish non-compliance, this is not the case for many other public policies. When communicating information about such policies to citizens, can government officials incorporate strategic messages in a way that facilitates policy compliance? We examine this question in the context of natural disaster preparedness, an area in which most public policies lack strong enforcement mechanisms and government officials rely on voluntary compliance.

We choose to examine this question in the context of natural disaster preparedness because all areas of the United States are at risk for natural disasters, though the type varies by region. Further, policies designed to protect the public during natural disasters and compliance with such policies can have life or death consequences. This is especially true in the case of hurricanes as modern technology provides government agencies days of advance notice, giving public officials time to issue directives to citizens.

Although national government agencies, such as the Federal Emergency Management Agency (FEMA) and the National Hurricane Center (NHC) are vital in issuing information about recommended supplies and the likely path of potential hurricanes, state and local governments play the principal role in guiding residents on when and if to evacuate (Sievers, 2015). Some states allow for the use of force to compel evacuation, however, in practice, they do not monitor nor arrest those who do not comply with an evacuation order (Block, 2018; Houston, 2011). Most

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state and local public officials simply issue preparedness guidelines and directives and strongly encourage compliance.

Local government officials use a variety of messaging and compliance strategies when communicating disaster preparedness information to residents, as illustrated by the public statements of state and local officials in Florida leading up to Hurricane Irma in 2017. There was confusion in Miami-Dade County over if and when Miami-Dade Mayor Carlos Gimenez would issue an evacuation order. Local media outlets reported on September 5th, 2017 that Gimenez hadn't decided whether to issue such an order, but that it was likely (Hanks, 2017). Miami Beach Mayor Phillip Levine, frustrated by this lack of clarity, held his own press conference and publicly called for residents to "consider leaving the city of Miami Beach in advance of the evacuation order that we anticipate will be coming from the county mayor." (Hanks, 2017). Two days later, Gimenez issued a partial evacuation order, followed by an expanded evacuation order the next day. At one point, Gimenez said, "the storm's slowing down, giving us a little more time" (CBS News, 2017). The news media and FEMA administrator Craig Fugate later criticized local officials for "mixed messages and public confusion over whether to leave now or later" (CBS News, 2017). In contrast, Florida Governor Rick Scott issued the following statement:

> "The National Hurricane Center is reporting that Hurricane Irma is a dangerous and life threating category 5 storm with winds up to 185 miles per hour. 185 miles per hour. Just think about that. The storm is massive and the storm surge is predicted to go for miles and miles."

This is just one example of the variation in messaging strategies that state and local officials may use in urging policy compliance among citizens during disasters.

Although many of the factors that prior research has shown to impact citizen compliance with disaster preparedness directives are entirely out of public officials' hands, such as demographic and socioeconomic factors (Ablah, Konda & Kelley, 2009; Blessman et al., 2007; Blessman, Skupski, Jamil, Jamil, Bassett, Wabeke, & Arnetz, 2006; Eisenman, Wold, Fielding, Long, Setodji, Hickey, & Gelberg, 2006; Fothergill, Maestas, & Darlington, 1999; Fothergill & Peek, 2004; Heller, Alexander, Gatz, & Rose, 2005; Lindell &

Whitney, 2000; Murphy, Cody, Frank, Glik, & Ang, 2009; Russell, Goltz & Bourque, 1995), public officials do control their communication strategy. It is important for scholars and public administrators to better understand the impact of different government communication strategies on voluntary compliance with preparedness guidelines. Specifically, how can state and local government officials tailor their communication with residents to provide preparedness directives in a way that maximizes voluntary compliance? We address this question using a between-subjects survey experiment in which we present respondents with different types of hurricane evacuation orders from a hypothetical local government official. This design allows us to test which messaging strategies are most effective at eliciting citizen compliance. Our results offer lessons for public managers, not just in the case of hurricane evacuations, but also in other natural disaster scenarios where policy directives lack strong enforcement mechanisms.

Citizen Compliance with Policy Directives

Several factors impact an individual's decision to comply with a given policy: the clarity of the policy, ability of government to measure compliance, demands for enforcement, the extent of monitoring, the existence of an enforcement agent, certainty and severity of punishment, perceived legitimacy of the policy, agreement with the policy (Rodgers & Bullock, 1976), self-interest, indifference, and peer-group pressure (Anderson, 1975). Meier and Morgan (1982) argue that all of these factors can be organized into three broad categories: environmental factors, enforcement factors, and attitudes. Weaver (2014) similarly categorizes barriers to policy compliance into three broad groups: incentives to comply (which encompasses monitoring and enforcement), willingness to comply (which encompasses attitudes, values, and information or cognition problems), and target population capacity (which includes environmental factors such as resource and autonomy problems).

Resident compliance with government emergency preparedness directives positively impacts human health and safety during disaster events (Banerjee & Gillespie, 1994; Peek & Mileti, 2002; Keim, 2008). However, scholars have shown that a significant portion of residents do not comply with state and local government recommendations in times of natural disasters (Ablah et al., 2009). A long line of research suggests that demographic factors are

linked to disaster preparedness behavior (Ablah et al., 2009; Blessman et al., 2007; Brodie, Weltzien, Altman, Blendon, & Benson, 2006; Eisenman et al., 2006; Fothergill et al., 1999; Fothergill et al., 2004; Heller et al., 2005; Lindell et al., 2000; Murphy et al., 2009; Russell et al., 1995). Specifically, younger individuals, females, minorities, and those with less education are significantly less prepared for disasters (DeBastiani, Strine, Vagi, Barnett, & Kahn, 2015; Muttarak & Pothisiri, 2013). Local public officials play a crucial role in getting information out to residents about how to best prepare for a coming storm. If certain messaging strategies work better than others in eliciting citizen compliance with evacuation orders, this information could help local public officials prevent unnecessary loss of life.

How and what information residents receive from government officials may impact evacuation intentions. In the broader context of natural disaster preparedness, research suggests that exposure to more preparedness information is positively associated with individual level disaster preparedness (Basolo, Steinberg, Burby, Levine, Cruz, & Huang, 2009). In the case of evacuation intentions, individuals exposed to an evacuation advertisement and those who have a greater expectation of the potential damage of the storm are significantly more likely to leave town (Baker, 1979). However, in a recent FEMA survey, 39 percent of respondents living in historical hurricane areas reported that even after receiving information about how to prepare, they had not taken steps to plan for a hurricane (FEMA, 2015).

Individual risk perception has been linked to increased preparation for natural disasters (Lai, Chib, & Ling, 2018; Miceli, Sotgiu, & Settanni, 2008; Murphy et al., 2009; Paton, Burgelt, & Prior, 2008), though some suggest the association is weak (Karanci, Aksit, & Dirik, 2005; Johannesdottir & Gisladottir, 2010), especially if individuals understand the risk but have little agency or few resources to act (Wachinger, Renn, Begg, & Kuhlicke, 2013). Specifically, individuals cite financial constraints as a major barrier to evacuating prior to a major storm (Elder, Xirasagar, Miller, Bowen, Glover, & Piper, 2007).

In terms of personal experience and attitudes, experience with or knowledge of natural disasters (Norris, Smith, & Kaniasty, 1999; Mulilis, Duval, & Rogers, 2003; Russell et al., 1995; Weinstein, Lyon, Rothman, & Cuite, 2000) may impact individual compliance with government evacuation orders. Successfully riding out prior storms can foster a sense of optimism, motivating people to shelter in place (Elder et al., 2007). Public officials, frustrated with the "ride-it-out" mentality, may seek to shock residents into evacuating by suggesting that there will be enforcement or that there will be a police presence. For instance, in the days leading up to Hurricane Harvey in 2017, Rockport, TX Mayor Pro Tem Patrick Rios said "We're suggesting if people are going to stay here, mark their arm with a Sharpie pen with their name and Social Security number" (Keneally, 2017).

Prior research suggests that when considering evacuation, people tend to think of themselves as members of social groups (Drabek, 1986), and individuals who perceive that their neighbors are evacuating are themselves more likely to evacuate (Baker, 1979). These findings are in line with numerous political science and economics studies suggesting that peer pressure elicits behavior that conforms to group norms in terms of both political behavior (Bolsen, 2013; Gerber et al., 2008; Gerber & Rogers, 2009; Nickerson, 2008; Sinclair, 2012; Suhay, 2015) and charitable donations (Meer, 2011). In the context of disaster preparedness, as Baker (1991) explains, "if most of the neighborhood evacuates, a resident of the neighborhood is more likely to leave than someone in a neighborhood where most people stayed." It is also possible that some members of a community may form "subcultures" that perceive potential natural disasters, such as major floods or hurricanes, as small nuisances or "carnival" (Wenger, 1972). One of the questions we explore is whether local public administrators can signal to residents that their neighbors are evacuating, thereby motivating individuals to take the storm more seriously and eliciting higher levels of compliance with an evacuation order via the peer pressure mechanism.

Although much of the prior research has allowed for a deeper understanding of evacuation intentions, it is common among existing studies to ask individuals whether they evacuated during a past natural disaster, using a yes/no response scale (Baker, 1991; Elder et al., 2007). However, we consider this prior research and argue that some of the factors that impact policy compliance depend on how public officials communicate information about the policy, especially in the case of evacuation orders. We believe that taking an experimental approach that allows individuals to express their likelihood of evacuation in degrees, rather than yes/no responses, will allow us to better understand how local government officials might strategically choose certain messages to share with residents in order to improve evacuation rates.

In general, citizens often display a lack of understanding of the benefits of public policies (Carpini & Keeter, 1996; Mettler, 2011). It is possible that if citizens had a greater understanding of why policies are put in place (or how they benefit society), they might view those policies more positively and be more likely to comply. However, while one study has shown that information provision does lead to increased policy compliance (Licari & Meier, 1997), another suggests the more detailed information about a given policy that individuals are exposed to, the greater their understanding of the policy, but the more negatively they view it (Porumbescu, Nelle, Cucciniello, & Nasi, 2017). One strategy for encouraging preparedness is "defensive pessimism" which sparks preparedness activity by highlighting the worst possible outcome of a potentially dangerous event (Higgins, 2012). However, some scholars have found that communicating preparedness actions rather than just describing the risk itself leads to better individual level preparedness (Wood, Mileti, Kano, Kelley, Regan, & Bourque, 2012).

Expectations

Our primary research question is: How do the strategic messages local government officials incorporate into their evacuation order announcements impact citizen policy compliance? We seek answers in the context of local government evacuation directives regarding hurricane preparedness. Based on prior studies, we make several predictions.

Hypothesis 1 (uncertainty): Citizens exposed to uncertain policy information will report a lower willingness to comply with a local government evacuation directive than those exposed to the control condition.

Hypothesis 2 (peer pressure): Citizens exposed to policy information signaling high levels of peer compliance with the policy directive will report a higher willingness to comply with a local government evacuation directive than those exposed to the control condition.

Hypothesis 3 (financial incentives): Citizens exposed to policy information suggesting that the government will provide financial assistance for compliance will report a higher willingness to comply with a local government evacuation directive than those exposed to the control condition.

Hypothesis 4 (monitoring and enforcement): Citizens exposed to policy information suggesting that law enforcement agents will monitor citizen behavior will report a higher willingness to comply with a local government evacuation directive than those exposed to the control condition.

Hypothesis 5 (defensive pessimism): Citizens exposed to policy information about the risks associated with non-compliance will report a higher willingness to comply with a local government evacuation directive than those exposed to the control condition.

Data and Methods

Our data come from a survey of Florida residents precisely because Florida is prone to more tropical storms than any other state in the U.S. (Griggs, 2017). All Florida residents face some risk of hurricane impacts, making Florida residents a useful population within which to study emergency preparedness. While our survey focuses on hurricanes, the responses are illustrative more generally of how the public responds to attempts at implementation of public policy via information provision.

Participants and procedures

In August of 2018, a survey was administered to 2,085 adults age 18 or older residing in Florida. Qualtrics recruited a sample of subjects[1] that matched Florida U.S. Census records on sex, age, and income.[2] Respondents were allowed to self-administer the questionnaire in either English or Spanish. See the appendix for the complete survey question used in this study.

Survey experiment

A total of 2,081 respondents were asked to imagine that there is an impending hurricane and that their local government has issued an evacuation order that strongly encourages compliance. Approximately one-sixth of the sample (the control group) was told only this, and was not provided any additional policy information. The remaining respondents were assigned randomly to one of five treatment groups (i.e., a "between-subjects" experimental design). We exposed each of the five treatment groups to the control condition plus one additional piece of policy information. Each of these additional pieces of policy information was designed to test the five messaging strategies outlined in the predictions section. At the end of the survey vignette respondents were asked: "How likely is it that you would evacuate before the storm makes landfall: very likely, somewhat likely, somewhat unlikely, very unlikely, or don't know?"

The control group (n = 339) was asked: "Imagine that it is hurricane season and weather experts predict that a major hurricane will make landfall in

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your area within the next few days. Your local government has issued the following statement: 'We are issuing a mandatory evacuation order. It is paramount that you heed your government's request.'"

We developed five experimental treatments, to mimic actual messaging strategies used during recent hurricanes in Florida. Each of the treatments exemplifies one of the five messaging strategies described above and is a realistic statement that local officials might make in preparation for a major storm. For example, the "uncertainty" treatment was modeled after the statement issued by Miami-Dade County officials in the days leading up to Hurricane Irma in 2017. These officials wavered in deciding whether or not to issue an evacuation order and told residents that they were still considering an evacuation order but were unsure about the path and strength of the storm. The five experimental treatments added the following policy information or messaging strategies to the control vignette:

Uncertainty or Lack of Clarity (i.e., "uncertainty"): "We do not know how strong the storm will be or if it will make landfall. We cannot require anyone to leave." [n = 352]
Social Pressure (i.e., "neighbors"): "We estimate nearly half of our town's residents have already evacuated. Many of your neighbors have already left. If you are still in town, you should quickly follow the lead of your neighbors and evacuate. [n = 344]
Financial Incentives (i.e., "gas cards"): "We will distribute

$50 gas cards at gas stations throughout the city over the next two days. Please check our website for a full list of locations." [n = 351]
Policy Information on Monitoring and Enforcement (i.e., "police"): "We will send police officers door to door over the next 24 hours to check to make sure all residents have evacuated. Police will ask you to leave when they come to your house." [n = 351]
Defensive Pessimism (i.e., "death toll"): "The storm will be severe with sustained winds up to 155 miles per hour. During the last hurricane to hit the state of Florida, 72 people were killed as a result of the storm." [n = 344]

Method of analysis
We estimated an ordered probit regression of respondents' willingness to evacuate in response to the six versions of the survey question (i.e., one control, five treatments). This analysis allows for a comparison of the effect of the five treatment conditions relative to control (i.e., the control group is the omitted category in the right-hand-side of the regression model). Respondents who indicated "don't know" in their response were excluded from the analysis, thus reducing the number of respondents included in the analysis from 2,081 to 1,959. Additionally, the scale of the dependent variable was flipped to run from low-to-high compliance (i.e., a four-point scale running from "very unlikely" to "very likely" to evacuate). The mean response by treatment is reported in Table 1.

Table 1
Willingness to Comply with Government Directive (i.e., Evacuate) by Treatment Condition

Treatment Group	Mean Response to Evacuation Question
Control	3.11(n = 339)
Uncertainty or Lack of Clarity (i.e., "uncertainty")	2.78(n = 352)
Social Pressure(i.e., "neighbors")	3.20(n = 344)
Financial Incentives (i.e., "gas cards")	3.18(n = 351)
Monitoring and Enforcement (i.e., "police")	3.09(n = 351)
Defensive Pessimism(i.e., "death toll")	3.19(n = 344)

Notes: Cell entries are mean responses on a 1-to-4-point scale. Sample sizes are indicated in parentheses.

Results

What evacuation messages are effective?

The analysis shows significant variation in subjects' willingness to evacuate by messaging strategy (see Figure 1 and Table 2).[3] More specifically, compared to the control condition, the worst-performing message was the one that provided uncertain information to the public, suggesting that evacuating may not be necessary.

All other messaging strategies, including peer pressure, financial incentives, enforcement mechanisms, and defensive pessimism, neither under- nor over-performed the control condition in terms of encouraging citizens to evacuate. Table 3 reports pairwise comparisons of marginal linear predictions. Subjects were significantly more likely to comply with the neighborhood peer pressure, financial incentives (i.e., gas cards), enforcement mechanisms (i.e., police), and defensive pessimism (i.e., reports of death toll) treatments compared to the uncertain information treatment.[4]

Table 2
Ordinal Probit Regression Analysis of Compliance

Treatment Group	
Uncertainty	-.35***
	(.09)
Peer Pressure	.12
	(.09)
Financial Incentive	.10
	(.09)
Monitoring/Enforcement	-.01
	(.09)
Death Toll	.11
	(.09)
Cut Point 1	-1.32
	(.07)
Cut Point 2	-.70
	(.06)
Cut Point 3	.17
	(.06)
n	1959
Log-likelihood	-2404.11
X2	43.73***
Pseudo-R2	.01

Notes: Cell entries are ordinal probit regression coefficients, standard errors in parentheses. Sample sizes vary due to listwise deletion of cases with missing data.

*p ≤ .05, **p ≤ .01, ***p ≤ .001

Figure 1

Likelihood of Evacuation in Compliance with Government Order by Experimental
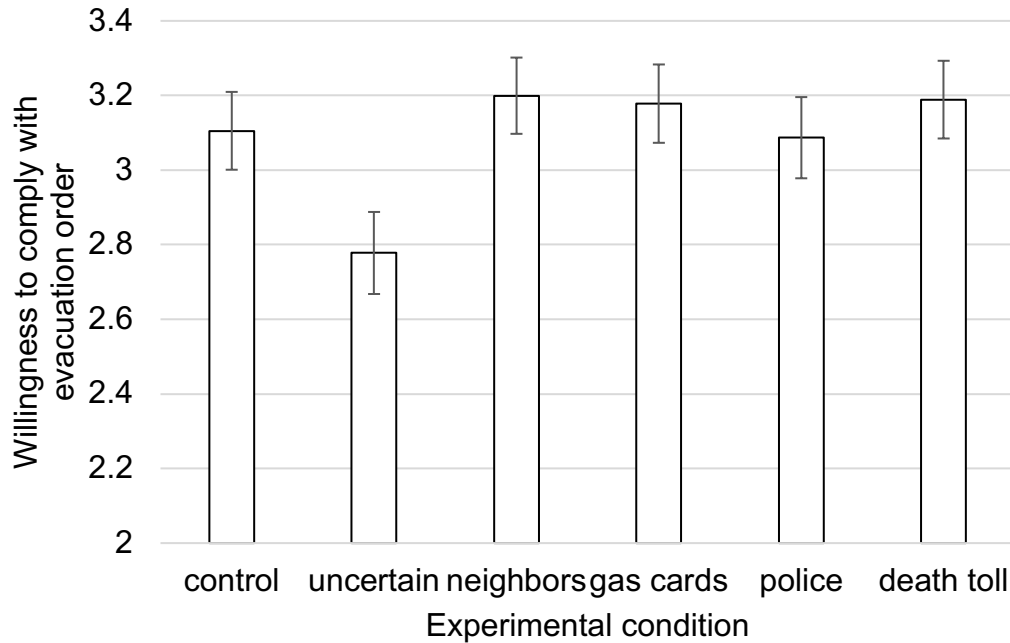
Condition (i.e., Wording of the Evacuation Order).

Table 3
Pairwise Comparisons of Marginal Linear Predictions.

Experimental condition	Experimental condition					
	control	uncertain	neighbors	gas cards	police	death toll
control	---	-.33*	.09	.07	-.02	.08
uncertain	-.33*	---	.42*	.40*	.31*	.41*
neighbors	.09	.42*	---	-.02	-.11	-.01
gas cards	.07	.40*	-.02	---	-.09	.01
police	-.02	.31*	-.11	-.09	---	.10
death toll	.08	.41*	-.01	.01	.10	---

Notes: Cell entries are differences in the estimated marginal effects between experimental treatment conditions.
*p ≤ .05

Discussion and Conclusion

The results of this analysis provide useful information for both scholars and practitioners interested in policy compliance, especially in the context of local policy directives designed to protect the public in the event of natural disasters. The embedded survey experiment allows for the testing of five different messaging strategies and allows for a novel approach to the research on evacuation intentions. Each of the five communication strategies, one uncertain, and four designed to positively impact willingness to evacuate (peer pressure, financial incentives, enforcement mechanism, and defensive pessimism) are based on a combination of prior communications with residents in advance of a hurricane and the prior literatures on policy compliance and natural disasters.

The results suggest that providing individuals with additional policy information designed to encourage compliance has no significant impact on willingness to comply with the policy directive. The results also show that when individuals are exposed to unclear or uncertain policy information they are less likely to evacuate than those in the control group. Although the uncertainty treatment may seem strongly worded to signal uncertainty, this is an especially relevant finding because this particular treatment was designed around the messaging of Miami-Dade county officials in the days before Hurricane Irma in 2017. Some public officials, in an attempt to convey nuance and honesty to their residents, do in fact signal a great degree of uncertainty surrounding natural disaster preparedness. Our results suggest that this sort of vacillating is potentially damaging to citizens' willingness to comply if an evacuation order is eventually given. In the future, officials should not tell residents that they are unsure, rather they should continue gathering information and wait to inform residents of evacuation orders until they have decided whether or not they will issue an evacuation order.

The four other treatments all provided residents with additional policy information. One provided information about policy enforcement mechanisms, one provided information on policy compliance by other community members, one provided information on financial support to assist with policy compliance, and one provided information on why the policy was necessary to protect human life. None of these four treatments substantially improved citizen willingness to comply with an evacuation order above the control treatment.

This is noteworthy and offers potential lessons for public managers seeking to elicit compliance with policy directives in the future. For instance, providing small monetary incentives may not be enough to overcome the overall costs that residents associate with policy compliance. Future studies should therefore examine whether larger amounts of financial assistance would elicit increased willingness to comply.

The peer pressure treatment also did not substantially impact willingness to evacuate. Perhaps a recent news report on how residents rely on peer pressure in making evacuation decisions helps illuminate this result. In 2018, as Hurricane Florence approached, one Virginia Beach resident relied on peer pressure to determine whether to evacuate, saying, "I mean we asked people to the left of us and people to the right of us, that we considered to be smarter than us, 'hey are you staying?'" (Lilly, 2018). Perhaps the peer pressure mechanism is only effective when residents themselves witness the behavior of their neighbors or ask their neighbors' opinions, not when a third party attempts to signal that information.

The treatment describing police enforcement of the order also did not impact compliance with the evacuation order. Perhaps residents in Florida have experienced enough hurricanes to know that "mandatory" evacuation orders are not typically enforced by the police, and these prior assumptions about policy enforcement crowded out the treatment in our experiment.

Finally, describing the risk of strong winds or danger to human life of the hurricane had no impact on evacuation intentions. This final treatment was inspired by Florida Gov. Rick Scott's message to residents in the days before Hurricane Irma made landfall in 2017 in which he described the strength of the storm and its potential for causing major damage. Specifically, this treatment provided respondents information about why the evacuation directive was necessary by highlighting the risk to life associated with riding out the storm. One takeaway for public managers is that in relation to the costs of policy compliance (time off work, transportation, and hotel costs, etc.) a description of the importance of the directive is not compelling.

Although the current study focuses on hurricane evacuation orders, there are significant implications for our understanding of policy compliance more generally. Our results are somewhat contrary to much of the social science literature on nudging, es-

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pecially the literature on peer pressure. Perhaps this is a result of the nature of embedded survey experiments, and respondents could be more susceptible to peer pressure when they witness their own neighbors leaving firsthand rather than having a researcher tell them about it in a hypothetical scenario. Further, that our results run counter to much of the prior literature also suggests that further social science research at the intersection of nudging and natural disaster preparedness is worthwhile and will likely be fruitful.

While it is a bit disheartening to find that providing citizens with additional information about a policy or the benefits of a policy doesn't improve compliance, it is useful for local public administrators to know that any lack of clarity in their communication of policy information is likely to have a negative impact on compliance. As such, state and local government officials should be careful in crafting their messages – the more certainty, clarity, and consistency, the better.

Although the data presented here extend our understanding of citizen compliance with public policy, there may be limitations given our focus on policy compliance in the context of natural disasters in Florida. It is possible that these relationships would look different in other contexts, both different geographic contexts and different policy areas. Future research should examine the impact of sharing policy information on citizen policy compliance in other contexts, such as earthquake preparedness in California, tornado preparedness in the Midwest, or in a context outside of emergency preparedness. Additionally, it is possible that unique features of our treatment wordings may have impacted the results. For example, perhaps a different treatment wording designed to test financial incentives (other than our gas card treatment) would have some impact on evacuation behavior. We designed each treatment to be as close to real life scenarios that we discovered during the course of preliminary research. However, future research that uses different treatment wordings and scenarios is worthwhile and would contribute further to our understanding of evacuation behavior and policy compliance.

We acknowledge that real-life behavior may not always mimic that in an experiment, however, we purposefully include actual Florida residents as our subjects, the large majority of whom experienced a major hurricane in the year prior to the survey, rather than surveying university students or respondents in areas not prone to hurricane activity. We believe this lends additional validity to our experimental design.

Finally, the data come from a multi-question survey that did ask respondents other hurricane related questions, specifically related to their experience during Hurricane Irma. There is always the potential for the ordering of the survey questions to lead to order bias or social desirability bias, whereby the respondents give the answer that they believe the survey researcher wants to hear. However, given that this is an experiment with random assignment to treatments, we have no reason to believe that there are any systematic differences in potential order bias or social desirability bias from one group to the other. In other words, while our results may reflect some degree of social desirability bias, it should be across the board, not specific to any one treatment.

While continued research on citizen compliance should be on the agenda of scholars of public policy, political science, and other related disciplines, the results provide clear direction for local public administrators seeking to communicate policy information with the public in a way that facilitates compliance. Policy makers should be sure that all information provided to the public is clear and consistent.

Notes

1. More specifically, Qualtrics, in partnership with their sample provider Research Now, used a quota to recruit subjects that matched U.S. Census records for the State of Florida on sex, age, and income. Based on this quota-based recruitment procedure there is no response or completion rate to report. Four of the 2,085 subjects did not complete the experiment. The data were not weighted in the analysis, as the quota sampling process created a sample frame equivalent to Florida's population on sex, age, and race.

2. Ethics Statement: Research Now maintains panels of subjects that are only used for research. Individuals voluntarily join a Research Now panel (e.g., through the company's website, or by responding to a banner advertisement on a different website). Research Now complies fully with European Society for Opinion and Marketing Research (ESOMAR) standards for protecting research subjects' privacy and information. Subjects received reward points redeemable from Research Now in exchange for voluntary participation in the study. They were invited to participate by email and consented voluntarily to particulate by clicking a link to the survey in that email. Subjects were free to end participation at

any time by closing their web browser. Initial approval to conduct research with human subjects, based on the design of the English language survey instrument, was granted by the University of Miami Human Subject Research Office on July 6, 2018 (Protocol #20180594). A modified version of the protocol was approved on July 16, 2018 (Modification #MOD00023914) to certify use of the Spanish language translation of the survey instrument.

3. All of these results hold whether one uses Bonferroni ($F_{5,1953} = 8.90$, $p < .001$) or Dunn-Sidak ($F_{5,1953} = 8.90$, $p < .001$) p-value correction for

multiple post-hoc comparison of means.

4. Given the ordinal nature of the compliance dependent variable, we replicated the ordered probit results with an ANOVA as a robustness check. The results lead to the same conclusions as the ordered probit model.

Acknowledgment

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Appendix

Embedded Survey Experiment Instrument

Imagine that it is hurricane season and weather experts predict that a major hurricane will make landfall in your area within the next few days. Your local government has issued the following statement:

"We are issuing a mandatory evacuation order. It is paramount that you heed your government's request." [Add Treatment Here]

> *[Version A – Control]:* [nothing]
>
> *[Version B – Uncertainty]:* We do not know how strong the storm will be or if it will make landfall. We cannot require anyone to leave.
>
> *[Version C – Peer Pressure]:* We estimate nearly half of our town's residents have already evacuated. Many of your neighbors have already left. If you are still in town, you should quickly follow the lead of your neighbors and evacuate.
>
> *[Version D – Financial Incentive (self-interest)]:* We will distribute $50 gas cards at gas stations throughout the city over the next two days. Please check our website for a full list of locations.
>
> *[Version E – Monitoring/Enforcement]:* We will send police officers door to door over the next 24 hours to check to make sure all residents have evacuated. Police will ask you to leave when they come to your house.
>
> *[Version F – Death Toll]:* The storm will be severe with sustained winds up to 155 miles per hour. During the last hurricane to hit the state of Florida, 72 people were killed as a result of the storm.

How likely is it that you would evacuate before the storm makes landfall?

Very likely

Somewhat likely

Somewhat unlikely

Very unlikely

Don't know