Bracing for the Storm: Ideal vs Actual Preparedness Strategies for Natural Disaster in Texas

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Abstract

As the frequency and severity of natural disasters increase, understanding how households prepare for extreme weather has become a central policy concern. Existing research typically evaluates household preparedness by comparing self-reported actions to benchmarks of "adequate" preparation defined by researchers or government agencies. This approach implicitly assumes a uniform standard of optimal preparedness, despite substantial heterogeneity in households' constraints, preferences, and perceptions of risk. We argue that preparedness is inherently multidimensional and that households may hold distinct views about what ideal preparedness looks like in their own context. This heterogeneity is also reflected in the acceptable tradeoffs over individual and community-based strategies. To analyze these heterogeneous responses, we embed a conjoint experiment in a representative survey of 1,709 Texas residents fielded in June 2024, shortly after the May 2024 "derecho" windstorm. Respondents evaluated hypothetical preparedness profiles that vary along multiple individual- and community-level attributes, including social support networks, emergency response time, access to emergency services, food and water reserves, power generators, and emergency savings. For each choice task, respondents identified both the profile that represented what they perceived as better preparedness and which profile most closely matched how their household is prepared. This design allows us to recover tradeoffs across preparedness dimensions and to directly estimate gaps between perceived ideal and perceived actual preparedness. We find a systematic and sizable preparedness gap, mostly in individual "resource intensive" strategies such as owning a power generator, maintaining substantial emergency savings, and holding extended food and water supplies. In contrast, community-based measures, such as the presence of social support networks and emergency services, exhibit smaller gaps, indicating closer alignment between ideals and self-reported behavior. The gaps are largest among households without children, those with below-average income, and those with insurance coverage, highlighting the roles of resource constraints, expectations, and perceived substitutes in shaping preparedness behavior. By shifting the focus from externally imposed benchmarks to households' own perceptions of optimal preparedness, our approach offers a new framework for assessing preparedness gaps and generates policy-relevant insights for designing more realistic, equitable, and targeted disaster preparedness interventions.

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"Many, many people believe that within an hour or two… you will have someone knocking on your door… There has been a strange delusion that… the rescue response will occur rather rapidly."

- Dr. Irwin Redlener (Director, National Center for Disaster Preparedness, Columbia University, 2011)

"Unfortunately, many communities acquire a false sense of security and complacency. We see this year after year… as time passes… communities become lax in their … efforts… We cannot allow this to occur."

- Council Member Matt Rahn (City of Temecula, California, 2023)

Introduction

The frequency and severity of natural disasters are on the rise. Preparation for such extreme weather conditions presents significant challenges to communities and individuals, especially those in the most vulnerable households. Understanding preparedness is important because when households are better prepared, they are more likely to be resilient to the effects of natural disasters and able to recover once they are impacted by a disaster. Individual and community preparedness can also be conducive to a better disaster response, minimize loss of life and economic damages, and at the same time increase community and household resilience, guarantee a better distribution of resources in the post-disaster phase, and reduce recovery time (Fazeli et al., 2024). Understanding gaps in preparedness also allows for better planning for specific natural hazards that threaten a community and to support the most vulnerable individuals or communities with resources, education and training. In this sense, individual and community preparedness are intertwined (Fazeli et al., 2024).

Our paper aims to answer the following question: Which strategies do individuals perceive as more effective for preparing for a natural disaster? Are households preparing in the ways they believe are most appropriate? To what extent do people rely on personal preparedness strategies versus community-based support? Moreover, which socio-demographic groups are more likely to engage in proactive disaster preparedness? The paper investigates the previous questions by gauging which groups exhibit the largest discrepancies between perceived optimal preparedness strategies and actual preparedness behaviors.
The empirical strategy relies on a conjoint-experiment embedded in a survey of a representative sample of Texas residents. Conjoint (or choice) experiments are used extensively in fields like marketing, economics and political science, as they have proven to be effective for addressing multidimensional issues like responses to natural disasters. Our survey, covering a sample of 1,709 respondents representative of the Texas population, was fielded from June 20 to July 1, 2024, after the May derecho windstorm and before Hurricane Beryl made landfall on July 8. In the conjoint module we asked respondents to choose between two preparedness profiles, varying levels of community support, emergency response time, food and water availability, power generator ownership, emergency services, and savings. Respondents identified which profile best reflected their preparedness and which aligned with how they believe they should

prepare.

The paper provides a new approach to disaster preparedness research by connecting concepts of risk awareness, motivation, and action, by examining the gap between people's aspirations and their actual behaviors. We compare the average marginal component effects of each preparedness attribute based on the likelihood of considering a profile that resembles theirs versus one that represents their ideal preparedness. We find that the gap is larger for individual preparedness strategies than for community-based ones. We observe differences between how individuals prepare and how they think they should prepare along socio-demographic characteristics and previous experience with natural disasters; there is a larger gap among the most vulnerable households, namely those comprised of older, lower-income, and less educated respondents, and a smaller gap among respondents who had previously experienced natural disasters.

We are, thus, able to systematically estimate the intention-behavior preparedness gap in disasters proposed in the literature, finding support for conjectures that perceived preparedness as heterogeneous, resulting from the interaction of subjective risk assessments with individual and community level resources and capabilities (Donahue, Eckel and Wilson, 2014). Our findings suggest that individuals often understand and support what they perceive to be ideal preparedness measures but fall short in practice, possibly due to resource constraints and other barriers. These findings also shift the public policy narratives from attributing a lack of preparedness to disinformation and apathy, to the need to identify structural constraints. Our framework and results could therefore inform the design of targeted policies in disaster response and planning. By identifying groups in need of more assistance and information, policymakers can ensure a more effective allocation of efforts and resources in disaster preparedness.

Related Literature

Existing research on resilience to natural disasters and disaster risk reduction tends to focus on how individuals and communities mitigate, prepare for, respond to, and recover from extreme weather events like heatwaves, tornadoes, floods, hurricanes, and droughts. While these four phases of emergency management are related to each other, the focus of this study is on the preparedness phase.

Although extensive academic literature has been developed on hazards, risk, vulnerability, and disaster management, research focusing on individual and household disaster preparedness remains comparatively limited and inconsistent (Donahue, Eckel and Wilson, 2014; Levac, Toal-Sullivan and OSullivan, 2012). Existing evidence suggests that poorer socioeconomic conditions and limited prior experience with disasters are associated with lower levels of preparedness, whereas individuals with greater financial resources tend to be better prepared (Mishra and Suar, 2012). Studies also show that many people do not fully understand the risks they face (Paton, 2003), are insufficiently prepared for major disasters (Basolo et al., 2009), and often overestimate their own level of preparedness (Blackburn et al., 2025).

FEMA defines preparedness as the ability to develop the capabilities needed to prevent, protect against, respond to, recover from, and mitigate against all threats and hazards, with the goal of achieving safety and

resilience (Federal Emergency Management Agency, 2024). At the individual level, this translates into developing the capability of being ready for events by acquiring the appropriate resources and being able to use them for a fast recovery. Individual preparedness involve activities like being informed, develop a communication and action plan, and taking actions like maintaining a disaster supplies kit (Federal Emergency Management Agency, 2023*b*). It also involves personal characteristics like health status or income level, and contextual factors including social networks and the nature of the disaster (Levac, Toal-Sullivan and OSullivan, 2012).

Recent data from the Federal Emergency Management Agency (2023*a*) National Household Survey suggests that in the US, 51% of adults believe they are prepared for disasters and 57% took three or more preparedness actions, the most common being assembling or updating disaster supplies and making a plan. The least common actions, on the other hand, were planning with neighbors and getting involved in their community Federal Emergency Management Agency (2023*a*). Less is known about how much preparation is enough and what effective preparation looks like (Ryan, Johnston and Taylor, 2022). It is acknowledged that adequate preparation might look different for different households and depending on the natural hazard (Fazeli et al., 2024). Preparedness is also affected by previous experiences, beliefs, and perceptions as well as sociodemographic and cultural characteristics (Shapira, Aharonson-Daniel and Bar-Dayan, 2018). Overall, being or not being prepared depends on many factors and this is why, in part, it is a hard concept to measure (Scovell et al., 2022).

Intention to Prepare

As individual and community level preparation increases, vulnerability to natural hazards is expected to decrease while promoting resiliency (Cutter, Burton and Emrich, 2010). Yet, most people tend to underprepare for natural hazards, and even more for low probability albeit highly consequential events (Lindell and Perry, 2012). Therefore it is key to understand why some people prepare more than others. Research has found that in part, risk perception determines why some people prepare more or less than others, or do not prepare at all.

Preparedness is hard to measure as it might look different for different individuals and communities. Being well or poorly prepared largely depends on many factors such as household needs and resources, household composition, socioeconomic factors, geographic factors, previous experiences and the type of threat(Shapira, Aharonson-Daniel and Bar-Dayan, 2018). Similarly, preparedness is often measured before an event takes place and this tends to obscure the perception of the true level of risk (Cisternas et al., 2024).

To explain variation in preparedness across individuals previous studies have identified risk perception as one of the main motivators of preparedness(Cisternas et al., 2024; Lindell and Perry, 2012). One approach to understand preparedness is by looking at how preparation or intention to prepare is related to the individuals' perceptions of risk (Cisternas et al., 2024). This perceived risk can motivate individuals to take different approaches at the onset of natural hazards. Perceived risk awareness and perception affect the intention to prepare (Cisternas et al., 2024). Similarly, the intention to prepare also depends on the

subjective notion of ideal preparation and own perception of the current level of preparedness.

Earlier empirical studies have found mixed results on the association between risk perception and preparedness, in part because risk perception varies across individuals (Scovell et al., 2022). Still, risk perception and preparedness are linked and, at least in theory, there is a link between risk perception and protective behavior (Cisternas et al., 2024; Lindell and Perry, 2012).

Risk awareness is when individuals know that hazards such as hurricanes, extreme heat, flooding, fires, etc., exist and generate precautionary behaviors. This awareness shapes risk perception, which in the natural hazards disciplines can be defined as a subjective recognition of the probability of a future event happening and resulting in personal and material damage and loss (Cisternas et al., 2024; Ivčević et al., 2021; Lindell and Whitney, 2000; Lindell and Perry, 2012). In addition, risk perception is generally affected by culturally constructed values, beliefs, judgments, biases, and previous experiences (Gibson, 2003) .

People with high risk awareness and perception are more willing to prepare more (Scovell et al., 2022; Cisternas et al., 2024). Previous hazard experiences also relates positively with risk perception and thus, can result in more preparation or precautionary measures. (Kung and chen, 2012; iceve, 2020).

Overall, risk perception and awareness can affect not only the motivation to take action (intention to prepare) but also what is considered ideal preparation based on the set of unique characteristics of each household or individual. Nonetheless, how people end up preparing might be or might not be reflective of the intention or ideal preparation. In this study we examine this gap.

Figure 1: Conceptual Framework: Risk, Preparedness and Resilience

We argue that risk perception and awareness shape not only how individuals prepare for natural disasters, but also what they consider to be ideal preparation. Our focus is to understand the gap between ideal and own preparation: which groups exhibit a smaller gap, and what household and individual characteristics account for these differences. By identifying the factors that affect this gap, we aim to inform more targeted and effective preparedness strategies.

We distinguish between intention to prepare and actual preparedness. This distinction matters because it has been shown that assessing intentions rather than past behavior can help address the measurement problems associated with retrospective assessments of preparedness (Scovell et al., 2022). We also underscore the relationship between household-level characteristics and preparedness: for example, the presence of children in the home has been shown to influence the intention to prepare, but place constraints on the household's ability to prepare better (Shapira, Aharonson-Daniel and Bar-Dayan, 2018). Under-

standing these dynamics is especially important given the need for research on evidence-based strategies for household preparedness (Levac, Toal-Sullivan and OSullivan, 2012).

Texas as the area of study

This study focuses on Texas, a southern State in the United States known for its diverse and fast growing population of 30.5 million. Texas provides a compelling case of study as it leads the nation not only in the frequency but also in the costliness of severe weather events, accounting for 15% of all U.S. billion-dollar disasters (Texas 2036, 2024). From 1980 to 2024, Texas experienced 188 weather and climate events with losses exceeding $1 billion (NOAA National Centers for Environmental Information, 2024). These counts include droughts, floodings, freezes, severe storms, tropical cyclones, wildfires, and winter storms. In the last five years alone, eleven federal disaster declarations have been issued in Texas, most of them affecting the southeast of the state, including the Houston MSA. Recent hurricanes and tropical storms have also hit the Gulf Coast region and have had devastating effects in the southeast of Texas, one of the most frequently affected regions. (see Figure 2) For instance, during the 2024 Hurricane season, Texans endured two devastating extreme weather events: a Derecho in May and Hurricane Beryl in July. The May Derecho caused tornadoes and speedy winds that resulted in major damage to trees, power infrastructure, roofs, and even fatalities, mostly in the greater Houston area. Less than two months later, hurricane Beryl landed in southeast Texas, bringing additional stress to the region with almost $800 million in total Individual & Households Program Dollars Approved by FEMA (FEMA).

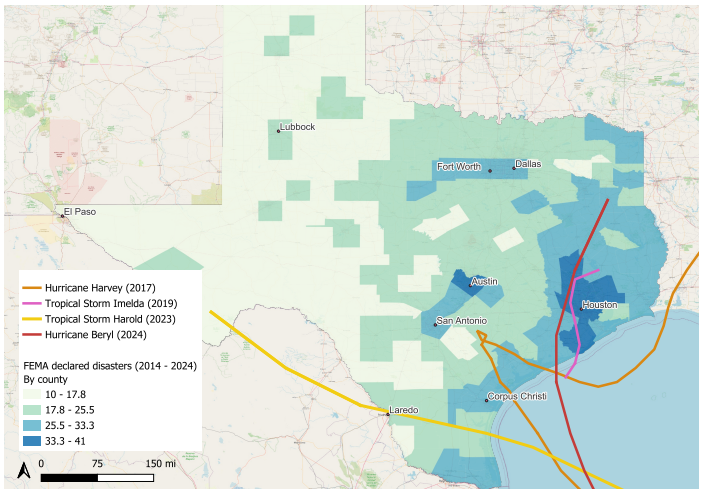

Figure 2: FEMA declared disasters by county in the last decade (2014-2024) and major recent hurricanes and tropical storms. Source: FEMA & NOAA

Experiences with extreme weather within Texas not only vary by geography but also vary across sociodemographic groups, with the most vulnerable lagging behind in terms of preparedness, impact, and recovery. This can be challenging as Texas is one of the fastest-growing states in the nation and the second most populous after California (U.S. Census Bureau, 2023). Its population is relatively young and ethnically and racially diverse, with a large percentage of Hispanics (39.8% compared to 19.5% nationally) compared to other races, including white non-Hispanic (39.6% compared to 58.4% nationally). Texas also has a poverty rate of 13.7% (2.6% higher than the national average) and a median household income of $73,035 (nearly $2,000 less than the Nation's).

As extreme weather events increase, the preparedness of the household for events becomes more relevant. However, preparation strategies not only depend on the intention to prepare but are largely conditional on information and resources available, income, education, previous experiences, and other factors. In 2024, Before Hurricane Beryl, almost 100% of Texans took at least one action to prepare for the 2024 hurricane season, with the most common measure being charging electronics, followed by buying drinking water and non-perishable food. The least common way of preparing for the hurricane season was buying a generator or checking the functionality of one previously purchased (Hobby School of Public Affairs, 2023).

Our aim is to identify the most critical challenges in terms of household preparation for extreme weather events and the importance of understanding preparedness and developing strategies to increase resiliency. The issues faced by Texas residents are not only relevant to the state but also applicable to other regions facing similar challenges in the rest of the country and worldwide.

Empirical Strategy

Conjoint experiments have been a proven tool ideal for sensitive issues such as disaster policies as they reduce social desirability bias (Hartmann, 2023). However, relatively few studies have used conjoint experiments in the context of natural hazards, and most have focused on understanding the preferences of disaster policies and how these preferences affect the choice of the voter (Alberini, Chiabai and Muehlenbachs, 2006; Bechtel and Mannino, 2022; Hartmann, 2023).

In our study, we use a conjoint experiment design to explore the difference between how individuals currently prepare for natural disasters and how they ideally wish to prepare. The survey was conducted at the beginning of the hurricane season in the state of Texas, between June 20 and July 1, 2024. It was administered in English and Spanish to a sample of 2,257 YouGov respondents aged 18 years and older. Of these, 1,709 respondents participated in our experiment.

Using a conjoint experiment allows us to overcome some limitations inherent in previous approaches. Studies using direct questions have often concluded that people tend to over-prepare for natural disasters (add citations). These conclusions are typically based on the number of preparedness measures taken by households. However, we argue that over- or under-preparation depends on the household's ideal preparation, which naturally varies between households of different sizes. For example, the preparation intention of a household with five members, a couple with three children under 18 years of age, would likely involve more items than the preparation intention of a single-person household. If both households prepare in the same way, the first household may be under-preparing, while the second may be over-preparing. This highlights that what constitutes ideal preparation varies by the composition of the household and the characteristics of its members.

Respondents were asked four times to choose between two individual profiles with varying levels of preparation across different attributes. Each pair indicates which profile best represented their ideal of 'best

preparation" and which profile was most closely aligned with how they prepare for natural disasters. Specifically, we asked participants the following questions[1]:

> "In the following screen, you will compare two hypothetical individuals based on their preparedness for a natural disaster in Texas (hurricanes, tornadoes, floods, winter storms, extreme heat, etc.). Carefully evaluate each attribute and decide **which profile is better prepared** and **which one better reflects the way you prepare for natural disasters**. Compare each pair of scenarios independently."

The first question—"Which individual is better prepared?"—addresses the ideal household preparation, while the second question—"Which profile reflects the way your household prepares?"—captures actual preparation.

We analyze seven key attributes to assess emergency preparedness: (A) *Community*, (B) *Nearby Relatives and Friends*, (C) *Emergency Response Time*, (D) *Accessibility of Emergency Services*, (E) *Food and Water Supply*, (F) *Power Generator*, and (G) *Emergency Savings*. Each attribute has distinct levels indicating different degrees of preparedness. *Community* can be classified as (1) lacking support groups or (2) having support groups. *Nearby Relatives and Friends* is categorized as (1) none in proximity or (2) having relatives or friends nearby. *Emergency Response Time* takes six levels: 15, 30, 45, 60, 90, and 120 minutes. *Accessibility of Emergency Services* is evaluated as (1) poorly accessible, (2) moderately accessible, or (3) highly accessible. *Food and Water Supply* ranges from (1) no supply to (6) sufficient for 14 days, with levels at 1, 3, 5, 7, and 14 days. *Power Generator* is classified as (1) does not have a generator or (2) has a generator. *Emergency Savings* takes nine levels: no savings; $1–$999; $1,000–$1,999; $2,000–$2,999; $3,000–$3,999; $4,000–$4,999; $5,000–$9,999; $10,000–$50,000; and more than $50,000.

Table 1 shows the list of attributes and their levels, the number of occurrences of each level, and the frequency and percentage of times a profile with those levels was chosen for the two questions: 'Which profile is better prepared?" and Which profile reflects the way they prepare for natural disasters."

Measuring Preparedness

Our analysis focuses on understanding how individuals evaluate and relate to different preparedness profiles in the context of natural disasters. The conjoint experiment asked respondents to answer two distinct questions:

1. Which profile is better prepared?
2. Which profile reflects the way your household prepares?

These responses correspond to two binary dependent variables: (1) *Best Prepared* (ideal preparation) and (2) *Prepared Alike* (self-identified behavior). Each outcome is coded as a binary choice (1 = profile selected; 0 = not selected). These variables are analyzed independently.

[1] An example of the conjoint screen respondents saw in our survey can be found in Appendix A1.

		Best Prepared		Prepared Like Respondent	
	Occurrence No.	Chosen No.	Percent Chose	Chosen No.	Percent Chose
Community					
No community support groups	6,973	3,077	44.1	3,241	46.5
Has community support groups	6,699	3,759	56.1	3,595	53.7
Relatives					
No relatives or friends nearby	6,794	3,067	45.1	3,199	47.1
Relatives or friends nearby	6,878	3,769	54.8	3,637	52.9
Emergency Response Time					
15 minutes	2,265	1,206	53.2	1,173	51.8
30 minutes	2,296	1,186	51.7	1,174	51.1
45 minutes	2,299	1,140	49.6	1,144	49.8
60 minutes	2,222	1,135	51.1	1,121	50.5
90 minutes	2,263	1,085	47.9	1,106	48.9
120 minutes	2,327	1,084	46.6	1,118	48.0
Emergency Services					
Poorly accessible	4,551	2,026	44.5	2,096	46.1
Moderately accessible	4,574	2,315	50.6	2,316	50.6
Easily accessible	4,547	2,495	54.9	2,424	53.3
Food and Water					
No food or water	2,264	598	26.4	742	32.8
1 day supply	2,255	825	36.6	914	40.5
3 days supply	2,331	1,173	50.3	1,204	51.7
5 days supply	2,246	1,296	57.7	1,256	55.9
7 days supply	2,246	1,352	60.2	1,325	59.0
14 days supply	2,330	1,592	68.3	1,395	59.9
Power Generator					
Does not have a generator	6,850	2,873	41.9	3,240	47.3
Has a generator	6,822	3,963	58.1	3,596	52.7
Emergency Savings					
None	1,479	573	38.7	697	47.1
0 to $999	1,496	651	43.5	725	48.5
$1,000 to $1,999	1,550	791	51.0	809	52.2
$2,000 to $2,999	1,503	733	48.8	737	49.0
$3,000 to $3,999	1,549	760	49.1	793	51.2
$4,000 to $4,999	1,502	815	54.3	792	52.7
$5,000 to $9,999	1,573	806	51.2	826	52.5
$10,000 and $50,000	1,498	856	57.1	715	47.7
More than $50,000	1,522	851	55.9	742	48.8

Table 1: List of attributes and their levels, along with the number of occurrences of each level, and the frequency and percentage of times a profile with those levels was chosen for the two questions: "Which profile is better prepared?" and "Which profile reflects the way they prepare for natural disasters."

For each outcome, we estimate separate conditional logit models predicting the likelihood that a given profile is chosen as either *best prepared* or *prepared like me*, based on its preparedness features. The models take the following form:

$$Choice_{it} = \beta_0 + \beta_1 C_{jti} + \beta_2 R_{jti} + \beta_3 RT_{jti} + \beta_4 ES_{jti} + \beta_5 FW_{jti} + \beta_6 G_{jti} + \beta_7 S_{jti} + \epsilon_{it}. \quad (1)$$

The dependent variable, $Choice_{it}$, refers to whether respondent i in trial t selected profile j as either *best prepared* or *prepared alike*. Separate regressions are estimated for each outcome. Each explanatory variable corresponds to a specific attribute of the profile: C_{jti} represents *Community Support*, R_{jti} represents *Relatives Nearby*, RT_{jti} represents *Emergency Response Time*, ES_{jti} represents *Emergency Services Accessibility*, FW_{jti} represents *Food and Water Supply*, G_{jti} represents *Power Generator* ownership, and S_{jti} represents *Emergency Savings*.

All attributes are categorical variables with multiple levels. The regression coefficients reflect the effect of each level relative to a reference category, which was selected to represent a baseline of "no preparation" wherever possible (for example, for FW_{jti}, the reference is "no food or water stocked"). When' no preparation" was not applicable, the least favorable scenario served as the baseline (for example, for RT_{jti}, the reference level is a 120-minute response time).

This modeling approach enables us to compare how the same preparedness attribute influences perceptions of *ideal* versus *actual* preparedness. After estimating each model, we compare the Average Marginal Component Effects (AMCEs) at the attribute level to identify the largest disparities. These comparisons serve as the foundation for our substantive analysis in the results section, where we investigate the circumstances that lead respondents' ideals to differ from their self-reported behavior.

Expectations

We propose four main sets of expectations regarding the gap in preparedness. We argue that these gaps can come from four different sources. First, the gap in preparedness may result from very high expectations or demands about what constitutes ideal preparation. Second, it may be due to barriers and limitations encountered when actually preparing for blackouts. Third, the gap could arise from differing preparation strategies, where one dimension is emphasized over others as a form of substitution. Finally, the gap in preparedness may reflect a lack of prior experience with preparation. The following paragraphs describe these mechanisms in more detail.

Heterogeneous Perceptions of Ideal Preparedness. Our first explanation for the gap in preparedness is the high expectation of ideal preparedness. We contend there is no universally perfect way to prepare for a disaster. A level of preparedness that may be sufficient or ideal for one household may be insufficient, unnecessary, or costly for another, depending on differences in household composition, resources, preferences, and constraints (Cisternas et al., 2024).For example, the ideal preparation for a household consisting of a couple and a child under 18 years old might be excessive compared to the ideal preparation for a single-person household. Households with children, especially young children, may require more

sophisticated preparation, including items such as baby formula, diapers, or specific medications.

Therefore, we expect that the preparedness gap will be *greater* in households where the ideal preparation is more demanding. Specifically, we test the following hypothesis:

H1: *The preparedness gap across attributes is larger in households with children under 18 years old.*

Barriers to Actual Preparedness. The second expectation focuses on the role of resources in achieving actual preparedness. Unlike ideal preparedness, which depends on household composition, actual preparedness is limited by the resources available to each household. For example, consider two similar households with identical ideal preparedness requirements. If one household has more economic resources than the other, it will likely invest more in preparing for natural disasters, reducing the preparedness gap compared to the less affluent household.

Therefore, we hypothesize that the preparedness gap will be *larger* in households where achieving actual preparedness is *more challenging due to limited resources*. Specifically, we expect:

H2: *The preparedness gap across attributes is larger in households with lower household income.*

Substitution and Complementarity in Preparedness Measures. The third set of expectations examines how preparedness measures substitute for or complement one another. Different preparations serve distinct purposes in reducing uncertainty. For instance, stocking food and water addresses basic survival needs while maintaining strong community ties or having relatives and friends nearby alleviates concerns regarding access to immediate assistance. Additionally, building emergency savings helps mitigate financial uncertainty.

However, we anticipate that some preparedness measures complement each other, while others can serve as substitutes. From the perspective of complementarity in preparations, stocking food and water complements having a power generator, as both enhance safety and comfort during a disaster in different ways. In contrast, measures such as building emergency savings and maintaining strong community ties may overlap, as both address access to resources in times of need.

Alternatively, from the perspective of substitution among preparation strategies, homeowner or renter insurance may substitute for some forms of disaster preparedness by providing a financial safety net against losses and damages (Botzen, Kunreuther and Michel-Kerjan, 2019). By transferring part of the financial consequences of a disaster to an insurer, insurance potentially reduces households' perceived need to undertake certain forms of emergency preparedness. Empirical evidence supports this substitution mechanism, (Botzen, Kunreuther and Michel-Kerjan, 2019) particularly for preparedness measures undertaken when a disaster is imminent, although insurance may complement longer-term investments in physical risk reduction (Cutler, Finkelstein and McGarry, 2008).

For instance, consider two households with the same composition, ideal preparedness requirements, and financial resources. If one household has insurance and the other does not, the insured household may

have a larger preparedness gap, as they allocate resources towards insurance rather than investing in measures such as food, water, or a generator. Similarly, households without community or family support nearby may rely on insurance to address uncertainty about the lack of a social safety net.

This substitution effect reflects a trade-off where *insurance alleviates uncertainty* but potentially *reduces investment in preparedness* measures. Therefore, we expect:

H3: *The preparedness gap across attributes is larger in households with homeowner or rental insurance for natural disasters compared to those without insurance.*

Experience with Natural Disasters. The final set of hypotheses focuses on the role of prior experience with natural disasters. As shown in Figure 2, Texas is a region with significant exposure to disasters such as hurricanes, floods, and blackouts, and a portion of our sample has firsthand experience with these events. Empirical evidence supports that previous experiences with natural disasters increase the willingness to prepare for future events (Malmin, 2021; Cong, Feng and Chen, 2023).
We argue that prior experience serves as a valuable source of information for both ideal and actual preparedness. **Households with disaster experience are likely to better understand effective preparation strategies and the cost-benefit trade-offs of preparing versus not preparing**. As a result, these households may exhibit smaller gaps between their ideal and actual preparedness. Therefore, we expect:

H4: *Households that have previously experienced natural disasters will have a smaller preparedness gap compared to households with no such experience.*

Gap in Preparedness

We begin by presenting the results for the full sample. Figure 3 shows the average marginal component effect (AMCE) for the original choice task (Bansak et al., 2023).[2] Estimates in salmon represent the AMCEs for the **best prepared** profile choice, while those in aquamarine correspond to the **prepared like me** choice. For all **attributes**, the reference category reflects either the absence of preparedness or, when that is not feasible, the least favorable **level**. For example, for the **power generator** attribute, the reference is having no generator (indicating a lack of preparedness), whereas for **emergency services**, the reference category is the worst possible scenario—namely, poorly accessible emergency services.

The results in Figure 3 reveal a consistent gap between what respondents perceive as ideal preparedness and how they describe their own preparedness behavior. Across most **attributes**, the AMCEs are consistently larger in the **best prepared** model than in the **alike prepared** model, indicating that respondents evaluate hypothetical profiles as being better prepared when they include more resources and infrastructure—even if they do not identify with those same **attribute levels** themselves. In other words, there is a persistent gap in perceived versus self-reported preparedness. Our goal is to identify under which conditions that gap becomes larger or smaller.

[2] The estimations in Panel A were conducted using a conditional logit choice model (McFadden, 1972).

Having **longer food and water supplies**, **easily accessible emergency services**, and **substantial emergency savings** significantly increases the likelihood that a profile is selected as **best prepared**. However, these same **attribute levels** have weaker (**food and water supplies**, **emergency services**) or null effects (**emergency savings**, **emergency response time**) on whether a profile is considered **prepared like me**. The presence of a **power generator** and higher levels of **emergency savings** (particularly amounts above $10,000) also show strong effects on perceived ideal preparedness but much smaller or no influence in the **alike prepared** model. Additionally, while **faster emergency response times** are associated with higher perceived preparedness, they do not significantly influence respondents' self-identification with the profile.

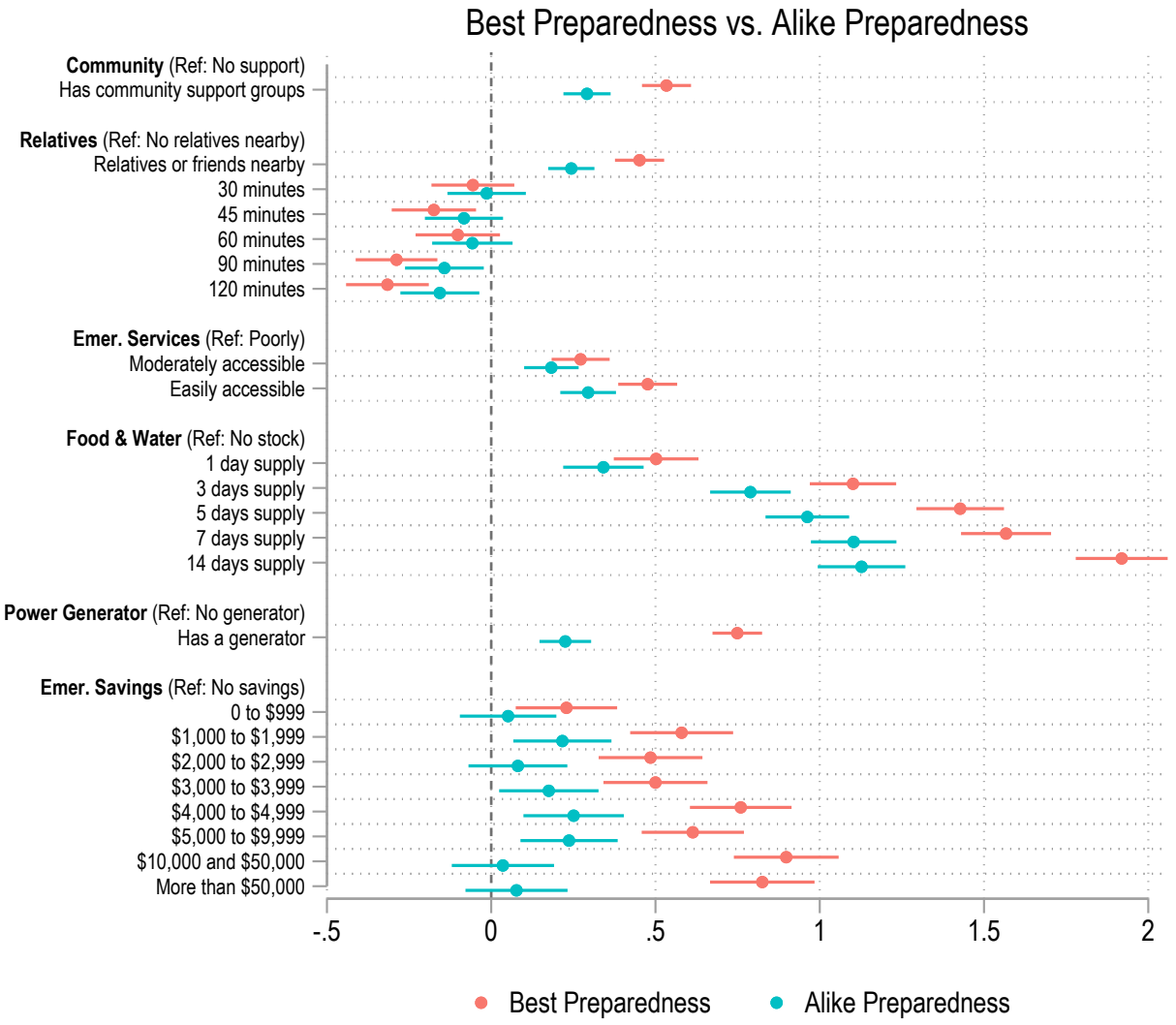

Figure 3: Average Marginal Component Effects (AMCE) of preparedness attributes on perceived preparedness. Each point shows the estimated effect of an attribute level on the probability of selecting a profile as Best Prepared or Prepared Alike, relative to a reference category. Lines denote 95% confidence intervals.

In contrast, for some **attributes**—such as having **community support groups**, **nearby relatives or friends**, and **moderately accessible emergency services**—we observe relatively similar AMCEs across both models. This suggests that respondents tend to align their actual behavior with what they believe constitutes ideal preparedness for these aspects. Overall, the results indicate a clear divergence between respondents' ideals and the practical realities of their preparedness efforts.

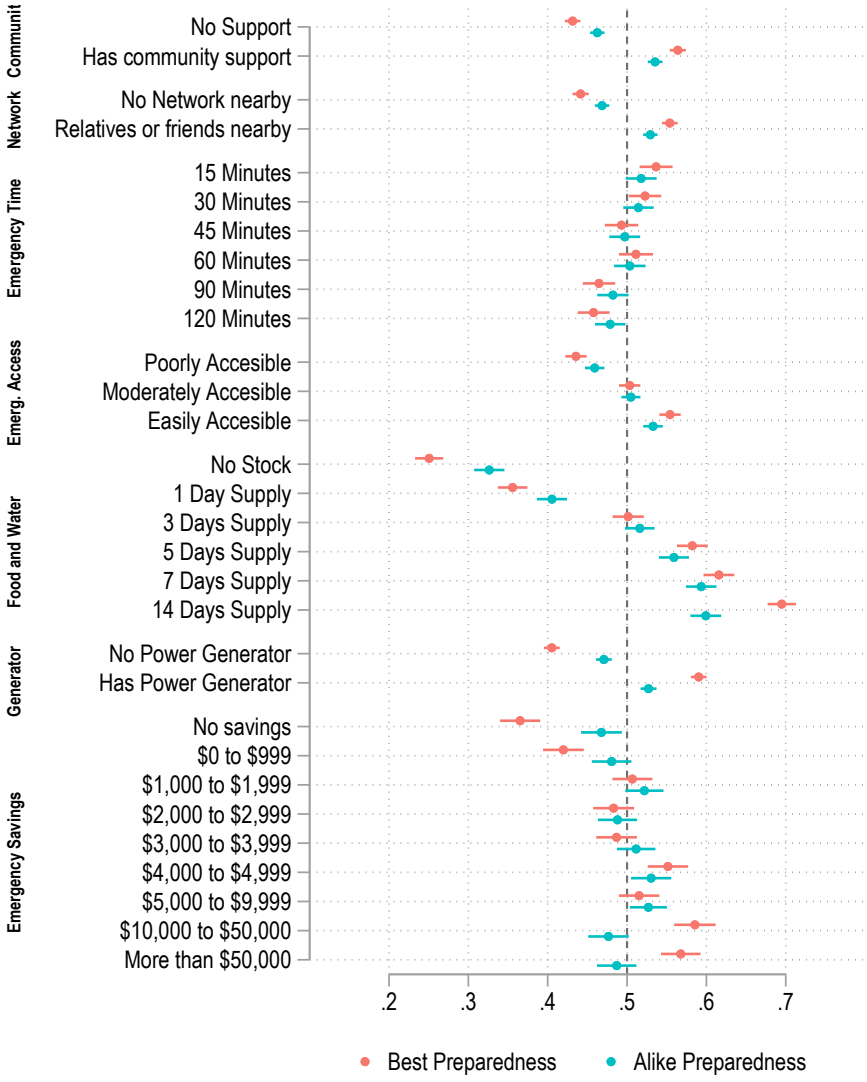

Figure 4: Dots show average predicted probabilities that a profile is chosen as the one *best prepared* (Salmon) or *most like the respondent's own preparedness* (Aquamarine), across all attribute levels. Horizontal bars indicate 95% confidence intervals.

As suggested by Bansak et al. (2023), marginal predictions offer a more interpretable comparison across conjoint models, particularly when the underlying logits differ in their intercepts. Figure 4 reports these marginal predicted probabilities, averaging over the distribution of all other attributes. Consistent with

Figure 3, the results show that the likelihood a profile is judged *best prepared* increases sharply as food and water supplies grow, emergency response times shorten, and emergency savings rise. Households with no stored supplies or minimal savings have predicted probabilities of being chosen as best prepared that rarely exceed 25%, whereas profiles with extended reserves or substantial savings are more than twice as likely to be selected. Across nearly all attributes, respondents apply stricter standards when identifying the *best prepared* profile than when judging which profile most resembles their own preparedness, suggesting that assessments of others' preparedness are more demanding than self-comparisons.

Heterogeneous Effects

Ideal Preparedness. We now proceed to test our set of hypotheses about the factors that make the gap in preparedness larger or smaller. To do so, we adopt the same approach used in Figure 3, comparing perceptions of **best** and **alike** preparedness across profiles. However, we now analyze the data by *subsamples*. Our first hypothesis states that **the preparedness gap across attributes is larger in households with children under 18 years old**, as having children requires more extensive preparation. Figure A1 presents the results separately for *households without children under 18* (left) and *households with children under 18* (right).

Contrary to our expectations, **the preparedness gap tends to be narrower among households with children under 18**. The difference between the **best** and **alike** preparedness models is generally smaller across many **attributes** for this group, suggesting that these respondents may have more realistic or aligned perceptions of ideal versus actual preparedness. In other words, parents may anchor their preparedness expectations more closely to their lived realities, possibly due to practical constraints or heightened responsibility.

By contrast, *households without children* display a **larger preparedness gap**, particularly for **emergency response time** (e.g., 30–60 minutes), **emergency savings** (especially at higher levels), **food and water supply** (notably 3–7 days), and **power generator ownership**. This pattern implies that childless households are more likely to idealize a higher standard of preparedness while acknowledging that their actual practices fall short. Taken together, these results **do not support our first hypothesis**. Instead, they suggest that the **gap between ideal and self-identified preparedness is larger in households without children**, whereas *households with children* demonstrate a more modest gap.

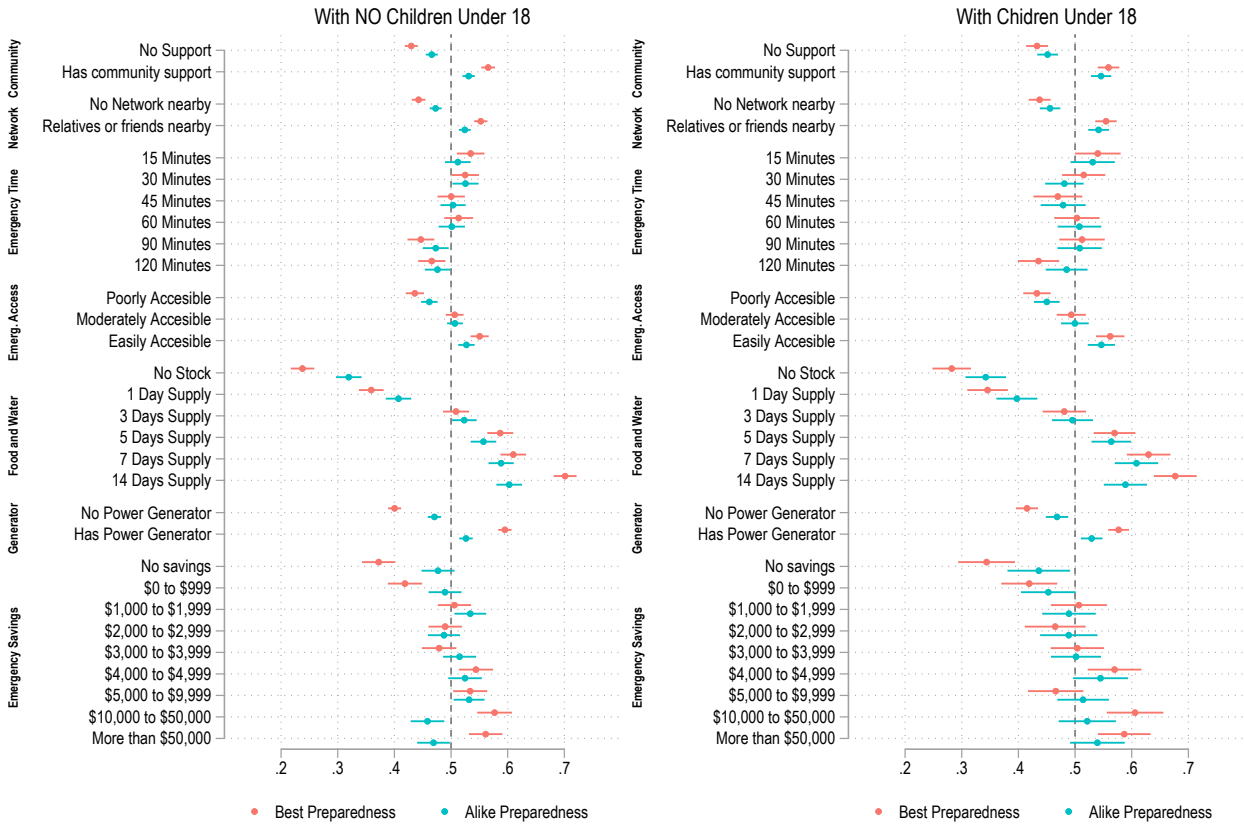

Figure 5: Caption

Barriers to Actual Preparedness. Our second hypothesis states that **the preparedness gap across attributes is larger in households with below-average income** because they may recognize ideal preparedness standards but face resource constraints that limit actual adoption. Figure A2 presents AMCEs for **best** and **alike** preparedness for *below-* and *above-average income households*.

The results provide support for this hypothesis. In the *below-average income* group, we observe wider gaps between the **best prepared** and **alike prepared** models across several key **attributes**, including **emergency savings**, **food and water supply**, and **power generator ownership**. These gaps suggest that lower-income respondents recognize high-resource preparedness strategies as ideal, but are less likely to implement them. In contrast, the *above-average income* group shows more alignment between the two models, particularly for **emergency response time**, **emergency services**, and **emergency savings**, suggesting they are both more likely to value and to adopt these preparedness strategies.

Substitution and Complementarity in Preparedness Measures. Our third hypothesis posits that **the preparedness gap across attributes is larger in households with homeowner or rental insurance**. This expectation stems from the idea that insurance can serve as a substitute for other preparedness investments by reducing perceived risk. Figure A3 compares insured and uninsured *households*.

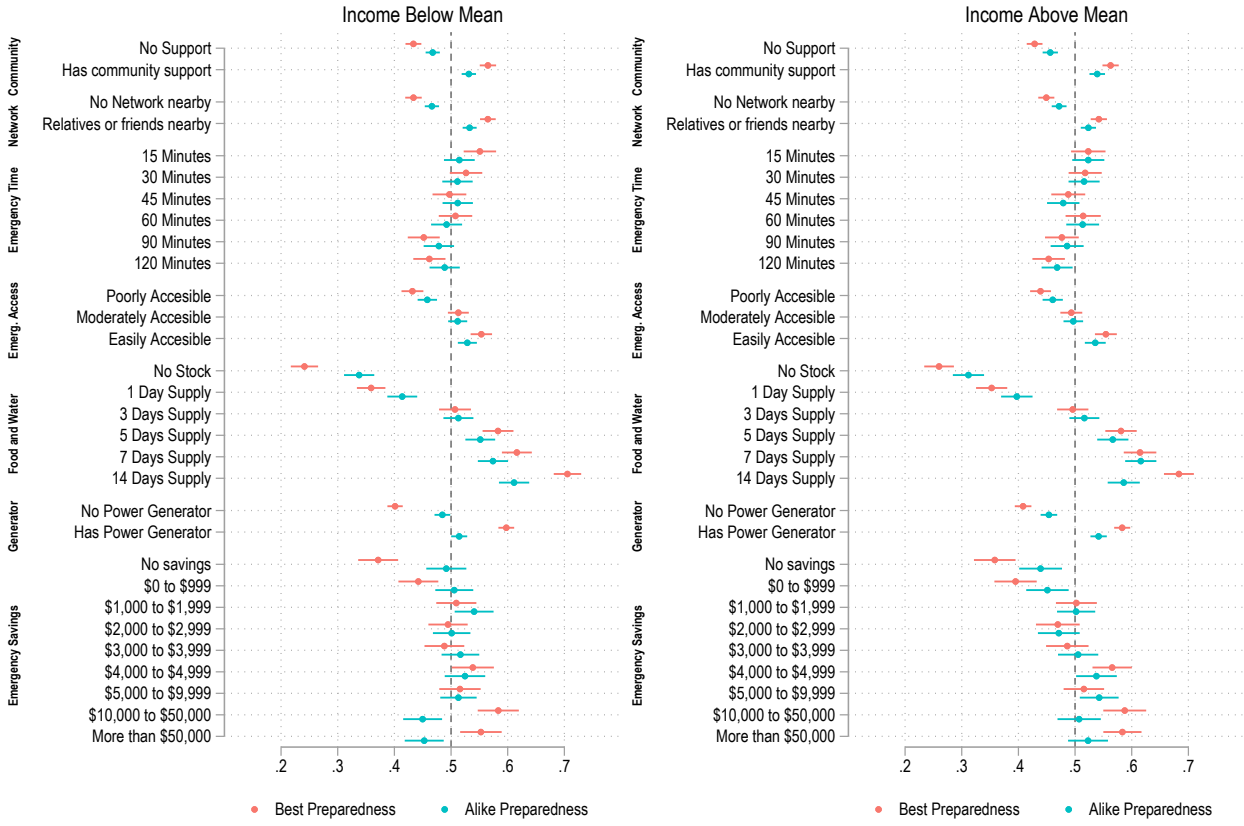

Figure 6: Caption

The results are consistent with our hypothesis. Among *insured households*, we observe wider gaps for **food and water supply**, **emergency savings**, and **power generator ownership**, suggesting that these respondents recognize high-resource strategies as ideal but may rely on insurance as a safety net. *Uninsured households*, in contrast, show more alignment across models, particularly for **community support**, **emergency services**, and **food and water availability**. These findings support the notion that insurance reduces urgency to invest in other preparedness strategies.

Experience with Natural Disasters. Our fourth hypothesis suggests that **households with prior experience of blackouts should exhibit a smaller preparedness gap**, as past experiences may inform both perceived ideal and actual preparedness behaviors. Figure A4 shows results for those with and without blackout experience.

Contrary to expectations, the preparedness gap remains broadly similar across the two groups. We continue to observe large gaps for high-resource **attributes** such as **emergency savings**, **food and water supply**, and **power generator ownership**, regardless of blackout experience. The one exception is found in the highest **emergency savings** level, where the gap narrows substantially among *respondents with prior blackout experience*. This may suggest that individuals with experience view financial resources as a key preparedness strategy, while those without such experience may underestimate its importance.

Table 2: Summary of hypotheses and empirical results

Hyp.	Concept	Empirical pattern	Result	Location
H1	Ideal Preparedness	Larger differences by children: bigger gaps in childless households	Not supported	Main
H2	Barriers	Gap widens as household income falls: strong gradient by resources	Supported	Main
H3	Substitution	Only small differences by insurance coverage	Partial Support	Appendix
H4	Experience	Minor changes in gaps with prior emergency experience	Partial Support	Appendix

Conclusion

This paper analyzes how household disaster preparedness is measured by comparing respondents' own definitions of ideal preparedness with their assessments of their own preparation levels. Using a conjoint experiment embedded in a representative survey of 1,709 Texas residents, fielded between the May 2024 derecho and Hurricane Beryl, we estimate the gap between perceived ideal and actual preparedness across seven dimensions. This approach provides a measure of the intention–behavior gap discussed in the preparedness literature (Scovell et al., 2022). We find that this gap is concentrated in resource-intensive strategies. Respondents identify generators, emergency savings, and extended food and water reserves as

important features of preparedness but are less likely to report having them. Gaps are smaller for social support networks, nearby relatives and friends, and access to emergency services.

The heterogeneous results provide evidence that resources shape these gaps, while also departing from some of our expectations. Contrary to H1, households with children under 18 had narrower gaps than households without children. Consistent with H2, gaps widened as income declined: lower-income respondents valued resource-intensive strategies but were less likely to report adopting them, suggesting that financial constraints limit their ability to act on their preparedness ideals. We find partial support for H3, as insured households showed somewhat wider gaps for resource-intensive attributes, consistent with some substitution between insurance and other preparedness investments. Evidence for H4 was also mixed: prior blackout experience was associated with similar gaps across most dimensions, although respondents with prior experience had a smaller gap at the highest level of emergency savings.

These findings suggest that observed shortfalls in preparedness do not necessarily reflect a lack of knowledge about what preparation entails. Many households appear to recognize the value of costly preparedness measures but lack the resources to adopt them. Policies focused only on information may therefore have limited effects when the main constraint is financial. Programs that reduce the cost of generators, emergency supplies, or emergency savings may help address the dimensions with the largest gaps, particularly for lower-income households. At the same time, the smaller gaps for community-based measures suggest that strengthening social networks and access to emergency services can complement individual investments without placing the same financial burden on households.

Several limitations remain. Our measure captures perceived rather than observed preparedness, so future work should test whether these gaps predict behavior during disasters. The study is also limited to Texas and to a single period during the 2024 hurricane season. Research across other locations, hazards, and time periods could assess how general these patterns are and whether preparedness ideals and behavior change following disaster exposure. More broadly, measuring preparedness relative to households' own ideals helps distinguish between households that do not view an action as necessary and those that value it but cannot undertake it. That distinction can help identify where barriers to preparedness arise and which interventions are most likely to reduce them.

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Supplementary Materials

for "Bracing for the Storm: Ideal vs Actual Preparedness Strategies for Natural Disaster in Texas"

by Maria Paula Perez Argüelles, Agustin Vallejo, Gail Buttorff, Pablo M. Pinto, and M. C. Sunny Wong.

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A1 Example of Conjoint Experiment

University Logo

In the following screen, you will compare two hypothetical individuals based on their preparedness for a natural disaster in Texas (hurricanes, tornadoes, floods, winter storms, extreme heat, etc.). Carefully evaluate each attribute and decide which profile is better prepared and which one better reflects the way you prepare for natural disasters. Compare each pair of scenarios independently.

Attribute	**Profile A**	**Profile B**
Community	No support	Has community support groups
Relatives	No relatives nearby	Relatives or friends nearby
Emergency Response Time	45 minutes	30 minutes
Emergency Services	Easily accessible	Moderately accessible
Food & Water	3 days supply	No stock
Power Generator	No generator	Has a generator
Emergency Savings	$2,000 to $2,999	No savings

Which profile is best prepared for a natural disaster?

- **Profile A**
- **Profile B**

Which profile looks like the way you prepare for natural disasters?

- **Profile A**
- **Profile B**

Table A1: An Example of the Conjoint Experiment.

A2 Table and Coefficients Plot with AMCE for Preparedness: Best Prepared vs. Prepared Like Me

	Best Prepared		Prepared Like Me	
Community. Ref: No support				
Has community support groups	0.50***	(0.09)	0.32***	(0.09)
Relatives. Ref: No relatives nearby				
Relatives or friends nearby	0.45***	(0.09)	0.29***	(0.08)
Emer. Response Time. Ref: 15 min				
30 minutes	0.20	(0.15)	0.27*	(0.15)
45 minutes	-0.13	(0.15)	-0.15	(0.15)
60 minutes	-0.01	(0.15)	0.14	(0.14)
90 minutes	-0.13	(0.15)	0.02	(0.15)
120 minutes	-0.33**	(0.15)	0.04	(0.14)
Emer. Services. Ref: Poorly				
Moderately accessible	0.23**	(0.10)	0.23**	(0.10)
Easily accessible	0.58***	(0.11)	0.44***	(0.10)
Food & Water. Ref: No stock				
1 day supply	0.51***	(0.16)	0.54***	(0.16)
3 days supply	1.20***	(0.15)	0.97***	(0.15)
5 days supply	1.22***	(0.16)	0.85***	(0.16)
7 days supply	1.30***	(0.16)	1.10***	(0.16)
14 days supply	1.83***	(0.16)	1.27***	(0.16)
Power Generator. Ref: No generator				
Has a generator	0.83***	(0.09)	0.19**	(0.09)
Emer. Savings. Ref: No savings				
0 to $999	0.41**	(0.19)	0.17	(0.18)
$1,000 to $1,999	0.53***	(0.19)	0.06	(0.19)
$2,000 to $2,999	0.38**	(0.19)	-0.01	(0.18)
$3,000 to $3,999	0.52***	(0.20)	0.01	(0.19)
$4,000 to $4,999	0.70***	(0.20)	0.13	(0.19)
$5,000 to $9,999	0.42**	(0.19)	-0.07	(0.18)
$10,000 to $50,000	0.84***	(0.20)	0.11	(0.20)
More than $50,000	1.01***	(0.20)	-0.01	(0.19)
2 Constant	0.10	(0.10)	-0.10	(0.10)
3 Constant	-0.03	(0.11)	-0.00	(0.10)
4 Constant	-0.06	(0.11)	-0.18*	(0.10)
Observations	3488		3288	

Stars indicate statistical significance levels. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.
Standard errors in parentheses

Table A2: Preparedness Profiles: Best Prepared vs. Prepared Like Me (full sample). The Table shows coefficients presented in Figure 3.

A3 Table and Coefficients Plot with AMCE for Preparedness: Best Prepared vs. Prepared Like Me for respondents with children and with no children under 18 years old at home

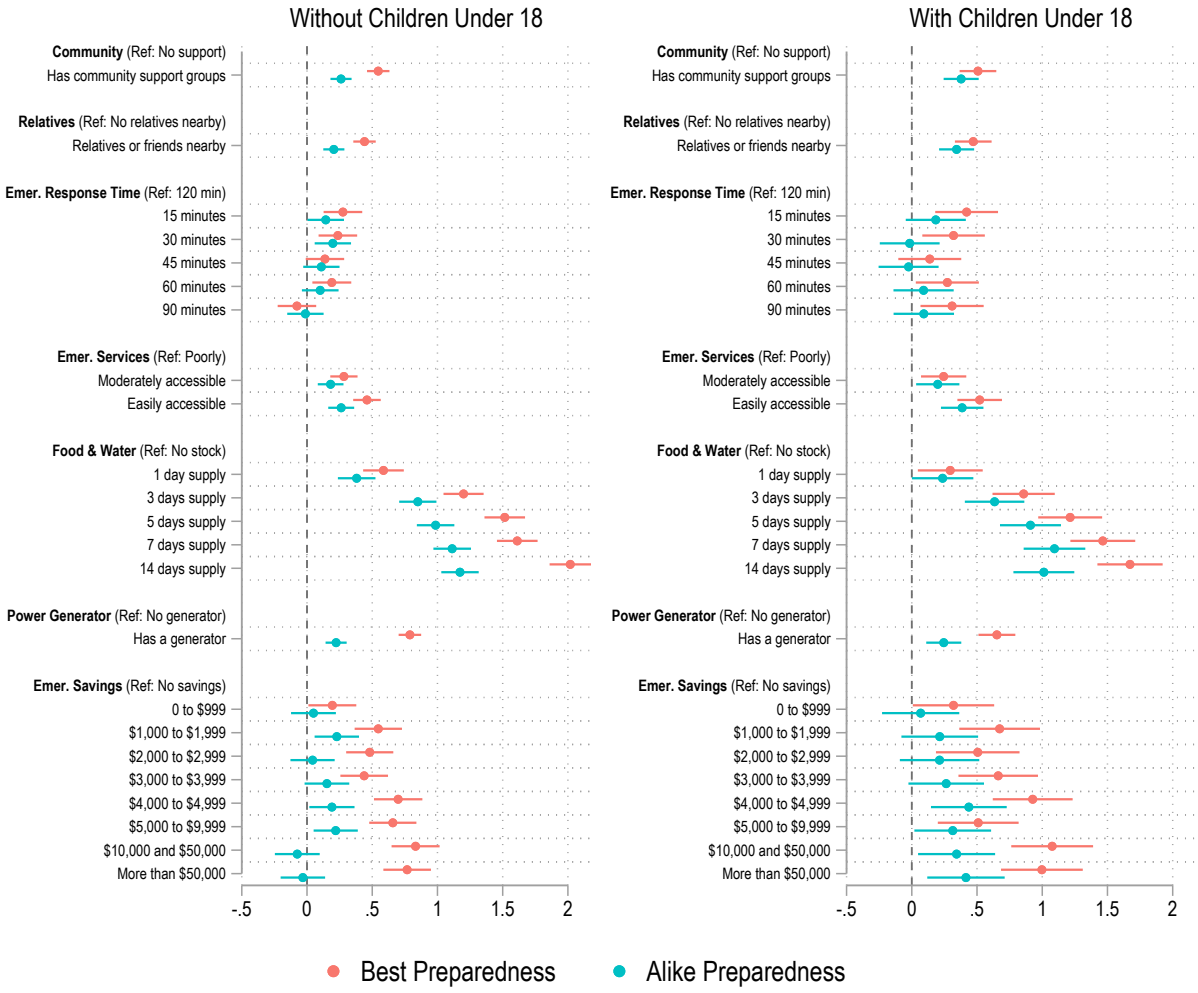

Figure A1: AMCEs by child presence in the household. Effects shown for Best Prepared and Prepared Alike. Lines denote 95% confidence intervals.

Table A3: Logit models of perceived preparedness, by presence of children under age 18 in the household

	(1)	(2)	(3)	(4)
	No Children Under 18		Has Children Under 18	
	Best prepared	Best prepared	Prepared like me	Prepared like me
No community support groups	*Reference category*			
Has community support groups	0.546***	0.507***	0.261***	0.378***
	(0.045)	(0.073)	(0.043)	(0.072)
No relatives or friends nearby	*Reference category*			
Relatives or friends nearby	0.441***	0.471***	0.206***	0.344***
	(0.045)	(0.073)	(0.041)	(0.072)
15 minutes	*Reference category*			
30 minutes	-0.039	-0.100	0.054	-0.200*
	(0.076)	(0.121)	(0.072)	(0.113)
45 minutes	-0.138*	-0.283**	-0.034	-0.209*
	(0.075)	(0.134)	(0.069)	(0.127)
60 minutes	-0.085	-0.148	-0.042	-0.094
	(0.077)	(0.125)	(0.072)	(0.124)
90 minutes	-0.353***	-0.112	-0.156**	-0.092
	(0.075)	(0.121)	(0.071)	(0.119)
120 minutes	-0.275***	-0.420***	-0.144**	-0.184
	(0.076)	(0.123)	(0.071)	(0.122)
Poorly accessible	*Reference category*			
Moderately accessible	0.283***	0.244***	0.181***	0.199**
	(0.054)	(0.083)	(0.050)	(0.080)
Easily accessible	0.460***	0.520***	0.262***	0.386***
	(0.055)	(0.083)	(0.051)	(0.081)
No food or water	*Reference category*			
1 day supply	0.586***	0.295**	0.381***	0.236**
	(0.079)	(0.120)	(0.075)	(0.114)
3 days supply	1.200***	0.857***	0.849***	0.635***
	(0.079)	(0.125)	(0.075)	(0.116)
5 days supply	1.516***	1.214***	0.986***	0.910***
	(0.082)	(0.123)	(0.077)	(0.120)
7 days supply	1.612***	1.464***	1.113***	1.094***
	(0.083)	(0.130)	(0.078)	(0.128)
14 days supply	2.018***	1.673***	1.173***	1.012***
	(0.084)	(0.137)	(0.080)	(0.132)
Does not have a generator	*Reference category*			
Has a generator	0.789***	0.652***	0.223***	0.245***
	(0.045)	(0.073)	(0.047)	(0.077)
None	*Reference category*			
0 to $999	0.194**	0.320**	0.049	0.068
	(0.092)	(0.154)	(0.086)	(0.153)
$1,000 to $1,999	0.546***	0.673***	0.228***	0.214
	(0.093)	(0.157)	(0.087)	(0.159)
$2,000 to $2,999	0.481***	0.505***	0.043	0.213
	(0.092)	(0.165)	(0.087)	(0.163)
$3,000 to $3,999	0.438***	0.662***	0.153*	0.264*
	(0.094)	(0.160)	(0.089)	(0.159)
$4,000 to $4,999	0.699***	0.927***	0.191**	0.437***
	(0.091)	(0.160)	(0.089)	(0.163)
$5,000 to $9,999	0.658***	0.509***	0.220**	0.314**
	(0.093)	(0.153)	(0.088)	(0.151)
$10,000 to $50,000	0.832***	1.076***	-0.075	0.343**
	(0.094)	(0.162)	(0.091)	(0.164)
More than $50,000	0.768***	0.997***	-0.032	0.415**
	(0.095)	(0.159)	(0.091)	(0.163)
Constant	-2.665***	-2.456***	-1.281***	-1.454***
	(0.116)	(0.190)	(0.107)	(0.192)
Observations	10000	3672	10000	3672

Clustered standard errors (by respondent) in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; two-tailed tests.

A4 Table and Coefficients Plot with AMCE for Preparedness: Best Prepared vs. Prepared Like Me for respondents below median income and above median income

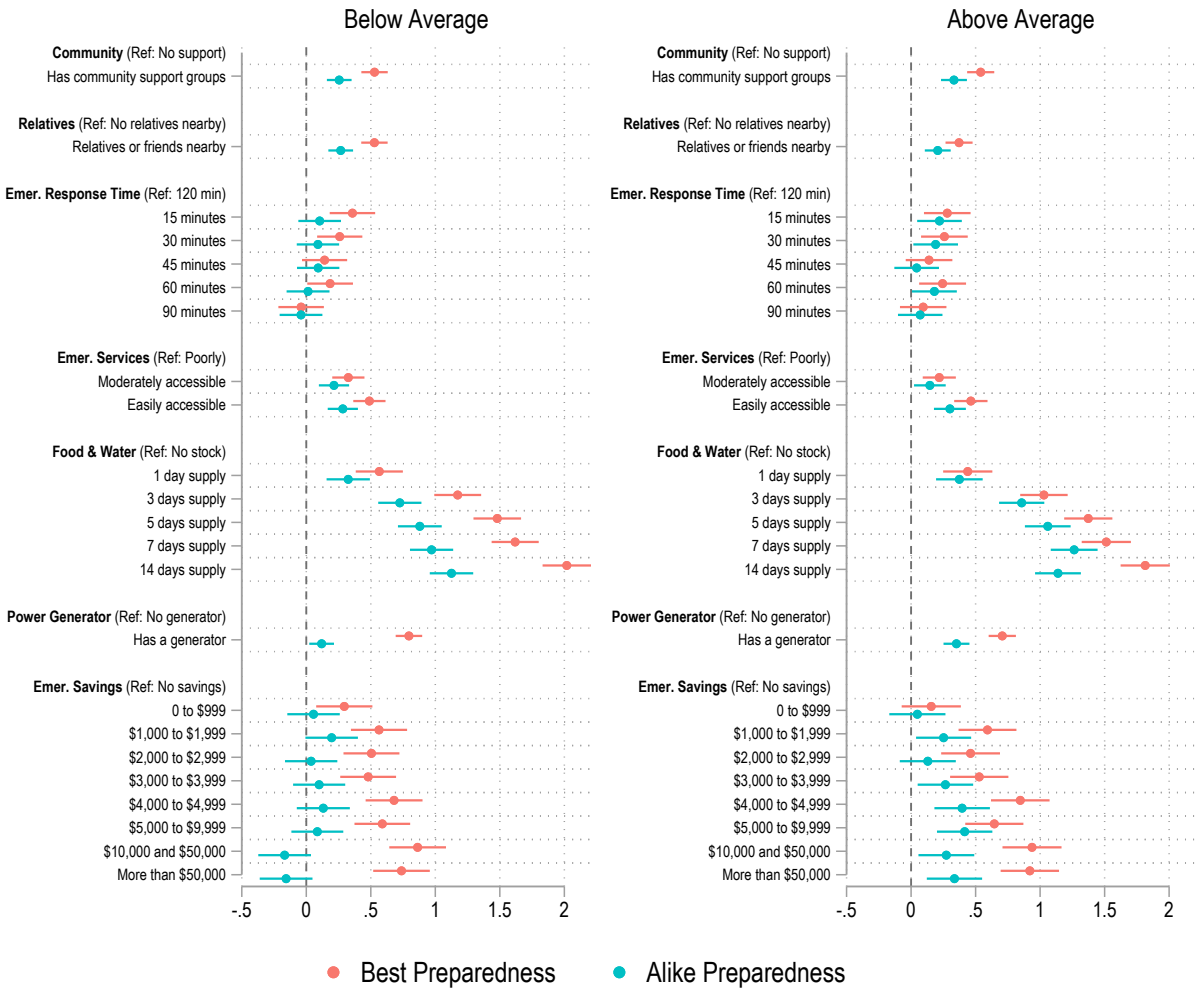

Figure A2: AMCEs by household income level. Effects shown for Best Prepared and Prepared Alike. Lines denote 95% confidence intervals.

Table A4: Logit models of perceived preparedness, by household income (below vs. above Mean)

	(1)	(2)	(3)	(4)
	Income below cutoff		Income above cutoff	
	Best prepared	Best prepared	Prepared like me	Prepared like me
No community support groups	*Reference category*			
Has community support groups	0.529***	0.540***	0.255***	0.332***
	(0.054)	(0.054)	(0.050)	(0.054)
No relatives or friends nearby	*Reference category*			
Relatives or friends nearby	0.528***	0.372***	0.267***	0.207***
	(0.054)	(0.054)	(0.050)	(0.052)
15 minutes	*Reference category*			
30 minutes	-0.099	-0.022	-0.013	-0.030
	(0.090)	(0.093)	(0.085)	(0.088)
45 minutes	-0.216**	-0.141	-0.012	-0.177**
	(0.092)	(0.093)	(0.084)	(0.088)
60 minutes	-0.173*	-0.036	-0.090	-0.040
	(0.090)	(0.096)	(0.087)	(0.090)
90 minutes	-0.398***	-0.186**	-0.145*	-0.149*
	(0.088)	(0.092)	(0.086)	(0.088)
120 minutes	-0.358***	-0.280***	-0.104	-0.220**
	(0.088)	(0.094)	(0.084)	(0.090)
Poorly accessible	*Reference category*			
Moderately accessible	0.326***	0.219***	0.215***	0.146**
	(0.064)	(0.064)	(0.060)	(0.060)
Easily accessible	0.489***	0.463***	0.283***	0.301***
	(0.066)	(0.063)	(0.060)	(0.063)
No food or water	*Reference category*			
1 day supply	0.566***	0.439***	0.325***	0.374***
	(0.092)	(0.094)	(0.087)	(0.091)
3 days supply	1.174***	1.030***	0.725***	0.857***
	(0.096)	(0.095)	(0.088)	(0.090)
5 days supply	1.480***	1.373***	0.880***	1.060***
	(0.093)	(0.099)	(0.089)	(0.096)
7 days supply	1.619***	1.513***	0.971***	1.264***
	(0.095)	(0.103)	(0.091)	(0.097)
14 days supply	2.019***	1.815***	1.125***	1.139***
	(0.099)	(0.103)	(0.094)	(0.100)
Does not have a generator	*Reference category*			
Has a generator	0.795***	0.707***	0.119**	0.352***
	(0.053)	(0.056)	(0.056)	(0.058)
None	*Reference category*			
0 to $999	0.294***	0.156	0.056	0.049
	(0.106)	(0.118)	(0.100)	(0.114)
$1,000 to $1,999	0.564***	0.592***	0.197*	0.252**
	(0.110)	(0.117)	(0.107)	(0.109)
$2,000 to $2,999	0.505***	0.461***	0.038	0.130
	(0.108)	(0.121)	(0.104)	(0.115)
$3,000 to $3,999	0.479***	0.528***	0.100	0.266**
	(0.109)	(0.120)	(0.106)	(0.114)
$4,000 to $4,999	0.680***	0.846***	0.132	0.396***
	(0.113)	(0.110)	(0.110)	(0.112)
$5,000 to $9,999	0.589***	0.645***	0.086	0.415***
	(0.113)	(0.111)	(0.104)	(0.111)
$10,000 and $50,000	0.863***	0.937***	-0.168	0.273**
	(0.113)	(0.117)	(0.109)	(0.117)
More than $50,000	0.738***	0.920***	-0.156	0.336***
	(0.115)	(0.115)	(0.109)	(0.116)
Constant	-2.660***	-2.537***	-1.130***	-1.518***
	(0.138)	(0.143)	(0.126)	(0.139)
Observations	7096	6576	7096	6576

Clustered standard errors (by respondent) in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; two-tailed tests.

A5 Table and Coefficients Plot with AMCE for Preparedness: Best Prepared vs. Prepared Like Me for respondents without insurance and with insurance

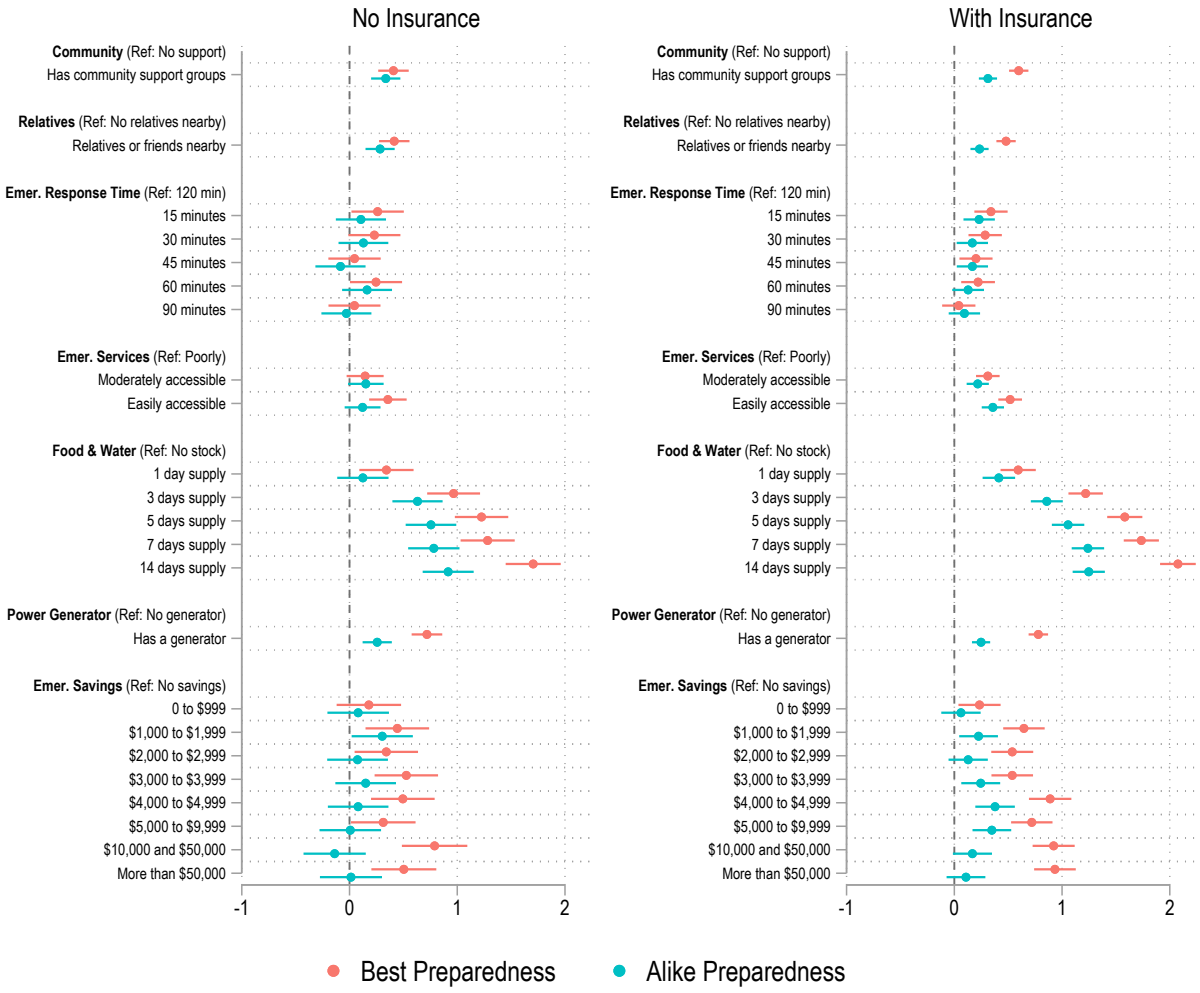

Figure A3: AMCEs by insurance status. Effects shown for Best Prepared and Prepared Alike. Lines denote 95% confidence intervals.

Table A5: Logit models of perceived preparedness, by home or renter insurance coverage

	(1)	(2)	(3)	(4)
	No home/renter insurance		Has home/renter insurance	
	Best prepared	Best prepared	Prepared like me	Prepared like me
No community support groups	*Reference category*			
Has community support groups	0.598***	0.408***	0.312***	0.336***
	(0.047)	(0.073)	(0.045)	(0.071)
No relatives or friends nearby	*Reference category*			
Relatives or friends nearby	0.480***	0.415***	0.234***	0.284***
	(0.046)	(0.076)	(0.044)	(0.072)
15 minutes	*Reference category*			
30 minutes	-0.054	-0.030	-0.063	0.023
	(0.079)	(0.125)	(0.075)	(0.117)
45 minutes	-0.139*	-0.214	-0.063	-0.190
	(0.076)	(0.136)	(0.072)	(0.124)
60 minutes	-0.120	-0.015	-0.102	0.057
	(0.079)	(0.133)	(0.075)	(0.127)
90 minutes	-0.299***	-0.215*	-0.137*	-0.135
	(0.079)	(0.119)	(0.074)	(0.123)
120 minutes	-0.340***	-0.261**	-0.231***	-0.106
	(0.079)	(0.125)	(0.076)	(0.117)
Poorly accessible	*Reference category*			
Moderately accessible	0.311***	0.145*	0.217***	0.151*
	(0.055)	(0.087)	(0.052)	(0.080)
Easily accessible	0.518***	0.356***	0.358***	0.121
	(0.056)	(0.087)	(0.053)	(0.084)
No food or water	*Reference category*			
1 day supply	0.593***	0.343***	0.413***	0.124
	(0.082)	(0.126)	(0.075)	(0.125)
3 days supply	1.219***	0.966***	0.859***	0.631***
	(0.084)	(0.127)	(0.077)	(0.123)
5 days supply	1.582***	1.225***	1.056***	0.756***
	(0.087)	(0.120)	(0.081)	(0.119)
7 days supply	1.736***	1.282***	1.240***	0.782***
	(0.087)	(0.134)	(0.080)	(0.133)
14 days supply	2.076***	1.705***	1.248***	0.915***
	(0.088)	(0.134)	(0.084)	(0.132)
Does not have a generator	*Reference category*			
Has a generator	0.780***	0.719***	0.248***	0.257***
	(0.047)	(0.075)	(0.049)	(0.080)
None	*Reference category*			
0 to $999	0.234**	0.180	0.062	0.080
	(0.099)	(0.149)	(0.093)	(0.142)
$1,000 to $1,999	0.646***	0.444***	0.225**	0.304**
	(0.097)	(0.152)	(0.093)	(0.147)
$2,000 to $2,999	0.538***	0.342**	0.129	0.075
	(0.100)	(0.145)	(0.093)	(0.149)
$3,000 to $3,999	0.538***	0.527***	0.245***	0.150
	(0.099)	(0.152)	(0.094)	(0.150)
$4,000 to $4,999	0.889***	0.495***	0.378***	0.080
	(0.097)	(0.149)	(0.096)	(0.148)
$5,000 to $9,999	0.719***	0.313**	0.348***	0.007
	(0.097)	(0.159)	(0.091)	(0.153)
$10,000 and $50,000	0.922***	0.790***	0.168*	-0.138
	(0.100)	(0.152)	(0.097)	(0.153)
More than $50,000	0.934***	0.504***	0.108	0.013
	(0.098)	(0.157)	(0.097)	(0.157)
Constant	-2.870***	-2.131***	-1.486***	-1.071***
	(0.119)	(0.198)	(0.113)	(0.190)
Observations	9304	3544	9304	3544

Clustered standard errors (by respondent) in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; two-tailed tests.

A6 Table and Coefficients Plot with AMCE for Preparedness: Best Prepared vs. Prepared Like Me for respondents without experience and with experience with natural disasters

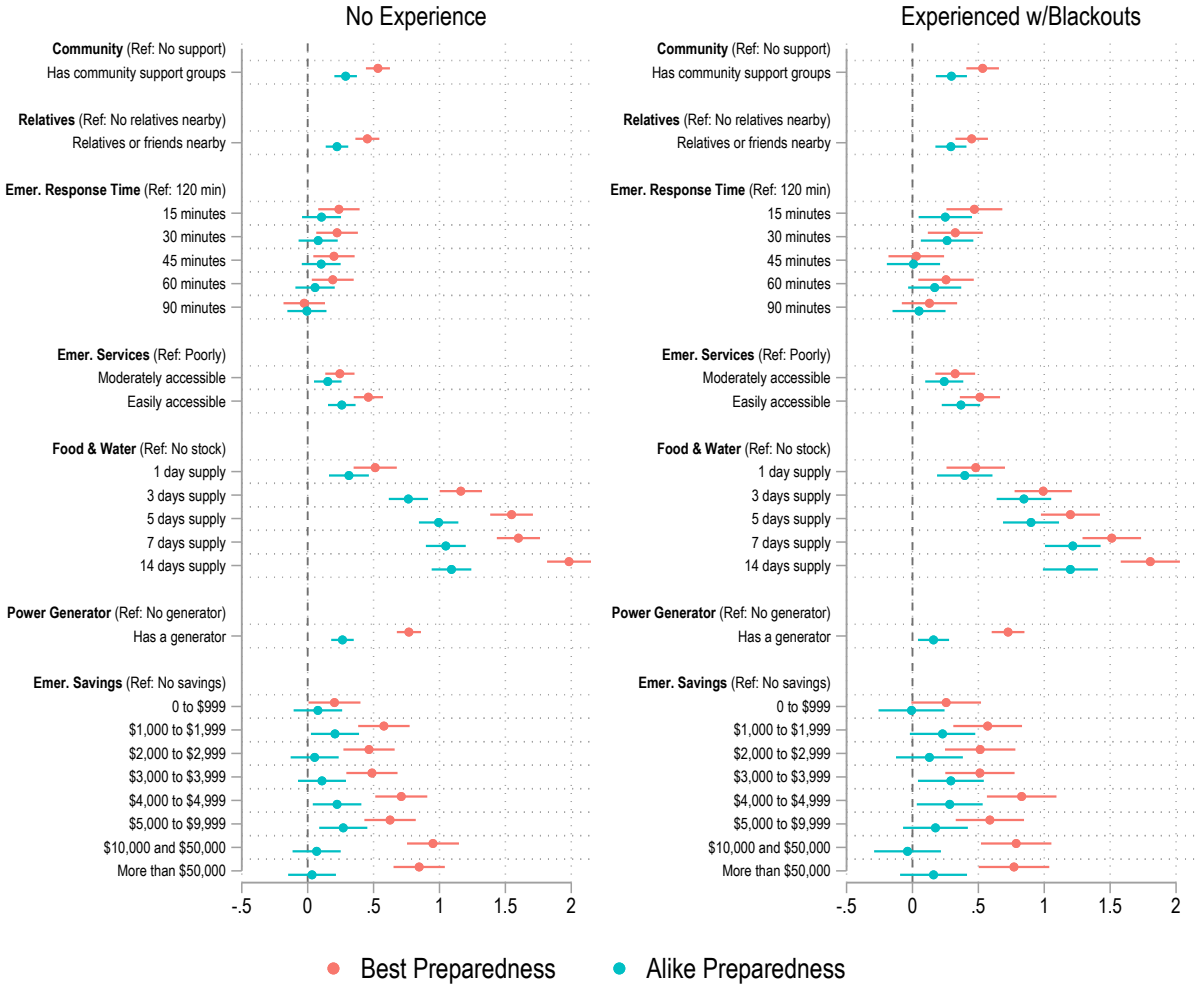

Figure A4: AMCEs by blackout experience. Effects shown for Best Prepared and Prepared Alike. Lines denote 95% confidence intervals.

Table A6: Logit models of perceived preparedness, by prior experience with power outages (blackouts)

	(1)	(2)	(3)	(4)
	No blackout experience		Has blackout experience	
	Best prepared	Best prepared	Prepared like me	Prepared like me
No community support groups	*Reference category*			
Has community support groups	0.533***	0.532***	0.288***	0.296***
	(0.048)	(0.062)	(0.046)	(0.061)
No relatives or friends nearby	*Reference category*			
Relatives or friends nearby	0.453***	0.449***	0.222***	0.292***
	(0.047)	(0.065)	(0.044)	(0.063)
15 minutes	*Reference category*			
30 minutes	-0.014	-0.145	-0.026	0.014
	(0.079)	(0.110)	(0.075)	(0.106)
45 minutes	-0.038	-0.441***	-0.003	-0.242**
	(0.080)	(0.114)	(0.073)	(0.109)
60 minutes	-0.047	-0.215*	-0.049	-0.081
	(0.079)	(0.116)	(0.075)	(0.112)
90 minutes	-0.263***	-0.341***	-0.111	-0.199*
	(0.078)	(0.109)	(0.074)	(0.109)
120 minutes	-0.237***	-0.470***	-0.105	-0.249**
	(0.079)	(0.111)	(0.075)	(0.106)
Poorly accessible	*Reference category*			
Moderately accessible	0.244***	0.324***	0.152***	0.241***
	(0.057)	(0.074)	(0.052)	(0.073)
Easily accessible	0.460***	0.512***	0.259***	0.368***
	(0.057)	(0.078)	(0.052)	(0.077)
No food or water	*Reference category*			
1 day supply	0.512***	0.480***	0.313***	0.397***
	(0.081)	(0.114)	(0.075)	(0.113)
3 days supply	1.162***	0.992***	0.764***	0.846***
	(0.084)	(0.112)	(0.077)	(0.108)
5 days supply	1.547***	1.199***	0.994***	0.900***
	(0.084)	(0.117)	(0.078)	(0.117)
7 days supply	1.599***	1.512***	1.048***	1.217***
	(0.088)	(0.116)	(0.082)	(0.113)
14 days supply	1.983***	1.805***	1.091***	1.198***
	(0.091)	(0.116)	(0.084)	(0.116)
Does not have a generator	*Reference category*			
Has a generator	0.768***	0.725***	0.264***	0.160**
	(0.048)	(0.065)	(0.050)	(0.067)
None	*Reference category*			
0 to $999	0.203**	0.256*	0.077	-0.007
	(0.097)	(0.134)	(0.092)	(0.130)
$1,000 to $1,999	0.578***	0.571***	0.207**	0.228*
	(0.100)	(0.133)	(0.093)	(0.133)
$2,000 to $2,999	0.465***	0.514***	0.053	0.129
	(0.097)	(0.145)	(0.092)	(0.138)
$3,000 to $3,999	0.488***	0.512***	0.108	0.291**
	(0.100)	(0.136)	(0.095)	(0.132)
$4,000 to $4,999	0.710***	0.829***	0.223**	0.283**
	(0.098)	(0.133)	(0.096)	(0.134)
$5,000 to $9,999	0.625***	0.587***	0.270***	0.174
	(0.099)	(0.135)	(0.091)	(0.135)
$10,000 and $50,000	0.951***	0.787***	0.068	-0.037
	(0.103)	(0.134)	(0.099)	(0.134)
More than $50,000	0.846***	0.770***	0.033	0.160
	(0.100)	(0.140)	(0.097)	(0.138)
Constant	-2.694***	-2.414***	-1.292***	-1.361***
	(0.121)	(0.171)	(0.115)	(0.159)
Observations	8920	4752	8920	4752

Clustered standard errors (by respondent) in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; two-tailed tests.