Cash as Recovery: Lessons from GiveDirectly's Hurricane Helene Response in Western North Carolina

Final Report

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Executive Summary

In the aftermath of Hurricane Helene, the most destructive storm to strike Western North Carolina in recorded history, GiveDirectly partnered with local and national organizations to deliver rapid, unconditional cash assistance to affected households. Between October 2024 and June 2025, the program reached 2,101 households across two phases:

- **Cohort One (October–December 2024):** 1,462 recipients received $1,000 each for immediate relief, primarily in Buncombe County.
- **Cohort Two (June 2025):** 639 recipients received $2,200 each, targeting rural counties of Avery, Madison, McDowell, Mitchell, and Yancey.

The Family Economic Policy Lab (FEPL) at Appalachian State University conducted a mixed-methods evaluation of the program's implementation and outcomes. Using survey data and qualitative interviews with participants, the evaluation examined the effects of cash transfers on economic stability, housing, food security, employment, and psychological well-being.

Key Findings

Economic stability. Cash transfers provided meaningful financial relief during a prolonged and uneven recovery. Participants used funds flexibly to purchase lost essentials, pay overdue bills, and stabilize household budgets. Cohort Two recipients—for whom we have pre/post data—reported improved ability to manage emergencies and meet financial obligations.

Housing and food security. Quantitative results show modest but statistically significant gains in housing quality and food security among Cohort Two recipients.

Employment and income. Endline data revealed lasting employment disruptions. Full-time employment declined from 36–38% before the hurricane to 23–25% at endline. Qualitative interviews attributed these losses to workplace and child care closures and health complications.

Psychological well-being. Participants entered the program with low baseline well-being scores, consistent with high stress and prolonged recovery strain. Over time, small improvements appeared in some areas, though perceived stress levels remained essentially unchanged.

Perceptions of aid and program delivery. Participants consistently described GiveDirectly's approach as simple, transparent, and trustworthy. More than 90% agreed that the cash was easier to use than other forms of aid.

Policy and Practice Implications

1. **Cash transfers can complement traditional disaster relief.** Rapid, unconditional payments reached affected households faster than most institutional aid, reducing hardship during critical recovery periods.

2. **Program design matters.** Timing, transfer size, and delivery method shape how cash supports recovery, from meeting immediate survival needs to fostering longer-term stability. Early transfers, within days or weeks of a disaster, can prevent cascading crises by covering food, shelter, and medication before other aid arrives. Later-phase or follow-up transfers, like those in Cohort Two, serve as stabilizers when short-term aid has expired and debts begin to accumulate.

3. **Digital delivery can expand reach but requires trusted intermediaries.** The Propel platform enabled efficient payments and provided legitimacy, but partnerships with local organizations and community health workers can help to build additional trust.

4. **Rural contexts require tailored strategies.** Connectivity issues, unreliable banking and retail access, and unsafe road conditions, especially in a post-disaster context, can constrain the impact of digital cash programs if not addressed.

Background

Hurricane Helene made landfall in September 2024 as one of the most catastrophic storms to strike the US mainland since Hurricane Katrina, resulting in 108 direct deaths and causing approximately $60 billion in damages across Western North Carolina alone (NC OSBM, 2024). The storm delivered unprecedented rainfall of 20-31 inches within 24 hours to the mountainous Appalachian region, an area rarely impacted by such severe tropical weather events, leading to catastrophic flooding that devastated rural communities (NC OSBM, 2024). The disaster's impact was amplified by the region's steep topography, aging infrastructure, and geographic isolation, with washed-out roads and bridges cutting off entire communities and the collapse of critical water systems leaving residents without essential services for weeks. Infrastructure damage extended to cellular towers, power lines, schools, and healthcare facilities, with health effects projected to persist at least 15 years (Young & Hsiang, 2024). The storm disproportionately affected already vulnerable populations in this rural Appalachian region characterized by high poverty rates, limited healthcare access, and existing health disparities, exacerbating long-standing socioeconomic challenges and leaving communities particularly susceptible to both immediate trauma and long-term recovery difficulties (McGarvey et al., 2011).

Despite the unprecedented scale of destruction, federal recovery funding has lagged behind that of previous major hurricanes, with the federal government allocating approximately $5.25 billion of the estimated $60 billion in damages, representing less than 10% of the total damages. This funding level stands in stark contrast to other major hurricanes, with the federal government funding 53% of the damages from Matthew (2016), 20% from Florence (2018), and at least 73% of the damages from hurricanes Katrina (2005), Maria (2017), and Sandy (2012). Even if Congress fully funds North Carolina Governor Josh Stein's existing budget request, federal spending would only cover approximately 28% of estimated damages, leaving western North Carolina communities struggling to recover while waiting for the meaningful federal assistance that previous disaster-affected regions received (Wagner, 2025; Sonmez, 2025).

Figure 1

Outage Map, Average Daily Outage Rate from September 27 to October 30, 2025

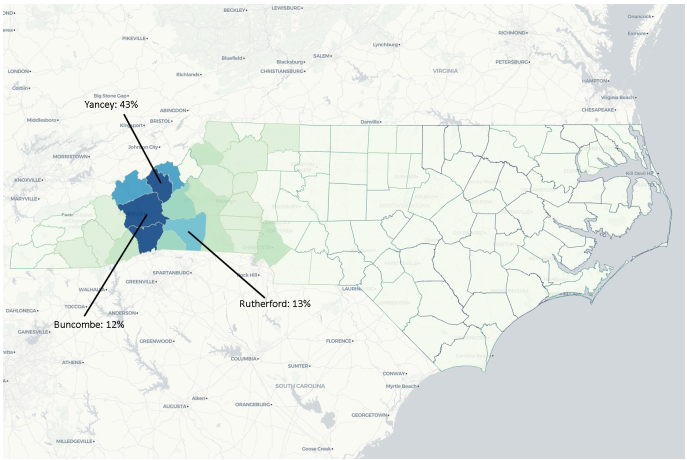
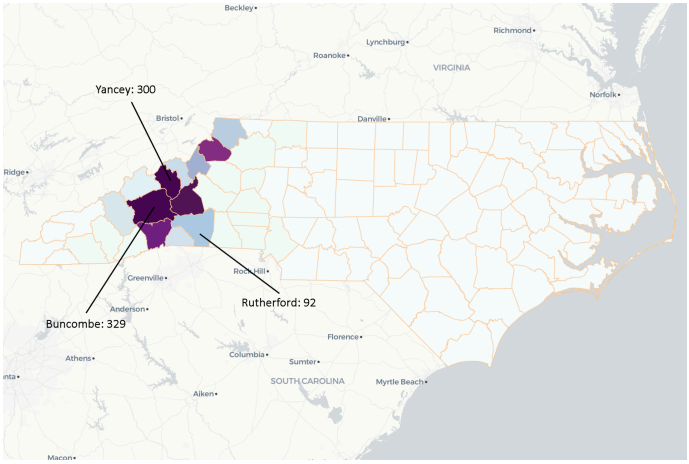


Figure 2
Landslide Map, Number of Events by County



Intervention

In the wake of Hurricane Helene, GiveDirectly—a global aid organization specializing in unconditional cash transfers—provided one-time payments to eligible households across Western North Carolina. The program was implemented in two phases between October 2024 and June 2025, reaching a total of 2,101 households. The dual-phase structure enabled the organization to respond promptly to urgent needs (Cohort One) and subsequently offer support to hard-hit rural counties (Cohort Two), creating natural variation in timing, transfer amounts, and geographic targeting. Cohort One was primarily funded by the United Way of Asheville and Buncombe County, the Leon Levine Foundation, and the Conrad Hilton Foundation. Cohort Two was supported by the Dogwood Health Trust, WNC Bridge Foundation, and the Community Foundation of Western North Carolina.

Enrollment and Eligibility

Enrollment for both Cohorts occurred online through the Propel (2025) app, a free mobile application used by millions of low-income Americans to manage SNAP (food stamp) benefits, check balances, and access other discounts and financial services. Because all enrollees are verified SNAP participants, leveraging Propel as the enrollment platform ensured that eligibility was automatically limited to low-income households without additional means testing.

For Cohort One (receiving payments in October–December 2024), eligibility was limited to adults (18+) who were registered Propel users residing in census block groups classified by GiveDirectly as “high damage” based on post-storm assessments. These areas were primarily concentrated in Buncombe County. Cohort Two (receiving payment in June 2025) eligibility expanded to adults who were registered Propel users (as of June 1, 2025) residing in Avery, Madison, McDowell, Mitchell, and Yancey counties and had not previously received GiveDirectly assistance. This was designed to ensure more equitable access to aid among rural, heavily affected counties.

Outreach and Recruitment

For Cohort One, recruitment occurred primarily through an in-app notification within Propel that read:

> "**Claim $1,000 in emergency relief.** Primary funding by United Way of Asheville and Buncombe County. Propel is enabling GiveDirectly to offer one-time cash payments to eligible households affected by Hurricane Helene. This is separate from FEMA relief grants. Enrollment ends November 21, 2024, so claim your payment soon."

For Cohort Two, the Propel app notification was updated to reflect the new transfer value and expanded eligibility:

> "**Claim $2,200 in emergency relief.** You may be eligible for a one-time cash payment if you were affected by Hurricane Helene. Terms apply."

For Cohort Two, GiveDirectly also utilized complementary outreach channels, including training approximately 20 Dogwood Health Trust-funded Community Health Workers (CHWs) from several nonprofit service organizations to provide in-person support for participants to register in the Propel app and complete the enrollment process. GiveDirectly also hosted a landing page where potential participants could submit contact information to receive email notifications when enrollment opened. Google ad campaigns were also utilized, but did not solicit a significant amount of engagement.

Payment Disbursement

Payments were made digitally in both cohorts, but through different platforms, reflecting evolving infrastructure and scale. Cohort One, comprising 1,462 recipients, received transfers of $1,000 in three waves (October 25, November 22, and December 17, 2024) via Propel's Providers debit card, which was either mailed to recipients or activated virtually. Cohort Two's transfers of $2,200 were distributed in two batches (June 20 and 30, 2025) via the GiveCard platform, which offered multiple modalities. Among the 639 total Cohort Two recipients, 361 opted for direct deposit, 186 selected a physical card, and 92 chose a virtual card.

Table 1
Overview of Program Design

Program Feature	Cohort One	Cohort Two
Payment Timing	Oct–Dec 2024	June 2025
Transfer Amount	$1,000	$2,200
Sample Size	1462	639
Counties Served	Primarily Buncombe	Avery, Madison, McDowell, Mitchell, Yancey
Enrollment and Outreach Methods	Propel app	Propel app plus Community Health Worker network, landing page, ads
Payment Method	Propel Providers card	GiveCard (direct deposit/physical/virtual)

Evaluation Framework and Methodology

To evaluate the impact of GiveDirectly's cash transfers in the context of Hurricane Helene and inform future disaster recovery efforts, the organization retained the Family Economic Policy Lab at Appalachian State University and its partners in the Department of Geography and Planning and the Center for Social Development at Washington University in St. Louis. The lab has expertise in evaluating cash transfer efforts in multiple US states and demographic contexts. The evaluation employed a mixed-methods approach to assess the implementation and impact of unconditional cash transfers in the context of disaster recovery, grounded in the lived experiences of affected communities and guided by the principles of community-based participatory research (CBPR), which positions community members as active contributors rather than passive subjects.

The Family Economic Policy Lab has long prioritized equitable, reciprocal partnerships, especially critical in this rural and disaster-affected region. Trust in disaster recovery must be earned through consistent presence and accountability to local knowledge. Most research team members live and work in Western North Carolina, and several, including our lead qualitative interviewer, played active roles in post-Helene response. This embeddedness allowed us to engage participants as neighbors and peers.

Building on this commitment, the research team attended community listening sessions in Buncombe and Yancey Counties and conducted background interviews with eight academic experts, local leaders, nonprofit organizations, and community stakeholders serving eighteen counties. These early conversations helped contextualize recovery conditions (such as barriers related to information access, digital connectivity, and institutional trust) and informed the approach and framing of this evaluation.

Research Questions

Five overarching lines of inquiry guided this study, each focused on understanding the role of unconditional cash transfers in disaster recovery, particularly in the specific context of Hurricane Helene in Western North Carolina.

1. ***Changes in Well-Being***
    a. How did cash transfers impact recipients' short- and medium-term economic well-being, housing, and food security?
    b. What changes, if any, occurred in recipients' psychological well-being or stress levels following receipt of funds?
2. ***Use and Perception of Funds***
    a. How did recipients choose to spend the cash transfers?
    b. How did they perceive the usefulness, timing, and fairness of the assistance?
3. ***Timing of Transfers***
    a. How did outcomes differ between recipients who received cash immediately after the hurricane and those who received it nine months later? Our ability to investigate this research question is limited by several factors, which we will discuss below.
4. ***Operational and Contextual Factors***
    a. What factors—local, logistical, or administrative—shaped the effectiveness and implementation of the cash transfer program?
5. ***Policy and Practice***
    a. What lessons can be drawn from this case to inform more equitable, community-informed, and effective disaster response strategies in rural, economically vulnerable regions?

Data Sources

Surveys

This study draws on original survey data from recipients in GiveDirectly's Hurricane Helene cash transfer program. Data collection differed by cohort due to the sudden nature of the disaster. Because the hurricane could not have been anticipated, no baseline survey was possible before the event, and the priority in its aftermath was rapid relief rather than data collection. Consequently, only an endline survey was conducted for Cohort One. Of the 1,462 recipients in this Cohort, 303 participants responded between August 3 and August 18, 2025, with a response rate of 20.7%. Each survey respondent received a $10 electronic gift card. Because no baseline survey was administered, analyses for Cohort One rely solely on responses gathered eight to eleven months after receipt of funds.

For Cohort Two, both baseline (before receiving funds) and endline surveys were administered. A total of approximately 248 participants (38.8% of the cohort, $n = 639$) completed the baseline survey before disbursement in June 2025. An endline survey was conducted from August 3 to August 18, 2025, approximately two months after transfers were distributed, with 246

participants responding. These paired surveys provide limited pre–post measures of household outcomes within the same cohort. Each respondent received a $10 electronic gift card for completing the survey.

In total, the study draws on 797 survey responses across both cohorts (248 baseline and 246 endline from Cohort Two, plus 303 endline from Cohort One). While these samples do not capture the experiences of all program participants, they represent a significant share of households across different counties, transfer sizes, and program Cohorts, and serve as the primary empirical basis for assessing household-level outcomes of the intervention.

Table 2
Survey Response Rates

Cohort	Total Recipients	Baseline Respondents	%	Endline Respondents	%
One	1,462	*Not conducted*	*n/a*	303	20.7%
Two	639	248	38.8%	246	38.5%
Total	2,101	248	38.8%	549	26.1%

Interviews

To complement and contextualize survey findings, we collected qualitative data through in-depth interviews. A community-based participatory research meeting was conducted on August 11, 2025, in Marion, North Carolina, with five cash transfer recipients to inform the development of the interview guide. Each participant received a $40 gift card for their input. Feedback from this session was incorporated to ensure that questions were clear, culturally appropriate, and sensitive to participants' needs. Interview participants were selected from among respondents who indicated "Yes" to a question in the endline survey asking if they would be willing to participate in a follow-up interview. From this pool of volunteers, we used purposive sampling to ensure representation across key demographic and geographic characteristics. Specifically, we selected individuals to reflect variation in age, county, gender, and race/ethnicity.

Subsequently, we conducted 21 in-depth qualitative interviews between August and September 2025. Interviews examined the household use of cash transfers, perceptions of assistance, and the impact of transfer timing. Our field interviewer is a long-term resident of Western North Carolina and a trauma-informed social worker trained in ethical, participant-centered qualitative methods. To maximize accessibility, interviews were offered in multiple modes (phone, Zoom, or in-person in Asheville, Burnsville, and Spruce Pine), and participants were provided with plain-language materials and flexible scheduling options. Each participant received a $25 gift card for their participation.

Analytical Approach

Quantitative Analysis. We analyzed survey datasets provided by GiveDirectly to assess changes in economic well-being, food security, housing stability, and psychological distress across the two distribution groups, using a mixed identification strategy that reflects the program's assignment mechanisms. For Cohort Two participants, we leveraged within-county variation to estimate changes in outcomes before and after receipt of the transfers, enabling a panel-style analysis. For Cohort One participants, where pre-assistance baseline data are unavailable, we constructed county-level pre-hurricane benchmarks using external sources, including the North Carolina Community Health Assessments (CHAs) and the Western North Carolina (WNC) Community Health Survey. The CHAs, coordinated by the North Carolina Department of Health and Human Services, are comprehensive county-level assessments conducted every three to four years as part of public health accreditation requirements (NC Department of Human Services, 2025). Each CHA integrates secondary data (e.g., morbidity, mortality, and socioeconomic indicators) with primary community input collected through surveys, focus groups, and key informant interviews. The 2024–2025 CHA cycle included measures such as housing stability, food access, chronic disease prevalence, and behavioral health, providing a broad view of pre-disaster social and health conditions across counties. The WNC Community Health Survey was most recently implemented from March to June 2024 across 18 western counties (WNC Health Network, 2025). The survey employed a mixed-mode design (telephone, online, and community outreach) to generate a weighted, regionally representative sample of 5,898 adults. Indicators align with the CDC Behavioral Risk Factor Surveillance System (BRFSS) and include measures of health behaviors, food insecurity, housing, income, and social connectedness.

To examine longer-term effects, we compared endline outcomes between Cohort One and Cohort Two participants, capitalizing on differences in timing and funding amounts. Where randomization is absent, we assess group comparability by including individual demographic and group-level controls, such as county fixed effects or county-level characteristics (e.g., rainfall severity, landslide counts, and pre-existing poverty).

Qualitative Analysis. Qualitative interviews were analyzed by the FEPL team using Colaizzi's phenomenological method to explore recipients' lived experiences following the cash transfer (Morrow et al., 2015). This approach allowed us to examine how individuals navigated post-disaster recovery, focusing on their perceptions of the cash assistance, prioritized spending, and the broader impacts on their economic well-being, housing stability, food security, and psychological health. Interview questions and thematic analysis explored not only the perceived usefulness and timing of the transfers but also the operational and contextual factors that shaped how recipients experienced and used the aid. Special attention was given to outcome variations based on the timing of cash receipt (immediate vs. delayed), and to identifying factors that either supported or hindered recovery efforts.

The FEPL team conducted coding in two stages to enhance analytic trustworthiness. Each transcript was reviewed by two coders who independently identified and labeled significant statements using an open coding approach. Following team discussion and triangulation, a

collaboratively developed codebook was finalized and uploaded into Taguette, an open-source qualitative coding platform, for structured recoding. Each transcript was then independently recoded by both coders using the finalized codebook to contribute multiple interpretive perspectives and enrich thematic depth. In the final phase, team members developed detailed descriptions of each theme, incorporating illustrative quotations in line with phenomenological methods. These thematic summaries were reviewed by another team member to ensure that they captured the breadth and nuance discussed during triangulation. Further, thematic write-ups examined cohort differences for themes plausibly affected by payment timing.

Data Governance and Ethics

This study was determined exempt by the Appalachian State University Institutional Review Board (HS-25-351) in August 2025. Because survey data were collected independently by GiveDirectly, IRB approval covered only the secure transfer and analysis of de-identified survey data to the Family Economic Policy Lab, governed by a formal Data Use Agreement. IRB review applied primarily to the qualitative component, which involved direct recruitment and interviewing of participants by the research team. All electronic data were stored on encrypted university servers and accessible only to approved members of the research team.

Findings

Context

It would be challenging to analyze the impact of GiveDirectly's intervention without first understanding the grave implications of Hurricane Helene on participants. The program was implemented after the largest and most destructive natural disaster in North Carolina's recorded history. Participants described the storm as an overwhelming and disorienting experience. Many spoke of feeling unprepared: *"I just thought it was a big rainstorm,"* one recalled, while another admitted, *"I didn't think it was going to be that bad. Nobody else in the area did."* As the winds intensified and trees began to fall, some residents found themselves trapped in their homes or neighborhoods. *"You couldn't leave,"* one participant explained, *"so you had to stay there and just pray you wouldn't have anything happen, like the roof blow off."* Others were stranded from loved ones, cut off by flooding or blocked roads: *"I couldn't go home because all the roads were flooded. So I was stuck at work. The kids had no power."*

Parents emphasized the fear and disruption their children experienced. Several described dragging mattresses into safer rooms or huddling in closets during the height of the storm. *"My oldest daughter has nightmares from the cracking of the trees and the booms and the crashing. She still can't handle thunderstorms now,"* one parent said. Another recalled their children screaming when a tree fell on the house and refusing to sleep in their bedrooms for months afterward. Keeping children fed and calm without electricity added to the strain: *"I wasn't necessarily focused on myself… my main concern was my son and my younger sisters, making sure they had food and water."*

Material and infrastructural damage compounded the emotional toll. Participants described roofs leaking, trees crushing homes, crawl spaces and yards flooding, and workplaces submerged—*"my plant… was 4 feet underwater,"* one reported. Another said, *"My sister was so lucky. The tree fell about three inches from her house. Her daughter's room."* Power outages lasted up to 45 days, leaving households without light, communication, or refrigeration for food and lifesaving medical supplies. Some families sheltered in community centers, hotels, or with relatives, describing both relief and dislocation. Across accounts, feelings of stress, fear, and uncertainty ran deep: *"Stressful is not the word,"* said one parent. *"I lied to my children. I told them it was just a storm. Meanwhile, I prayed, 'Lord, please do not let anything happen.'"*

During and after the storm, residents across Western North Carolina described how the widespread loss of power, internet, and cell service disrupted daily life. Without functioning ATMs or credit card systems, people were forced to rely solely on cash, often waiting in long lines at gas stations and grocery stores with limited supplies. *"It was just a mess financially,"* one participant explained. *"Money was hard to come by. People were only taking cash for goods and services."* Others emphasized how the communication outage hindered access to assistance and medical resources, noting that *"the application process is fine and dandy unless you don't have power and Internet access, which also went out."* Pharmacies could not process refills, and residents struggled to reach employers or agencies like FEMA for support. As another participant stated, *"You couldn't get gas, you couldn't go to the store unless you had cash."*

The communication blackout also generated fear and uncertainty as residents could not contact loved ones or receive critical updates. Several participants described experiencing *"a lot of scary moments not having that cell service,"* while others recalled the emotional toll of prolonged disconnection. One parent reflected, *"It was devastation. It was awful. Just worrying about everybody that we love, not being able to contact anybody."* Another added, *"We didn't have phones. We didn't have lights. We didn't have anything for so long."*

Yet amid the chaos, participants vividly described how Helene reawakened deep traditions of mutual aid and neighborly care across Western North Carolina. Nearly every respondent reflected on how the disaster transformed their neighborhoods into interdependent support networks. As one said, *"Everybody pulled together and helped each other…you seen everybody helping everybody. There was nobody left out."* Even those who *"didn't really know [their] neighbors other than waving at them before"* said the storm *"strengthened the bond within our neighborhood."* People *"came together with their chainsaws"* to clear roads, shared generators, brought water from the creek, and checked on elders. Others described cooking meals for neighbors, distributing diapers and formula, or volunteering through churches and informal networks to *"make sure everybody had…the basic necessities."*

Respondents described this sense of collective responsibility as both a rediscovery and a continuation of local culture. One participant reflected, *"It's because of these mountains… that's part of being Appalachian—if they didn't rely on each other, they would have died."* Another noted that the storm *"reminded people there were other humans around them,"* rekindling face-to-face connection in an era of isolation. Importantly, cohesion extended beyond immediate needs to long-term organizing and advocacy; residents formed community distribution sites, led

volunteer recovery efforts, and coordinated with nonprofits *"to make sure vulnerable people were not left behind."* Even amid loss and displacement, participants expressed pride and gratitude for their communities' resilience: *"We're really a strong community when it comes down to it,"* one said. *"That's what the world is missing now."* The accounts collectively portray how grassroots solidarity became a central component of survival and recovery across Western North Carolina in the absence of swift institutional relief. These care networks filled critical gaps in the storm's immediate aftermath and shaped how residents accessed later forms of aid, including GiveDirectly's cash transfers.

This lived reality formed the backdrop for GiveDirectly's cash transfer intervention. Infrastructure collapse—including widespread power loss, road closures, and cellular network failures—directly affected the program's ability to communicate with and enroll participants. In many rural areas, internet and mobile connectivity remained unreliable for weeks, constraining the reach of app-based and online outreach methods. These disruptions compounded preexisting digital divides, particularly among older adults, low-income residents, and those without consistent smartphone access, posing barriers to participation in a program delivered through a digital platform such as Propel.

Participants consistently described initial skepticism and hesitation upon learning about the GiveDirectly cash transfer. Many recounted that the offer *"just popped up out of the blue"* on the Propel app they used for EBT benefits, prompting disbelief. *"I thought it was a scam,"* one participant admitted, while another said, *"Honest to God, I thought this is a scam and I'm gonna get taken for money."* Several participants described being *"wary of giving my banking information out,"* reflecting a widespread awareness of fraud. In the aftermath of the hurricane, when communities were already financially strained, the idea of receiving *"$1,000 with no questions asked"* seemed too good to be true.

However, the perceived legitimacy of the Propel app itself often encouraged trust. As one recipient explained, *"The main reason that I decided to go ahead with it is because it was on the Propel app… I know I can trust that app."* Others confirmed they took the chance only after seeing it shared by *"official"* social service pages on social media. Some suggested that GiveDirectly could have reduced suspicion by maintaining a more visible presence online, such as a Cohort One participant who suggested *"a presence on a search engine"* (a suggestion integrated into recruitment for Cohort Two) or clearer branding showing that the program was *"officially sponsored by Propel."* Even after receiving funds, participants struggled to *"find out where the money was actually coming from,"* underscoring that transparency and visible partnerships are critical for building trust.

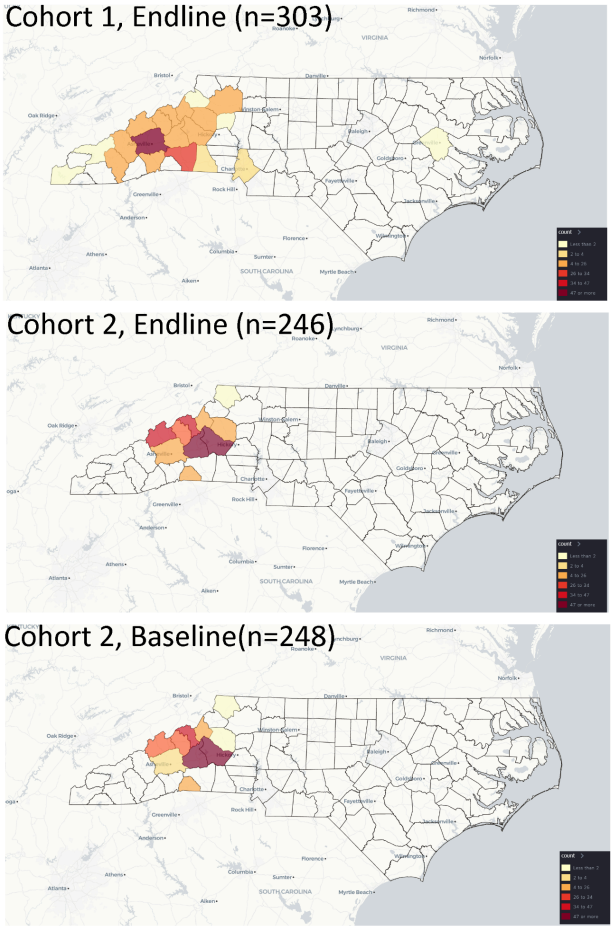
Ultimately, the GiveDirectly WNC cash transfer program unfolded within a context of extraordinary infrastructural and human strain. The program's success in reaching affected residents despite these conditions highlights the adaptability of the model, while also revealing key lessons about the need for integrated digital and in-person systems, strengthened communication infrastructure, and transparent public–private collaboration to ensure equitable access during large-scale disasters.

Demographics

Table B1 compares demographic characteristics across Cohort Two Wave One (Co2Wa1), Cohort Two Wave Two (Co2Wa2), and Cohort One Wave Two (Co1Wa2). On average, respondents in Cohort Two Wave Two were slightly older than those in Wave One (41.7 vs. 39.0 years, $p<0.05$), and Cohort One respondents were older still (43.7 years). The gender composition remained consistent across samples, with roughly 90% female respondents. Racial composition varied more noticeably: the share of Black participants was substantially higher in Cohort One Wave Two (24%) than in Cohort Two (7–8%), while white participants were correspondingly less represented in Cohort One ($p<0.001$). County distributions also shifted markedly across groups, with Cohort One respondents more likely to reside in Buncombe and "Other" counties, and less likely to come from McDowell, Burke, or surrounding rural areas. Appendix Figure 3 shows the spatial distribution of survey participants. Of the 248 respondents in Cohort Two Wave One, only 123 were resurveyed in Wave Two, implying that approximately half of the Wave Two sample (123 of 246) consisted of new participants who joined only at endline.

Figure 3

Spatial Distribution of Survey Participants

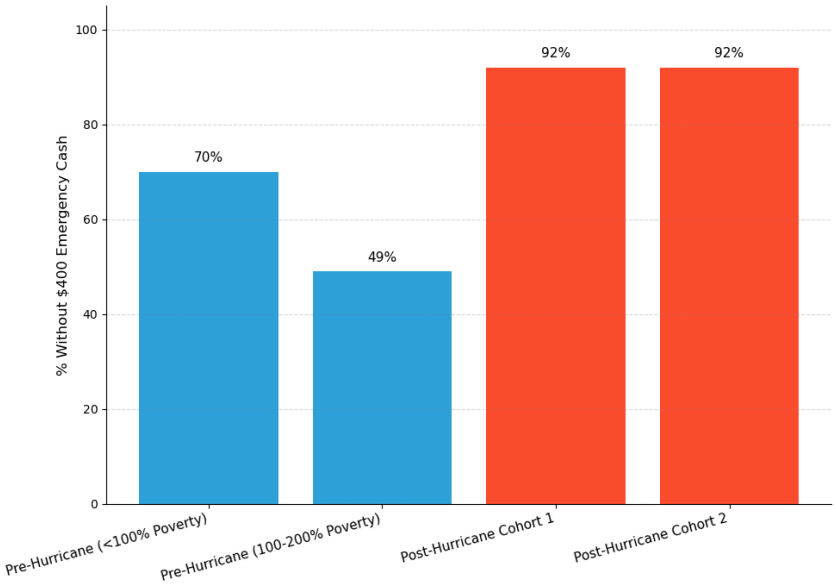


Changes in Well-Being

Finances

A key finding from Figure 4 concerns individuals' ability to cover a $400 emergency expense. Using the WNC Health Survey 2024 as a benchmark, we compare these baseline values with endline results for Cohorts One and Two. The contrast is striking: before the hurricane, roughly *49 to 70% of low-income households (below 200% of the federal poverty line) across the 18-county baseline reported being unable to cover a $400 emergency expense, compared to 34% nationally.* In the post-hurricane endline survey, conducted about one year after the storm, over 92% of respondents in both cohorts reported lacking sufficient resources for the same expense. *This sharp and persistent increase relative to the pre-hurricane baseline underscores the severe financial strain caused by the hurricane and highlights the ongoing vulnerability of affected households.*

Figure 4
Ability to Cover $400 Emergency Cash



Notes: The figure shows the raw averages of survey respondents' answers in the endline survey. To provide context, we use a comparable question from the WNC Health Network 18-County dataset wave 2024, focusing on respondents whose household income falls below the poverty line or between 100% and 200% of the poverty line:

> "*Suppose that you have an emergency expense that costs $400. Based on your current financial situation, would you be able to pay for this expense either with cash, by taking money from your checking or savings account, or by putting it on a credit card that you could pay in full at the next statement? (Yes/No)"*

This question is identical to the one asked in the endline survey.

Qualitative interviews provided further insight into the financial situation of recipients, who described lives marked by persistent financial strain and the exhaustion of never quite getting ahead. Many lived *“paycheck to paycheck,”* unable to save or prepare for emergencies. As one participant put it, *“It’s been draining financially.”* Across accounts, participants spoke of hard work that yielded only precarious stability—*“We live day by day, trying to make ends meet”*—and a constant awareness that even minor disruptions could upend everything. Even those with steady work felt trapped in cycles of survival, noting, "*If you’re not making $50,000 a year, you’re living paycheck to paycheck.”* Some described working constantly just to maintain basic stability. *“I work, work, work, work, but it’s like never enough.”* The constant balancing act left participants feeling *“okay, but only okay.”*

People described triaging bills and late fees as a constant calculation. *“Just getting back on track… I still had to pay my mortgage… I’m still a month behind.”* Others set strict priority lists to prevent shutoffs: *“I had to make a priority list of what needs to be done first… the bills…and then what was left needed to go to the kids' school supply.”* Some avoided new credit altogether for the sake of their mental health: *“I got in debt… I don’t think psychologically I can take it… I worked… to get out of credit card debt and never do it again.”*

In surveys, we observe small but positive indications that the cash transfers improved the financial well-being of recipients. Tables B2 and B3 present changes in financial well-being among Cohort Two participants between baseline and endline. Overall, the results indicate modest but meaningful improvements in perceived financial security and day-to-day financial management. Participants reported a 6.6 percentage point increase in their ability to handle a major unexpected expense, representing a 61% improvement relative to the baseline mean (0.1089). Confidence in having a secure financial future rose by 3.3 points (an 11% increase), while feelings of hopelessness about finances declined slightly (–1.3 points, 2% decrease). Participants were also significantly more likely to report enjoying life financially (+8.3 points; 24% increase). The share of those who felt they were “just getting by” decreased modestly (–3.2 points; 7% decline), though this change was not statistically significant. The results in Part 2 of the table reinforce a pattern of small but favorable changes. The likelihood of having money left over increased by 4.2 points, a 33% improvement over baseline (0.1290). Meanwhile, reports that money would not last, that gifts caused strain, or that finances controlled one’s life declined slightly (1 to 4 points), though these estimates were not statistically significant. Overall, Cohort Two participants experienced modest gains in financial stability and subjective financial well-being over the study period.

Housing

Table B4 and Figure B4 presents the overall distribution of housing situations across waves and cohorts. We do not find statistically significant differences in the distribution of housing categories across waves for Cohort Two, suggesting the relative “stickiness” of housing arrangements. However, we observe significant improvements for those unhoused before the payments.

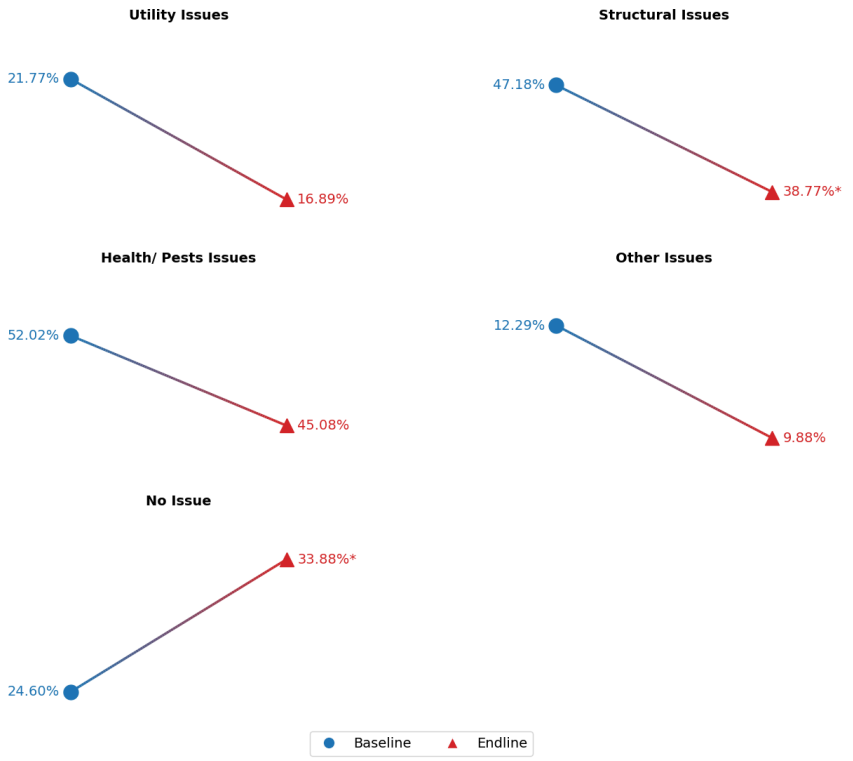
Within Cohort Two, 123 individuals participated in both the baseline and endline surveys. Figure B2 illustrates the housing situation across waves for this subsample, where columns represent baseline housing and rows represent endline housing. Consistent with the full sample, (1) most participants are either renters or homeowners, and (2) there are no statistically significant shifts in the overall distribution of housing categories across waves. Directionally, most renters and homeowners remain in the same category (88.46% and 90.74%, respectively), though we observe substantial movement across categories among those with unstable housing situations (e.g., unhoused, in shelters, or staying in hotels). For individuals living with family at baseline, approximately 27.8% transitioned to renting and 11.1% transitioned to homeownership by endline.

Qualitative interviews further illuminate this movement toward greater housing stability. Several participants described a progression from temporary or unsafe arrangements (shelters, hotels, or staying with relatives) to more secure housing over time. One participant recalled, *"We was in this motel and we had to use that [GiveDirectly] money to stay in the motel… when we finally got out, we got a camper to live in… it has been a lifesend."* Another shared that after months of uncertainty, *"We were staying with some friends… and that place was no longer available after the hurricane. So we've spent the past year trying to find a place. We just got into a place last month."*

Table B5 and Figures 5 and B5 summarize changes in reported housing-related issues for Cohort Two between baseline and endline. The share of respondents experiencing structural issues declined by 8.4 percentage points from a baseline of 47% ($p < 0.05$). For context, the 2024 WNC survey indicates that pre-hurricane structural issues averaged around 28–29% for low-income households, substantially lower than the post-hurricane but pre-payment levels of Cohort Two recipients. Health-related problems (e.g., mold) and pest issues fell by 6.9 percentage points, though this change was not statistically significant. Reports of utility problems (such as intermittent water, electricity, or heating) and "other" issues also decreased slightly but remained insignificant. Compared to the 2024 WNC survey, the pre-hurricane prevalence of utility issues among low-income households ranged from 16% to 24%, similar to Cohort Two's baseline. The proportion of respondents reporting no issues rose by 9.3 percentage points ($p < 0.05$), reflecting an overall improvement in housing conditions of 37.8% relative to the baseline mean. Taken together, these findings suggest modest yet meaningful improvements in housing quality and stability for Cohort Two participants over time.

Figure 5

Housing Problems Before and After $2,200 Cash Transfer — Cohort Two Baseline (Wave One) to Endline (Wave Two)



Notes: Statistical significance levels are denoted by * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$. Utility Issues include the lack of or intermittent access to running water, electricity, heating, or internet. Structural Issues refer to roof leaks or structural cracks. Health/Pest Issues include mold, rodents, or insects. The remaining categories (i.e., Other Issues and No Issues) are self-explanatory.

Even these relatively modest changes are notable, given participants' qualitative descriptions of widespread and ongoing housing precarity that both preceded and were exacerbated by Helene. Before the storm, several participants were already living in unstable or substandard housing, including older trailers, temporary rentals, and makeshift or familial arrangements. One participant described residing in an old trailer where "*it would drip down the inside wall in the laundry room*" whenever it rained, eventually forcing them to move because "*it was starting to deteriorate.*" Others recounted prior displacements, such as one family who had "*a massive house fire*" before relocating to Burke County, only to later face the hurricane's impact.

Following Helene, housing insecurity intensified due to widespread property damage, rising rents, and an even greater shortage of safe, affordable housing. Some were abruptly displaced when landlords sold storm-damaged properties, one participant explained, "*it was 9 days before we were allowed to go back to the property and at that point the landlord said that they were just going to sell.*" For renters especially, the aftermath revealed structural inequities in disaster aid: "*As a renter, it's really a unique world out here… there's just not a lot of assistance for renters after the storm*." Additionally, housing costs rose drastically across communities, leaving many with few options. One participant noted their rent "*went from $600 a month to $1500 a month*,"

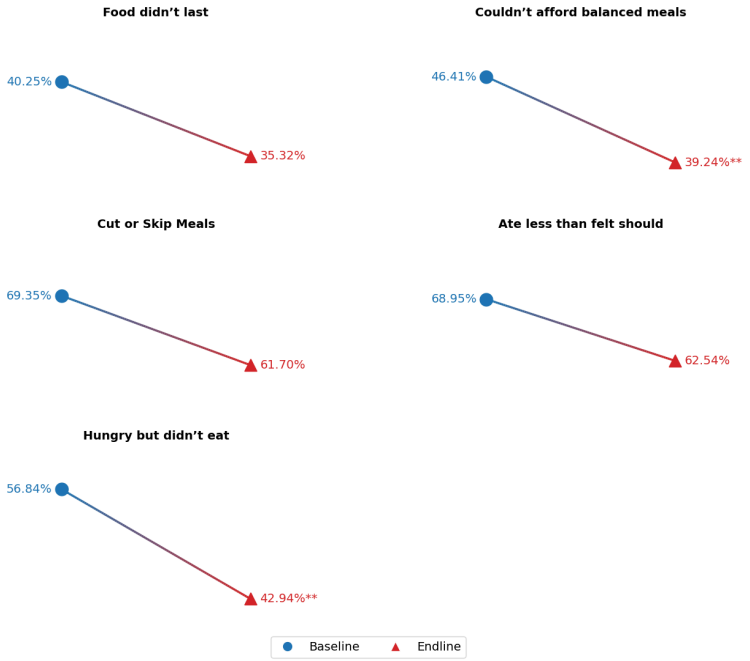
while another claimed that "*50% of our population can't afford rent.*" Some families resorted to alternative living situations such as "*a camper,*" "*a yurt*," or even "*hot tents*" after their previous homes grew mold or became otherwise unsafe due to the storm. For some, housing insecurity compounded health risks and ongoing instability. One participant's apartment "*flooded twice in the same week*" after the hurricane, while another reported that water "*was coming out of the walls, coming out of the outlet*," forcing them to throw belongings away and relocate again.

Food Security

Table B6 and Figure 6 present baseline-to-endline changes in food security outcomes for Cohort Two. Across the five indicators, we observe modest improvements in food sufficiency and dietary stability over time. Reports of not having enough food ("food didn't last") declined by about five percentage points, representing a 12% decrease relative to the baseline mean (40.25%). The baseline average for this question is lower than the 18-county baseline reported in the 2024 WNC Health Survey for low-income households, where the share ranges from 51% to 64%. This suggests that, post-hurricane but pre-transfer, Cohort Two was somewhat less food insecure than the broader low-income population in WNC. The share of participants unable to afford balanced meals fell by roughly seven percentage points (a 15% decline), a statistically significant improvement. Similarly, reductions in cutting meals (-7.7 points; 11% decrease), eating less (–6.4 points; 9% decrease), and going hungry (-13.9 points; 24% decrease) indicate general improvement, though not all changes are statistically significant. Overall, the results suggest meaningful, if uneven, gains in food security between baseline and endline among Cohort Two participants.

Figure 6

Food Security, Cohort Two



Notes: Statistical significance levels are denoted by * p<0.05, ** p<0.01, *** p<0.001.

Psychological well-being

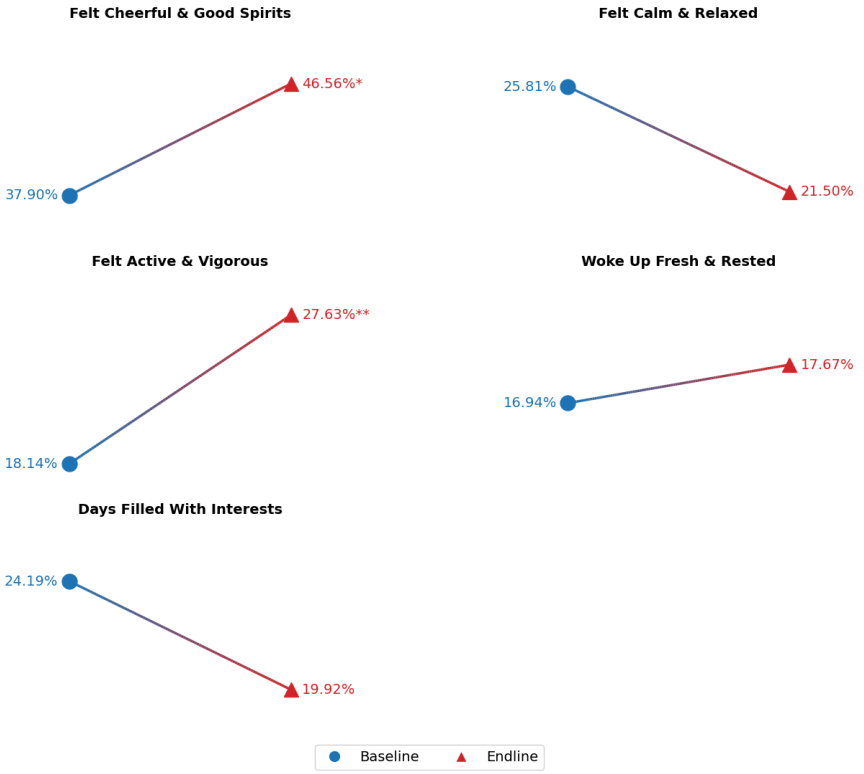
In qualitative interviews, participants reported lingering psychological impacts of their experience with Helene. Many stated how they feel uneasy in the wind and rainstorms now. The storm's anniversary resurfaced collective anxiety — *"just even thinking about that is a fear factor for a lot of people."* Residents described *"post-traumatic stress,"* depression through *"that difficult winter,"* and a lingering sense of abandonment: *"It felt like we got forgotten… there's a lot of people still trying to pick up the pieces."* One participant noted how sympathy *"lasted for a couple days, then they just expected me to move on."* The lasting experience of Hurricane Helene is not just about physical rebuilding but about living within the long shadow of the storm, where recovery and resilience coexist with grief, fatigue, and the unrelenting work of trying to rebuild a sense of normalcy.

Survey responses echoed these sentiments. At baseline (June 2025), Cohort Two reported low levels of psychological well-being across multiple dimensions (Table B7). The WHO-5 Well-Being Index measures how often respondents felt cheerful, calm, active, rested, and interested in life during the previous two weeks (World Health Organization, 2024). Participants generally reported positive emotions only occasionally. For instance, the baseline mean for feeling calm and relaxed (0.26 on a 0–1 scale) corresponds to experiencing calm *less than half the time*. Scores below 0.5 on the WHO-5 are typically considered indicative of poor mental well-being and potential depressive symptoms. These data suggest that participants entered the program in a state of persistent stress and fatigue—an expected outcome after months of disrupted livelihoods, unsafe housing, and delayed recovery.

Table B7 and Figure 7 report baseline-to-endline changes in psychological well-being (measured by the WHO-5) among Cohort Two participants. Overall, the results suggest modest improvements across several measures of positive affect. Participants were 8.7 percentage points more likely to report feeling cheerful at endline, representing a 23% increase relative to the baseline mean (0.3790). The likelihood of feeling calm rose by 4.3 points (a 17% increase), though this change is not statistically significant. Feelings of activeness increased significantly by 9.5 points, corresponding to a 52% improvement from baseline (0.1814). Changes in feeling rested and interested were smaller, less than 1 and 4 percentage points, respectively, and statistically insignificant. These results point to moderate gains in psychological well-being, particularly in energy and cheerfulness, over the study period for Cohort Two.

Figure 7

Psychological Wellbeing, Cohort Two



Notes: Statistical significance levels are denoted by * p<0.05, ** p<0.01, *** p<0.001.

These modest gains in well-being occurred alongside persistently high levels of perceived stress. The Perceived Stress Scale (PSS) assesses how frequently individuals experience stress or a lack of control in their daily lives (Cohen, 1988). At baseline, participants reported moderate to high perceived stress, feeling that difficulties were “often” piling up while rarely feeling that things were going their way. Table B8 and Figure B6 report treatment effects on self-reported stress at baseline and endline. Across all four outcomes (feeling unable to control things, feeling confident handling problems, feeling that things were going one’s way, and feeling that difficulties were piling up), we find no statistically significant differences between the two waves for Cohort Two. The estimated coefficients are small in magnitude and imprecisely estimated, suggesting that the intervention did not meaningfully alter participants’ perceived stress or coping ability over the study period.

Employment Status

The endline survey asked respondents to recall their employment status before Hurricane Helene and at the time of the survey. In both Cohort One and Cohort Two, we find that individuals shifted from full-time employment to unemployment or part-time work following the hurricane, while the share reporting being unable to work or other employment statuses remained largely stable over time. For example (Figure B12), 36% of Cohort One and 38% of

Cohort Two reported working full-time before the hurricane, but only 23% and 25%, respectively, reported full-time work at endline. These patterns suggest a sustained negative impact of the hurricane on participants' employment levels.

Interview participants similarly explained how the lingering economic effects of Hurricane Helene continued to disrupt employment and household income, often because businesses, schools, and child care closed. *"I did not have an income for a while… I was out of work for about a month and ½."* Another described the longer arc of recovery: *"I'm just now getting my hours back a year later… because I didn't have child care and there was no school."* Even when employers bridged a short period, that was the exception: *"I was out of work for about… 3 weeks, but [my employer] took care of us and paid us a full week's wages… There was a lot of people who weren't… fortunate enough to have any income."*

Use and Perception of Funds

Figure B7 presents the percentage of survey participants reporting spending in each category. A larger share of Cohort Two reported spending across all categories compared with Cohort One, particularly in Food & Bills (89.5% vs. 79.2%, $p < 0.05$) and Financial & Investments (40.6% vs. 26.7%, $p < 0.05$). As shown in Figure B8, Cohort Two also exhibits broader spending patterns, with more participants reporting expenditures across multiple categories. Overall, these differences likely reflect the substantially higher transfer amounts received by Cohort Two, but could also be related to the timing of the transfer.

Figure B8 displays the correlations between different pairs of spending categories for each cohort. Cohort Two shows stronger and positive correlations across multiple spending categories than Cohort One, suggesting that a larger share of individuals in Cohort Two reported multiple spending types simultaneously. Figures B9 and B10 further support this pattern by showing the distribution of combinations across broad spending categories: Cohort Two participants are less likely to report single-category spending and more likely to report spending across multiple categories.

Across interviews, participants emphasized that unrestricted cash allowed them to decide what would most restore normalcy. For Cohort One participants, that often meant basics and dignity: food, a shower, medication, and a safe place to sleep. One participant used the money to secure medication and temporary lodging: *"Just being able to secure [my epilepsy] medication… we had… to get a hotel… 72 hours… we were able to get supplies… to come back home."* For others, flexibility meant a single day in a hotel *"just so we can shower and feel normal a little bit"* when they lacked running water. Some highlighted the flexibility of replacing lost items: *"All the winter stuff was gone. So I had to buy [my kids] all new winter stuff, boots, coats, snowsuit, and gloves."* Another succinctly captured the flexibility of their $1000 transfer: *"The possibilities are endless—well, at least 1000 possibilities anyhow."*

Cohort Two, who received payments months later during the recovery phase, spoke about flexibility in managing multiple, ongoing pressures—catching up on bills, repairing vehicles or appliances, and briefly restoring everyday life. Participants explained that they were able to

"[get] caught up a couple of my bills, then groceries and cleaning supplies," and *"choose what I was gonna put it on… to split it up more… I filled my car all the way up on gas… it gives a peace of mind."*

Many participants also described using the cash to help others. Once their most immediate needs were met, people often turned outward—buying supplies for neighbors, donating to churches, or sharing resources within their communities. One woman explained, *"It just didn't help us. It helped the people around us… [a neighbor] didn't have diapers, she didn't have formula…we went and got it."* Several participants used part of their transfer for charitable giving once they were back on their feet. As one person shared, *"I took a little bit of it and gave back to the church that helped me."*

Cash Transfers in the Context of Other Aid

After Hurricane Helene, interview participants described piecing together help from neighbors, churches, nonprofits, and a patchwork of local and federal programs. Early aid often came informally: neighbors brought water, shared meals, or passed along information about where to charge phones. One participant explained, *"Water from friends, information like where to get the phones charged because the power was completely out for days… there was a lot of support going on, which kind of surprised me."* Local churches and volunteer groups offered food, propane, or even gift cards for groceries and supplies, while *"people out in the community [were] giving out the water and the diapers and the food."* These mutual aid networks filled critical gaps in the first chaotic weeks when formal systems were slow to respond.

In contrast, FEMA was almost universally described as frustrating, confusing, and slow. Several participants used stark language to capture their disillusionment: "*FEMA was trash. Treated us like trash,"* said one. Many recounted being denied because they didn't meet narrow eligibility definitions, such as not being the *"primary residence"* owner as a renter or having damages confined to storage areas. Others waited months for a decision or received only the standard $750 payment, which one participant noted *"couldn't even amount to what we really needed to survive."* The process was exhausting: *"It was horrible… almost like an application for a job, but longer,"* one person said. Another described sending repeated documentation and never hearing back: *"They wrote back saying they needed this… and then another one… and I haven't heard anything back, and it's been three months."* People who eventually received FEMA assistance often felt that the process was arbitrary and poorly communicated. One recalled the deposit arriving only to be seized the next day by their bank to cover overdue payments. By comparison, participants described GiveDirectly as fast, transparent, and true to its word. *"GiveDirectly did just like they said they would… it was a short process, fulfilled,"* one person said. Another called it *"the easiest, quickest, simplest process,"* while others noted, *"It went smooth as butter."*

Figure B13 presents survey participants' attitudes toward GiveDirectly, separated by cohort. Overall, both cohorts express high levels of satisfaction with the program based on three survey questions. Nearly all participants (97% in Cohort One and 100% in Cohort Two) were satisfied or very satisfied with the program. Most agreed that the transfer was easier to use (86% vs.

91%), more flexible (85% vs. 94%), and preferable to other forms of aid (82% vs. 94%). While Cohort Two respondents were slightly more likely to agree with each statement, these differences are not statistically significant.

Timing of Transfers

Comparisons between Cohort One and Cohort Two at the endline (Wave Two) should be interpreted cautiously due to several limitations. Cohort One received a different payment amount, lacks a baseline survey, and covers a partially non-overlapping geographic area relative to Cohort Two, limiting the overall comparability between the cohorts. Despite these differences, we examine Wave Two outcomes across financial situation, housing, food security, psychological well-being, and stress (Tables B9–B14). Across these dimensions, the estimated differences between Cohort Two and Cohort One are generally small and statistically insignificant, indicating that we fail to reject the null hypothesis of no cross-cohort differences. For example, in financial situation measures such as handling major unexpected expenses or feeling hopeless financially (Table B9), the point estimates are modest (0.01–0.05) relative to Cohort One means, with standard errors of similar magnitude. Similarly, housing issues, food security, and psychological well-being outcomes show negligible differences, reinforcing the overall null pattern. These findings suggest that, despite structural differences across cohorts, the endline outcomes in Wave Two are broadly comparable, with no detectable cross-cohort effects.

In interviews with Cohort One recipients who received the $1,000 payment in the weeks following Hurricane Helene, the timing was largely viewed as appropriate, though several participants reflected on how receiving funds slightly earlier might have been even more helpful. Several noted how urgent their needs were at that time. One participant shared that they were "*really hurting… to be able to get supplies and food*," and "*kind of wish it would have been a little faster, but it did come on time*." Others echoed that it "*came in right when I needed it,*" calling it "*a blessing*" and "*a dream come true*."

While many appreciated the immediacy, others offered a nuanced view that slightly delayed payments could be more effective once "*your head's a little clear and you know, OK, this money… you have this bill over here.*" Still, several emphasized that the first few months after a storm were the most crucial for financial support, as waiting longer might have meant the money was "*less helpful*" because "*people around this area have already moved on, most have recovered or we moved to a new location and stuff like that. Other resources would have been found and used*."

Recipients of the first cohort often described the payments as timely and lifesaving in the short term. One summed it up: "*It helped me a lot, tremendously… so it worked out perfectly for me,*" while another added, "*it was perfect because look, we had Helene. And then we had freaking Christmas.*" For this group, the funds aligned closely with immediate recovery needs and filled gaps left by other aid: "*Especially when you didn't get no help from FEMA… it really did help out a lot.*"

Participants in the second cohort, who received $2,200 several months after the storm, discussed more mixed feelings about timing. While some acknowledged that it may have been more helpful closer to the storm, many also felt that receiving funds later had advantages. Several noted that "*resources had started going away*," so *"it was very valuable at the time frame that it came to us*." As one participant explained, the early days of recovery were focused on survival, but by summer, *"people have an understanding of what their needs are now."*

The idea that the funds provided stability was echoed throughout interviews with Cohort Two. Participants described that, months after the hurricane, they were better able to "*cut [their] priorities a little more straighter*" and use the money toward long-term recovery, such as buying their children school supplies, making more repairs, and keeping up-to-date on bills. Several said it "*came at the right time*" because "*once all the other resources…was running out for everyone, then the money that came, I think that it was really even more helpful to wait a little longer.*"

Some still imagined that earlier disbursement could have eased post-storm stress: "*I feel like it would have been more helpful, yes. Spent differently, probably not, but it may have, would have helped with some of the stress at the time.*" However, others noted that earlier aid might have been harder to access or use effectively, since many card machines were down, ATMs with available cash were scarce, and damaged roads made travel difficult.

The later payments were generally described as stabilizing rather than immediately life-saving. One participant summarized that "*it just came at the right time, really, for me*," while another reflected, "*I think it probably was better to actually get it a little bit after, like when you're kind of more settled down*." For this cohort, the timing allowed for more intentional and strategic spending after the initial chaos of the disaster had cleared.

Operational and Contextual Factors

To assess whether GiveDirectly's implementation effectively reached the areas most in need of assistance, we constructed a composite county-level "vulnerability" index combining pre-existing poverty conditions with the measured impact of Hurricane Helene. Poverty counts and rates were drawn from the 5-year American Community Survey, while hurricane impact was measured using landslide data from Burgi et al. (2025) and county-level power outage data from Tansakul et al. (2025). Each component—poverty count, poverty rate, power outage severity, and landslide incidence—is standardized, and the standardized values are averaged to form the composite "vulnerability" index. Appendix A2 provides a detailed description of the construction procedure.

Figure 8 displays the 40 counties with the greatest need for assistance based on our composite measure, where a lower rank (darker color) indicates higher need, among all 100 North Carolina counties. For reference, we also present rankings based on each individual component of the index. Overall, Buncombe, Yancey, and Henderson counties emerge as the three counties most in need of assistance.

Figure 8

Composite Vulnerability Index Ranking by County (1 – Worst), Top 40 Counties out of 100 NC counties

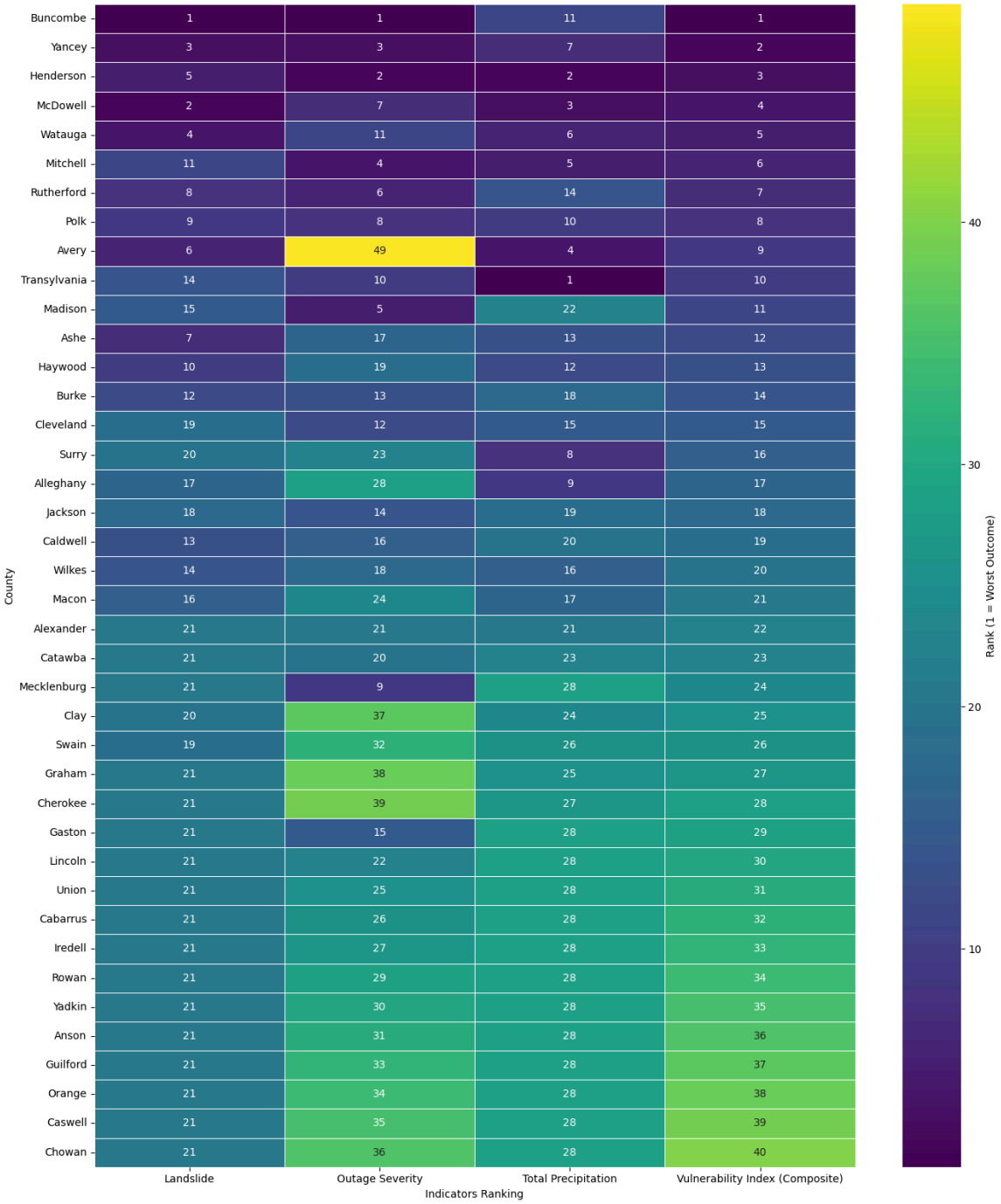
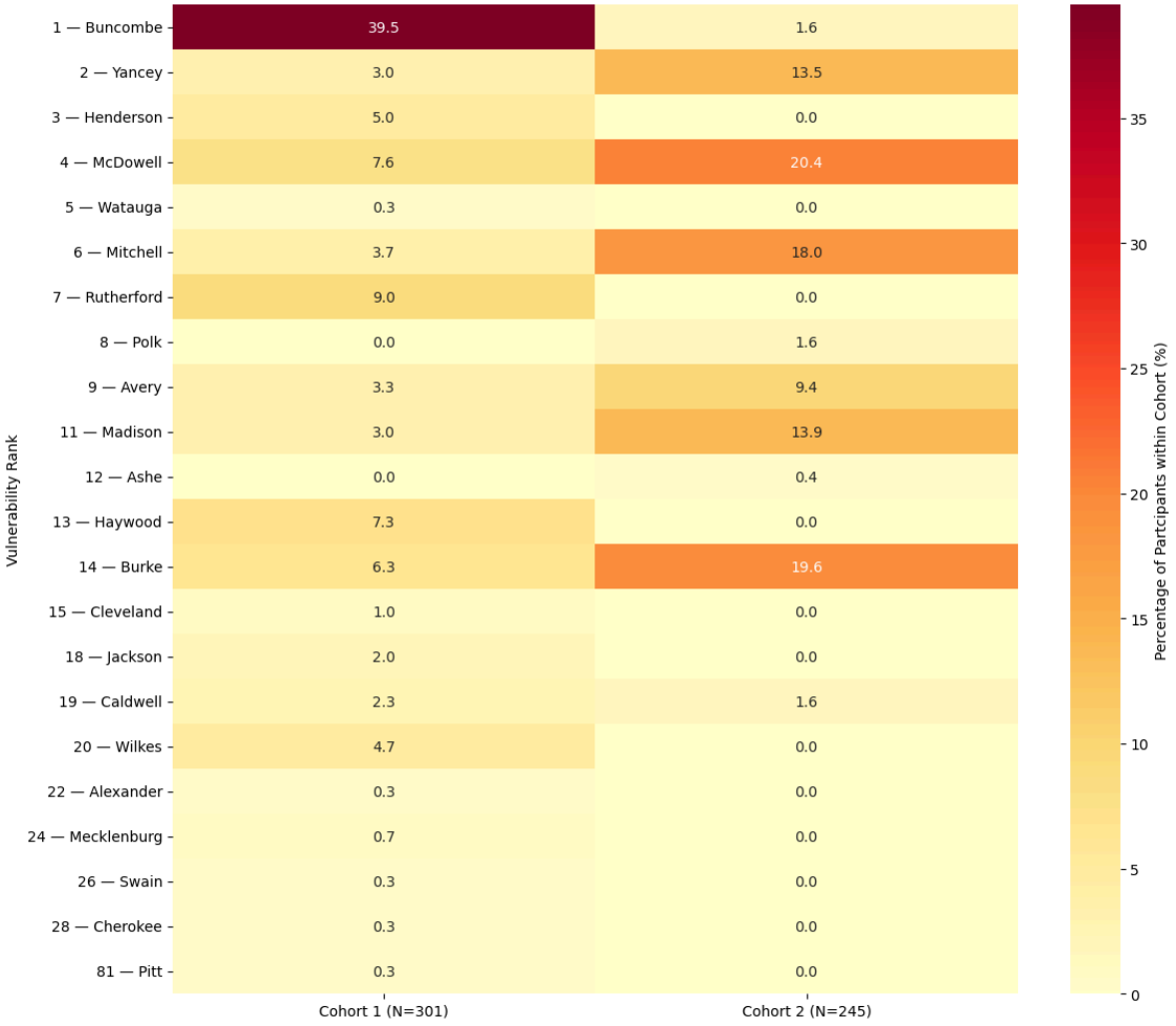


Figure 9 shows the distribution of survey participants across counties reported in the survey, separated by cohort, including those who reported living outside of western North Carolina. Although most participants appear to come from counties with higher levels of need, the spatial

distribution varies notably between cohorts. For Cohort One, approximately 40% of participants reported residing in Buncombe County, followed by Rutherford (9%), McDowell (7.6%), and Haywood (7.3%). In contrast, Cohort Two participants were primarily from McDowell (20.4%), Burke (19.6%), Mitchell (18.0%), Madison (13.9%), and Yancey (13.5%) counties. The concentration of Cohort One participants in Buncombe County is consistent with the county's high poverty levels and severe exposure to power outages and landslides. The county distribution for Cohort Two aligns closely with the intended target regions (high hurricane impact), with the main exception being that around 20% of respondents reported residing in Burke County, which was not a targeted area. Because the program intended to target Cohort Two residents in McDowell, Mitchell, Madison, Avery, and Yancey counties, implementation flaws might have occurred when prioritizing speed and ease of delivery.

Figure 9

Composite Vulnerability Index, Rankings of Counties, and Distribution of Survey Participants



Discussion

Across both cohorts, GiveDirectly's Hurricane Helene cash transfer program provided meaningful yet bounded relief amid extraordinary hardship. Participants entered the program after months of economic instability, displacement, and emotional strain. While the hurricane's physical destruction was severe, participants' accounts reveal that recovery was equally shaped by loss of income, unstable housing, and delayed institutional aid.

For example, our findings suggest that the transfers modestly improved financial well-being. Cohort Two recipients, who received $2,200 nine months after the storm, reported greater ability to pay bills and handle emergencies. However, retrospective data reveal declines in full-time employment following the hurricane, from 36–38% before Helene to 23–25% at endline. Interviews linked these losses to business closures, child care disruptions, and health complications. For many, the storm turned already-precarious work situations into crises that deepened financial fragility.

Quantitative and qualitative results further indicate modest but statistically significant improvements in well-being among Cohort Two participants. Reports of mold and structural issues declined, and the number of households experiencing no housing problems increased by nine percentage points. Food insecurity also decreased, particularly in skipping meals and affording balanced diets. Baseline scores on the WHO-5 indicated low levels of positive affect, consistent with prolonged recovery stress. Over time, modest improvements were observed in cheerfulness and activeness, but perceived stress (as measured by the PSS) remained unchanged. Qualitative findings mirrored this pattern: while the funds eased material strain, anxiety and fatigue persisted long after the storm.

Participants overwhelmingly described the transfers as simple, transparent, and flexible. More than 90% agreed that the funds were easier to use than other forms of aid. Timing of the payments further shaped participants' experiences. Cohort One viewed the aid as lifesaving and immediate; Cohort Two described it as stabilizing once other resources had been exhausted. The program's digital delivery model enabled rapid deployment but exposed barriers, including limited connectivity and skepticism. Trust in the Propel app proved crucial for uptake, underscoring the importance of credible intermediaries in delivering digital aid.

Limitations

While this study provides important insights into the impacts and efficacy of cash transfers in the wake of a natural disaster, several methodological limitations must be considered:

Lack of Pre-Post Data for Cohort One: Participants in Cohort One did not complete a baseline survey. This limits our ability to measure individual-level change over time for this subsample.

Cross-Sectional Baseline-Endline Comparisons: Only 50% of Cohort Two endline respondents completed baseline surveys. Our "change" estimates compare different samples at two time points rather than tracking individuals over time. While we control for demographics and county characteristics, we cannot rule out the possibility of selection bias if respondents differed

systematically across waves. When examining changes in housing situations for Cohort Two, we present both within-individual comparisons and comparisons across waves.

Timing Differences and Recall Bias: The timing of measurement varies significantly across cohorts. Cohort One's endline survey occurred 8–11 months after payment, while Cohort Two's data collection occurred closer to the time of disbursement. Psychological and economic impacts may have been recalled or experienced differently.

Geographic Variation: Cohort One was concentrated in Buncombe County, while Cohort Two included recipients from five different rural counties. Differences in local infrastructure damage, cost of living, and access to support services may influence both outcomes and perceived impacts of the transfer.

Selection and Recruitment Differences: Cohort One recipients enrolled solely through the Propel app with no additional outreach. In contrast, Cohort Two recruitment involved proactive engagement, including Google ads and community health workers. This may affect both the demographic makeup and engagement levels of each cohort.

Variation in Transfer Amounts: Recipients in Cohort One received a flat $1,000, while recipients in Cohort Two received $2,200. These substantial differences in payment size may have influenced how recipients used the funds, their perceived impact, and subsequent well-being outcomes. As a result, it is difficult to disentangle the timing effects from the effects of amount when comparing outcomes between the two groups.

Post-Disaster Psychological Context: A key limitation of this study is the difficulty in isolating the psychological and well-being effects of the cash transfer from the hurricane's broader impact. Trauma, loss, and disruption caused by the storm likely influence mental health outcomes, making it challenging to determine how much of the observed effect is due to the intervention versus the disaster and the amount of time removed from the event. While we attempt to control for baseline characteristics, the overlap between financial support and disaster-related trauma complicates causal interpretation.

Taken together, these limitations warrant interpretive caution. The results should be viewed as directional rather than definitive causal effects. Differences across cohorts may reflect both program design factors, such as timing and transfer size, and contextual variation in geography and infrastructure. Similarly, observed improvements in well-being and financial stability likely capture short- to medium-term recovery dynamics rather than sustained impacts. As such, the findings provide valuable descriptive evidence of how unconditional cash can support recovery in complex, real-world conditions, but future longitudinal research is needed to more precisely isolate the effects of timing and program design.

Policy and Practice Implications

This evaluation contributes to growing policy evidence that direct cash can complement, rather than replace, traditional disaster relief and community-led support efforts (Cohen, 2023). Among

program design factors, timing emerged as particularly influential. Differences in transfer amount and delivery method also played a role, though their independent effects were more difficult to isolate given overlapping program and contextual variations. Together, however, these findings suggest the value of aligning the timing, method, and scale of cash assistance with the evolving stages of disaster recovery.

Beyond program design, several implementation lessons emerged regarding the conditions that enable cash assistance to function effectively in disaster contexts. Digital delivery expanded reach and speed but worked best when paired with credible intermediaries. The Propel platform enabled efficient payments and lent legitimacy to the process, while partnerships with local organizations and community health workers strengthened trust and engagement. In addition, rural settings require tailored strategies: connectivity gaps, limited banking and retail infrastructure, and unsafe road conditions—especially in the wake of a disaster—can all limit access to digital cash unless proactively addressed.

Conclusion

The Hurricane Helene cash transfer program offers critical lessons about the role of unconditional cash in disaster recovery, particularly in rural contexts where institutional responses are often delayed or uneven. Across both cohorts, GiveDirectly's intervention provided rapid and flexible assistance that reached residents directly with minimal administrative burden. While the funds could not reverse widespread losses in employment or housing, they provided stability during the most uncertain stages of recovery, enabling participants to meet essential needs, avoid deeper debt, and regain a sense of control.

For researchers, the Western North Carolina experience offers a foundation for continued study of disaster-based cash transfers and digital aid delivery. Future work should examine long-term trajectories and explore comparative outcomes across disaster contexts. As climate-related disasters intensify, understanding when and how cash provides the most meaningful relief will remain central to building responsive, people-centered recovery systems.

Importantly, this evaluation presents one of the first opportunities to examine the timing of disaster-based cash transfers, comparing immediate and delayed distributions within the same event. Findings suggest that the timing of cash assistance significantly influences recovery trajectories: early transfers mitigate acute hardship and prevent secondary crises, while later transfers promote stabilization once other resources have been exhausted. This evidence fills a key gap in the growing cash-relief literature and underscores a crucial implication for philanthropy and policy alike: when funds are delivered can be as transformative as how much is given or to whom. By strategically sequencing and coordinating cash delivery across recovery phases, funders can help ensure that assistance not only arrives quickly but also endures long enough to support long term resilience.

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Appendix A: Technical Notes

A1: Regression Framework

We conduct a series of linear regressions to assess both the before-after changes for Cohort Two and the cross-cohort differences for Wave Two outcomes.

Prior to analysis, all ordinal categorical variables are converted into binary indicators. For financial outcomes, responses of “somewhat,” “very well,” or “completed” are coded as 1, while “not at all” or “very little” are coded as 0. For psychological outcomes, responses of “more than half,” “most of the time,” or “all of the time” are coded as 1, and “at no time,” “less than half,” or “some of the time” are coded as 0. For stress-related outcomes, responses of “fairly often” or “very often” are coded as 1, and “never,” “almost never,” or “sometimes” are coded as 0.

For the before-after comparison, given the substantial overlap in respondents’ geography across waves, we exploit within-county variation in outcomes using the following regression:

$$Y_{ic} = \alpha + \beta \cdot wave2_{ic} + \gamma X_i + \delta_c + \varepsilon_{ic}$$

Here, δ_c represents county fixed effects, X_i includes individual-level characteristics such as age, gender, and race/ethnicity, and standard errors are clustered at the county level. County fixed effects control for unobserved factors that are constant within each county, individual characteristics adjust for differences across people, and clustering standard errors at the county level accounts for correlations among observations within the same county.

For the cross-cohort comparison, due to limited geographic overlap across cohorts, including county fixed effects would result in a large loss of observations. Instead, we replace county fixed effects with county-level measures of hurricane impact, including outage severity, landslide counts, and pre-existing poverty outcomes, while again controlling for individual characteristics such as age, gender, and race/ethnicity. The regression is specified as:

$$Y_{ic} = \alpha + \beta \cdot cohort2_{ic} + \gamma X_i + \zeta Z_c + \varepsilon_{ic}$$

Here, Z_c is a vector of county-level hurricane impacts and poverty measures, X_i includes individual-level characteristics, and standard errors are clustered at the county level.

A2: Construction of Composite Measure on Counties in Need

[1] Construction of Power Outage Severity Index
We compute county-by-date level power outage measures, including the number of outage cases and the total number of customers served. From these data, we construct three key metrics: (a) the average outage rate during the post-hurricane period, defined as the number of

cases divided by total customers (capped at 1); (b) the average number of impacted customers over the period; and (c) the peak index, calculated as the maximum number of impacted customers divided by total customers. Each metric is standardized, and equal weights are applied to derive a composite severity index.

Figure B14 shows the power outage rate over time for the 30 most impacted counties, Figure B15 presents the corresponding customer counts, and Figure B16 displays the three standardized measures in a radar plot for the top impacted counties. Figure 1 illustrates the spatial distribution of the severity index, with the average outage rate highlighted in three counties.

[2] Construction of Landslide Index
We create the landslide index by standardizing the county-level landslide case counts. Figure 2 presents the landslide map, color-coded by the intensity of landslide counts.

[3] Construction of Total Precipitation Index
We aggregate the data to the county level using a population-weighted measure. The precipitation amounts are then converted into a standardized index, where higher values indicate greater precipitation during the hurricane period.

[4] Construction of Poverty Weights
For each county in North Carolina, we extract the county-level total poverty counts (number of households) from the 5-year ACS data. We then apply the county level poverty count weights to outage severity, landslide, and total precipitation indices.

[5] Final Step: Vulnerability Index
The Vulnerability Index is calculated as the weighted sum of the three (poverty-weighted) indices constructed in the previous steps. Figure 8 displays the 40 counties with the highest levels of need according to this measure.

A3: Data Quality

Among Cohort Two participants that participated in both waves, 73.98% reported the same age across the two survey waves, while 20.33% showed a one-year increase, consistent with the one-year interval between waves. A small fraction (about 2.5%) reported inconsistent changes (e.g., -1, +2, or +3 years).

Appendix B: Exhibits

Table B1: *Participant Characteristics by Cohort and Survey Wave — Cohort One ($1,000, Oct-Dec 2024, Wave Two Only) and Cohort Two ($2,200, June 2025, Waves 1 & 2)*

Variable	**(1) Co2Wa1**	**(2) Co2Wa2**	**(3) Co1Wa2**	**(1)-(2)**	**(2)-(3)**
Age	39.00 (11.26)	41.70 (12.09)	43.73 (11.21)	-2.70* (1.05)	2.04* (1.00)
Female	0.90 (0.31)	0.90 (0.30)	0.91 (0.29)	-0.00 (0.03)	0.01 (0.03)
Race (%)					
Black	0.08 (0.27)	0.07 (0.26)	0.24 (0.43)	0.00 (0.02)	0.16*** (0.03)
Hispanic	0.03 (0.17)	0.02 (0.14)	0.05 (0.21)	0.01 (0.01)	0.03 (0.02)
White	0.91 (0.29)	0.90 (0.29)	0.74 (0.44)	0.00 (0.03)	-0.16*** (0.03)
Asian	0.00 (0.00)	0.00 (0.06)	0.01 (0.10)	-0.00 (0.00)	0.01 (0.01)
Other	0.89 (0.31)	0.90 (0.30)	0.71 (0.45)	-0.01 (0.03)	-0.19*** (0.03)
County (%)					
McDowell	0.25 (0.43)	0.20 (0.40)	0.08 (0.27)	0.04 (0.04)	-0.13*** (0.03)
Buncombe	0.01 (0.09)	0.02 (0.13)	0.39 (0.49)	-0.01 (0.01)	0.38*** (0.03)
Burke	0.22 (0.41)	0.20 (0.40)	0.06 (0.24)	0.02 (0.04)	-0.13*** (0.03)
Mitchell	0.17 (0.38)	0.18 (0.38)	0.04 (0.19)	-0.01 (0.03)	-0.14*** (0.03)
Yancey	0.13 (0.34)	0.13 (0.34)	0.03 (0.17)	-0.01 (0.03)	-0.10*** (0.02)
Madison	0.11 (0.32)	0.14 (0.35)	0.03 (0.17)	-0.03 (0.03)	-0.11*** (0.02)
Avery	0.09 (0.29)	0.09 (0.29)	0.03 (0.18)	-0.00 (0.03)	-0.06** (0.02)
Rutherford	0.00 (0.00)	0.00 (0.00)	0.09 (0.29)	0.00 (0.00)	0.09*** (0.02)
Other	0.02 (0.15)	0.04 (0.20)	0.25 (0.43)	-0.02 (0.02)	0.21*** (0.03)
Observations	248	246	303		

Notes: means are reported with standard deviations in parentheses. Columns (1)–(3) show sample means for Cohort Two Wave 1 (Co2Wa1), Cohort Two Wave 2 (Co2Wa2), and Cohort One Wave 2 (Co1Wa2), respectively. Columns (4) and (5) report mean differences across groups with standard errors in parentheses. Statistical significance levels are denoted by * p<0.05, ** p<0.01, *** p<0.001.

Table B2: *Financial Situation, Cohort Two*

	(1)	(2)	(3)	(4)	(5)
	Handle major unexpected expense	**Secure financial future**	**Feel hopeless financially**	**Enjoy life financially**	**Just getting by**
Endline	0.0660**	0.0334	0.0132	0.0831**	0.0315
	(0.0143)	(0.0218)	(0.0380)	(0.0241)	(0.0587)
Baseline Co2 Mean	0.1089	0.2863	0.8750	0.3508	0.4782
Controls	Yes	Yes	Yes	Yes	Yes
Observation	485	485	485	485	485

Table B3: *Financial Situation, Cohort Two, continued*

	(1)	(2)	(3)	(4)	(5)
	Money won't last	**Gift causes strain**	**Money left over**	**Behind on finances**	**Finances control life**
Endline	-0.0113	-0.0119	0.0422*	-0.0371	-0.00976
	(0.0185)	(0.0245)	(0.0200)	(0.0285)	(0.0210)
Baseline Co2 Mean	0.9355	0.9194	0.1290	0.9073	0.9194
Controls	Yes	Yes	Yes	Yes	Yes
Observation	485	485	485	485	485

Table B4: *Housing Situation Before and After Cash Transfers — Cohort One ($1,000, Oct-Dec 2024, Endline/Wave Two) and Cohort Two ($2,200, June 2025, Baseline/Wave One and Endline/Wave Two)*

	(1)	(2)	(3)	(4)	(5)	(6)
Housing Category	**Co2Wa1 (Count)**	**Co2Wa1 (%)**	**Co2Wa2 (Count)**	**Co2Wa2 (%)**	**Co1Wa2 (Count)**	**Co1Wa2 (%)**
Unhoused	8	3.32	8	3.27	12	4.04
Shelter	7	2.90	7	2.86	5	1.68
Hotel	13	5.39	8	3.27	6	2.02
Family/friends	26	10.79	26	10.61	23	7.74
Rent	127	52.70	120	48.98	177	59.60
Own	47	19.50	66	26.94	64	21.55
Student housing	0	0.00	0	0.00	2	0.67
Other	13	5.39	10	4.08	8	2.69
Observations	**241**		**245**		**297**	

Notes: this table reports the distribution of housing categories (in counts and percentages) across waves and cohorts: Cohort Two Wave 1 (Co2Wa1), Cohort Two Wave 2 (Co2Wa2), and Cohort One Wave 2 (Co1Wa2), respectively. The difference in housing category distributions between columns (2) and (4) is statistically insignificant (Pearson $\chi^2(6) = 4.94$, $p = 0.55$), as is the difference between columns (4) and (6) (Pearson $\chi^2(7) = 9.90$, $p = 0.19$).

Table B5:*Housing Problems at Baseline and Endline — Cohort Two ($2,200 Transfer, June 2025): Wave One (Pre-Transfer) to Wave Two (Post-Transfer)*

	Utility Issue	**Structural Issue**	**Health/ Pests Issue**	**Other Issue**	**No Issue**
Endline	-0.0488	-0.0841*	-0.0694	-0.0241	0.0928*
	(0.0324)	(0.0410)	(0.0395)	(0.0264)	(0.0398)
Baseline Co2 Mean	0.2177	0.4718	0.5202	0.1229	0.246
WNC mean (<100% FPL)	0.2140	0.2830			
WNC mean (100-200% FPL)	0.1610	0.2920			
Controls	Yes	Yes	Yes	Yes	Yes
Observations (N)	485	485	485	485	485

Table B6: *Food Security Before and After $2,200 Cash Transfer — Cohort Two Baseline (Wave One, June 2025) to Endline (Wave Two, August 2025, N=467-485)*

	(1)	(2)	(3)	(4)	(5)
	Food didn't last	**Unbalanced meals**	**Cut meals**	**Ate less**	**Hungry**
Endline	-0.0493	-0.0717**	-0.0765	-0.0641	-0.139**
	(0.0299)	(0.0213)	(0.0429)	(0.0439)	(0.0331)
Baseline Co2 Mean	0.4025	0.4641	0.6935	0.6895	0.5684
WNC mean (<100% FPL)	0.6420				
WNC mean (100-200% FPL)	0.5100				
Controls	Yes	Yes	Yes	Yes	Yes
Observations (N)	467	470	485	485	485

Table B7: *Positive Affect (WHO-5) Before and After $2,200 Cash Transfer — Cohort Two Baseline (Wave One, June 2025) to Endline (Wave Two, August 2025, N=485)*

	(1)	(2)	(3)	(4)	(5)
	Felt Cheerful	**Felt Calm**	**Felt Active**	**Rested**	**Interested**
Endline	0.0866*	0.0431	0.0949**	0.00733	0.0427
	(0.0394)	(0.0360)	(0.0337)	(0.0315)	(0.0377)
Baseline Co2 Mean	0.3790	0.2581	0.1814	0.1694	0.2419
Controls	Yes	Yes	Yes	Yes	Yes
Observation	485	485	485	485	485

Table B8: *Perceived Stress (PSS-4) Before and After $2,200 Cash Transfer — Cohort Two Baseline (Wave One, June 2025) to Endline (Wave Two, August 2025, N=485)*

	(1)	(2)	(3)	(4)
	Felt unable to control things	**Felt confident handling problems**	**Felt things were going your way**	**Felt difficulties piling up**
Endline	-0.0763	-0.0138	0.0484	-0.0503
	(0.0405)	(0.0394)	(0.0285)	(0.0408)
Baseline Co2 Mean	0.4637	0.3024	0.0968	0.5605
Controls	Yes	Yes	Yes	Yes
Observations (N)	485	485	485	485

Table B9: *Financial Situation, Cross Cohort, Wave Two*

	(1)	(2)	(3)	(4)	(5)
	Handle major unexpected expense	**Secure financial future**	**Feel hopeless financially**	**Enjoy life financially**	**Just getting by**
Cohort Two	0.0448	0.0429	0.0128	0.0307	0.0500
	(0.0290)	(0.0376)	(0.0384)	(0.0426)	(0.0524)
Endline Co1 Mean	0.1320	0.2904	0..8878	0.3861	0.6842
Controls	Yes	Yes	Yes	Yes	Yes
Observation	533	533	533	533	533

Table B10: *Financial Situation, Cross Cohort, Wave Two, continued*

	(1)	(2)	(3)	(4)	(5)
	Money won't last	**Gift causes strain**	**Money left over**	**Behind on finances**	**Finances control life**
Cohort Two	0.0469	0.0246	-0.0223	0.0099	0.0286
	(0.0365)	(0.0291)	(0.0360)	(0.0342)	(0.0298)
Endline Co1 Mean	0.9109	0.8977	0.1782	0.8812	0.8944
Controls	Yes	Yes	Yes	Yes	Yes
Observation	533	533	533	533	533

Table B11: *Housing Problems at Endline Comparison — Cohort One ($1,000, 8-10 Months Post-Transfer) vs. Cohort Two ($2,200, 2 Months Post-Transfer, N=533)*

	Utility Issue	**Structural Issue**	**Health/ Pests Issue**	**Other Issue**	**No Issue**
Cohort Two	-0.0398	-0.0142	-0.0129	0.0197	-0.0256
	(0.0366)	(0.0505)	(0.0511)	(0.0297)	(0.0502)
Endline Co1 Mean	0.1650	0.3564	0.4422	0.0759	0.3894
WNC mean (<100% FPL)	0.2140	0.2830			
WNC mean (100-200% FPL)	0.1610	0.2920			
Controls	Yes	Yes	Yes	Yes	Yes
Observations (N)	533	533	533	533	533

Table B12: *Food Security at Endline Cross-Cohort Comparison — Cohort One ($1,000, 8-10 Months Post-Transfer) vs. Cohort Two ($2,200, 2 Months Post-Transfer, N=523-533)*

	(1)	(2)	(3)	(4)	(5)
	Food didn't last	**Unbalanced meals**	**Cut meals**	**Ate less**	**Hungry**
Cohort Two	-0.0289	-0.0739	-0.0644	-0.0498	-0.0615
	(0.0397)	(0.0445)	(0.0673)	(0.0525)	(0.0331)
Endline Co1 Mean	0.4133	0.4515	0.7063	0.7029	0.5148
WNC mean (<100% FPL)	0.6420				
WNC mean (100-200% FPL)	0.5100				
Controls	Yes	Yes	Yes	Yes	Yes
Observations (N)	523	524	533	533	533

Table B13: *Positive Affect (WHO-5) at Endline Cross-Cohort Comparison — Cohort One ($1,000, 8-10 Months Post-Transfer) vs. Cohort Two ($2,200, 2 Months Post-Transfer, N=533)*

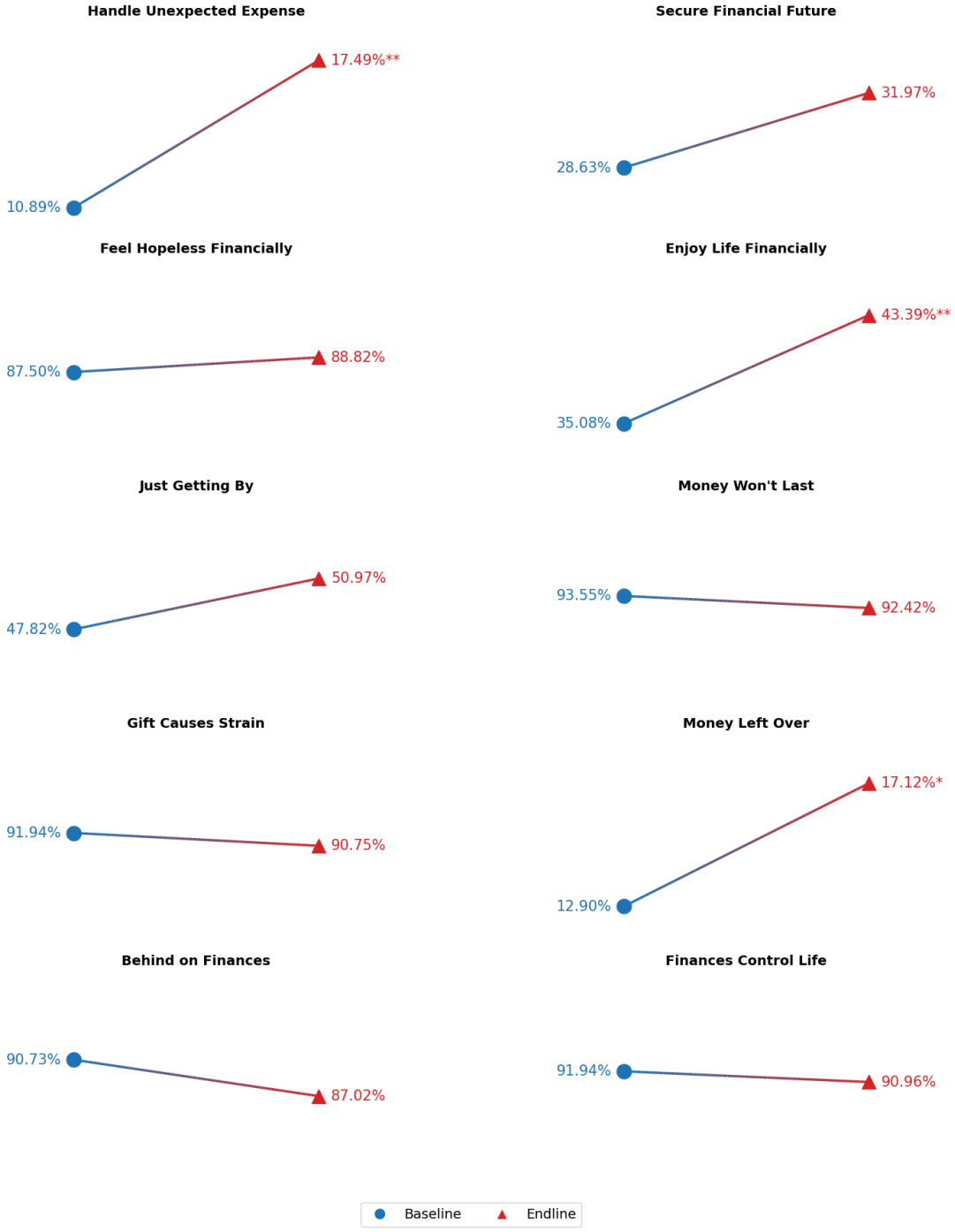
	(1)	(2)	(3)	(4)	(5)
	Felt Cheerful	**Felt Calm**	**Felt Active**	**Rested**	**Interested**
Cohort Two	-0.0141	0.0091	0.0100	-0.0180	-0.0157
	(0.0756)	(0.0683)	(0.0635)	(0.0290)	(0.0488)
Endline Co1 Mean	0.4455	0.3069	0.2574	0.2145	0.2837
Controls	Yes	Yes	Yes	Yes	Yes
Observation	533	533	533	533	533

Table B14: *Perceived Stress (PSS-4) at Endline Cross-Cohort Comparison — Cohort One ($1,000, 8-10 Months Post-Transfer) vs. Cohort Two ($2,200, 2 Months Post-Transfer, N=533)*

	(1)	(2)	(3)	(4)
	Felt unable to control things	**Felt confident handling problems**	**Felt things were going your way**	**Felt difficulties piling up**
Cohort Two	-0.0714	-0.0518	0.0093	-0.0220
	(0.0620)	(0.0407)	(0.0291)	(0.0467)
Endline Co1 Mean	0.4851	0.3135	0.1287	0.5545
Controls	Yes	Yes	Yes	Yes
Observations (N)	533	533	533	533

Figure B1:

Financial Situation Before and After $2,200 Cash Transfer — Cohort Two Baseline (Wave One, June 2025) to Endline (Wave Two, August 2025) for in 10 Financial Indicators



Notes: Statistical significance levels are denoted by * p<0.05, ** p<0.01, *** p<0.001.

Figure B2:
Cohort Two – Housing Situation across Waves (Transition Matrix)
Panel A: Percent of Baseline Respondents (values in each row add up to 100%)

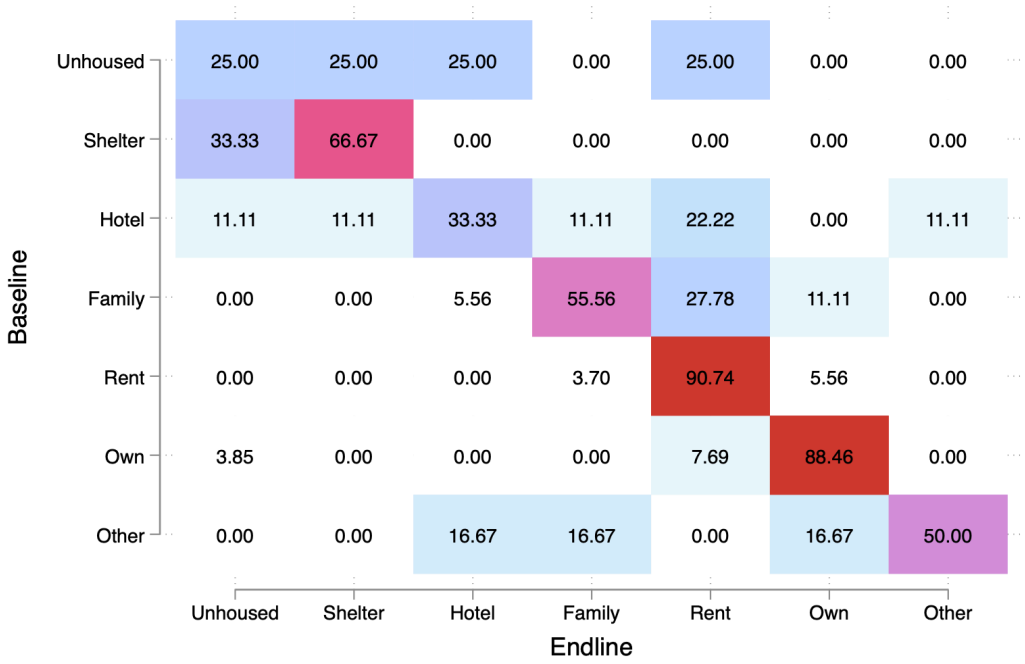
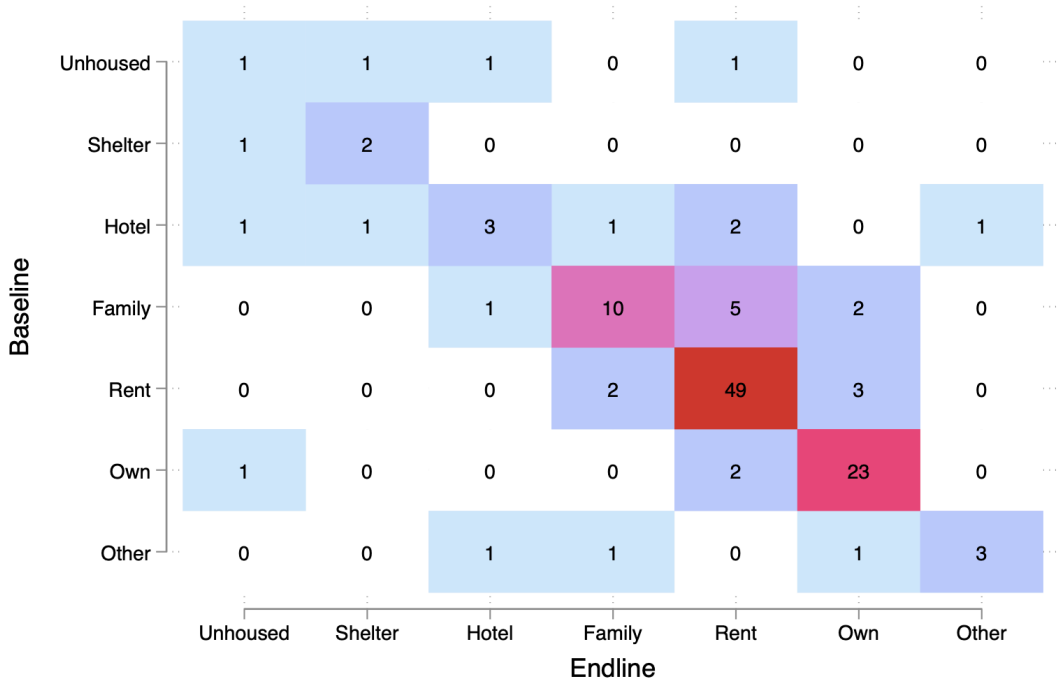
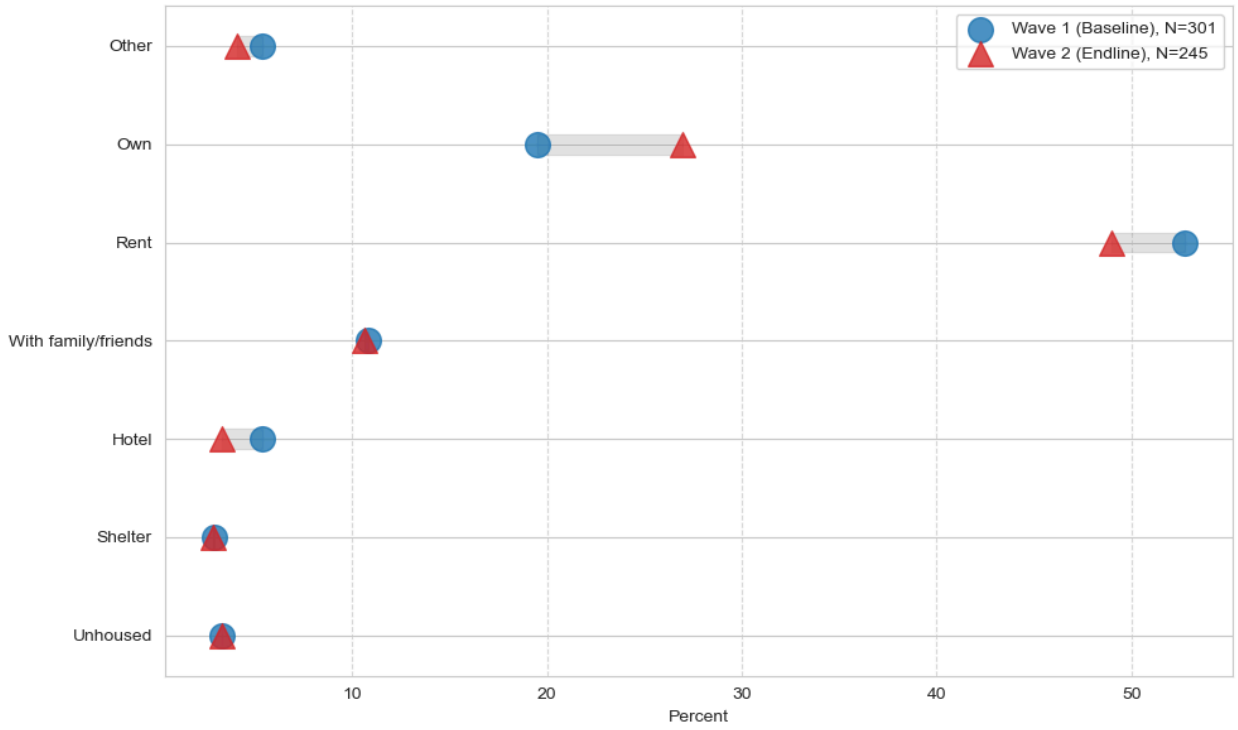


Figure B3: *Counts of Respondents*



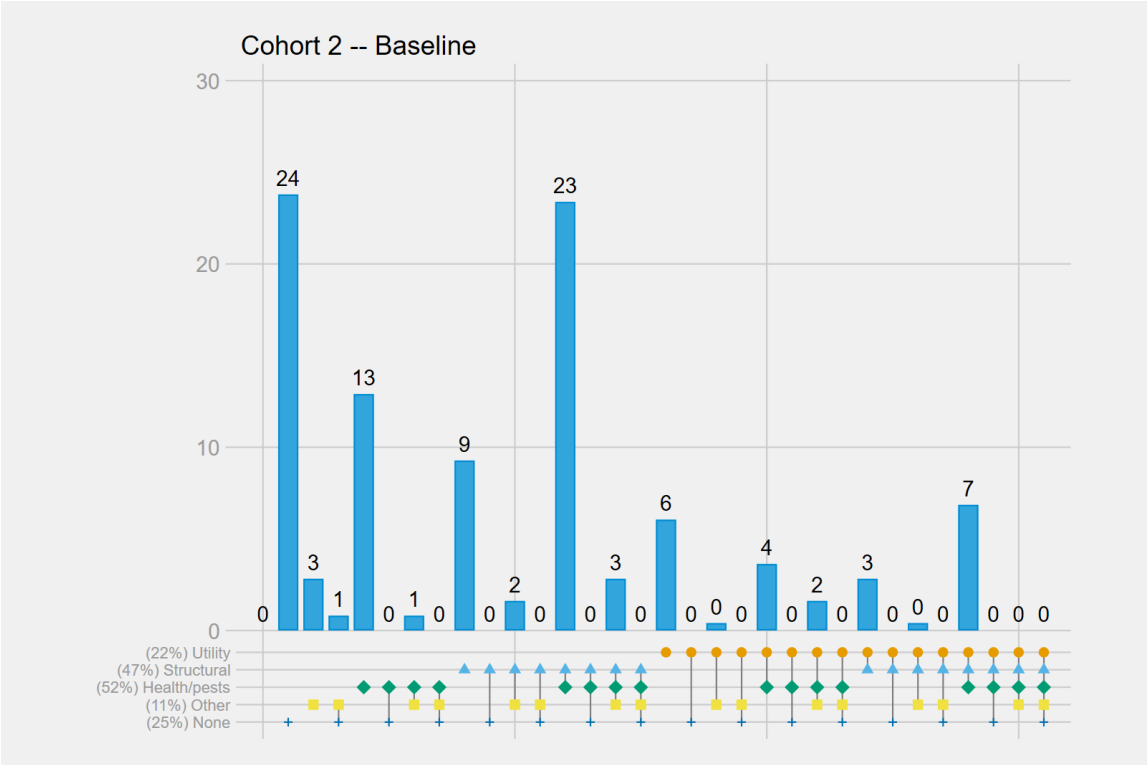
Notes: sample includes 123 Cohort Two participants who completed both the baseline and endline surveys.

Figure B4:
Housing Situation, Cohort Two, with all sample



Notes: this figure shows the distribution of subjects' housing arrangements across waves, using the full sample of survey respondents from Cohort Two. Only 50% of Cohort Two endline respondents completed the baseline survey

Figure B5:
Stacked bar charts showing specific housing problems within each category at baseline (June 2025) and endline (August 2025). Top panel shows baseline; bottom panel shows endline.



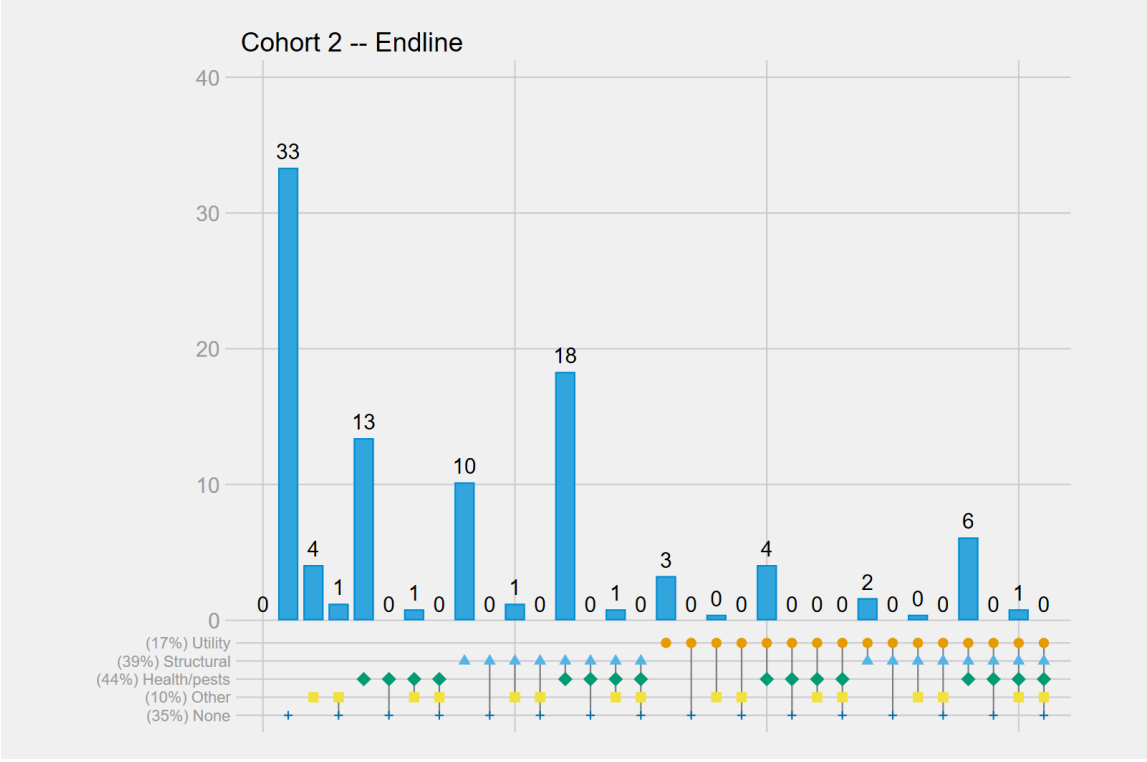
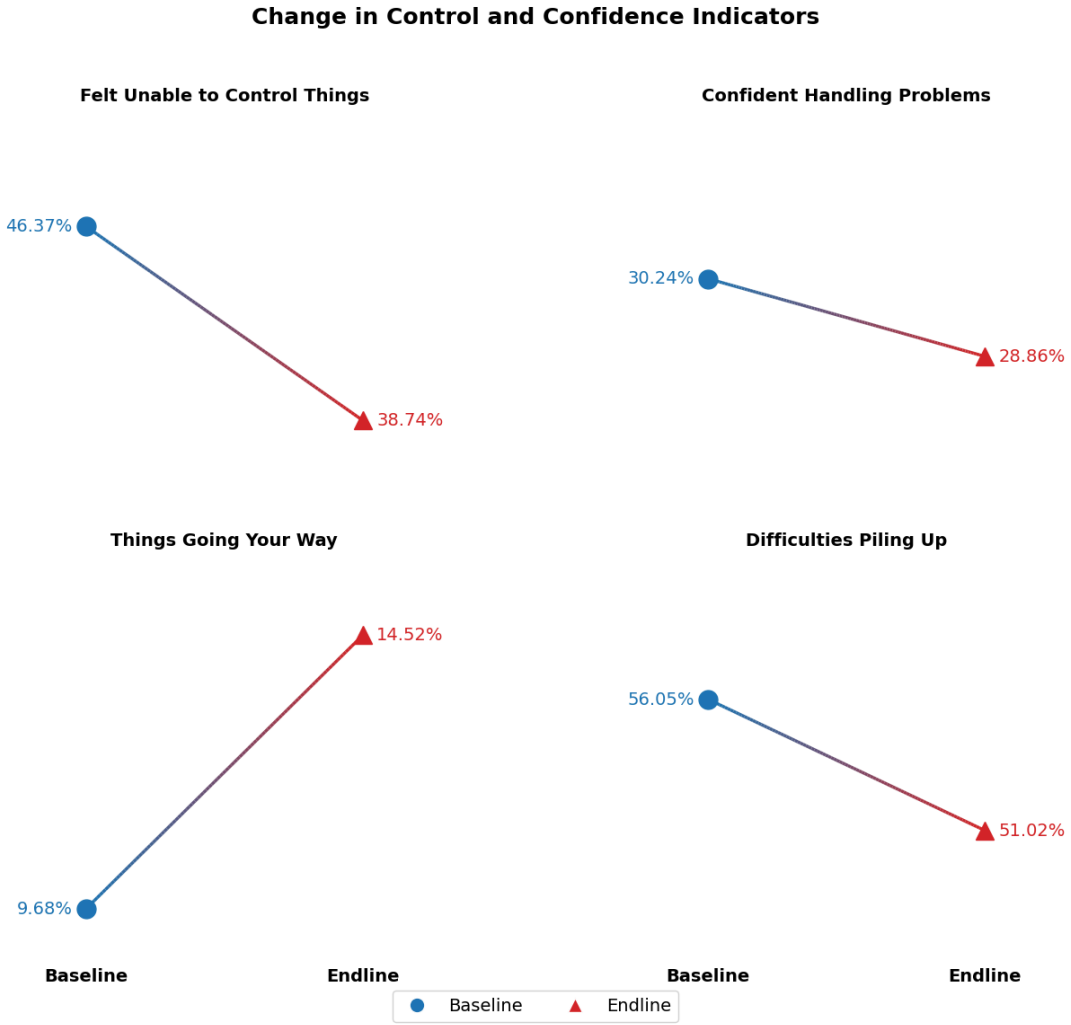
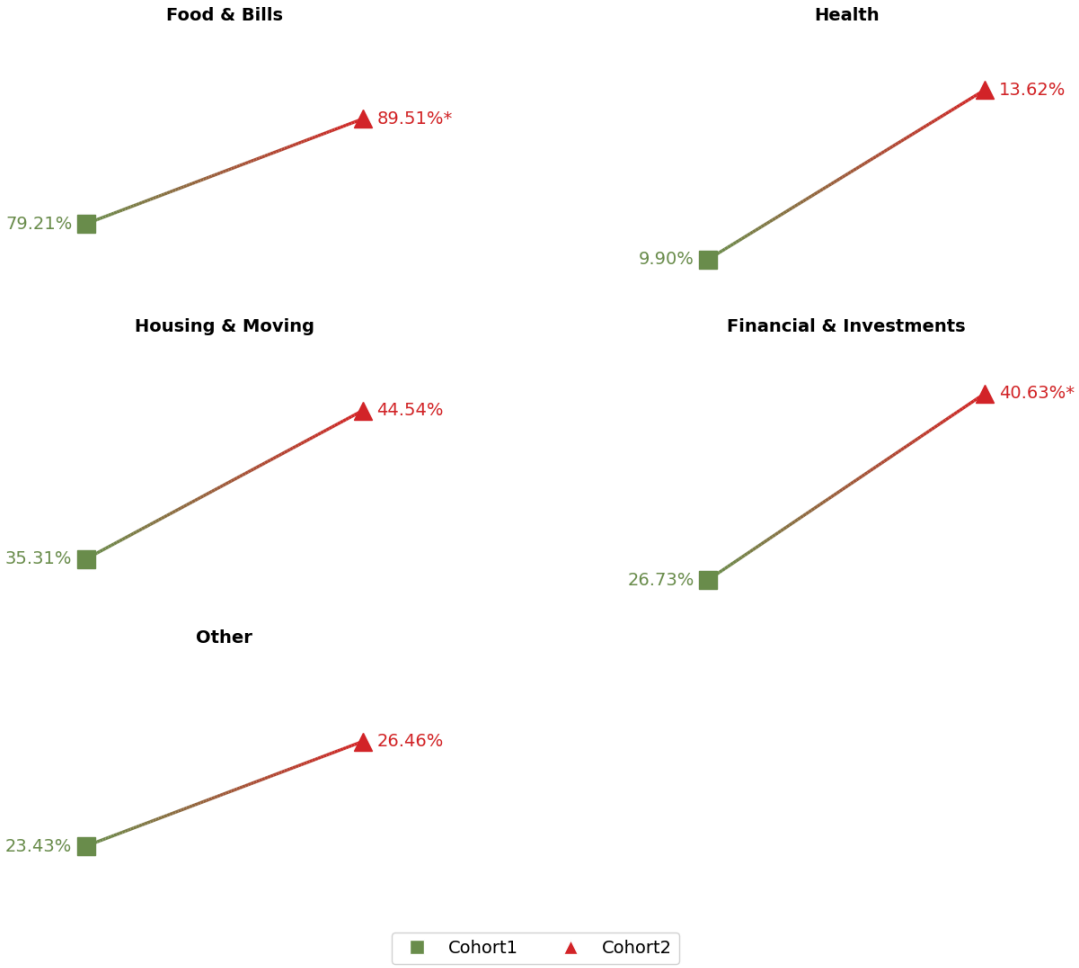


Figure B6:
Stress, Cohort Two



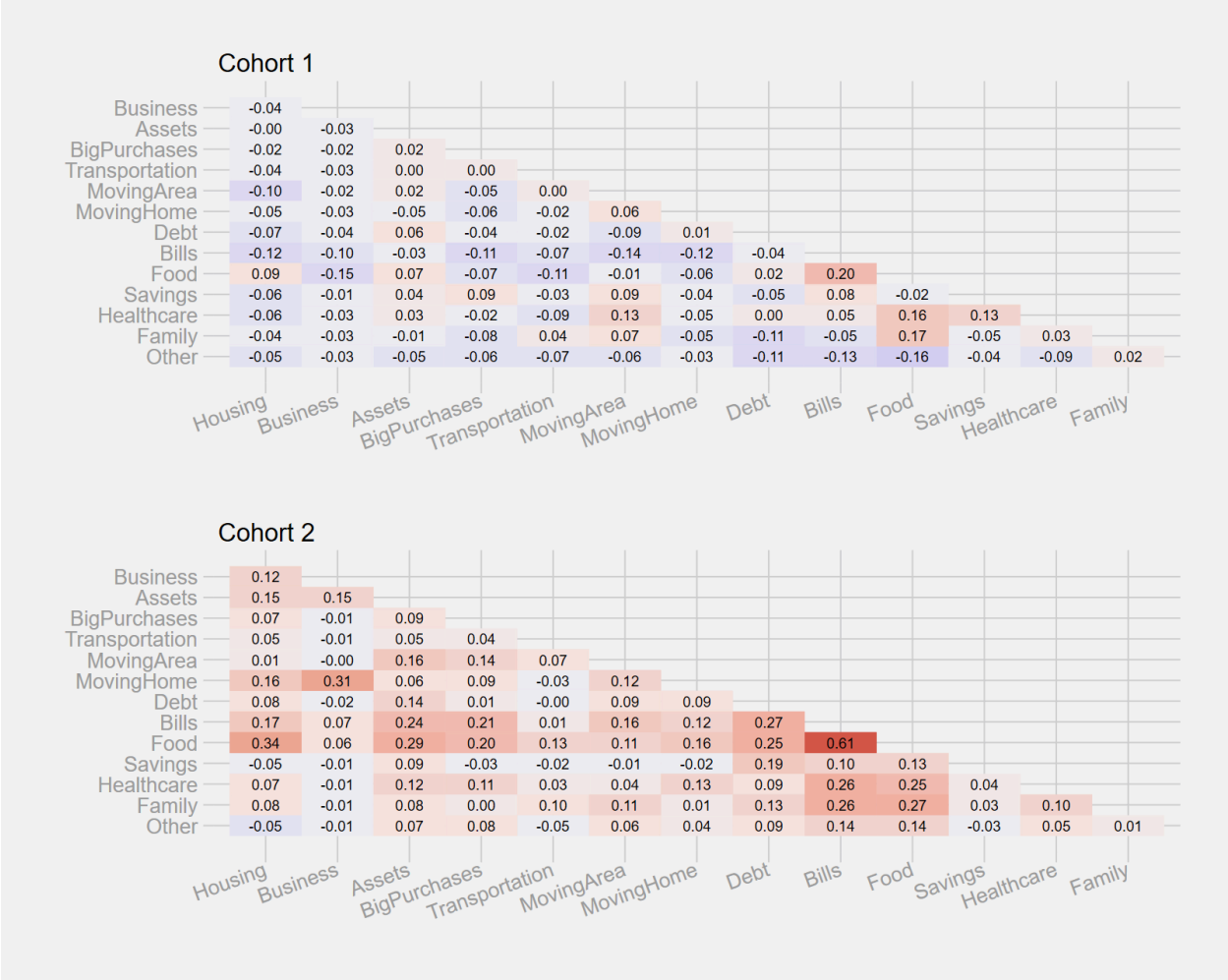
Notes: Statistical significance levels are denoted by * p<0.05, ** p<0.01, *** p<0.001.

Figure B7:
Spending patterns (% reporting spending in each broad category), comparing Cohort One and Cohort Two.



Notes: Statistical significance levels are denoted by * p<0.05, ** p<0.01, *** p<0.001. Food & Bills includes food- and bill-related spending. Health includes health-related spending. Housing & Moving covers housing, moving (area or home), and hurricane-related spending. Financial & Investments includes debt payments, savings, asset purchases, and major purchases. Other includes business, transportation, family, and miscellaneous spending.

Figure B8:
Correlation Heatmap of Spending Category Co-occurrences



Notes: The figure shows the correlations between different spending categories in the endline survey, separated by cohorts. Correlations range from -1 to +1: a positive value (warm color) means that the pair of spending categories tends to move together, while a negative value (cool color) means they tend to move in opposite directions

Figure B9:
Cohort One, Detailed Spending Patterns (Endline)

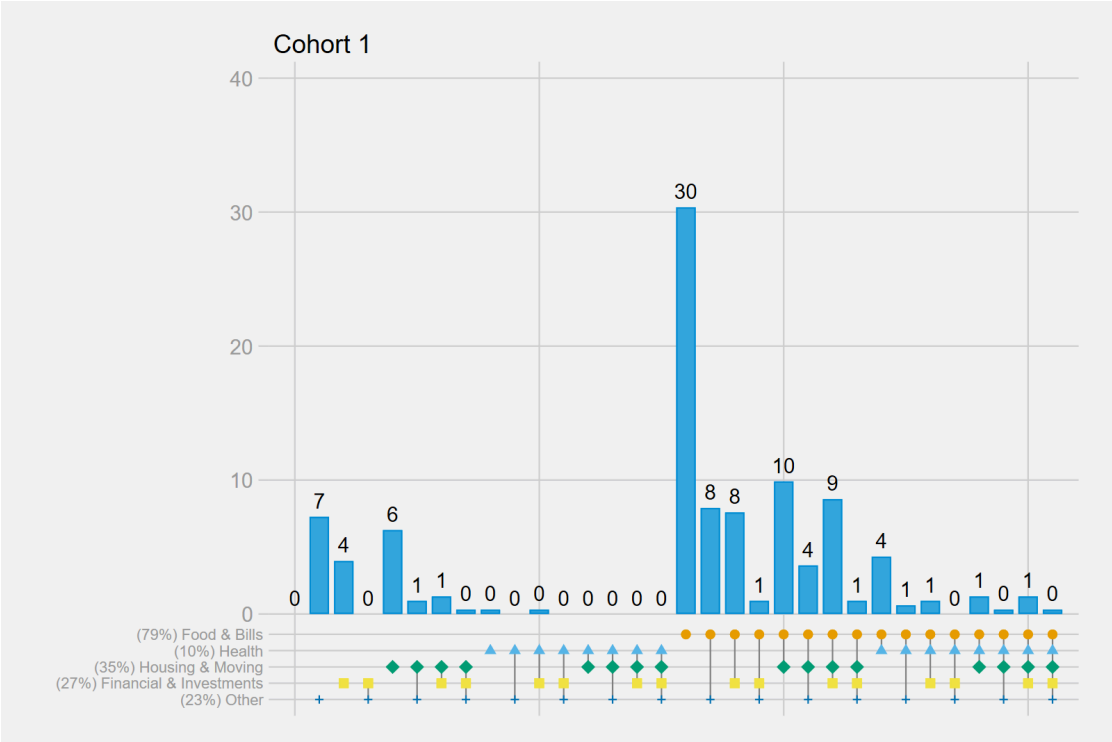


Figure B10:
Cohort Two, Detailed Spending Patterns (Endline)

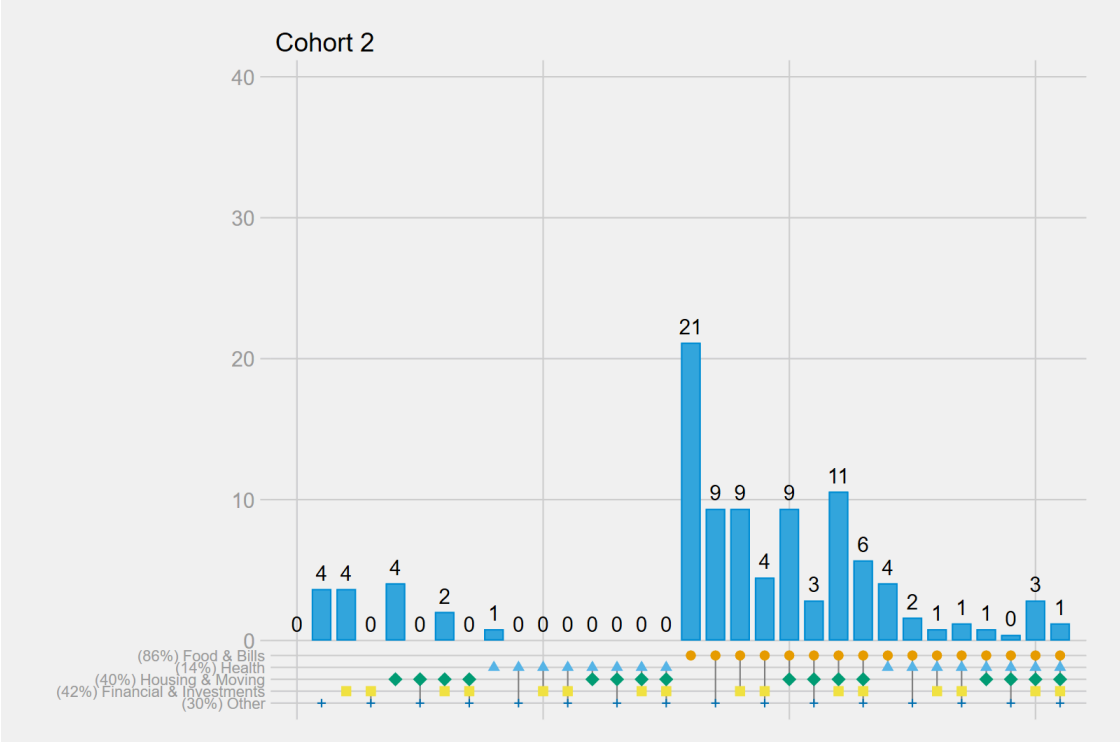
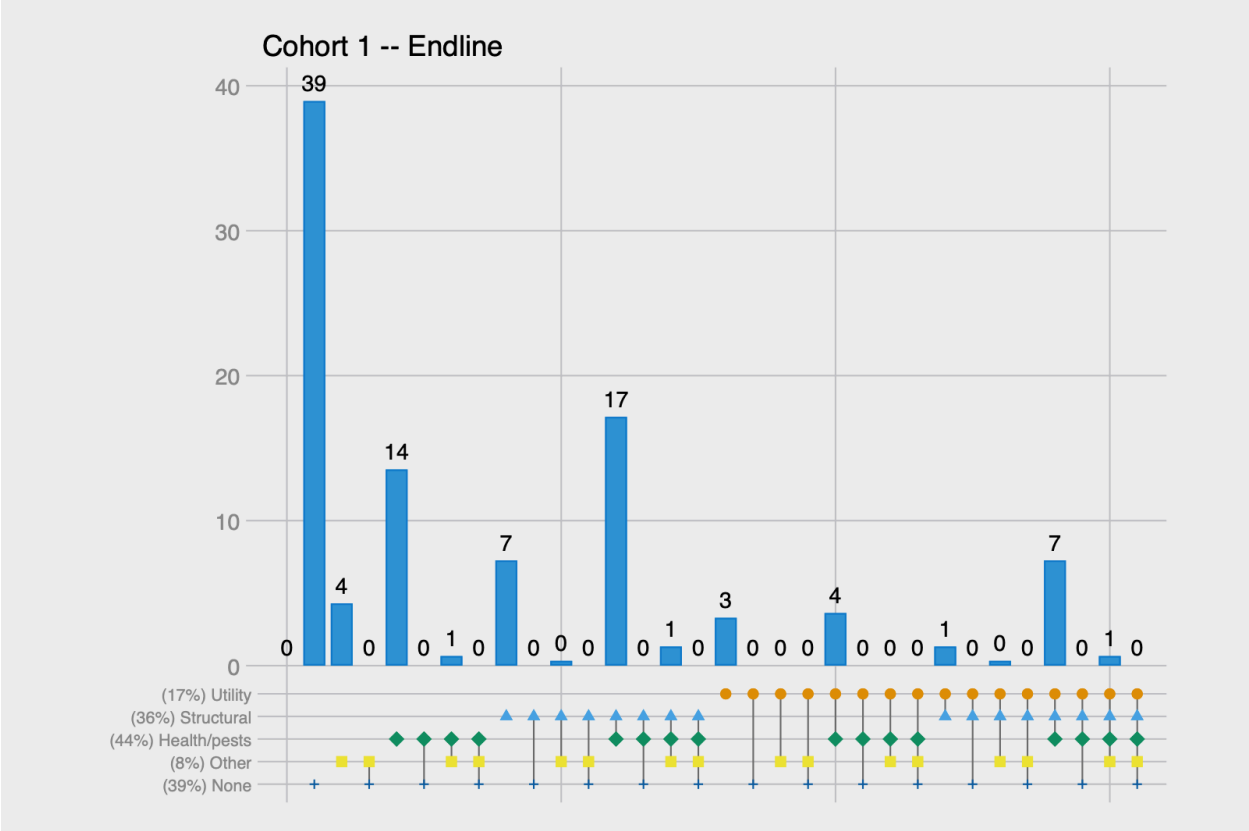


Figure B11:
Cohort One – Housing-Related Problems (Endline)



Notes: the figure shows the percentage distribution of housing-related problems reported by Cohort One in the endline survey. The vertical axis indicates percentages, while the horizontal axis displays all possible combinations of problems across five categories: Utilities, Structural, Health/Pests, Other, and None

Figure B12:
Employment Status

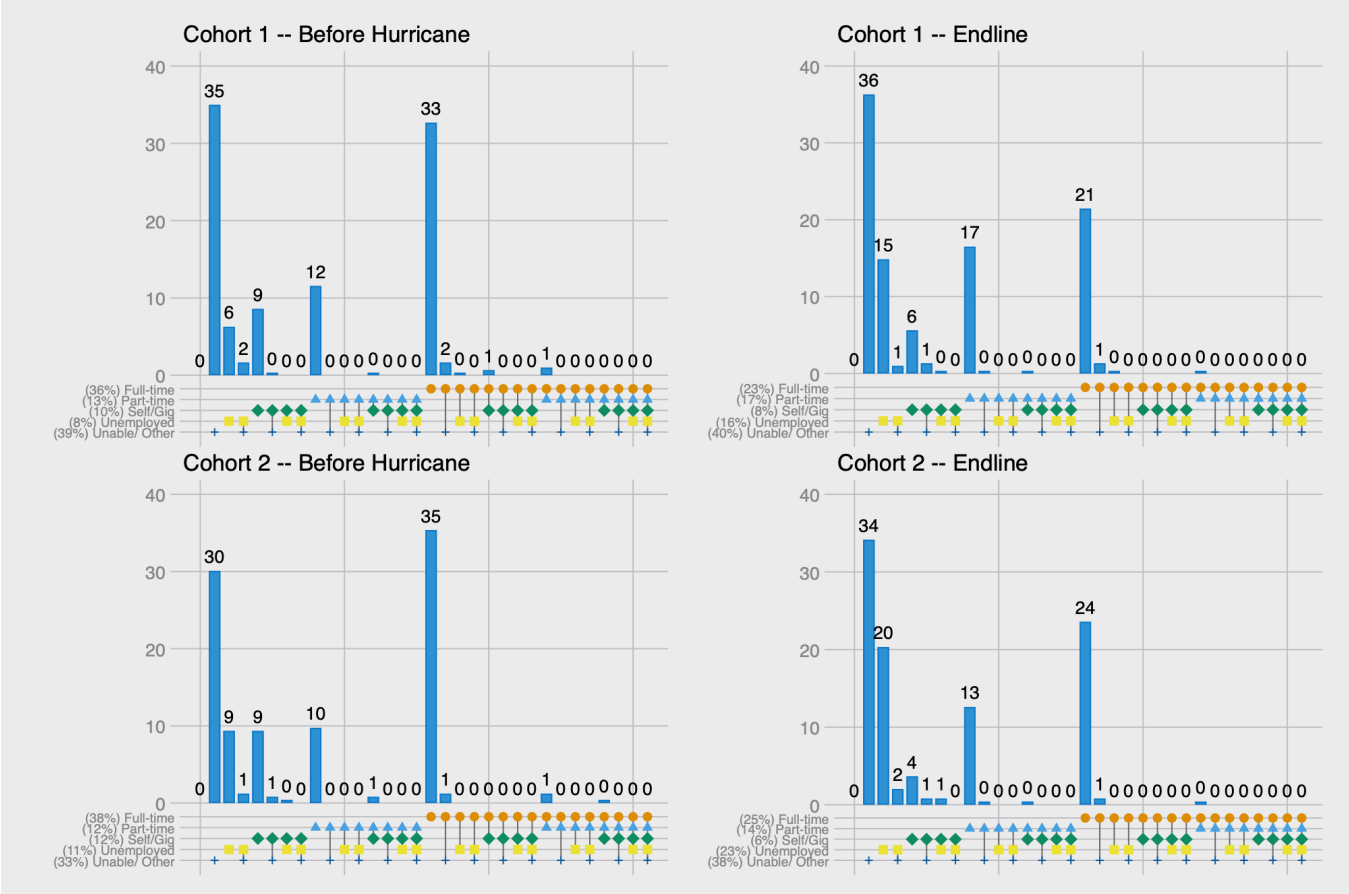
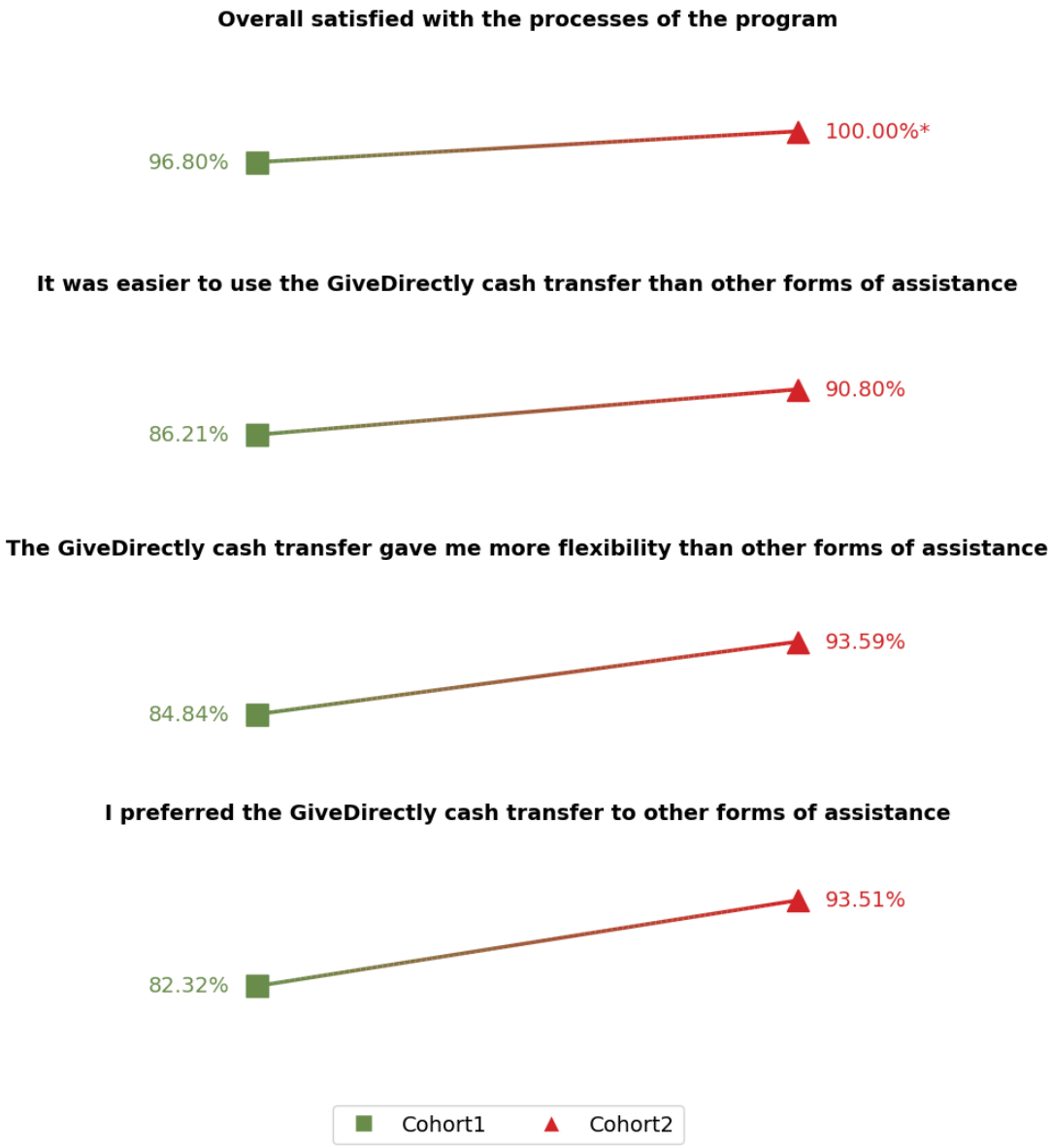


Figure B13:
Attitudes towards GiveDirectly, by Cohort



Notes: Statistical significance levels are denoted by * p<0.05, ** p<0.01, *** p<0.001.

Figure B14:

Power Outage Rate Over Time, Top 30 Impacted Counties

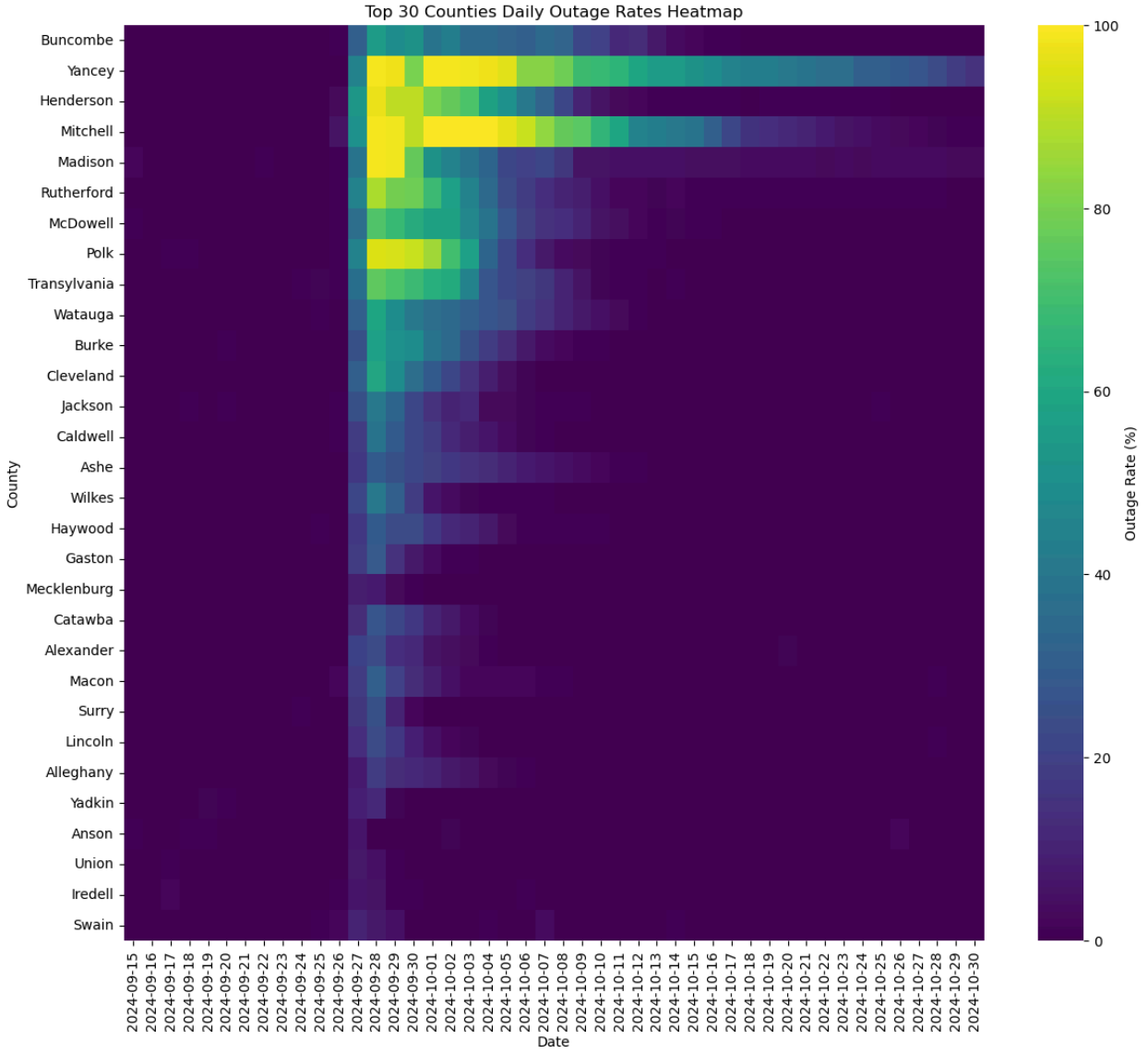


Figure B15:

Power Outage Customer Counts Over Time, Top 30 Impacted Counties

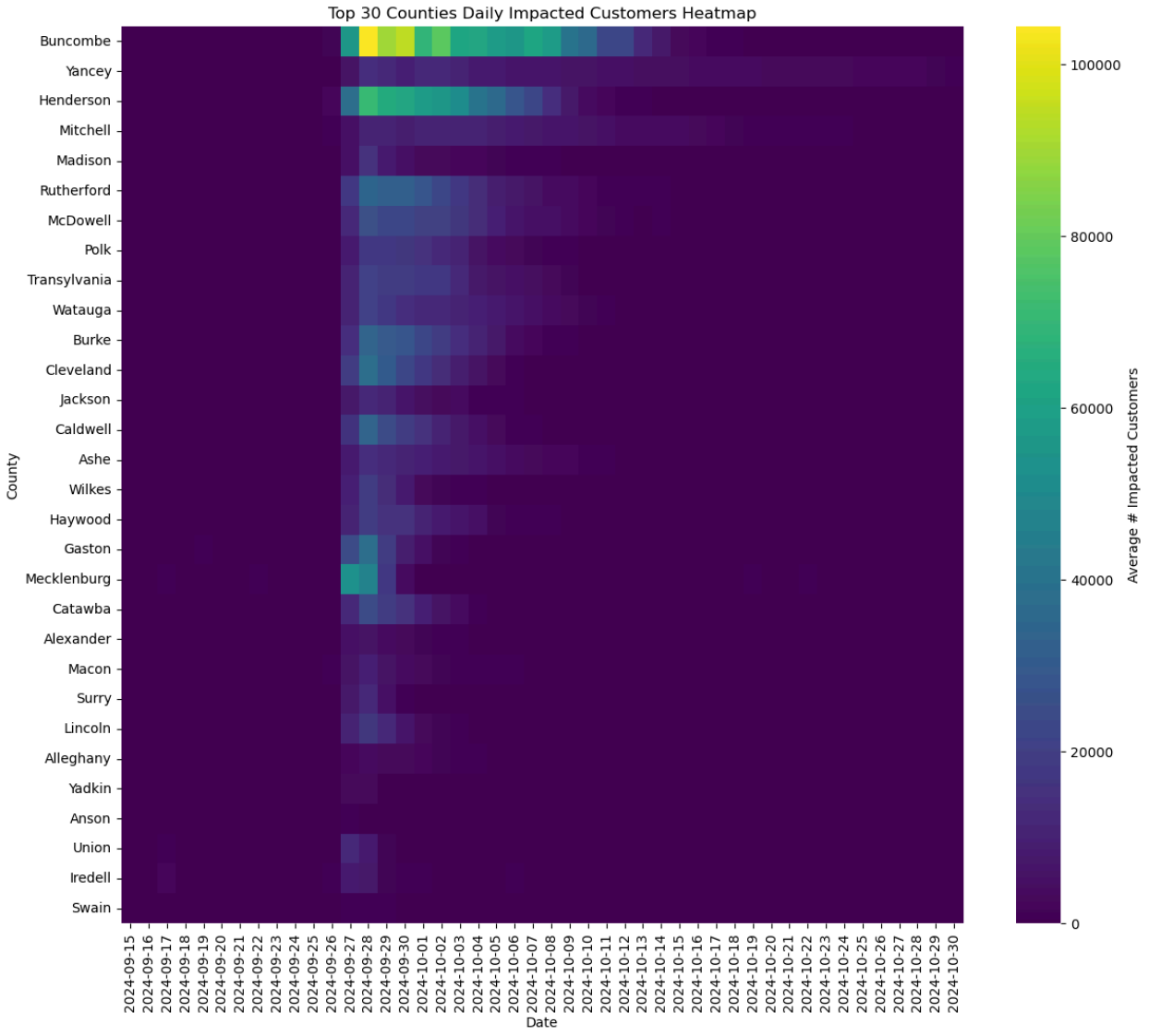


Figure B16:

Power Outage Intensity Measure, Top 20 Impacted Counties

Notes: Peak Index = max daily outage / total customers; Average Outage Rate = average daily outage rate (Sept 27–Oct 30); Max Daily # = max daily outage counts. Sample period: Sept 27–Oct 30.

Appendix C: Interview Guide

Thank you for being here! My name is Lila, and I'm part of a research team from Appalachian State University. We're talking with people who received cash transfers from GiveDirectly after Hurricane Helene to better understand how the assistance was used and how it may have helped or not during recovery. If you agree to be part of the research study, you will be asked to participate in a 45-60 minute long interview about your experiences with Hurricane Helene and the cash transfer from GiveDirectly.

There is no direct benefit to participation, but sharing your experiences will help us understand how cash transfers can be used to help those affected by natural disasters, especially in rural areas like Western North Carolina.

You will be compensated with a $25 electronic gift card for completing the interview. Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time.

Before we begin, I want you to know:

- Everything you share is confidential. We won't use your name or identifying information in anything we write.
- You can skip any question or stop the interview at any time.
- This interview should take about 45–60 minutes.
- I'd like to record this interview to help us accurately capture what you say. Is that okay with you?

[Wait for verbal consent and confirm audio recording.]

Section 1: Getting to Know You (5–10 minutes)

1. Can you tell me a little about yourself and your family?
2. How long have you lived in this area?
3. What kind of work or activities do you spend your time on these days?
4. [use if needed] How would you describe your community?
    a. What are some things you like about it? What has been challenging lately?

Section 2: Experiences During and After Helene (10–15 minutes)
(Skip or adjust if distress is observed.)

5. Next, I want to ask some questions about your experience with Hurricane Helene. Where were you when Hurricane Helene hit?
    a. Prompts if needed: What were you doing? Were you at home?
6. What was it like for you? [If needed] What kind of impact did the storm have on your life and household?
    a. (Prompt: housing, income, transportation, daily routine)
7. In the days and months after Helene, what kinds of support did you receive?

   a. (Prompt: Informal support- friends, neighbors. Formal support - FEMA, non-profits. This could include materials or other direct cash.)
8. Were there any challenges in getting help after the storm?
   a. (Prompt: Roads, technology…)

Section 3: Cash Transfer Experience (15–20 minutes)

9. Now I'm going to ask more about your experience with the Give Directly cash transfer. How did you first hear about the Give Directly cash program?
   a. (Prompt: It was likely a pop-up in their Propel app)
   b. (Prompt: Exact amount based on cohort if needed)
10. What did you think when you first heard about it?
   a. (If they felt like it was a scam, is there anything that could have made you more comfortable?)
11. When did you receive the funds—soon after the storm or later on?
12. How did you decide to receive the funds (card/check/etc)? Did that work well for you?
13. How—if at all—was the cash helpful during your recovery?
14. Were there any downsides or unexpected challenges related to receiving or spending the funds?
15. Earlier, you said you received support from X. How would you compare your experience with the two programs [insert appropriate word: program, services, etc]

Section 4: Recovery and Longer-Term Impact (15–20 minutes)

16. How are things going now for you and your family?
17. Do you think the timing of when you received the cash made a difference in your recovery?
   a. (Prompt: Would earlier or later have helped more?)
   b. How would you have spent the money differently if it came at a different time?
18. (Optional) What are your hopes for the next 6 months?
      i. Did the funds contribute to that?
19. If another disaster hits our area, what kind of help would be most useful?

Section 5: Final Thoughts (5 minutes)

20. What advice would you give to organizations designing these programs in the future?
21. Is there anything else you'd like to share about your experience with the storm or the cash transfer?

Closing

Thank you so much for sharing your time and story with us. Your perspective will help us understand how to improve disaster recovery efforts in the future. We plan on sending out our findings of this program back to you and other participants.