

# Is In-kind Kinder than Cash? The Impact of Money vs. Food Aid on Social Emotions and Aid Take-up

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RUNNING HEAD: Is In-kind Kinder than Cash?

**Is In-kind Kinder than Cash?**  
**The Impact of Money vs. Food Aid on Social Emotions and Aid Take-up**

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**Classification:** Social Sciences, Psychological and Cognitive Sciences

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## Abstract

Over the past decade, there has been a shift in the way charities deliver humanitarian aid. Historically, the most prevalent way to help the global poor was by providing in-kind asset transfers. Recently, alternatives to in-kind aid, such as cash aid, have been increasing in prevalence. Though there has been widespread endorsement from the academic community and the public on this new model of giving cash aid, one perspective remains untouched: the recipient's perspective. Thus, the present research explores how food-insecure individuals feel when receiving money versus in-kind food aid to help meet their hunger and nutrition needs. Specifically, we explore the degree of positive (e.g., feeling cared for) and negative (e.g., feeling ashamed) social emotions felt when receiving the aid opportunity, and how willing recipients are to accept monetary (vs. food) aid. Results from five pre-registered experiments ( $N = 3,110$ )—a field experiment in Kenya and four online experiments in the U.S.—find that monetary (vs. food) aid elicits comparatively more of a market-pricing relationship and less of a communal sharing relationship and, hence, makes people feel less positive and more negative social emotions when receiving the help. Subsequently, recipients are less likely to take-up monetary (vs. food) aid from a charity. However, we find that this effect does not persist when receiving government aid: recipients are similarly willing to accept money and in-kind food aid from the government. This research suggests that future scholarship ought to examine ways to improve psychological experiences when receiving money from charity.

**Words in abstract:** 250

### Significance Statement

There has been widespread endorsement from the academic and philanthropic communities on the new model of giving cash to those in need. Yet the recipient's perspective has mostly been ignored. The present research explores how food-insecure individuals feel and respond when offered either monetary or food aid from a charity. Our results reveal that individuals are less likely to accept money than food aid from charity because receiving money feels relatively more shameful and relatively less socially positive. Since many experts endorse the relative effectiveness of monetary over in-kind aid, we hope this research encourages scholars and practitioners to examine strategies to remove the shame associated with the take-up of monetary aid from charity.

**Key words:** food insecurity; monetary aid; food aid; recipients' reactions to aid, relational models theory

**Words in significance statement:** 114

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## **Is In-kind Kinder than Cash?**

### **The Impact of Money vs. Food Aid on Social Emotions and Aid Take-up**

Food insecurity is one of the world's largest social problems. One-in-four people globally—1.9 billion individuals—are moderately or severely food insecure (1). Even in the U.S., one of the wealthiest countries in the world, about one-in-ten households were food insecure in 2020 (2). Finding and funding effective poverty and food insecurity alleviation programs has recently become even more pressing after, for the first time in almost 25 years, the number of people living in extreme poverty—and, hence, falling into severe food insecurity—began to rise as a consequence of the COVID-19 crisis (3). Experts estimate that, due to the tragedies of the past few years (such as the pandemic and the war in Ukraine) an additional 75 to 95 million people fell into extreme poverty in 2022 (3).

Historically, the most prevalent way to help people struggling with food insecurity was by helping them in-kind (i.e., giving food aid). However, over the past decade, there has been a push for a new aid alternative: monetary aid. Since the early 2000s, the cash transfer method has become one of the most widely studied poverty intervention in low- and middle-income countries (4-6). Systematic reviews and meta-analyses on cash randomized controlled trials (RCTs) have found that cash, compared to *no cash*, significantly decreased material poverty (7), child labor (7), and intimate partner violence (8, 9), and increased human capital (10, 11), social capital (12), somatic health (13-15), labor supply (16), and mental health (5). Although there has been widespread endorsement from the philanthropic (17-19) and academic communities on this new model of giving cash to the poor, one perspective has generally been ignored: the recipient's

perspective. There has been little to no research on the recipients' psychological experiences when receiving cash to meet a need, in comparison to their psychological experiences receiving the *in-kind equivalent*. Additionally, although there have been many reports of take-up neglect of aid (20-23), scholars have overlooked the impact of aid-type on take-up neglect.

To date, the literature comparing the effectiveness of money and in-kind food aid has focused more so on the potential outcomes of these aid-types, and whether they can meaningfully reduce food insecurity and poverty when taken-up and utilized by the target recipient group. Such studies documented comparable improvements in food security (i.e., quantity and quality of food consumption) and overall economic benefits (24, 25). Further, a systematic meta-analysis comparing money to in-kind food aid suggests that both aid-types—when taken-up and used—foster meaningful improvements in food consumption, income, dietary diversity, poverty reduction, and malnutrition reduction, compared to a control condition (26). This meta-analysis suggests that money and food produce heterogenous effects on different food insecurity metrics. For example, money appears to be more effective at increasing food consumption, whereas food aid appears to outperform cash in increasing household caloric intake. Hence, literature on the “cash versus food” debate seems to suggest that both aid-types are comparably effective in reducing food insecurity and poverty at scale, when accounting for the heterogeneity in the aid's relative impact. Since monetary aid incurs fewer distribution costs than food aid (26), some are likely to view it as the preferred aid-type.

We are in no way debating the many benefits that monetary aid produces nor the cost-effectiveness of the method. But this prior work has neglected to investigate recipients' psychological experiences when offered the different types of aid, and further, how recipients' psychological reactions to the two aid objects might drive differences in take-up rates. We expect

that studying recipients' psychological experiences when receiving aid can help us to better understand the *total* impacts of monetary and food aid.

### ***Recipients Psychological Reactions to Money versus Food Aid***

So how do food-insecure individuals feel and respond when offered monetary or food aid? Holding constant the way the aid is delivered and the objective value of the aid, how willing are they to accept money versus food aid? Since money offers individuals a greater sense of autonomy and agency, one might expect food-insecure individuals will feel better and have higher take-up rates when offered money, rather than food. Indeed, money gives recipients the power to decide what, where, when, and how much to purchase, even within a single need-state. Money also is fungible and can be used flexibly based on the recipients' specific needs and preferences.

Nonetheless, we expect that food-insecure individuals will be more likely to take-up food aid than money. Specifically, we hypothesize that food and monetary aid trigger shifts toward different relational models, communal sharing and market-pricing, respectively. And we hypothesize that these relative shifts towards the communal sharing or market-pricing relational mode elicit distinct psychological reactions to the aid. Relational models theory, developed by anthropologist Alan Fiske (27), suggests that there are four cross-cultural elementary forms of social relationships, two of which are communal sharing and market pricing. Fiske (27, 28) theorizes that different objects act as indicators of these different social relationships, and he argues that money is commonly (but by no means exclusively) used in market pricing relationships, whereas in-kind gifts (such as food aid) tend to indicate communal sharing relationships. In fact, food-sharing has historical ties to communal sharing relationships; for

example, among Ache foragers in Paraguay, hunters only received a small portion of their kill and families who couldn't hunt were provided for (29, 30). These more "traditional" human societies provide unique insights into our collective past, allowing us to examine why certain objects may symbolize unique norms and expectations today. We extend this theory by positing that the aid object a charity offers can influence which relational mode recipients are more likely to use when interacting with the charity<sup>1</sup>. Specifically, we expect that, when a charity offers monetary (vs. food) aid to food-insecure individuals, recipients will relate to the charity in comparatively more of a market-pricing manner because money is both the symbol of and common currency in market-pricing relationships. We further expect that, when a charity offers food aid (vs. money) to food-insecure individuals, recipients will relate to the charity in comparatively more of a communal sharing manner because food sharing often signals a communal sharing relationship.

Importantly, social relationships carry with them unique expectations and norms. If help is given while operating in more of a communal sharing relational mode, norms dictate that aid should be given freely when needs arise, based on authentic concern for and a powerful sense of unity with fellow community-members (27, 28, 31). As stated earlier, we hypothesize that receiving food (vs. monetary) aid triggers a relative shift towards the communal sharing relational mode. Hence, when offered food (vs. monetary) aid from a charity, potential recipients should feel a heightened sense of belongingness and, subsequently, more positive social emotions (such as feeling cared about and valued). Such feelings of belongingness and resulting positive social emotions are ubiquitously desirable (32, 33). Hence, we expect that this relative

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<sup>1</sup> We define charity as a non-government organization set up to provide help (and often raise money) for those in need. This can include, but is not limited to, accredited non-profit organizations, charitable trusts, private foundations, and informal charitable entities, such as mutual aid networks and religious organizations.



boost in belongingness-derived positive social emotions will make food-insecure individuals more likely to take-up food (vs. monetary) aid.

We not only expect food aid to be relatively more positive for recipients than monetary aid because of the relational mode shift that food triggers (i.e., a shift towards the communal sharing relational mode). We *also* expect that monetary aid elicits more harmful psychologies than food aid because of the relational mode shift that money triggers (i.e., a shift towards the market-pricing relational mode). Importantly, we do not expect that the market-pricing relational mode necessitates the elicitation of more harmful psychologies. Rather, we specifically posit that these negative psychologies arise when charity recipients feel that they are unable to satisfy the social requirements expected of them when operating in more of a market-pricing relational mode with the charity. The basic expectation in a market-pricing relationship is proportionality. Hence, a fundamental norm in market-pricing relationships is the requirement of merit for reward: no one should receive something for nothing (27). Providing need-based monetary aid goes against the norms perpetuated in market-pricing relationships, since need-based aid recipients receive a cash reward without providing anything in exchange for that reward. In other words, aid recipients are often unable to offer anything proportional in exchange for the aid they receive and are “receiving something for nothing.” The felt inability to uphold one’s “social obligation” when operating in a more of a market-pricing relationship can, in turn, trigger feelings of stigmatization—a form of social sanctioning that aims to eliminate undesirable behavior (where the undesirable behavior is “receiving something for nothing” while operating in a more of a market-pricing relational mode). In fact, results from Pilot Experiment 1 (see Section E-I of the Online Supplement for full details) suggest that observers do assign more of a poverty stigma to recipients of monetary (vs. food) aid. We anticipate that recipients have likely

internalized this stigma, such that they feel like they are more of a poor and needy person when offered monetary (vs. food) aid.

To this day, stigma has been linked to negative inter- and intra-personal consequences, such as social rejection, dehumanization, discreditation, discrimination, decreases in well-being (34-36), and a “spoiled social identity” (37). Previous scholars have identified cultural stigmas attached to people living in poverty (38, 39), and to people who participate in poverty alleviation programs (40-44). Recent work suggests that recipients can feel “looked down upon” when receiving monetary assistance (45). We expect that heightened stigma increases negative social emotions (specifically self-conscious emotions, such as shame), emotions that motivate an avoidance response (i.e., aid take-up neglect) (46). Recent research documenting a link between financial hardship and shame supports our predicted link between poverty and negative social emotions (47). Further, prior scholars have theorized a link between heightened stigma and decreased seeking of social support (48). Though, only recently have scholars documented the impact of lowering internalized stigma when receiving aid on the take-up of aid (49). These scholars find that a simple change of messaging to decrease the stigma of receiving government assistance in the U.S. increases applications to the government aid by about 40%. Here, we explore one potential antecedent to feeling stigmatized as poor and needy person when receiving aid: aid-type.

Altogether, we expect that the aid-type charities choose to offer can act not only as an indicator of different social relationships, but can actually influence how recipients themselves relate to the charity and what social obligations they perceive to be present in the social interaction. Specifically, we theorize that monetary (vs. food) aid triggers comparatively more of a market-price relational mode and comparatively less of a communal sharing relational mode.

As an initial test of this theory, Pilot Experiment 2 described these two relational modes to participants (Section E-II of the Online Supplement contains methods and results) and asked them to report whether receiving aid (money or groceries) indicates that they and the charity would use more of a communal sharing or market-pricing relational mode when interacting with each other (where 1=only communal sharing, 4=equal mix of both, and 7=only market-pricing). Participants randomly assigned to read that the charity offered them groceries reported that they would use significantly more of the communal sharing relational mode than participants assigned to read that the charity offered them money (Groceries:  $M = 2.54$ ,  $SD = 1.28$ ; Money:  $M = 2.84$ ,  $SD = 1.62$ ;  $F(1,479) = 4.57$ ,  $p = .033$ ). These results suggest that individuals generally expect to be in more of a communal sharing (vs. market-pricing) relational mode with charities, and that receiving monetary (vs. food) aid tilts this relationship towards the market-pricing relational model. Additionally, we found initial support for our prediction that recipients are more likely to accept food (vs. monetary) aid.

Interestingly, recent scholarship on charitable giving suggests that aid-type can influence perceived relational norms and subsequent behavior amongst givers as well. Specifically, scholars found that giving monetary pre-giving incentives (PGIs) to donors increases exchange (or market-pricing) norms while decreasing communal norms, which the authors posit decreases donors' willingness to help (50). Altogether, our pilot experiment and prior work provides support for our theoretical extension of Fiske's Relational Models Theory (27, 28), where we predict that the aid object charities offer can cause recipients to shift their perceived relational mode, and that these relational mode shifts can trigger unique psychological and behavioral responses. Specifically, we expect that our predicted effect of aid-type on take-up can be explained by an additive effect of food aid eliciting relatively more positive and relatively less

negative social emotions than monetary aid—where these positive and negative emotions act as unique psychological constructs that follow distinct psychological mechanisms (51).

### **Experiments**

To test these hypotheses, we ran a preregistered field experiment with food-insecure individuals in Kenya and four preregistered online experiments in the U.S. Experiment 1 was run in collaboration with the Busara Center for Economics in Kenya, with poor and food-insecure participants living in Kibera. Here, we randomly assigned participants to receive an opportunity to pick-up either food or cash. We held constant the way aid was delivered and the objective value of aid (i.e., Ksh 600 in currency, or Ksh 600 worth of grocery staples). We ran four additional experiments in the U.S., utilizing a more controlled laboratory design with hypothetical thought experiments and behavioral intentions (rather than real aid delivery and take-up behavior, as used in Experiment 1). Since the social desirability present in real aid contexts makes it difficult to examine the mechanism behind main effects (i.e., individuals struggling with moderate to severe food insecurity are likely hesitant to reveal negative emotions and feelings to the aid organization that offered them a valuable aid product), we chose to dig into the process behind our observed effect of aid-type on take-up in a hypothetical aid context that has comparatively weaker social desirability barriers. Further, Experiments 2-5 also explore the generalizability of our hypothesized main effect to the U.S. cultural context. Moreover, Experiment 5 examined whether the predicted effect of aid-type on take-up generalizes to government aid contexts, while simultaneously testing our hypothesized underlying process of the social relational mode shifts influencing social emotions and take-up.

In addition, we report the results from three supplemental, preregistered online experiments run in the U.S. (total  $N = 2,228$ ) in Section F of the Online Supplement. While lab Experiments 2-5 compare money (framed unconditionally)<sup>2</sup> to food aid, Supplemental Experiment S1 compares food aid to monetary aid specifically framed as for the purchase of food. Supplemental Experiments S2 and S3 explore potential boundary conditions, testing the effect of aid-type in contexts where food insecurity is new (vs. pre-existing) and when aid is solicited (vs. unsolicited), respectively. Together, these three supplemental experiments replicate our main findings on take-up, document the generalizability of our effect, and provide further support for our theory.

### ***Field Experiment in Kenya***

Experiment 1 ( $N = 500$ ; Described in ‘Experiment 1’ in the Methods) was designed to test whether food-insecure individuals in Kenya are more willing to accept monetary or food aid offered to them. Participants received an opportunity to pick-up either a food basket worth Ksh 600 (about \$5 USD) or Ksh 600 cash (framed to be used to purchase food). Although, participants were not told the value of the aid being offered prior to the pick-up day: all participants learned that food staples (maize flour, sugar, and cooking oil) or money to help purchase food staples would be made available that weekend. Participants were randomly

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<sup>2</sup> In Experiment 1, we were operating in a real-world context where we could not cleanly control need-aid matching across our two aid-type conditions. Hence, in attempt to match the perceived need that the aid intended to meet, we framed the cash as “money for food,” although all cash was delivered unconditionally. We chose to frame money unconditionally in Experiments 2-5 because we were able to use the study design to inform participants that food insecurity was their focal need and that money given would be used to help alleviate the food insecurity. Further, three Supplemental Experiments document that the effect of aid-type on take-up persists in our U.S. online experiments even when framing cash aid as “money for food” (Section F of the Online Supplement displays the results). We expect that framing cash as unconditional or as “for food” led to similar effects because we ensured that participants believed they would want to spend the money on food regardless of framing. In contexts where the in-kind aid does not meet one’s focal need, it is possible that framing the aid as “for food” might matter.

assigned to learn that Busara was giving away money or food—the experimental design was fully between-subjects and participants never learned the other aid-type was being offered nor did they see any other aid being given out other than the aid-type they were assigned to receive. Using exploratory interview data, Experiment 1 also tested the prediction that individuals receiving monetary (vs. food) aid would feel relatively fewer positive social emotions and more negative social emotions. Section B of the Online Supplement includes additional, exploratory measures<sup>3</sup>.

First, looking at reported intentions to come pick-up the aid, 241 out of 250 (96.4%) of participants in the food condition texted back that they wanted food, whereas 234 out of 250 (93.6%) of participants in the money condition texted back that they wanted money for food ( $\chi^2(1, 500) = 2.06, p = .151$ ). Now, looking at recipients' take-up behavior, we found that 219 out of 250 (87.6%) of participants in the food condition picked up their aid, whereas 199 out of 250 (79.6%) of participants on the money condition picked up their money ( $\chi^2(1, 500) = 5.84, p = .016$ ; see Figure 1).

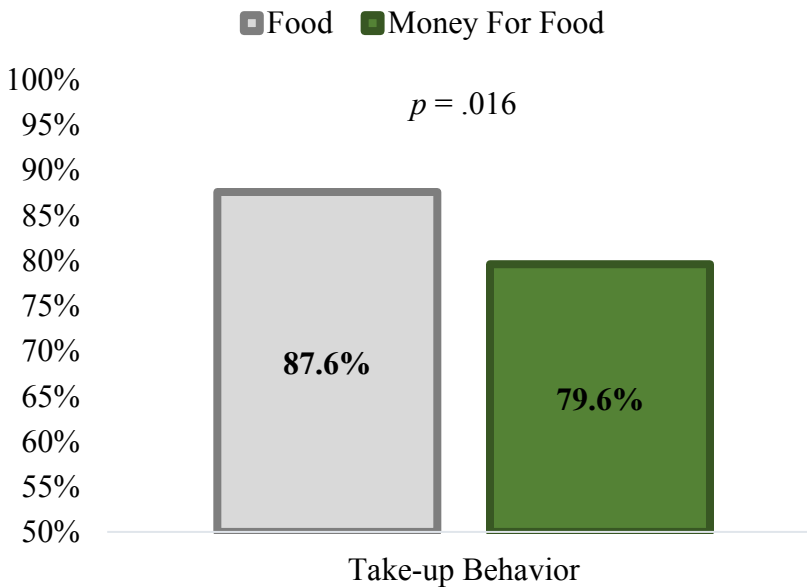
In line with our findings on take-up behavior, participants who took our exit survey ( $N = 481$ ) reported significant differences in satisfaction (1=0% satisfied, 11=100% satisfied). Specifically, participants who were offered food aid ( $M = 9.64, SD = 1.93$ ) were more satisfied with their aid experience than participants who were offered money ( $M = 9.09, SD = 2.44$ ;  $F(1,479) = 4.86, p = .006$ ). Analyses excluding responses from participants who failed to take-up

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<sup>3</sup> The results on satisfaction and the text analyses that examine the frequency of NSEs and PSEs were preregistered as exploratory, additional analyses. We chose to move these results to the main paper, even though they were not preregistered as main analyses. Further, although we preregistered our measures of recommendation intentions and behavior as main analyses, we report these results in Section B-II of the Online Supplement. We moved all results on our recommendation measures in the paper to the Online Supplement, to focus on the effect of aid-type on take-up throughout the main paper.

the aid revealed a non-significant but directionally consistent effect on satisfaction (Food:  $M = 9.69$ ,  $SD = 1.75$ ; Money:  $M = 9.35$ ,  $SD = 2.00$ ;  $F(1,407) = 3.44$ ,  $p = .064$ ).

**Fig. 1. Percentage of Participants Who Picked-up the Aid in Experiment 1**



In the exit survey, we included an additional, exploratory qualitative measure where participants were asked to share with us the first 10 words that came to mind when thinking about how being offered food or money (depending on condition, with the aid-type repeated in the prompt) from Busara made them feel about themselves. We coded these open-ended self-reflection responses<sup>4</sup> for the presence of positive social emotion words (PSEs: loved, adored, cared for, respected, valued, favored, supported, recognized; see ‘Experiment 1’ in the Methods for more details on the coding scheme). First, looking at the percentage of participants who mentioned *any* positive social emotions (vs. did not mention any positive social emotions; where 1 = mentioned one or more PSEs and 0 = didn’t mention any PSEs), significantly more

<sup>4</sup> All text was translated from Swahili to English by bi-lingual enumerators at the Busara Center. All text analyses were on the translated text responses.

individuals mentioned positive social emotions in the food (141/238; 56.2%) vs. money condition (120/243; 49.4%;  $X^2(1,481) = 4.71, p = .030$ ). Additionally, when looking at the total number of positive social emotions shared (i.e., a continuous measure recording the total number of PSEs mentioned per participant)<sup>5</sup>, the results again reveal that significantly more positive social emotions were mentioned overall in the food ( $M = 0.93, SD = 0.98$ ) vs. money condition ( $M = 0.73, SD = .90; F(1,479) = 5.71, p = .017$ ). Even after excluding participants who neglected to take-up the aid, the effect of aid-type on presence vs. absence of positive social emotions (48.2% vs. 57.5%;  $X^2(1,409) = 3.56, p = .059$ ) and frequency of positive social emotions (Food:  $M = 0.92, SD = 0.99$ ; Money:  $M = 0.69, SD = 0.85; F(1,408) = 6.61, p = .011$ ) persisted.

We also coded their open-ended self-reflection responses for the presence of negative social emotions (NSEs; i.e., shame, ashamed, embarrassed, humiliated, guilty, culpable, remorseful, insecure, vulnerable, self-conscious; see ‘Experiment 1’ in the Methods for more details on the coding scheme). Only one participant in the food condition (1 out of 238; 0.4%) mentioned one or more of these NSE words in their open-ended response to our self-reflection measure. In comparison, a handful of participants in the money condition expressed one or more NSEs (6 out of 243; 2.5%;  $X^2(1,481) = 3.52, p = .061$ ). Analyses excluding participants who neglected to take-up the aid revealed a non-significant but directionally consistent effect on NSEs (Food: 1 out of 212 (0.5%) vs. Money: 4 out of 197 (2.0%) participants who picked-up the monetary aid mentioned one or more NSEs;  $X^2(1,409) = 2.06, p = .152$ ).

Taken together, the results from Experiment 1 suggest that individuals with the same need (food insecurity) are significantly more likely to take-up aid from a charity when it is

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<sup>5</sup> Across both conditions, participants provided between zero and four PSEs. In the cash condition, 64.2% (77/120) of participants who shared a PSE shared only one, 25.8% (31/120) shared two, 8.3% (10/120) shared three, and 1.7% (2/120) shared four. In the food condition, 59.6% (84/141) of participants who shared a PSE shared only one, 24.1% (34/141) shared two, 15.6% (22/141) shared three, and only 0.7% (1/141) shared four.



offered in-kind (i.e., food items) vs. when they are offered cash to meet that need (i.e., money for food). Additionally, individuals who were offered food (vs. monetary) aid were significantly more satisfied with the overall aid opportunity (even amongst those who ultimately chose to take-up the aid). Finally, we found some support for our hypotheses that receiving food feels more “kind” than receiving money (i.e., participants report feeling relatively more PSEs and fewer NSEs). However, participants reported NSEs were quite low, which could either indicate that (i) aid elicits very few NSEs or (ii) participants didn’t feel comfortable sharing felt NSEs with the enumerators. Since, in this field context, participants received aid from the very same organization that was surveying them, we expect that social desirability effects were quite high in this experiment. Hence, to further examine the psychological process behind our observed effect of aid-type on take-up, we conducted a series of hypothetical experiments in the U.S., which, we expect, have significantly less social desirability concerns.

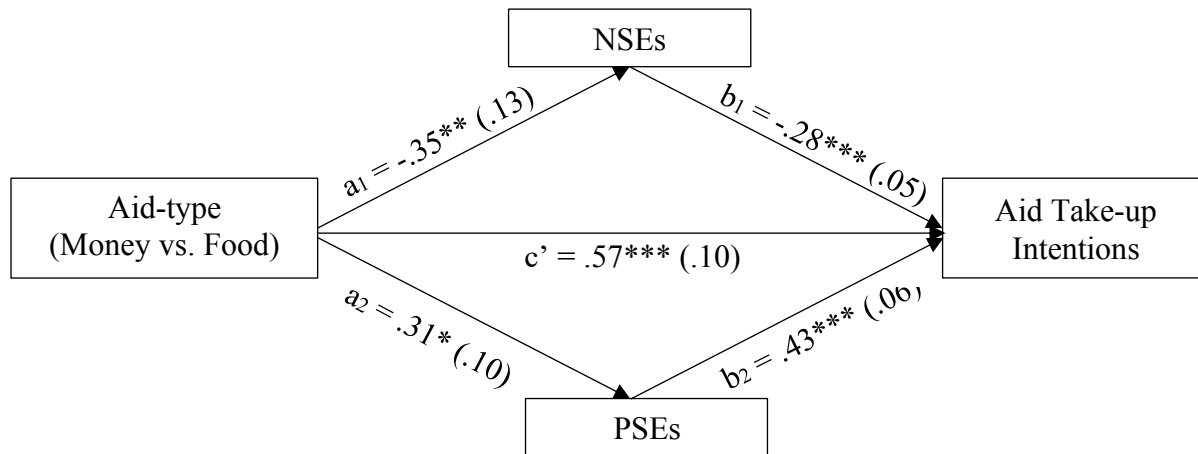
### ***Lab Experiments in the U.S.***

Experiments 2-5 ( $N_{E2} = 588$ ,  $N_{E3} = 687$ ,  $N_{E4} = 571$ , and  $N_{E5} = 764$ ) provide additional support for our hypothesis that individuals are more willing to take-up food (vs. monetary) aid from charities and further unpack the process behind why aid-type impacts take-up. As proposed earlier, we expect that the effect of aid-type on take-up is driven by different degrees of PSEs and NSEs associated with being a recipient of food or monetary aid. In addition to replicating the main effect of aid-type on take-up observed in Experiment 1 in a cleaner and controlled context, Experiments 2-5 utilize the mediation method to provide evidential support for our proposed causal mediators. Further, Experiment 5 begins to explore whether aid-entity (i.e., whether the

organization providing the aid is a charity or government aid organization) influences the impact of aid-type on take-up.

In Experiment 2 (Described in ‘Experiment 2’ in the Methods), participants reported higher intentions to take-up the aid when offered food ( $M = 5.94$ ,  $SD = 1.50$ ) compared to money ( $M = 5.10$ ,  $SD = 1.92$ ;  $F(1,586) = 35.19$ ,  $p < .001$ ). Participants also reported feeling relatively less NSEs when offered food aid ( $M = 3.58$ ,  $SD = 1.52$ ) than when offered monetary aid ( $M = 3.92$ ,  $SD = 1.55$ ;  $F(1,586) = 7.44$ ,  $p = .007$ ), and relatively more PSEs when offered food aid ( $M = 4.84$ ,  $SD = 1.04$ ) compared to monetary aid ( $M = 4.53$ ,  $SD = 1.29$ ;  $F(1,586) = 10.51$ ,  $p = .001$ ). Next, we ran a pre-registered simultaneous mediation analysis using Hayes’ PROCESS (Model 4) to test the effect of aid-type on take-up intentions, with NSEs and PSEs as simultaneous mediators. We found significant indirect effects of aid-type on take-up intentions through both NSEs ( $b = .10$ ,  $SE = .04$ , 95% CI [.027, .181]) and PSEs ( $b = .13$ ,  $SE = .05$ , 95% CI [.048, .236]). This suggests that being offered monetary (vs. food) aid is associated with experiencing more NSEs, and more NSEs is associated with *less* take-up. Further this also suggests that being offered food (vs. money) is associated with experiencing more PSEs, and more PSEs is associated with *more* take-up. Figure 2 displays the full results. Since the mediation analysis in Experiment 2 included both NSEs and PSEs in the model, the analysis accounts for potential correlations between the two variables. Hence, these results support our predictions that PSEs and NSEs act as unique psychological constructs that—as we will show in Experiments 3 and 4—follow distinct first-level psychological mechanism.

**Fig. 2. Multiple Mediation through Negative (NSEs) and Positive (PSEs) Social Emotions on Take-up Intentions from Experiment 2.**

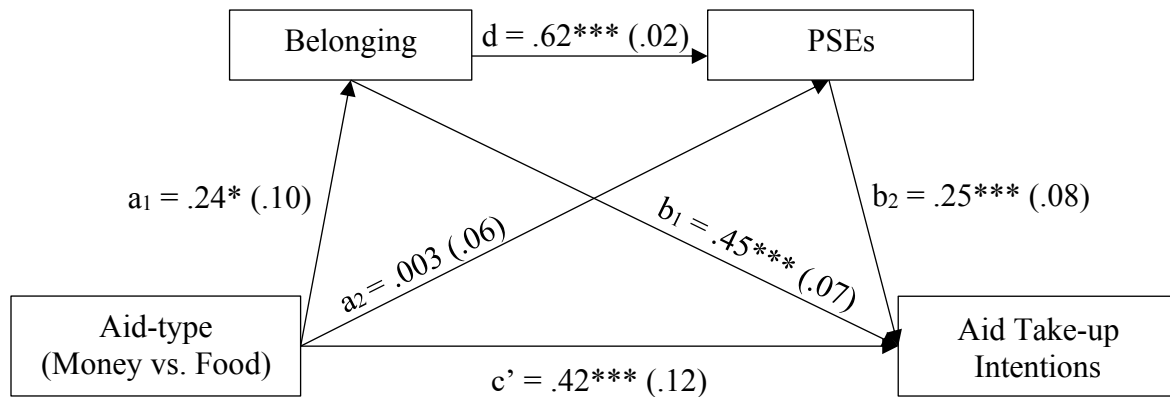


*Notes.* Figure 2 displays the results from a multiple mediation analysis using Hayes' PROCESS (Model 4) from Experiment 2 (money = 0 and groceries = 1), where  $a_1$  = the effect of condition on the first mediator,  $a_2$  = the effect of condition on the second mediator,  $b_1$  = the effect of the first mediator on the outcome variable,  $b_2$  = the effect of the second mediator on the outcome variable, and  $c'$  = the direct effect of condition on the outcome variable. Parentheticals indicate standard errors. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Next, Experiment 3 (Described in 'Experiment 3' in the Methods) tests the proposed antecedent to the effect of aid-type on PSEs: belongingness. As proposed earlier, we expect that charity recipients of food (vs. monetary) aid are likely to operate in comparatively more of a communal sharing relational mode with the charity, which should lead to relatively higher feelings of belongingness and, subsequently, heighten PSEs. Results from Experiment 3 support this theoretical prediction. First, participants reported higher intentions to take-up the food (vs. monetary) aid (Food:  $M = 5.72$ ,  $SD = 1.63$ ; Money:  $M = 5.16$ ,  $SD = 1.92$ ;  $F(1,685) = 17.07$ ,  $p < .001$ ). Moreover, participants offered food aid reported feeling more belonging than those offered money (Food:  $M = 4.92$ ,  $SD = 1.27$ ; Money:  $M = 4.68$ ,  $SD = 1.42$ ;  $F(1,685) = 5.36$ ,  $p = .021$ ) and marginally more PSEs (Food:  $M = 4.94$ ,  $SD = 1.06$ ; Money:  $M = 4.78$ ,  $SD = 1.17$ ;  $F(1,685) = 3.15$ ,  $p = .077$ ). Next, we ran pre-registered serial mediation analyses using Hayes' PROCESS (Model 6) to test the effect of aid-type on take-up intentions, with belonging and

PSEs as serial mediators. A significant serial indirect effect emerged ( $a_1 \times d \times b_2 = .04$ ,  $SE = .02$ , 95% CI [.003, .085]). Figure 3 displays the full results.

**Fig. 3. Serial Mediation through Belonging and Positive Social Emotions (PSEs) on Take-up Intentions from Experiment 3.**



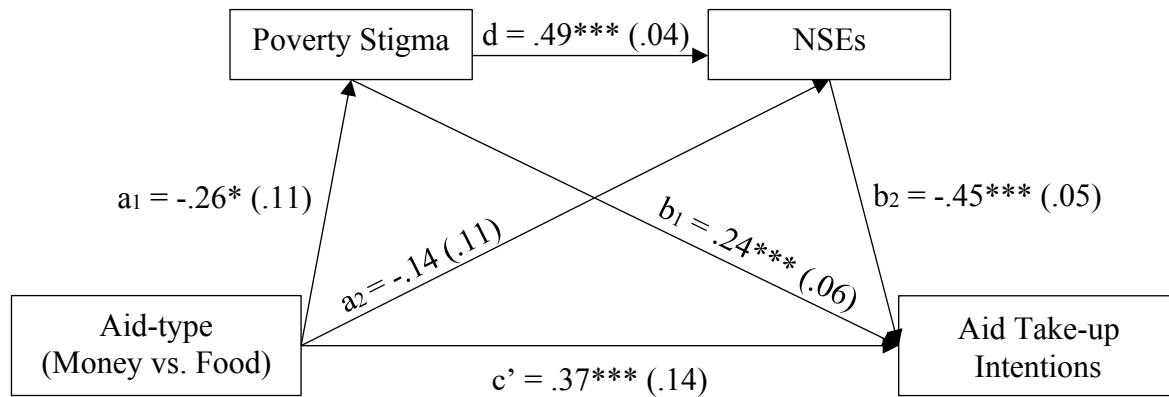
*Notes.* Figure 3 displays the results from a serial mediation analysis using Hayes' PROCESS (Model 6) from Experiment 3, where  $a_1$  = the effect of condition (where money = 0 and groceries = 1) on the first mediator,  $a_2$  = the effect of condition on the second mediator,  $b_1$  = the effect of the first mediator on the outcome variable,  $b_2$  = the effect of the second mediator on the outcome variable,  $d$  = the effect of the first mediator on the second mediator, and  $c'$  = the direct effect of condition on the outcome variable. Parentheticals indicate standard errors. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Further, Experiment 4 (Described in 'Experiment 4' in the Methods) tests the proposed antecedent to the effect of aid-type on NSEs: stigma. As proposed earlier, we expect that charity recipients of monetary (vs. food) aid are likely to operate in comparatively more of a market-pricing relational mode with the charity, which should lead to relatively higher feelings of stigma and, subsequently, heighten NSEs. Results from Experiment 4 support each of these predictions. First, participants report higher intentions to take-up food (vs. monetary) aid (Food:  $M = 5.68$ ,  $SD = 1.71$ ; Money:  $M = 5.24$ ,  $SD = 1.79$ ;  $F(1,569) = 9.11$ ,  $p = .003$ ). Moreover, participants who were offered food aid reported feeling less of a poverty stigma than those offered money (Food:  $M = 5.27$ ,  $SD = 1.41$ ; Money:  $M = 5.53$ ,  $SD = 1.26$ ;  $F(1,569) = 5.42$ ,  $p = .020$ ) and less NSEs

(Food:  $M = 3.99$ ,  $SD = 1.54$ ; Money:  $M = 4.26$ ,  $SD = 1.46$ ;  $F(1,569) = 4.47$ ,  $p = .035$ ). Next, we ran pre-registered serial mediation analyses using Hayes' PROCESS (Model 6) to test the effect of aid-type on take-up intentions, with poverty stigma and NSEs as serial mediators. A significant serial indirect effect emerged ( $a_1 \times d \times b_2 = .06$ ,  $SE = .03$ , 95% CI [.010, .115]).

Figures 4 displays the full results.

**Fig. 4. Serial Mediation through Poverty Stigma and Negative Social Emotions (NSEs) on Take-up Intentions from Experiment 4.**



*Notes.* Figure 4 displays the results from a serial mediation analysis using Hayes' PROCESS (Model 6) from Experiment 4, where  $a_1$  = the effect of condition (where money = 0 and groceries = 1) on the first mediator,  $a_2$  = the effect of condition on the second mediator,  $b_1$  = the effect of the first mediator on the outcome variable,  $b_2$  = the effect of the second mediator on the outcome variable,  $d$  = the effect of the first mediator on the second mediator, and  $c'$  = the direct effect of condition on the outcome variable. Parentheticals indicate standard errors. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

Lastly, Experiment 5 (Described in 'Experiment 5' in the Methods) examines both (i) our proposed underlying process of relational mode shifts and (ii) whether the observed effect of aid-type on take-up generalizes outside of charity contexts and to government aid contexts. Before running Experiment 5, we sought to examine the kind of social relationship individuals believe they have with charities and governments, and how they differ (all responses were on a 1=not at all, 4=somewhat, 7=completely Likert scale). Results from Pilot Experiment 3 revealed that,

when the aid-entity offered them support during their hard time<sup>6</sup>, participants felt they were in significantly less of a communal sharing relationship with government than with charities (Gov't:  $M = 2.44$ ,  $SD = 1.55$ ; Charity:  $M = 3.58$ ,  $SD = 1.73$ ;  $t(152) = 9.43$ ,  $p < .001$ ). And, they felt they were in significantly more of a market-pricing relationship with government than with charities (Gov't:  $M = 4.01$ ,  $SD = 1.87$ ; Charity:  $M = 3.21$ ,  $SD = 1.82$ ;  $t(151) = -5.98$ ,  $p < .001$ ; Section E-III of the Online Supplement contains the full methods and results).

Returning to our underlying theory, we propose that receiving monetary (vs. food) aid from charities elicits a comparative shift towards the market-pricing relational mode, and this relational mode shift triggers heightened stigma and NSEs *only under certain conditions*. Specifically, we theorize that being in more of a market-pricing relationship while receiving aid only triggers heightened stigma and NSEs when recipients feel like they are unable to live up to the norms and expectations put onto them in market-pricing relationships (i.e., proportionality). However, since results from Pilot Experiment 3 suggest that recipients feel like they are already in comparatively more of a market-pricing relationship with the government (vs. charity), we expect that recipients will feel less like an undesirable relational partner (i.e., less stigma) when receiving money from the government (vs. charity). In other words, since individuals give resources to the government (such as their money when paying taxes and their time if, for example, they serve on jury duty), receiving money from the government should feel like it is a proportional response to their contributions. However, since individuals feel like they are in comparatively less of a market-pricing relationship with charities, we expect that they will feel like they have not and cannot give anything proportional in exchange for the monetary aid (i.e.,

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<sup>6</sup> Pilot Experiment 3 contains four aid-type conditions: (1) groceries, (2) money, (3) aid control (“support during your hard time”), and (4) neutral control (i.e., no assistance or aid was mentioned). The reported data comes only from condition (3), to focus on the comparison between aid-entity, absent of aid-type effects. Section E-III of the Online Supplement contains the full results, with all four conditions.

they may unselfconsciously feel like they are failing to uphold their end of the social relationship). And this felt inability to hold up one's end of a social relationship is what we predict elicits the heightened stigma and NSEs when receiving monetary (vs. food) aid from charities. Hence, we expect that the link between aid-type and NSEs as well as the link between aid-type and take-up will be moderated by aid-entity (i.e., charity vs. government). Put simply: we predict that, the more recipients feel like they already were in a market-pricing relationship with the aid-entity, the less NSEs should arise when receiving cash aid. Further, since participants reported feeling like they were in less of a communal sharing relationship with the government (vs. charity) we also expect that the effect of aid-type on PSEs will be dampened.

First, we observed two main effects of aid-type and aid-entity on both perceptions of being in a communal sharing and market-pricing relationship. Specifically, we observed that participants reported feeling like they were in significantly more of a communal sharing relationship when (i) offered in-kind food aid (vs. money;  $F(1,760) = 13.81, p < .001$ ) and (ii) receiving aid from a charity (vs. the government;  $F(1,760) = 115.30, p < .001$ ). Further, participants reported feeling like they were in significantly more of a market-pricing relationship when (i) offered money (vs. food aid;  $F(1,760) = 9.67, p = .002$ ) and (ii) receiving aid from the government (vs. a charity;  $F(1,760) = 92.81, p < .001$ ). No interactions between the aid-type and aid-entity emerged (Communal Sharing:  $F(1,760) = 0.04, p = .851$ ; Market-pricing:  $F(1,760) = 1.09, p = .297$ ). Section D-I of the Online Supplement contains the methods and full results for these measures of relational mode.

Next, participants reported overall higher intentions to take-up food (vs. monetary) aid (Food:  $M = 6.09, SD = 1.18$ ; Money:  $M = 5.83, SD = 1.49$ ;  $F(1,760) = 6.50, p = .011$ ). We also observed a main effect of aid-entity, such that participants were overall more willing to accept

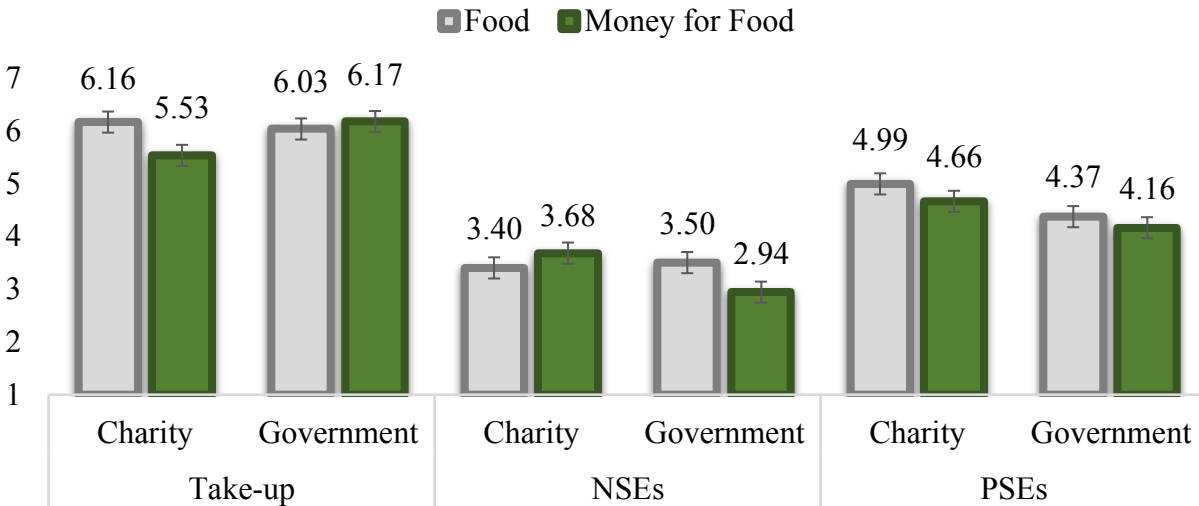
aid from the government than from charity (Gov't:  $M = 6.10$ ,  $SD = 1.31$ ; Charity:  $M = 5.83$ ,  $SD = 1.38$ ;  $F(1,760) = 6.95$ ,  $p = .009$ ). Importantly, a significant interaction between aid-type and aid-entity emerged ( $F(1,760) = 15.95$ ,  $p < .001$ ). Paired condition comparisons revealed that the effect of aid-type on take-up was driven by the charity conditions ( $F(1,760) = 21.23$ ,  $p < .001$ ) and became nonsignificant in the government conditions ( $F(1,760) = 1.05$ ,  $p = .305$ ).

We also observed a significant interaction on NSEs ( $F(1,760) = 13.78$ ,  $p < .001$ ). Specifically, participants reported feeling marginally fewer NSEs when offered food (vs. money) from charity (Food:  $M = 3.40$ ,  $SD = 1.44$ ; Money:  $M = 3.68$ ,  $SD = 1.61$ ;  $F(1,760) = 3.06$ ,  $p = .081$ ), largely replicating our previous findings. Yet, we observed the opposite pattern of results in the government conditions: participants reported feeling significantly *fewer* NSEs when offered money (vs. food) from the government (Food:  $M = 3.50$ ,  $SD = 1.55$ ; Money:  $M = 2.94$ ,  $SD = 1.61$ ;  $F(1,760) = 12.30$ ,  $p < .001$ ). Moreover, receiving food from a charity and from the government elicited similar levels of NSEs ( $F(1,760) = 0.40$ ,  $p = .525$ ), but receiving money from the government (vs. a charity) elicited significantly fewer NSEs ( $F(1,760) = 21.31$ ,  $p < .001$ ).

When examining the effect of our experimental manipulations on PSEs, we observed two main effects of aid-type and aid-entity. Specifically, participants reported feeling more PSEs when offered food (vs. money; Food:  $M = 4.66$ ,  $SD = 1.14$ ; Money:  $M = 4.43$ ,  $SD = 1.30$ ;  $F(1,760) = 9.83$ ,  $p = .002$ ) and when offered aid from a charity (vs. the government; Charity:  $M = 4.81$ ,  $SD = 1.12$ ; Government:  $M = 4.27$ ,  $SD = 1.27$ ;  $F(1,760) = 41.96$ ,  $p < .001$ ). No interaction between aid-type and aid-entity emerged ( $F(1,760) = 0.57$ ,  $p = .450$ ). Figure 5 displays the full results on take-up, NSEs, and PSEs.



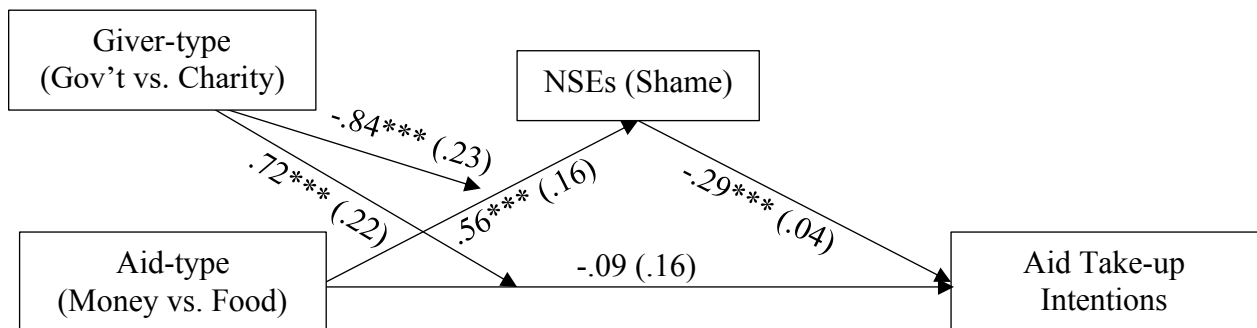
**Fig. 5. The Effect of Aid-type and Aid-ENTITY on Take-up Intentions, NSEs, and PSEs from Experiment 5.**



Note. Error bars indicate standard errors.

Lastly, we ran a preregistered moderated mediation analysis using Hayes’ PROCESS (Model 8) to test the effect of aid-type on take-up intentions, with NSEs as mediator and aid-entity as moderator. A significant index of moderated mediation emerged (.24, *SE* = .07, 95% CI [.106, .393]). Figure 6 contains the results from the moderated mediation analysis.

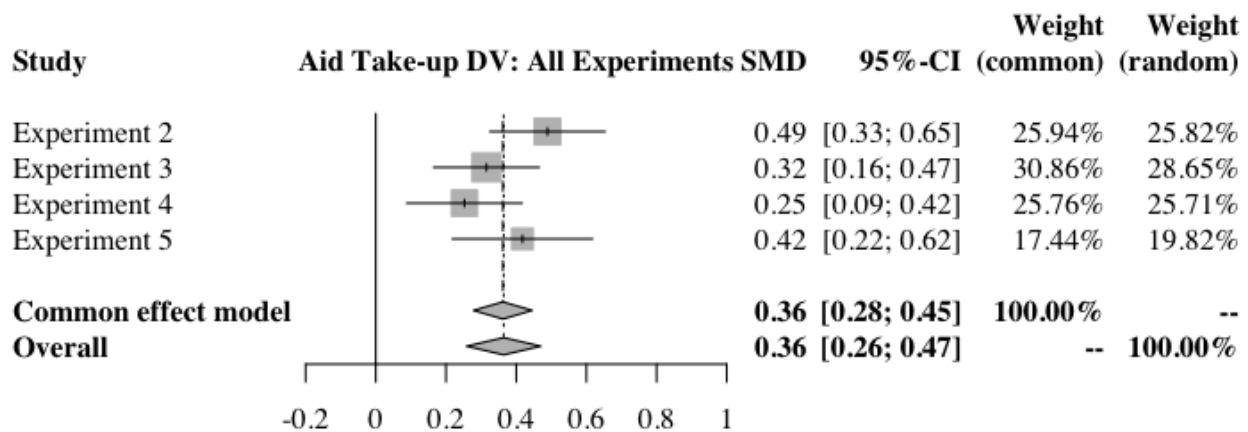
**Fig. 6. Moderated Mediation with Aid-entity and Negative Social Emotions (NSEs) on Take-up Intentions from Experiment 5.**



Note. This figure displays the results from Experiment 5, testing moderated mediation using Hayes’ PROCESS (Model 8), testing the effect of X(aid-type: money=0, food=1) on Y(take-up) with Negative Social Emotions (NSE; M) as mediator and giver-type (gov’t=0, charity=1) as moderator (W). Parentheticals indicate standard errors. \**p* < .05, \*\**p* < .01, \*\*\**p* < .001

Since all U.S. experiments included the same measure of take-up intentions, we pooled data across these experiments and conducted a series of internal meta-analyses. The estimation of the cumulative effect size<sup>7</sup> revealed significant condition effects on take-up intentions across (i) Experiments 2-5<sup>8</sup> ( $d = .36$ , 95% CI [0.26, 0.47],  $p < .001$ ; see Figure 7) and (ii) when examining the total main effect across Experiments 2-5 and our three supplemental experiments ( $d = .29$ , 95% CI [0.20, 0.38],  $p < .001$ ; see Section G of the Online Supplement).

**Fig. 7. Forest plot of the Effect of Aid-type (Food vs. Monetary Aid) on Take-up Intentions from an Internal Meta-analysis of Experiments 2-5**



*Notes.* Results come from R package *meta* and a random-effects model by using the inverse variance method (cumulative  $N = 2,240$ ). This figure displays a forest plot documenting the effect size ( $d$ ) with 95% CIs of aid-type on take-up intentions for each individual experiment (represented by the squares) and the overall effect (represented by the diamonds) across experiments. The tests of heterogeneity on take-up intentions ( $Q(3) = .004$ ,  $p = .20$ ) revealed good homogeneity, suggesting that the four experiments were consistent. Results from Experiment 5 include only the charity aid-entity conditions.

Moreover, to capture the effects of aid-type on long term take-up rates, across each of our U.S. experiments we also asked participants how likely they would be to provide word-of-mouth recommendations about the charity to others struggling with food insecurity. Word-of-mouth communication has been lauded as one of the most influential channels of knowledge spread and

<sup>7</sup> We report the raw mean difference  $d$ , since all of the studies in the meta-analysis use the same scale to assess the outcome measure.

<sup>8</sup> Results from Experiment 5 contain only the charity conditions (i.e., the government aid conditions were removed from this analysis).

product success in the marketplace (52). In fact, word-of-mouth has been linked to increased adoption of a mobile payments service in a developing country, mediated by increased trust and decreased perceptions of risk (53). Since prior scholars theorize that insufficient knowledge and knowledge spread of aid opportunities perpetuate the last mile problem (20), it is important that we understand not only what drives recipients themselves to take-up aid when needed, but also what drives recipients to recommend the aid organization to others struggling with a similar plight so that they too may access the aid. The pattern of results on recommendation intentions across Experiments 2-5 and Supplemental Experiments S1-S3 were qualitatively similar to those on take-up intentions ( $d = .30$ , 95% CI [0.19, 0.41],  $p < .001$ ; see Section G of the Online Supplement).

### **Discussion**

Cash has some clear advantages to in-kind aid. Physical, in-kind asset transfers are generally more expensive to distribute than cash (i.e., there are higher transaction costs when aid is delivered in-kind), and there have been observed “leakages” in the distribution of goods (i.e., some of the goods never reach recipients). Cash transfers, on the other hand, can go directly to recipients’ bank accounts, directing more of the donors’ dollars directly to recipients and preventing any such leakages (16). Cash transfers have the potential to reach even the poorest communities, where supply chains may not be able to easily deliver in-kind aid. Cash transfers are also one of the most well-researched poverty interventions in low- and middle-income countries. Further, the present research matched the dominant need (food insecurity) to the aid, to ensure that both the in-kind aid and cash aid hold similar “resource utility” (54). However, individuals often struggle with a multitude of hardships and the in-kind aid offered cannot not always meet one’s dominant need(s). Cash, on the other hand, is both flexible and fungible,

making it easier to ensure that recipients' dominant need(s) are met. Cash might also produce more positive economic spillover effects for the local economy, if the in-kind food aid is purchased outside of the recipient's community. The present research is in *no way* challenging the assumption that large-scale cash transfer efforts have massive benefits for recipients, their social networks, and local economies. We are simply asking: are we factoring in the recipients' perspective in the way aid effectiveness is determined and in our cost-effectiveness analyses? Studying food-insecure recipients' psychological and behavioral responses to in-kind food aid versus cash is *one piece* of a very large puzzle, but we believe, a puzzle piece that is necessary to examine.

The present research aims to uncover how food-insecure individuals feel and respond when a charity offers money or food to help meet their needs. We theorize that food and money indicate different social relationships (comparatively more of a communal sharing vs. comparatively more of a market-pricing relationship, respectively), which elicit unique psychological reactions and take-up rates. In line with our theory, five preregistered experiments—a field experiment with food-insecure participants in Kenya and four U.S.-based online experiments—reveal that recipients are significantly more likely to take-up food than money from a charity. These results suggest that differences in willingness to take up the aid stem from both (i) monetary aid creating a greater poverty stigma and subsequently increasing NSEs, and (ii) food aid eliciting greater feelings of belonging and subsequently increasing PSEs. In addition to finding a main effect of aid-type on take-up, supplemental analyses suggest that individuals are less willing to provide word-of-mouth recommendations to other food-insecure individuals when charities offer monetary (vs. food) aid (see Section G of the Online Supplement for details). Since lack of knowledge spread is likely one of the biggest barriers to aid take-up

(20), these results suggest that recipients' psychological responses to aid opportunities not only affect take-up in the specific target population today, but might also affect take-up rates at a more macro level across a network of potential recipients.

Further, we find that the effect of aid-type on take-up only exists in contexts where recipients do not feel like they have a pre-existing market-pricing relationship with the aid organization. Experiment 5 revealed that the effect of aid-type on take-up is unlikely to emerge when receiving aid from the government (i.e., an aid-entity that individuals believe that they already have more of a market-pricing relationship with). We expect that this is because recipients feel like they have upheld their end of the social relationship with their government throughout their adult lives (e.g., they likely paid taxes and have or would serve on jury duty), making receiving money from the government feel more owed to them as a proportional response to the resources they've given to their government in the past. In fact, we observe that participants report feeling overall more psychological ownership over food (vs. money) only when it is from a charity, and equal psychological ownership over food and money from the government (Section D-II of the Online Supplement displays the results). Subsequently, we find that participants report feeling the lowest NSEs when receiving monetary aid from the government (vs. money from a charity and food from a charity or the government). However, Experiment 5 was hypothetical, and we encourage government aid organizations to examine their recipients' willingness to accept different aid-types in field contexts.

We also encourage scholars to examine how recipients respond to aid when offered from a variety of aid-entities. For example, when aid is offered from individuals or a group that the recipient has a pre-existing relationship with—such as neighbors, friends and family, or a charity

they've previously volunteered at or donated to<sup>9</sup>. Our theory and findings suggest that, in contexts where individuals feel like they have more of a pre-existing market-pricing relationship with the aid entity, the effect of aid-type on take-up will turn off. However, in contexts where individuals feel a strong communal sharing relationship with an aid entity, will the effect of aid-type on take up amplify?

Recent work on *Relational Incentives Theory* posits that incentives (such as money and in-kind objects) carry with them unique schemes (such as proportional incentive schemes for market-pricing and participation incentive schemes for communal sharing) that either align with or misalign with the pre-existing relational structure and, hence, either reinforce or shift the relational mode (55). Pilot Experiments 2 and 3 suggest that people feel like they are in communal sharing relationships and not in market-pricing relationships with neighbors and close others (i.e., one's community). So, when interacting with one's community, a communal sharing incentive scheme would be congruent, while a market-pricing incentive scheme would be incongruent to the pre-existing relational structure. Since shifting towards a market-pricing relational mode with one's community can tarnish the relationship (55), individuals may be less likely to want market-pricing incentives (monetary aid) introduced into these relational environments and, instead, prefer communal sharing incentives (food aid) offered instead. We thus expect a strong effect of aid-type on take-up when aid comes from one's community, and this could be, in part, driven by an undesirable expected shift from a communal sharing relational mode to more of a market-pricing relational mode when monetary incentives (and market-pricing schemes) are introduced. We believe that future work exploring the interplay of aid-type and aid-entity could be incredibly theoretically and practically impactful.

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<sup>9</sup> We see the question of whether receiving aid from a charity where one has versus has not previously volunteered at or donated impacts the effect of aid-type on take-up as an interesting open question for future scholarship.

In addition to examining the effect of aid-type on take-up when aid is offered by different aid-entities, we also believe that it's important to examine whether the effect of aid-type on take-up persists across different hardships. The present research focuses on the hardship of food insecurity. Will, for example, low-income individuals be more likely to accept clothing or money for clothing, educational materials or money for educational materials, home goods or money for home goods? Our theory would predict that, so long that each of the in-kind aid-types elicit relatively higher PSEs and lower NSEs, the effect of aid-type on take-up should persist. Relatedly, we examined the effect of aid-type on take-up in the U.S. and Kenya, but would encourage scholars to examine whether there are certain cultures or religious groups where this effect does not persist. For example, China has more of a norm of giving and receiving cash as a gift within communal sharing relationships (i.e., their red envelope tradition). Will cash elicit as strong of shifts towards the market-pricing relational mode in cultures where cash is more often perceived as a gift? We see each of these questions as exciting areas for future scholarship.

Our research is not without limitations. For example, in Experiment 1, we chose to hold constant the way individuals would pick-up the aid to try and keep the two experiences as similar as possible. However, there is a difference in the visibility of the food aid and the cash aid, where recipients of food aid could be seen walking home with their food items whereas the cash could be inconspicuously placed in one's pocket or bag. We did make sure to put all food items in generic grocery bags, to avoid differences in aid visibility, but perhaps the effect of aid-type on take-up would be even larger if the two aid-types were equally invisible? Moreover, our research examines one-time transfers of cash or food aid. It is possible that, over time, the impact of the relational mode on recipients' social emotions and take-up rates could change. We encourage scholars to examine how receiving money or in-kind food aid from a charity impacts recipients'

psychology and behavior overtime. Further, receiving help while operating in comparatively more of a communal sharing or market-pricing relational mode likely shifts a slew of norms, expectations, and emotions. It is possible that operating in comparatively more of a communal sharing relational mode also heightens, for example, recipients' desire to give back to the aid-entity helping them. Though, the present research focuses specifically on social emotions and two of their antecedents (i.e., belongingness and stigma). We also did not dig into how the other two relational modes—equality matching and authority-ranking—might influence recipient psychology and behavior. We encourage scholars to examine the different causes and consequences of operating in each relational mode in the aid recipient context.

In an ideal world, our most effective poverty interventions not only optimize economic outcomes for recipients, but also psychological outcomes, such as feeling cared for, respected, supported, and valued rather than stigmatized and ashamed. Although it still may be the case that, after factoring in the comparative take-up rates and comparative psychological reactions when receiving monetary (vs. food) aid, money may still be the more effective poverty alleviation intervention. But this remains an open question that, we believe, begs to be studied. In order for aid to be maximally effective, we need givers' support, researchers' help to put aid interventions out into the world that are cost-effective when utilized, *and* we need potential aid recipients to actually take-up and use the aid. Although prior research supports the claim that cash is widely cost-effective when utilized, the present research suggests that recipients are less willing to accept monetary aid than food aid from charities. Ultimately, we hope that this research constitutes one of the first steps in a global research agenda that explores how recipient psychology influences the effectiveness of different aid efforts.



### **Online content**

Any methods, source data, extended data, supplementary information, preregistration documents, and statements of data and code availability are available at OSF (<https://tinyurl.com/ReceivingMoneyvsFood>).

### **Methods**

We preregistered our hypotheses, study designs, and planned analyses. We report all experiments, conditions, measures, and data exclusions. Section H of the Online Supplement provides detailed dropout and exclusion information for all studies.

### **Sample size determination and randomization**

For all of our experiments, sample sizes were preregistered and predetermined (i.e., no data were collected for any experiment after analysis began). Only Pilot Experiments 3 and 4 were not preregistered. For Experiment 1, sample size was predetermined to attain around 250 participants per condition based on the funds available to use. The Busara Center used a random number generator in excel to randomize participants into one of our two conditions. For Experiments 2-4, sample size was pre-determined to target a sample of 300 participants per condition. We expected to observe a small effect size of  $f = 0.15$  when testing the effect of aid-type on take-up and wanted 95% power to detect the effect. Power analyses suggested a total sample of 580 for a two-condition experiment, so we rounded up to a total of 600 participants (or 300 per cell) for our U.S. experiments. For Experiment 5, sample size was pre-determined to target a sample of 200 participants per condition. We expected to observe a small interaction effect of  $f = 0.15$  and wanted 95% power to detect the effect. A power analysis suggested a total

sample of 768 participants for a four-condition experiment, so we rounded up and aimed to collect a total of 800 participants. Moreover, we aimed to recruit participants from separate samples using appropriate identifiers (for example, participant identification number or IP address) to avoid duplicated responses. The U.S. experiments used the randomization feature present in the survey software of Qualtrics. We ran the U.S. experiments on Prolific (Experiment 5, Supplemental Experiment 1, and Pilot Experiment 4) and the CloudResearch platform (Experiments 2-4, Pilot Experiments 1-3, and Supplemental Experiments 2 and 3).

### **Inclusion & ethics statement**

Research conducted in Nairobi, Kenya included local researchers throughout the research process—study design and study implementation—via working with the Busara Center for Behavioral Economics. The research is locally relevant to Nairobi, as cash and food aid are both highly prevalent forms of assistance. All roles and responsibilities with the Busara Center researchers were established ahead of time via a contract with Northwestern University. Research protocols were approved by the Institutional Review Board (IRB) at Northwestern University and the Kenyan IRB, obtained through Strathmore University and consent was given orally, for our experiment with the Busara Center (Experiment 1). Participants consented to participate in all studies. No deception was used. All participants in Experiment 1 remained anonymous.

### **Data analysis and reporting**

Data analysis was conducted in R and SPSS (v.28 and v.29). All reported  $p$ -values are two-sided, all measures for each experiment were taken from distinct samples, and all analyses were run without the inclusion of covariates.

## Experimental samples and procedures

**Experiment 1.** In collaboration with the Busara Center, we recruited 500 ( $M_{\text{age}} = 35.8$ ,  $SD_{\text{age}} = 7.84$ ; 50% female; 77.6% head of household;  $M_{\text{income}} = \text{Ksh } 302.7$  daily<sup>10</sup>,  $SD_{\text{income}} = \text{Ksh } 142.7$  daily) food-insecure participants living in Kibera, a low-income slum outside of Nairobi, Kenya. We chose to survey 500 participants because this was the highest  $N$  we could afford with our research budget. Participants received Ksh 600 (about twice their average daily income) worth of cash or food aid<sup>11</sup> and no participant payment. Experiment 1 included a total of four parts and followed a between-subjects experiment design with two conditions: food aid vs. money for food. Specifically, we randomly assigned participants to receive an aid opportunity where they could pick-up Ksh 600 (about \$5 USD) or Ksh 600 worth of food items (i.e., maize flour, sugar, and cooking oil)<sup>12</sup>.

Part 1 consisted of the consenting process and a series of demographic measures, including a measure of food insecurity. Food insecurity rates were high in this sample: 63.6% of

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<sup>10</sup> The median and mode participant daily income was Ksh 300. The responses ranged from Ksh 0 to Ksh 500; responses were normally distributed around the mean.

<sup>11</sup> Prior to conducting Experiment 1, we ran an exploratory pilot study in Kibera with the Busara Center ( $N = 476$ ), to determine how common it was to receive cash and food aid. Our pilot revealed that 31.1% reported that both aid-types were equally common to receive, 55.9% reported that food aid was more common to receive, and 13.0% reported that cash aid was more common.

<sup>12</sup> To determine which food items to offer participants, we interviewed researchers at the Busara Centre to determine which food items would be valuable to the average individual in Kibera, Kenya. Additionally, we reviewed prior data we collected with the Busara Center on a sample of low-income Kenyan participants to determine which food items they tended to purchase with cash transfers. Further, local enumerators confirmed that the same food items, of similar quality, could be purchased for Ksh 600 from local stores in Kibera.

participants reported having to skip meals, 76.3% reported having to eat less than they thought they should, 67.6% reported that their household has run out of food, 72.4% reported that they have been hungry but haven't eaten due to lack of food access, and 51.7% reported that they've had to go a whole day without food.

In Part 2, we sent the 500 qualifying participants a notification that they qualified to receive aid, and provided them with aid delivery details for where to pick up their aid in Kibera. Our key manipulation occurred at this point: upon receiving the pick-up details, participants learned that the aid they were offered was either food aid or money for food (between-subjects). Participants were then asked to text us back their pick-up intentions (i.e., if they intended to pick-up they aid, they were told to text back "I want money for food" or "I want food," depending on condition).

In Part 3, we measured our focal outcome measure of take-up behavior, where enumerators tracked which participants did and did not come to pick up their aid over the weekend (on Friday and Saturday). The correlation between take-up intentions and behaviors revealed a small, but significant relationship between the two measures ( $r = .321, p < .001$ ), suggesting that reported intentions do not completely align with actual behavior.

Finally, in Part 4, we followed-up with all 500 qualifying participants (i.e., those who did and who did not take-up the aid in Part 3) via a 5-minute phone survey starting the Monday after the take-up days. This survey included a series of checks and exploratory measures, including our qualitative measure meant to capture recipients' felt social emotions while working with the Busara Center. Section B of the Online Supplement contains full details on the methods used in Experiment 1 and exploratory results.

**U.S. Experiments.** All U.S. experiments were very similar in design. All experiments were hypothetical thought-experiments and contained behavioral intention measures. Across Experiments 2-4, participants were randomly assigned to one of two conditions (aid-type: food vs. money) in a between-subject design. In Experiment 5, participants were randomly assigned to see one of these two aid-types and were further randomly assigned to read that the aid-type came from one of two aid-entities (a charity vs. the U.S. government). Across all experiments, we induced the experience of food insecurity by asking participants to imagine being in a difficult financial situation brought on by COVID-19, where they became at risk of going hungry, and to take a few moments to reflect on what this experience of food insecurity would be like for them. After reflecting on what this financial hardship would be like for them, participants in all of our experiments read about a charity, and were randomly assigned to further read that the aid organization gives away food or money to anyone who needs it. Section A of the Online Supplement displays the wording of the need-state thought experiment and the experimental manipulation(s).

To verify that food insecurity was a predominant need amongst online survey participants in the U.S. (via Prolific), we ran a pilot experiment (“Pilot Experiment 4”,  $N = 104$ ) during COVID-19 (October 7, 2020) and right before collecting the data for all three Supplemental Experiments. In Pilot Experiment 4, we asked participants to share with us what they were struggling to pay for or were unable to pay for, and how critical the need was. In this pilot, we found that 54.8% of our participants reported struggling to pay for food (i.e., they either were having to skip meals or were having to primarily eat cheap fast-food or bulk foods). This percentage was about five times higher than the national average at that time. Further, participants rated the inability to pay for food as a somewhat critical need ( $M = 3.15$ ,  $SD = 1.98$ ;

1=not at all critical, 4=somewhat critical, and 7=extremely critical). Thus, these results revealed food insecurity to be a highly prevalent and somewhat critical need in the online participant community during the first year of COVID-19 pandemic, while we collected some of our data (Section E-IV of the Online Supplement includes the materials and full results from this pilot).

Moreover, to make sure that participants in our U.S. Experiments (Experiments 2-5, and Supplemental Experiments 1-3) could simulate the food insecurity thought experiment and put themselves into a recipient mindset, we asked participants at the end of each experiment whether (i) they thought a situation like the one they read in the experiment could happen to them and (ii) if they were able to see themselves in this situation. Across all U.S. experiments, between 61.9%-77.0% of participants in each sample reported that they could see themselves in the situation described and 64.9%-91.8% believed the situation described could happen to them. Additionally, 16.9%-32.7% of participants in each sample reported that they have experienced a similar situation of food insecurity in their own life.

**Experiment 2.** For Experiment 2, we recruited 604 participants on Cloud Research in exchange for a set payment of \$0.75. Though, we only include a final sample of 588 participants ( $M_{age} = 40.6$ ,  $SD_{age} = 13.1$ ; 59.1% female<sup>13</sup>) in our analyses for Experiment 2 based on our pre-registration, since 16 participants did not pass our simple manipulation check at the end of the survey (i.e., they did not accurately write that the charity offered them food or money, depending on condition). Participants were asked to report their willingness to accept the aid and recommend the aid organization ( $r = .59$ ), NSEs (9-item  $\alpha = .94$ ), and PSEs (8-item  $\alpha = .90$ ). The NSE and PSE items were the same as those from Experiment 1. Finally, participants also

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<sup>13</sup> In all U.S. experiments, participants were asked to self-report their biological sex, between male and female.

responded to a two-item measure of psychological ownership ( $r = .81$ ) (23), which we describe and report in Section C of the Online Supplement.

**Experiment 3.** For Experiment 3, we recruited 707 participants on Cloud Research in exchange for a set payment of \$0.75. Though, we only include a final sample of 687 ( $M_{\text{age}} = 41.1$ ,  $SD_{\text{age}} = 12.7$ ; 50.8% female) participants in our analyses for Experiment 3 based on our pre-registration, since 20 participants did not pass our simple manipulation check at the end of the survey (i.e., they did not accurately write that the charity offered them food or money, depending on condition). Participants were asked to report their willingness to accept the aid and recommend the aid organization ( $r = .60$ ), belonging (“If I were to receive [money, groceries] from the charity this would tell me that I am: (1) socially connected, (2) a valued member of my community, (3) a person who belongs”; 1=strongly disagree, 7=strongly agree;  $\alpha = .91$ ) and the same PSEs from Experiments 1 and 2 ( $\alpha = .91$ ).

**Experiment 4.** For Experiment 4, we recruited 604 participants on Cloud Research in exchange for a set payment of \$0.75. Though, we only include a final sample of 571 participants ( $M_{\text{age}} = 41.2$ ,  $SD_{\text{age}} = 12.3$ ; 52.1% female) in our analyses for Experiment 4 based on our pre-registration, since 33 participants did not pass our simple manipulation check at the end of the survey (i.e., they did not accurately write that the charity offered them food or money, depending on condition). All participants were asked to report their willingness to accept the aid and recommend the aid organization ( $r = .57$ ), poverty stigma (“If I were to receive [money (for groceries) / groceries] from the charity, I would think that: (1) I am a poor person, (2) I am a needy person, (3) I am currently struggling with poverty, (4) I do not have enough resources to get by,” 1=strongly disagree, 7=strongly agree;  $\alpha = .86$ ), and the same NSEs as from Experiments 1 and 2 ( $\alpha = .94$ ).

**Experiment 5.** For Experiment 5, we recruited 816 participants on Prolific in exchange for a set payment of \$0.80. Though, we only include a final sample of 764 participants ( $M_{\text{age}} = 38.09$ ,  $SD_{\text{age}} = 13.47$ ; 51.1% female) in our analyses for Experiment 5 based on our pre-registration, since 52 participants did not pass our simple manipulation check at the end of the survey (i.e., they did not accurately write that the charity/government offered them food or money, depending on condition). All participants were asked to report their willingness to accept the aid and recommend the aid organization ( $r = .682$ ), the same NSEs as from Experiments 1, 2, and 4 ( $\alpha = .950$ ), the same PSEs as from Experiments 1-3 ( $\alpha = .913$ ), the same exploratory measure of psychological ownership as from Experiment 2 ( $r = .872$ ), and a measure of perceived communal sharing and market-pricing relational modes (see Section D of the Online Supplement for details on this measure).



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