The Economics of Street Charity: Theory and Field Evidence*

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Abstract

This paper examines the effect of offering a product on charitable behavior toward beggars on urban streets using a combination of theory and survey evidence. We propose a signaling model, which suggests that givers form beliefs about the intrinsic cost of working and willingness to earn based on the choice of begging with or without a product. In the separating equilibrium, the act of begging with a product separates the deserving from the undeserving and predicts higher charitable transfers to beggars with products. We use survey data collected in Delhi to find that the charitable transfers towards beggars with products are higher than towards beggars without products, even when givers did not take the product, indicating that the presence of a product does increase donations. *(JEL D90, H0, J65, Z10)*

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1 Introduction

'Helping a stranger' is the most common and rising form of charitable giving behavior across the world. Nearly half of the world's adults, or two and a half billion people, helped a stranger over the past decade (Charities Aid Foundation, World Giving Index [2019]). Helping a stranger often takes the form of giving to a beggar, a needy person who solicits money in public places for nothing in return. Another kind of beggars found on the urban streets is the beggars who offer trivial products such as pens, stickers, and flowers in return for charity. They look and seem similar to the beggars without products and appeal to the giver's altruistic preferences while asking for money and offering a small product in return. The product offered may attract more monetary charity by increasing the benefit from it (Buraschi and Cornelli [2002], Andreoni and Petrie [2004]), or it may crowd out the intrinsic motivation for charity and attract lesser donation (Zuckerman et al. [1979]). In this paper, we discuss the effect of material benefits on charitable behavior in the context of street charity. Specifically, we analyze if the passers-by differ in their charitable giving towards the beggars without products from those who also offer a product while soliciting charity.

When a beggar persuades the giver to donate while offering a trivial product in return, it may or may not lead to higher charity transfers. If the product changes the context from charity to a market exchange such that the giver starts evaluating the product for its worth, while deciding whether and how much to pay, then the "charitable" transfer towards helping the poor will reduce (Gruber [2004]). The beggar's ability to offer a product may also signal that they are less needy than the beggar without a product leading to a lower appeal to the giver's generosity and lower donation to the beggar offering a product than the one who doesn't (Warren and Walker [1991], Wagner and Wheeler [1969]). However, suppose the beggar *signals* higher deservedness for charity by exerting the effort to procure or make an article to offer. In that case, the givers might be more inclined to donate to a deserving beggar with product than a free-riding beggar. Moreover, the presence of a poor and needy

beggar who seems to be trying to earn even, or *especially* if the product itself holds little to no value in the market, may make the passers-by more likely to blame the beggars without products for their misfortunes. Therefore, a giver who holds strong beliefs in a just world for others will be more inclined to help the beggar with product who is at least trying to earn honestly as opposed to the seemingly free-riding beggar (Kogut [2011]). We examine the workings of the market for street charity with beggars with and without products using a combination of theory and survey evidence. Our signaling model of beggars' deservedness predicts, and data confirms that the charitable transfers toward beggars with products are higher than towards beggars without products.

We propose a model of charitable behavior in the urban streets as a signaling phenomenon. A poor person soliciting charity on the street may depend on charity for two reasons. First, they may have a high cost of working to earn and hence choose not to work, i.e., be undeserving (high-cost). Second, they may have bad luck in the labor market and not find a formal job or market for their skills leading to involuntary unemployment despite the willingness and low cost of working to earn. There are two types of givers: (i) those who are indifferent between helping the undeserving (high-cost) poor and the deserving (low-cost) poor, and (ii) those who have a preference for rewarding the deserving (low-cost) poor's willingness to exert effort and earn. The poor may choose to solicit charity by begging without or with offering a product by incurring a cost to create or procure the product to offer. The poor beggar's type is unobservable to the giver, who forms beliefs about the poor's intrinsic cost of working and willingness to earn based on their choice of begging without a product or a relatively costly act of begging with a product. The following is one of the main theoretical results. In the separating equilibrium, the act of begging with a product separates the deserving (low-cost) from the undeserving (high-cost), predicting higher charitable transfers to beggars with products as compared to beggars without products.

Few studies examine street charity despite helping a stranger being the most prevalent method of charitable giving. In fact, while characterizing the market for charity, the demand side for charity is characterized by organized charities where much of the literature's focus lies (Andreoni and Payne [2013]). However, the study of charitable behavior has recently become directed towards the role of culture in explaining charitable behavior (Bekkers and Ottoni-Wilhelm [2016]), which is a crucial feature of individual-level giving to strangers on the streets. The lack of data on informal charitable behavior on the street makes it difficult to study. Ideally, one would randomly assign beggars with products to offer while begging and compare her charitable receipts from an average giver with and without the product. It is not straightforward to implement such an experimental design as it is challenging to track the beggars and gather credible data on charitable giving on the street. In general surveys,it has been found that givers tend to over-report due to the social desirability bias (Grimm [2010], Lee and Woodliffe [2010]). On the other hand, receivers may under-report the amount received as it constitutes their income source, which is often under-reported (Hurst et al. [2014]).

In this paper, we solve the problem of lack of credible data by collecting real-time data on charitable exchanges followed by a detailed demographic and socio-economic survey of the givers and the receivers. Our team was especially trained to ensure that the givers and receivers were not aware that they were being observed. We only found eight transactions where the amount reported by the giver was different from the receiver's reported amount[1]. The survey was conducted in three main urban clusters where most of the individual charitable exchanges occur, namely - religious places, commuting places, and markets in India. We collected the data on gender, age, appearance, and cost of products offered. The data also includes in-depth information about beggars' persuasion style, words that were used to seek charity and the time spent on the exchange, and whether beggars went in groups.

[1]I dropped those observations from the analysis

Since charity givers' behavior and motivation may differ when they deal with beggars with and without products, the amount of donation being made could be different. To account for differences in charity givers' preferences, we also recorded the givers' relevant characteristics, including age, gender, whether in a group while giving, monthly family income, their personal reason for giving, and whether they took the product.

To focus only on the "charitable" transfers to beggars with products, we restrict our analysis to the observations where the giver had no potential use for the article and cited charity as the reason for transfer to beggars with products. We compare charitable receipts of the two types of beggars: beggars who did not offer anything in return and those with products who offered a low-value article. Beggars may self-select into the two types of charity soliciting based on their expected ability to persuade the giver under both methods. Moreover, givers to beggars with products may differ in their prosocial preferences from the givers to beggars. The possibility of self-selection of givers and receivers into different types of street charity implies that a direct comparison of charitable transfers to beggars without and with products may give biased results. We use propensity score matching to estimate the average effect of material offering on charitable giving in the streets. Each "begging with product" observation was matched with a begging observation and vice-versa based on the givers' and receivers' characteristics and region of charity[2]

Using our data, we find that the charitable giving to beggars with products for products of no use is significantly higher (about three times) than the charitable giving to beggars. Beggars and beggars with products are similar to each other in gender ratio, appearance, and even persuasion style, including the choice of phrases and whether they approached the givers in groups or not, but differ in average age. Givers to beggars and beggars with

[2]For example, suppose observations differ only based on charitable transfers, age, and gender of beggars. Then, to find the effect of begging with products on transfers, we compare the charitable transfer to a female beggar of age 17 with products to a female beggar of age closest to 17 without products.

products have similar gender ratios and average family income but differ in average age and whether in a group while giving. Younger people and those in groups were more likely to engage in charity towards beggars with products. The difference in age and group status may be due to a stronger notion of helping a "deserving" poor among younger people and higher gains from doing the moral and righteous thing when others can observe the giver in groups (Iredale et al. [2008], List [2008]). The difference in charitable transfers to beggars with products and beggars remains large after ensuring that all the relevant characteristics of the agents involved in beggary and begging with product are balanced using propensity score matching. After deducting their self-reported product cost, the net transfers to beggars with products are also significantly higher than the transfers to beggars. Robustness check using regression estimates of the effect of begging with product on transfers after controlling for observable characteristics finds a slightly larger effect size. Similar results after restricting the begging with product observations to the cases where the giver not only had no use for the product but even refused to take it further supports the evidence of a positive effect of offering a product on street charity transfers.

This paper contributes to the literature on the effect of material offerings on charitable giving. Prior evidence on the effect of material benefits on charitable giving is mixed. Some studies find an increase in the amount of money donated due to an additional incentive to donate from the material benefit. For example, fringe benefits (such as access to dress rehearsals) increase donations to the opera (Buraschi and Cornelli [2002]), and lottery benefits increase the number of donors to a fundraising campaign (Landry et al. [2006]). Many others also find no or even a negative effect of material benefits on generosity. An influential study documented in Richard Titmuss' "The gift relationship [1970]"[3] argued that blood donation reduces when people are paid for it. Another example of self-interested incentives to donate leading to a decline in charitable giving is by Anik et al. [2009]. They find that

[3]Refer to Titmuss [2018] for the latest edition of the book.

while giving makes people happy, asking them to give in order to be happy reduces their donation amounts.

When the material benefit improves the social or self-image of the giver, it complements the reputation and psychological benefits motivations for charity (Andreoni and Petrie [2004], Wilhelm and Bekkers [2010], Bekkers and Wiepking [2011], Buraschi and Cornelli [2002]). Personal benefit reduces generosity when it takes away the joy-of-giving or warm-glow from an act of charity and reduces it to a material exchange, such as in the case of money for blood donation Andreoni [1989], Zuckerman et al. [1979]. Donation to a poor street-beggar with product who offers a material benefit is arguably motivated by more than one reason for doing charity (Bekkers and Wiepking [2011], Vesterlund [2006]). Motivations to create a just world when the beneficiary cannot be blamedKogut [2011], Todd and Lawson [1999], reputation gain Glazer and Konrad [1996] and warm-glow Andreoni [1990] from helping a justify giver's preference to give more in charity to a beggar with product perceived to be more hard-working and deserving than a beggar.

This paper is the first one to study the types and impact of material benefits in the context of street charity. Previous results may not guide us toward an understanding of its effect on street beggars. This is because the receivers in the previous case studies are not directly soliciting the charity for themselves (Titmuss [2018], Anik et al. [2009], Buraschi and Cornelli [2002], Landry et al. [2006]). But, in the context of street charity, the needy beggars ask for donations themselves, with or without the material benefit. Using the field-survey data on informal charity from India also enables us to contribute to the relatively sparse literature on the market for charity and prosocial behavior in middle-income countries. Finally, our theoretical model of signaling in street charity illustrates the role of cultural urges [Andreoni and Payne, 2013] and a new motivation for charity (especially applicable to informal charity) - rewarding a deserving poor and their willingness to exert effort to earn.

2 The signaling model of street charity

Next, we describe a signaling model of charity. Some givers have a preference over charity towards the poor who try in the labor market but fail, whom they consider 'the deserving poor' and those who do not, 'the undeserving poor.' However, they cannot observe the poor's attempts and efforts to join the labor market. The beggars differ in their cost of exerting effort[4] and choose whether to procure or create an article to offer while begging for donations or not. As begging with an item involves more effort than without, givers update their belief about the beggar's type (tried in the labor market but failed or did not even try) based on whether they exert the effort to offer an item while begging or not. We derive the conditions under which the item serves as a tool to signal and separate the types of beggars who have a high cost of exerting effort and "choose to beg" from those who try in the labor market but fail and hence forced to depend on charity.

1. *Types of street beggars*: A street beggar i may have a high cost of exerting effort to earn or have a low cost of exerting effort to earn but have bad luck in the labor market. Let θ denote the type of beggar in terms of their cost of exerting effort. Let the marginal cost of effort be constant for both types and denoted by θ_h and θ_l for high and low types respectively, where $\theta_h > \theta_l$. Let the proportion of low-cost beggars be $\pi \in (0, 1)$.

2. *Choice of charity soliciting method*: Each beggar i knows their type θ and chooses whether to offer a product while begging or not. There is no cost of begging but offering a product is costly. A product of price p costs $\theta_h p$ to the high cost type but costs $\theta_l p$ to the low cost type. beggars choose the product they want to offer given their type: $p(\theta)$ where $p = 0$ denotes begging. beggar receives charitable transfer x

[4]Various intrinsic and extrinsic factors may contribute to a high cost of exerting effort for participation in the labor market. Intrinsic factors include innate psychological and physical costs of effort. Extrinsic factors, on the other hand, would be causes such as social integration difficulties, resource constraints, drug addiction, or mental health issues. Labor market participation can also be difficult due to coercion by organized begging networks or the beggary mafia. Nonetheless, the decision-making process of mafia heads involves multifaceted considerations, including potential legal consequences and political clout. We delve into some of these complex issues in section xx.

from the giver such that their total payoff $= x - \theta p$

3. *Giver's preferences*: Let there be two types of givers: the 'indifferent' type i and the 'just' type j. Both get utility $u(x)$ from donating x to the high cost of effort type where $u' > 0, u'' < 0$. The indifferent type i gets the same utility $u(x)$ from donating x to the low effort cost type poor as well. However, the just type j considers poor who tried in the labor market deserving and gets utility $\alpha u(x)$ from donating x to low cost type where $\alpha > 1$. $\alpha > 1$ may be affected by a person's ethics and values, the environment they are in, such as a market or religious place, and their peer group. For example, α would be higher if one gains a positive reputation among peers from doing the "morally correct" deed of rewarding a deserving poor. Net payoff from donating x is $u(x) - x$ for the indifferent giver i. For the just giver j, the net payoff is $u(x) - x$ if donated to the high cost type or the undeserving poor and $\alpha u(x) - x$ if donated to the low cost type or the undeserving poor, where $\alpha > 1$. Therefore, under complete information of beggar's type, indifferent giver i giver will donate $x_i = u'^{-1}(1)$ and just giver j will donate $x_j^h = u'^{-1}(1)$ to the high cost undeserving poor and $x_j^l = u'^{-1}(\alpha^{-1})$ to the low cost deserving poor. Therefore, if the proportion of just givers j is $\gamma \in (0, 1)$, then the average transfer to the undeserving high-cost poor is $x^h = u'^{-1}(1)$ and the average transfer to the deserving low-cost poor is $x^l = (1-\gamma)u'^{-1}(1)+\gamma u'^{-1}(\alpha^{-1})$. Therefore, an average giver donates more to a deserving low-cost poor than an undeserving high-cost poor under complete information.

4. *Asymmetric Information about the beggar's type*: The just giver j wants to reward the deserving (low-cost) beggar's effort to join the labor market but cannot observe it. Offering a product while begging may work as a signal of low effort cost and willingness to earn. The transfer under incomplete information is based on the expected θ, given the price of the product offered. Let $\mu(p)$ denote the just giver j's belief that the beggar is deserving (low-cost) i.e., $\mu(p) = Pr[\theta = \theta_l|p]$. Thus, the just type giver j's transfer

x given p is $\mu(p)x_j^l + (1-\mu(p))x_j^h$ under incomplete information. The indifferent giver i is indifferent between donating to either type of beggar and hence donates the same x_i regardless of the beggar's type and beliefs about it.

A Perfect Bayesian equilibrium in this model consists of a strategy p for the street beggar of each type $\theta \in \{\theta_l, \theta_h\}$ i.e., $p(\theta)$, a charitable transfer strategy x for each type of giver i, j given p i.e., $x_i(p)$ and $x_j(p)$, and the just giver j's belief $\mu(p)$.

Separating Equilibria: Under a separating equilibrium, the deserving (low-cost) beggar is able to successfully signal their type by offering a product of price p_l. Thus, $\mu(p) = 1$ if $p = p_l$ and $\mu(p) = 0$ if $p \neq p_l$. The just giver j donates $x_j(p_l) = x_j^l$ and $x_j(p) = x^h \ \forall$ $p \neq p_l$. In equilibrium, $p_h = 0$ because the additional payoff from offering a product $= 0$ when $p \neq p_l$. The equilibrium p_l consistent with a separating equilibrium will satisfy the incentive compatibility constraints of the two types of beggars. The indifferent giver i will donate $x^h \forall p$. The deserving (low-cost) beggar will prefer $p = p_l$ to 0 iff:

$$x^h \leq x^l - \theta_l p_l \iff p_l \leq \frac{x^l - x^h}{\theta_l} = \frac{(1-\gamma)u'^{-1}(1) + \gamma u'^{-1}(\alpha^{-1}) - u'^{-1}(1)}{\theta_l} \tag{1}$$

The undeserving high-cost poor will prefer $p = 0$ to p_l iff:

$$x^h \geq x^l - \theta_h p_l \iff p_l \geq \frac{x^l - x^h}{\theta_h} = \frac{(1-\gamma)u'^{-1}(1) + \gamma u'^{-1}(\alpha^{-1}) - u'^{-1}(1)}{\theta_h} \tag{2}$$

where α measures the just giver j's preference to reward the deserving poor's attempt to work and earn, γ is the proportion of just givers j, θ_l is the marginal cost of procuring a product to offer for the deserving low-cost poor and θ_h is the marginal cost of procuring a product to offer for the undeserving high-cost poor such that $\theta_l < \theta_h$. Let us denote $(1-\gamma)u'^{-1}(1) + \gamma u'^{-1}(\alpha^{-1}) - u'^{-1}(1) = f(\gamma, \alpha)$, which is the difference between the average charitable transfer to a low-cost deserving and high-cost undeserving beggar under complete information about the beggar's type or under separating equilibrium.

Therefore, in Perfect Bayesian equilibrium $p_l \in \left[\frac{f(\gamma,\alpha)}{\theta_h}, \frac{f(\gamma,\alpha)}{\theta_l}\right]$, $p_h = 0$. Applying the Intuitive criterion due to Cho and Kreps [1987] rules out any separating equilibrium with $p_l > \frac{f(\gamma,\alpha)}{\theta_h}$ leading to the minimal cost separating equilibrium. Thus, in the minimal cost separating Perfect Bayesian equilibrium, beggar's strategy: $p_l = \frac{f(\gamma,\alpha)}{\theta_h}$, $p_h = 0$, just giver j's strategy: $x_j(p_l) = u'^{-1}(\alpha^{-1})$, $x_j(p) = u'^{-1}(1) \forall p \neq p_l$ and just giver j's belief: $\mu(p) = 1$ if $p = p_l$ and $\mu(p) = 0$ if $p \neq p_l$. indifferent giver i's strategy: $x_i(p) = u'^{-1}(1) \forall p$. Thus, each type's expected transfer received in equilibrium is given by: $x^h = u'^{-1}(1)$ and $x^l = \gamma u'^{-1}(\alpha^{-1}) + (1-\gamma)u'^{-1}(1)$. Comparative statics of the separating equilibrium leads to the following proposition.

Proposition 1. *In the minimal-cost separating Perfect Bayesian equilibrium of street charity, an undeserving (high-cost) beggar chooses to beg without offering anything in return and receives the charitable transfer of* $u'^{-1}(1)$. *In contrast, a deserving (low-cost) beggar offers a product worth* p_l *procured at cost* $\theta_l p_l$ *where* $p_l = \frac{(1-\gamma)u'^{-1}(1) + \gamma u'^{-1}(\alpha^{-1}) - u'^{-1}(1)}{\theta_h}$.

(a) The deserving (low-cost) beggar's cost incurred in offering a product increases in their marginal cost θ_l, *the giver's preference parameter for rewarding the deserving (low-cost) beggar* α, *and the proportion of just givers* j, *who prefer donating to the deserving (low-cost) beggars over the undeserving (high-cost) beggars.*

(b) The deserving (low-cost) beggar's cost decreases in the undeserving (high-cost) beggar's marginal cost θ_h.

(c) The charitable transfer, as well as the net payoff of the beggars who offer a product is higher than that of the beggars who do not offer a product.

The above proposition demonstrates how informal charitable behavior is driven by altruistic preference toward poor, but qualified by a desire to reward effort and willingness to earn. This desire to reward effort and willingness to earn is similar to the ethic of earning one's

own bread. Although people generally want to help the poor, they don't want to enable those who choose to live off of others' earnings. Instead, people prefer to help those who are deserving of charity, such as those who encountered setbacks in the labor market and are forced to seek charity.

It is difficult for a giver to determine whether a beggar falls into the deserving category or not. Characteristics such as drug addiction or mafia affiliation may also be used to judge whether someone is deserving of charity, but these factors are theoretically equivalent to labor market participation if it's also more costly for addicted or mafia-affiliated beggars to obtain products to sell. Thus, the giver tends to view those beggars who make an effort to offer products as more deserving of help. Since an undeserving person wouldn't have been able to procure these products, the giver assumes that the beggar must have put forth effort and has a willingness to earn. As a result, we observe a separating equilibrium with two types of beggars on urban streets: those who offer products and those who don't. The former is more likely to receive charity since the giver assumes that they are making an effort to improve their situation. This phenomenon highlights the unique complexities of informal charitable behavior toward beggars on the street.

The givers' preference for helping deserving poor impacts the cost that deserving low-cost poor must incur to signal their type. When the reward for being a deserving poor (α) is higher, the incentive for undeserving high-cost poor to mimic them also increases. As a result, the signaling cost for deserving individuals rises. In market contexts, givers may have a smaller incentive to reward deserving individuals, leading to a smaller cost and benefit of offering a product while begging. Similarly, the proportion of givers who prefer to reward the deserving low-cost poor for their willingness to work (γ) also affects the incentive for undeserving high-cost poor individuals to mimic them. Consequently, the cost of signaling, in terms of the product offered, increases with the proportion of just givers and their pref-

erence for rewarding the deserving poor. This suggests that the cost of offering a product while begging is lower in religious places, where people are unlikely to judge the poor (Will and Cochran [1995]).

The average transfer to beggars with products also increases with the proportion of just givers and their preference for rewarding the deserving poor. However, transfers to beggars are not affected by any preference or cost parameter. This comparative static result can suggests that the average transfer to beggars is the same by age and region type, but the average transfer to beggars with products is higher in commuting regions. Moreover, the average age of givers to beggars with products is expected to be lower than the average age of givers to beggars.

Pooling Equilibria: Under a pooling equilibrium, each type of beggar chooses the same strategy i.e., $p_h = p_l$, say p^*. Thus, the just giver j's posterior belief upon observing $p*$ remains the same as the prior belief i.e., $\mu(p^*) = \pi$ and $\mu(p) = 0 \forall p \neq p^*$. Equilibrium transfer is $x_j(p^*) = \pi u'^{-1}(\alpha^{-1}) + (1-\pi)u'^{-1}(1)$, $x_j(p) = u'^{-1}(1) \forall p \neq p*$ and $x_i(p) = u'^{-1}(1) \forall p$. The equilibrium p^* consistent with a pooling equilibrium will satisfy the incentive compatibility constraints of the two types of beggars. The deserving low-cost poor will prefer $p = p^*$ to any $p \neq p^*$ iff:

$$u'^{-1}(1) - \theta_l p \leq \pi u'^{-1}(\alpha^{-1}) + (1-\pi)u'^{-1}(1) - \theta_l p^* \qquad \forall p \neq p^* \tag{3}$$

$$\iff p^* \leq \frac{\pi u'^{-1}((\alpha^{-1}) - u'^{-1}(1))}{\theta_l} + p$$

If the above equation is satisfied for $p = 0$, then it will be satisfied $\forall p > 0$. Thus, the deserving low-cost poor's incentive compatibility constraint is satisfied if:

$$p^* \leq \frac{\pi u'^{-1}((\alpha^{-1}) - u'^{-1}(1))}{\theta_l}$$

The undeserving high-cost poor will prefer $p = p^*$ to any $p \neq p^*$ iff:

$$u'^{-1}(1) - \theta_h p \leq \pi u'^{-1}(\alpha^{-1}) + (1-\pi)u'^{-1}(1) - \theta_h p^* \qquad \forall p \neq p^* \tag{4}$$

$$\iff p^* \leq \frac{\pi u'^{-1}((\alpha^{-1}) - u'^{-1}(1))}{\theta_h}$$

The undeserving high-cost poor's incentive compatibility constraint is binding. Thus, in the pooling Perfect Bayesian equilibrium, beggar's strategy:
$p_h = p_l = p* \in \left[0, \frac{\pi u'^{-1}((\alpha^{-1}) - u'^{-1}(1))}{\theta_h}\right]$, just giver j's strategy: $x_j(p^*) = \pi u'^{-1}(\alpha^{-1}) + (1-\pi)u'^{-1}(1)$, $x_j(p) = u'^{-1}(1) \forall p \neq p*$ and $x_i(p) = u'^{-1}(1) \forall p$. just giver j's belief: $\mu(p) = \pi$ if $p = p^*$ and $\mu(p) = 0$ if $p \neq p^*$. Expected transfer to both types of beggar is given by, $x^l = x^h = \gamma(\pi u'^{-1}(\alpha^{-1}) + (1-\pi)u'^{-1}(1)) + (1-\gamma)u'^{-1}(1)$. Comparative statics of this pooling equilibrium leads to the following proposition.

Proposition 2. *(a) The maximum price of beggar with product's offered product p which satisfies the pooling equilibrium defined above is increasing in the proportion of deserving (low-cost) beggars π, the reward for willingness to work, i.e., α and decreasing in the undeserving high-cost poor's marginal cost of exerting effort.*

(b) In the minimum cost pooling equilibrium, each type chooses only to beg and not offer any products to the giver.

The pooling equilibrium explains street charity behavior in regions where all the street beggars beg without a product or offer low-priced products which are easy enough to procure even for the unwilling to work or the high-cost undeserving poor. Such products fail to change givers' beliefs, and the undeserving high-cost poor like to pool with the deserving low-cost poor so as to share the benefit of the reward for deservingness, i.e., α. The deserving low-cost poor pool with the undeserving high-cost poor as they cannot successfully signal their type by choosing a different $p*$. For instance, signaling cannot happen if the proportion of deserving poor π is too high such that signaling adds to the cost of obtaining charity

without commensurate gains from belief updating (as π is already close to 1). Similarly, if returns from signaling (γ and α) are too low. A comparison of the pooling and the separating equilibria leads to the following result.

Corollary 1. *In the Perfect Bayesian equilibrium of street charity, each type chooses to beg or offer a low valued product and gets a small donation, or the deserving low-cost poor offers a high valued product and gets a high donation while the undeserving high-cost poor only begs and gets a small donation.*

Equilibrium Selection – We employ the Pareto Dominance criterion of equilibrium selection to predict which equilibrium will be observed based on the exogenous parameters, α, γ, and π, which leads to our final theoretical result.[5]

Proposition 3. *The Pareto-Dominant Perfect Bayesian Equilibrium will be given by,*

(a) Pooling equilibrium, where $p_l = p_h = 0$ *and* $x^l = x^h = \gamma(\pi u'^{-1}(\alpha^{-1}) + (1-\pi)u'^{-1}(1)) + (1-\gamma)u'^{-1}(1)$*, if* $\gamma < \underline{\gamma}$*, or* $\alpha < \underline{\alpha}$*, or if* $\pi > \underline{\pi}$*, otherwise,*

(b) Separating equilibrium with $p_l = \dfrac{(1-\gamma)u'^{-1}(1) + \gamma u'^{-1}(\alpha^{-1}) - u'^{-1}(1)}{\theta_h}$*, and* $p_h = 0$*, and* $x_j(p_l) = u'^{-1}(\alpha^{-1})$*,* $x_j(p) = u'^{-1}(1) \forall p \neq p_l$ *will be observed.*

where, $\underline{\gamma}, \underline{\alpha}, \underline{\pi}$ *are given by comparing the payoffs of beggars under the minimal cost pooling and separating equilibria and given in the appendix.*

Using the Pareto dominance criterion for equilibrium selection, the model predicts a pooling equilibrium with only beggars without items in regions where there is a sufficiently small proportion of the "just" types (γ) or a sufficiently small preference for deserving poor among the just types (α);[6] or when the proportion of deserving poor π is sufficiently high,[7]

[5]Many other equilibrium selection criteria may be considered such as the Kohlberg-Mertens notion of strategic stability (Kohlberg and Mertens [1986]), which would rule out any equilibrium other than the minimal cost-separating equilibrium.

[6]Deserving types have a small return from distinguishing themselves, hence incurring the cost is not worthwhile.

[7]Deserving types waste resources distinguishing themselves without a large increase in their charitable receipt (because they are pooled mainly with other deserving types).

otherwise separating equilibrium is observed. Any pooling equilibrium with a positive cost to offer a product will be dominated by no product because the product only adds to the beggars' cost, not to their benefit. In the separating equilibrium, the undeserving poor or high-cost-of-effort types choose to beg without an item, and the deserving poor or the low-cost-of-effort types offer a trivial product with a cost just enough to separate them from the undeserving types.

Therefore, we expect the charitable behavior in religious places and flea markets to exhibit a pooling equilibrium with beggars without products due to low γ and π, respectively. Commuting regions, on the other hand, are expected to have the separating equilibrium with high cost and returns to offering a product while begging.

Next, we describe our setting, data, and empirical analyses.

3 Context and Data

India is one of the most unequal countries in the world and ranks 6th in the number of homeless people[8]. According to the 2011 Census of India, about 1.8 million people are homeless. Five hundred thousand homeless people in India engage in beggary as per the National Human Rights Commission India statistics. This is a 25% increase as compared to the 1991 estimate of 400,000 beggars. Despite the laws against it in many parts of the country, beggary has increased, especially the metropolitan cities such as Mumbai and Delhi. As per the Bombay Prevention of Begging Act, 1959 adopted in 20 states of India, beggary is defined as soliciting or receiving money, clothes, or other things ordinarily given to a beggar in a public place whether or not by singing, dancing, fortune-telling, performing or offering any article for sale. While the act does not differentiate between people who solicit charity by offering an article and those who offer nothing in return, the effect of material benefits in

[8]United Nations Human Rights report on homelessness, 2005: E/CN.4/2005/48

the form of offered articles is a topic of interest in the literature on the economics of charity, although understudied in the context of street charity.

In this project, we aim to answer if people give more or less in street charity when the beggar also offers a product in return. In what follows, to analyze the effect of offering a product while soliciting charity, we define the beggars who offer a product as 'street beggars with products' and those who offer nothing in return as 'beggars.' I focus on charitable behavior in the streets of Delhi, the national capital of India. Delhi has an estimate of 60,000 beggars (Social Welfare Department, Delhi Government, 2010) and 4.5 million beggars with products on the streets (Census of India, 2011). Moreover, 40% of Delhi's population comprises of migrants from other Indian states making it more nationally representative than any other state in India. We designed our survey to span the three main urban clusters where most of the individual charitable exchanges occur, namely - religious places, commuting places (outside metro stations, traffic signals, and bus stops), and market places (local markets and outside malls). Within each cluster, we randomly picked specific locations across Delhi to conduct the survey. An equal amount of time was spent surveying in all the three categories of survey regions. 30% of the total charitable interactions are recorded in religious or picnic areas, 31.5% while commuting, and 38.5% in marketplaces.

There are two types of beggars, (1) beggars who persuade people on the streets to help them with money for basic sustenance and (2) beggars with products who seek charity but offer a product in return. Ideally, to compare charitable behavior towards beggars and beggars with products, we need random assignment of the act of beggary and begging with product to the pool of beggars and record their interactions with givers (including rejections and donations in the case of actual donations received). In the absence of such data and an experimental setting, we surveyed a sample of 204 givers (55% women) and 204 receivers of charity (59% women) on the streets of Delhi and documented their charitable exchanges

in real-time[9]. Right after a giver donated to a beggar, a pair of surveyors noted the details of the exchange. One of them then interviewed the beggar, and the other filled in the detailed questionnaire for the giver. 112 out of 204 recorded interactions are of beggary. The remaining 92 interactions involve street-begging with product such that a street beggar with product offers a product and persuades passers-by on the streets to pay them. Of the 92 givers to the street beggars with products, 77 reported that their reason of purchase is charity. 63 of these 77 said that they have no potential use for the product itself.

As the beggars who select into street begging with product may intrinsically differ in their ability to solicit charity as compared to the beggars who ask for money without offering anything in return, we document various observable characteristics of the beggars and the beggars with products that might affect the charity amount. We collect data on gender, age, appearance, cost of products offered, and detailed data on how the beggars persuaded the giver, including persuasion style and words, time spent persuading, and whether beggars went in groups. Moreover, the givers to beggars and beggars with products may also differ in their preferences and motivation for charity, affecting the amount donated. We also record relevant characteristics of the givers, including age, gender, whether in a group while giving, monthly family income, detailed reason for giving (or buying in the case of begging with product), and whether they took the product. We exclude from our analysis the interactions where givers reported that they will or might use the product.

4 Empirical Findings

In what follows, we restrict the street-begging with product interactions to 63 out of 92 interactions for which the givers to beggars with products reported no use for the bought product. Table 1 presents a summary of the main characteristics of the charitable exchanges

[9]The original sample consisted of 212 observations of charitable exchanges (givers and receivers each), but eight observations were dropped due to inconsistent reporting or incomplete survey.

by the type of receiver: beggar or street beggar with product with no use of the product. Note that the average transfer made to the street beggars with products (for products of no use) is more than triple the amount donated to beggars. The difference remains positive and significant even after deducting the cost of products offered by the street beggars with products. As all the givers in both types of interactions report charity as their reason for making the transfer, it is interesting to learn why charity is larger in the case of street-begging with product than pure beggary. An examination of the other characteristics of the receivers and givers by interaction type reveals the following. There is no significant difference in gender ratio and average family income of givers to beggars and beggars with products. However, the givers to beggars are five years older than the givers to beggars with products, on average. As the product is irrelevant, this may suggest that the relatively new cultural ethic of hard work is stronger among the younger population. Moreover, out of all those who donated to beggars, only 19% were in groups, while the corresponding percentage is 47 for those who gave to beggars with products. The finding of a difference in the proportion of givers in groups by type of charitable interaction further emphasizes that charity to beggars with products is considered a more virtuous act and a stronger signal of the righteousness of the giver due to which givers in groups are more inclined to donate to a beggar with product. The finding that 65% of the givers to beggars with products did not even take the product provides stronger evidence that the reason of paying the beggar with product is indeed charity.

The receivers of charity through beggary and street begging with product do not differ in gender ratio, proportion seeking charity in groups, and an appearance-based neediness index as noted in table 1. The neediness index is a simple indicator of the impoverishment and neediness of the poor. We construct it using indicators of hair, face, clothes, and health quality. Each of these is scored on a scale of 1 to 5, 1 being the worst quality. The sum of these indicators is subtracted from the maximum possible value of 20. The difference mea-

Table 1: Descriptive Statistics of charitable interactions by type of receiver (beggar and beggar with product)

Variable	**W/o product** **(1)**	**With product** **(2)**	**p-value** **(3)**
Male givers	0.48	0.5	0.74
Age givers	35	31.4	0.057
	(1.18)	(1.39)	
Givers in groups	0.2	0.47	0.00
Giver's family income (monthly in INR)	36,400	35,000	0.4
	(984)	(1,542)	
Male receivers	0.47	0.54	0.4
Age receivers	17.5	23.3	0.005
	(1.16)	(1.82)	
Receivers in groups	0.11	0.12	0.83
Neediness Index	9.4	9.1	0.35
	(0.21)	(0.28)	
Giver-centric persuasion	0.23	0.3	0.31
Product-based persuasion		0.23	
Did not take product		0.65	
Is reason Charity	1	1	1
Transfer (in INR)	8.9	26.5	0.00
	(0.77)	(4.5)	
Transfer net of cost (in INR)	8.9	17	0.00
	(0.77)	(1.4)	
Observations	112	63	

Notes: All variables except age, family income, neediness index, and transfers are dumour variables. Male givers takes the value 1 if the giver is a man, 0 if woman (similarly "Male receivers"). Givers in groups takes the value 1 if the giver is in a group while giving, 0 otherwise (similarly, "Receivers in groups"). Neediness index is the difference of the sum of hair, clothes, face, and health quality (out of 5 each) from 20. Product-based persuasion takes the value 1 if the beggar with product's persuasion words mentioned anything related to the product, 0 otherwise. Intent to use product takes the value 1 if givers reported that they might use the product, 0 if not. Did not take product takes the value 1 if the givers did not take the product that they paid for, 0 if they took it. At religious place or picnic takes the value 1 if the exchange happens at a religious place or picnic, 0 otherwise. (Similarly, "While commuting" and "At market place"). The summary statistics of the dumour variables represent the proportion with value 1 out of all the beggary interactions in column (1) and street begging with product interactions in column (2). Mean is the summary statistic for age, family income, neediness and transfers. Standard errors are reported in parentheses where applicable.

sures the sorrow state of the poor beggar's looks which could trigger sympathy and attract charity. We also recorded the exact phrases said by the beggars to persuade the passers-by to donate. The phrases are categorized as giver-centric type of persuasion and poor-centric type of persuasion. Persuasion is giver-centric when phrases such as "God will bless you if you donate", "May you live long" and "May your relationship blossom" to couples. On the other hand, poor-centric persuasion involves phrases such as "Please help! I have not eaten in two days", "Please give some money" and "Please help, we want to feed our child". A simple comparison of the style of persuasion reveals no significant difference by the type of interaction. Only 23% of the beggars with products mentioned anything about the product, while the rest clearly solicited charity.

Calculating the treatment effect of offering a product as the difference in the mean of transfer payments to the beggars with products and the beggars might yield biased results. Selection bias might emerge due to the difference in the age and group status of givers and age of receivers by the type of charity. To avoid such a selection bias, we use propensity score matching to determine the unbiased average effect of offering a product on behavior in street charity. This method compares the transfers made under begging with product with matched incidents of begging, where matches are chosen on the basis of similarity in age and group status of givers and age of receivers. This method of matching, due to Rubin [1977], adjusts for the observable differences in characteristics of the treatment group (begging with product) and the control group (beggary). As the observations in the treatment group are matched with similar observations in the control group, any remaining difference in the outcome variable, i.e., transfer payment is attributable to the treatment, i.e., the act of begging with product and not the agents involved in it[10]. Moreover, the propensity-score matching method allows us to work without making any parametric assumptions about the functional

[10]While unobservable and unmeasured characteristics under begging with product and beggary could also be different leading to similar bias, we argue that the survey was designed to capture all the characteristics relevant to charitable behavior.

form of the relationship of age of givers, age of receivers, and group status of givers with the transfer payments under begging with and without product.

4.1 Main results

A simple propensity score matching such that each of 112 observations of beggary is matched with the closest observation out of the 63 observations of begging with product, and vice-versa based on age of giver, age of receivers, and group status of givers created 350 matched observations. The difference between the standardized average age of givers to beggars with products and beggars is -0.3, while in the matched sample it is 0.08, i.e., the standardized average age of givers to beggars with products is 0.3 units less than the standardized average age of givers to beggars in the unmatched sample while the difference is reduced to 0.08 units in the matched sample. Corresponding figures of difference in the standardized proportion of givers to beggars with products in groups and givers to beggars in groups are 0.61 and -0.02. Similarly, the difference in the standardized average age of beggars with products and beggars in the unmatched sample is 0.43 units as opposed to 0.08 units in the matched sample. The standardized differences and variance ratios in the matched and the unmatched samples are summarized in covariate balance summary (table 2).

Table 2: Covariate Balance Summary

	Standardized differences		Variance Ratio	
Variable	Unmatched	Matched	Unmatched	Matched
Age givers	-0.30	0.08	0.77	0.95
Giver in groups	0.61	-0.02	1.59	0.97
Age receivers	0.43	0.08	1.37	0.85
Observations	175	350	175	350

The raw difference in transfer payments to beggars with products and beggars is 17.6 INR (robust standard error = 4.6, p-value = 0.00). The average effect of offering a product

estimated by the difference between the transfer payment to beggars with products and beggars in the matched sample is 17 INR (adjusted robust standard error = 3.7, p-value = 0.00). When propensity score matching is based on all the observable characteristics of the givers and receivers (summarized in table 1), and the region of charity, the average effect of offering a product is 14.8 INR (adjusted robust standard error = 2.8, p-value = 0.00). Therefore, we find compelling evidence that begging with product has a positive and significant effect on the charitable transfer payments on the street. The effect of begging with product on charitable transfers net of the cost of the product offered in the sample matched on the basis of all the observable characteristics is 7.7 INR (adjusted robust standard error = 1.8, p-value = 0.00). The estimated effect is 7.9 (adjusted robust standard error = 2.17, p-value = 0.00) based on the sample matched only on the basis of age of givers, age of receivers and givers' group status and 8.09 (adjusted robust standard error = 1.61, p-value = 0.00) based on the unmatched sample. The effect of offering a product on charitable transfers and transfers net of cost using propensity score matching is summarized in table 3.

Table 3: The effect of offering a product on charitable transfers based on propensity score matching

Independent Variable	(1)	(2)	(3)
Transfer payment	17.6	17	14.8
	(4.6)	(3.7)	(2.48)
Transfer payment (net of cost)	8.09	7.9	7.7
	(1.6)	(2.2)	(1.8)
Observations	175	350	350

Notes: Column (1) reports the raw difference in mean of the independent variable. Column (2) reports the adjusted mean difference based on matched sample where matching is done along the age of the givers, age of the receivers and the group status of the giver. Column (3) reports the adjusted mean difference based on matched sample where matching is done along all the observable characteristics of the givers and receivers. Robust standard errors are reported in paranthesis.

4.2 Robustness Checks

In this section, we conduct and present results from two robustness checks. First, we estimate the effect of offering a product on charitable transfers using the standard regression analysis.

Next, we restrict the data from begging with product to the cases in which the giver not only had no use from the product but also did not even take the product. We estimate the following empirical model to find the effect of street begging with product on charitable transfers:

$$Transfers = \beta_0 + \beta_1 Product + \beta_2 x + FE$$

, where x refers to the vector of control variables described in table 4 and FE refers to the age-group, group status and region fixed effects. As the givers and receivers only differ in age and whether they are found in a group, column (1) of table 4 shows the difference in charitable transfers to beggars with products and beggars with age-group and group status fixed effects of both receivers and givers. Regressing the charitable transfers on *Product* (which takes the value 1 for street beggars with products and 0 for beggars), with age and group status fixed effects, reveals that the transfers made to beggars with products are 22 INR higher than beggars on average. Controlling for gender, persuasion type, neediness index, and income level of giver with region fixed effects reveals an even higher effect of begging with product on charitable transfers received as depicted in column (2) of table 4. The finding of higher transfers to beggars with products among people who do not intend to use the product after controlling for all the giver and receiver characteristics suggests a signaling value of the product offered by the beggar with product. Columns (3) and (4) repeat the analysis for transfers net of the cost of product, i.e., the results from regressing net transfers (transfer-cost) on *Product* with corresponding fixed effects and controls. We find significantly higher net transfers to beggars with products, which implies that the returns to begging with product are higher than beggary. This suggests that a poor beggar who can choose street begging with product will do so over beggary. Thus, the beggars either do not have access to any product to offer or have a considerable cost of procuring it. Note that, for all the model specifications, the difference in transfers is explained by begging with product only and not other characteristics of people involved in begging with and without product interactions.

In columns (4)-(8), we restrict the data to the givers to beggars with products who did not even take the product. This set of givers is even more comparable to the givers to beggars as they have no possibility of gaining utility from the product itself. Results show that the positive effect of begging with product on charitable transfers is still large and significant. The robust finding of higher net-transfers to beggars with products than offerers provides evidence of the signaling value of the product offered by the beggar. The presence of beggars and positive transfers to them suggests that some poor do not have access to products for begging with product or that some givers do not have a preference for rewarding the type signaled by the beggars with products (or punishing the type signaled by the beggars). The givers to beggars with products were also asked whether they give money to beggars and how much if yes. Only 40% of them reported that they also donate money to beggars. The average self-reported donation to beggars is 4.5 INR compared to 20.5 INR paid to beggars with products (p-value=0.00) by those who reported that they pay to beggars without products and also did not take the product. This finding further supports the hypothesis that givers value the act of begging with product and reward it.

The main finding from our survey data is that, on average, people give more in charity to beggars who offer a product than pure beggars. The difference is economically large and statistically significant as the charitable transfers to beggars with products are about three times the transfers to beggars. Higher charitable transfers to beggars with products despite no use for the product (even after controlling for all the relevant factors affecting charitable giving) cannot be explained by any relevant observable characteristics of givers or receivers, which suggests that rewarding the act of begging with product itself is valuable to the givers. We use givers' detailed responses to the question of why they bought the product and whether they give money to beggars. The givers to beggars with products (who did not intend to use the product) cited charity as their reason for buying the product. Many of

Table 4: Effect of street-begging with product on charitable transfers

Variable	Effect on transfer		Effect on net-transfer		Effect on transfer		Effect on net-transfer	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Product	31	28	12.76	12.53	14.15	13.7	9.3	9.08
	(6.75)	(7.02)	(2.37)	(2.5)	(3.16)	(3.3)	(2.88)	(3.07)
Is giver in a group	9.6	10.5	0.79		-1.15	-1.3	-0.83	-1.17
	(6.2)	(6.4)	(2.2)	(2.32)	(2.6)	(2.8)	(2.45)	(2.6)
Is receiver in a group		-1.5		-0.22	-2.89			
		(8.8)		(3.17)	(3.8)			
Male givers		-2.02		0.82		-0.8		
		(6)		(2.17)		(2.4)		
Male receivers		0.27		0.94		0.58		
		(5.3)		(1.9)		(2.3)		
Neediness Index		1.5		0.18		-0.6		
		(1.2)		(0.45)		(0.52)		
Giver's family income		0.00		0.00		0.00		
		(0.00)		(0.00)		(0.00)		
Fixed Effects:								
Region of interaction	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age giver	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age receiver	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Giver-centric persuasion	No	Yes	No	Yes	No	Yes	No	Yes
Observations	165	165	165	165	145	145	145	145

Notes: Product takes the value 1 when transfer is made to a beggar with a product, 0 if transfer is made to a beggar. Male givers takes the value 1 if the giver is a man, 0 if woman (similarly "Male receivers"). Giver in a group takes the value 1 if the giver is in a group while giving, 0 otherwise (similarly, "Receiver in a group"). Neediness index is the difference of the sum of hair, clothes, face and health quality (out of 5 each) from 20. Giver-centric persuasion takes the value 1 if the persuasion words mention giver's benefit from giving, 0 if they mention poor's benefit from receiving. Region for interaction constitutes religious place, commuting place and market place. Columns (1)-(4) restrict begging with product interactions to those with no use of the product to the giver. Columns (5)-(8) restrict begging with product interactions to those in which the giver did not even take the product. Standard errors are reported in parentheses.

them clearly mentioned that they think that the beggar with a product is "at least putting an effort to earn honest money even though their product is not useful". Thus, although the givers do not care about the product, they associate the beggars with products with the type of people who try to work and earn honestly but could not get employed in the formal labor market. On the other hand, the response of givers to beggars with products to the question of whether they donate to beggars without products suggests that they think of beggars without products as those who do not even want to try in the labor market and just want to free-ride on others' money which must not be encouraged. The givers to beggars

without products instead emphasized the need and poverty of the beggars and how they need to be helped.

I also find that the average age of givers to beggars with products is higher than the average age of givers to beggars. Coupled with the fact that I do not find a negative effect of age on charitable transfers, it implies that the preference to reward effort to work is possibly more prevalent among younger people. The culture of earning one's bread is a relatively modern concept relevant to the post-aristocracy young generation. The average age of beggars with products, however, is higher than the average age of beggars further suggesting that as adults can work and earn, their returns to begging are smaller, encouraging them to select into begging with product. The finding that givers to beggars with products were more likely to be in groups further suggests that supporting a beggar with product is considered a more moral act than giving to a beggar without product, thereby increasing the reputation gains from giving to a beggar with product.

Another insight from our data comes from studying the difference in the distribution of the type of street charity across the various regions. Of the charitable interactions in religious or picnic places, 73% involved beggary. 55% and 64% of the charitable exchanges while commuting and in marketplaces involved beggary respectively. The distribution of charitable interactions by type is interesting as it suggests differences in the preferences of givers that are found in these places. People in religious places may be unconditionally charitable as religiosity increases charitable giving (Brooks [2003]). Commuting is an everyday activity for most people, and their response to beggary or supporting street beggars with products may be based on their natural impulsive preferences towards one type of charity or another leading to a balanced distribution over type of charity while commuting. People in market places may be in a capitalist mindset and evaluate the street-beggars with products' products for their value, thereby reducing charity towards beggars with products (Zuckerman

et al. [1979]) and leading to a higher proportion of them donating to beggars.

I also find that the average charitable transfers to beggars is 8.9 INR which is the same (statistically) for each type of region: 8.8 INR in the market, 8.6 INR in religious places, and 9.1 INR while commuting.[11] However, the average payment to beggars with products is the lowest in market areas (19.8 INR) followed by religious areas (27.8 INR), and highest in commuting areas (31.4 INR). Further, the cost of begging with product or the products offered also varies by region: lowest in market areas (4 INR), followed by religious areas (7 INR), and the highest in commuting places (16 INR). Therefore, inducing charitable rewards for willingness to work is most costly in commuting areas.

5 Conclusion

The literature on the economics of charitable giving does not include a canonical case study on behavior in street charity, according to several scholarly sources (Vesterlund [2006], List [2011], Bekkers and Wiepking [2011]). Street charity presents unique features that challenge conventional theories of charitable behavior and market economics. Therefore, this paper proposes a new motivation for giving and an alternative framework for modeling charitable soliciting. Specifically, we suggest that street begging with a product can act as a signaling tool that distinguishes between deserving (low-cost) and undeserving (high-cost) beggars, thereby facilitating the buying and offering of low or no-value items in urban areas worldwide.

It should be noted that street charity is a highly complex phenomenon, and this paper represents only a preliminary step in understanding the economic incentives involved in different types of charity solicitation on the streets. Other motivations beyond the one pro-

[11] There is no difference in average payment to beggars by region after controlling for all the observable characteristics.

posed here may play a role in charitable behavior towards beggars and street beggars with products. To study the proposed motivation, we conducted a primary survey and developed a formal model. Our model uses propensity score matching to demonstrate that charitable giving on the street is higher when a material benefit is offered in the form of street begging with a product, even when the giver has no use for the product.

We explain this result by positing that givers prefer to donate money to a deserving poor person who has a willingness to work (i.e., low-cost). Street begging with a product serves as a signal that distinguishes low-cost beggars from high-cost beggars, who are likely to be undeserving and unemployed voluntarily. Our analysis shows that signaling fails when the preference parameter to reward the deserving (low-cost) poor is too small or too few givers share this preference. Additionally, signaling fails when the initial rate of involuntary unemployment is close to zero or one.

In conclusion, this analysis provides a starting point for future theoretical and empirical work on the economics of street charity. Such work should explore different types and motivations of street beggars and the givers who contribute to them.

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