Prosocial Market Behavior and Children in Street Vending*

Ronak Jain†

January 6, 2025

Abstract

Street vending is an important source of self-employment for the urban poor. I combine observational, survey, and experimental data from Delhi, India, to study this market. Partnering with vendors to randomize prices and passersby they solicit, I find that even with identical goods, child vendors are 97% more likely to make a sale and earn 2x more than adult vendors. Despite no differences in valuations, couples and women are 90% and 28% more likely to buy than men, and they are targeted more often and quoted higher prices. These findings are consistent with a model that incorporates altruism and a cost of refusal in the buyer's decision-making. Supporting this, passersby exhibit greater altruism toward children than adults in an incentivized dictator game, and requests to buy increase the purchase probability twofold for adult vendors and fourfold for child vendors. Surveys further confirm that vendors target women and couples, over men, because they consider who would find it harder to refuse. The paper shows that sellers strategically leverage insights about social preferences to influence buyer decision-making and this creates a source of comparative advantage for children in this market.

Keywords: Social Preferences, Child Labor, Comparative Advantage, Price Discrimination
JEL Codes: C93, D91, J46, L10, O17

*The paper was previously circulated as *'Entrepreneurs of Emotions: Evidence from Street Vending in India'*. I thank Asim Khwaja, Gautam Rao, Emily Breza, and Edward Glaser for guidance on the project. The paper benefited from comments and feedback from Shawn Cole, Eliana La Ferrara, Rema Hanna, Anders Jensen, Gabriel Kreindler, John List, Matt Lowe, Ethan Matlin, Ben Olken, Ben Roth, Chris Roth, Cassidy Shubatt, Emma Smith, Jaya Wen, David Yanagizawa-Drott and various seminar participants at the BREAD Asia Conference, Pacific Conference for Development Economics (PacDev), Advances in Field Experiments (AFE), IZA Labor Economics Summer Institute, the Urbanization and Poverty Reduction Research Conference, Economics and Psychology Workshop at the University of Zurich, Development and Urban Economics Seminars at Harvard University, University of Zurich, Monash University, University of Warwick and UNU-Merit. I thank several NGOs working with street-connected children, especially Salaam Baalak Trust, Save the Children, Butterfly, Chintan, and Railway Children, who generously gave me their time over multiple visits and interviews. I am also grateful to the Delhi Commission for Protection of Child Rights (especially Ms. Rita Singh), the Ministry of Housing and Urban Affairs, the Delhi Police Department (especially Sanjeev Kumar Sharma, Nikhil Singh, and Deepak Yadav), the National Association of Street Vendors of India, the National Hawkers Federation, and the Institute for Human Development for sharing their knowledge and experience with policies on street vending. I am extremely grateful to Swati Chauhan for her outstanding research assistance, meticulous field management, and exceptional dedication. I thank everyone who contributed significantly to data collection, especially, Anushka Abraham, Shreya Kamble, Aaqib Qayoom, Kamal Shashwat, Rishika Singh, and Ayush Stephen Toppo. I gratefully acknowledge funding from The Lakshmi Mittal and Family South Asia Institute, The Foundation of Human Behavior Initiative, The Harvard Mellon Urban Initiative, The Warburg Fund, and The Bradley Graduate Fellowship. The study was reviewed by the Committee on the Use of Human Subjects at Harvard University and the experimental design was pre-registered at the AEA Registry (RCT ID: AEARCTR-0010422). The Ethics Appendix contains a detailed outline of all the protocols to ensure the safety and comfort of participants.

†Department of Economics, University of Zurich. Email: ronak.jain@econ.uzh.ch.

1 Introduction

Street vending is a common sight in cities around the world, with vendors providing access to affordable goods at transit stations, traffic lights, sidewalks, and markets. In India, street vending accounts for over 4% of the total urban employment (with over 6 million individuals) (Raveendran and Vanek, 2020). It constitutes an even larger share (12-24%) of the urban informal employment in Sub-Saharan Africa (Roever, 2014). Despite their prevalence and ubiquity, we know very little about mobile and makeshift vendors, i.e. those selling on foot, sitting on the ground or using makeshift structures like crates (Vanek et al., 2012)[1]. Lack of census data, the difficulty of tracking vendors without a permanent location, their high mobility, and informality are some aspects that make it very challenging to collect comprehensive data on them. This is, however, an important sub-population to study as hawking is becoming a common source of self-employment for the urban poor globally, including in cities such as New York (Hong and Ley, 2023) and Rome (Handagama, S. and Petroni, A., 2024). Most importantly, as these vendors are particularly socio-economically vulnerable, and often include children in developing countries (Alem and Laha, 2016; Bhaskaran and Mehta, 2011), understanding this market is increasingly relevant for policymakers and urban planners.

To understand the features of this market, I first collect nearly 500 hours of observational data on around 400 vendors from well-known marketplaces, transit stations, and traffic lights in Delhi. During this, I observe nearly 50,000 passersby and seller actions, and document that while the market has characteristics of a competitive market, it also has elements that may create a role for prosocial motives to influence decision-making. In particular, there are on average 5 sellers per good at a location.[2] These goods are almost identical and often sourced from the same wholesale market. Buyer-seller interactions are brief, one-shot, take-it-or-leave-it offers. At the same time, nearly half of the vendors in my sample are children, and vendors often approach potential buyers and make requests, which may influence passerby decision making. The transaction patterns further suggest that prosocial motives likely affect behavior, as I document that even with multiple vendors selling similar goods, the likelihood of purchase varies systematically depending on whether the seller is an adult or a child and whether the buyer is female, male, or a couple.[3] Additionally, children quote 2x higher prices than adult vendors, even accounting for location, product, time, and weekend/weekday fixed effects.

To systematically investigate how social preferences may influence passerby decision-making in this market and whether this creates a strategic advantage for children, I design three additional empirical exercises. First, to isolate buyer behavior, I use a field experiment with around 150 vendors for over 1,000 hours, randomizing whether and which passersby they approach

[1]The Informal Economy Monitoring Study on street vendors in five developing country cities found that the majority use a makeshift structure, sit on the ground, or sell on foot, and less than 25% of vendors have a fixed stall (Vanek et al., 2012). Collecting a representative sample of adult vendors from 15 markets, I find that this is also the case in Delhi. These vendors earn 25-50% of that of fixed-stall vendors (who represent less than 13% of vendors).

[2]The number of sellers is even higher at 7 for the most commonly sold goods (sold by 80% of the vendors).

[3]For brevity, I use the term "couple" to refer to a male-female pair henceforth. This designation does not intend to impose any hetero-normative assumptions but rather reflects a common perception that vendors may hold when encountering a male-female pair in this context.

and the price charged within each hour. I use four commonly sold goods — masks, roses, pens, and balloons — and ensure that both child and adult vendors have identical products, use a standardized script, and are located at the same spot in the market. Second, to assess valuations for these goods and gain insights into the psychology of passersby, I conduct an incentivized willingness to pay exercise and a dictator game in a survey with over 500 passersby. Third, to study price discrimination by sellers, I design an incentivised lab-in-the-field experiment where vendors price goods for different buyers.

The field experiment confirms that the transaction patterns in the observational data continue to hold even when randomizing seller strategy and keeping the seller script consistent. This confirms that seller identity affects a buyer's purchase decision. In particular, the likelihood of purchase from child vendors is twice that of adult vendors (2.32% compared to 1.18%).[4] As a result, child vendors earn more than twice that of adult vendors per hour on average. Further, I also find heterogeneity in purchasing probability across buyer identity. In particular, the likelihood of purchase is almost 90% greater for couples compared to males (2.59% versus 1.36%). Females are also 28% more likely to purchase than males (statistically significant at the 10% significance level). This pattern is robust across products, time of the day, location type, and whether we consider a weekend or a weekday.

To examine whether these variations in purchasing probability are driven by differences in valuation among buyers, following standard practice, I use the Becker-DeGroot-Marshak incentivized willingness to pay exercise (Becker et al., 1964). However, I find that this is not the case: couples, male, and female customers pay similar amounts on average for the different products when offered for sale by the surveyor. The results are robust to controlling for product, location, time of the day, weekend/weekday, and a surveyor fixed effect, along with passerby education and income. Moreover, there are no statistical differences in the distribution of willingness to pay across couples, male and female customers either.

I then turn to examine seller strategy. In line with the field experiment's findings on purchasing differentials among buyers, I observe that sellers are nearly 50% more likely to approach females and couples than males (52% versus 35%). Moreover, consistent with the finding that buyers are more likely to purchase from child vendors, children are almost 80% more likely to approach passersby than adult vendors (59% versus 33%). Child vendors also discriminate more in targeting, approaching females and couples 17-20 percentage points more than males, while adult vendors approach them 6-7 percentage points more. This suggests that vendors are aware of and strategically use buyers' predicted reaction functions in their targeting strategy.

Additionally, I find systematic price discrimination by vendors across buyers in the lab-in-the-field experiment. Child vendors charge 45% more compared to adult vendors. Couples face 38% higher prices on average than males. Females are also charged 4% more, although this difference is not statistically significant. This pattern is similar across both child and adult vendors, and is robust to controlling for seller fixed effects. The variations in markups are consistent with the observed purchasing differentials across buyers in the field experiment

[4] All results are statistically significant at the 5% significance level unless otherwise stated.

and with the passerby valuations in the willingness to pay exercise. These findings show that the pricing strategy of vendors reflects a sophisticated understanding of the demand side.

Next, to rationalize the observed transaction patterns, I extend the standard consumer theory model by allowing for altruism and a refusal cost (i.e., a cost of denying a request).[5] In doing so, I adapt the model in DellaVigna et al. (2012) allowing prosocial motives to vary by buyer and seller identity and extend their model to this market setting with prices and sellers. The model helps empirically test and establish that both prosocial and economic motives affect consumer behavior in this market. Specifically, we can reject a pure charitable giving model in light of the price and purchase rate heterogeneity observed across goods which would be inconsistent with this framework. Similarly, we can reject a pure consumption utility model as we need prosocial motives to reconcile the differential purchasing patterns across buyer and seller identity. The model shows how social preferences create a rationale for sellers to engage in third-degree price discrimination even when there are no differences in valuation for goods. Additionally, the model yields two testable predictions for altruism and refusal costs affecting buyer's decision-making. First, in the absence of a refusal cost, a seller's request should not have an impact on a consumer's purchasing decision. Second, without altruism, purchasing rates should not vary across buyer or seller identity (when the seller does not make a request).

Following these predictions, I empirically test for the existence of altruism and a refusal cost, and show that we need both to rationalize the transaction patterns. I first show that there is greater altruism towards child sellers. Specifically, passersby donate Rs 5 (16%) more towards children working on the street than towards adults in an incentivized dictator game. The pattern is robust to controlling for recipient work, gender, passerby characteristics, and a passerby fixed effect. However, women and couples are not more altruistic towards children than men, suggesting that differential altruism alone cannot explain the purchasing probability or pricing differentials by buyer identity. I, therefore, examine whether refusal costs can explain these.

In support of the existence of a refusal cost, I observe that requesting a passerby doubles the probability of purchase in the field experiment. The pattern is consistent across goods, child and adult vendors, and different passerby groups. The experimental design and findings also help mitigate concerns about factors such as attention, search costs, or perception of need, driving the greater purchase rates following the seller approach. Furthermore, I find evidence that refusal costs vary by seller and buyer identity. The increase in the purchasing probability following a child vendor's approach is twice that following an adult vendor's approach. Additionally, buyers are differentially responsive to a seller's request. For example, when approached by a child vendor, the purchase rate of couples increases by 3.10 percentage points; for males and females the corresponding figure is 1.19 and 1.84 percentage points.

Going further, survey data confirms the prediction of the model that sellers use inferred behavioral insights about consumers in their targeting and pricing strategy. Specifically, 73% of vendors report that they prefer to approach females or couples to sell to, over males. The ma-

[5] I use the terms 'altruism' and a 'refusal cost' to stay consistent with the recent behavioral economics literature on prosocial motives (DellaVigna et al., 2012, 2013; Andreoni et al., 2017). We can, however, relabel altruism to feelings of generosity, sympathy, pity, or compassion, and relabel refusal cost as a guilt or social pressure cost.

jority (70%) report that this is because they consider who would find it the hardest to refuse. Moreover, their beliefs about passerby income reinforce that their targeting strategy is influenced more by inferences about social preferences than income disparities; in fact, only 18% of the vendors believe females earn more than males. Similarly, gender is the second-most common factor vendors report considering when deciding what prices to charge a customer. Therefore, sellers, including children, strategically leverage insights into buyer psychology to inform their targeting and pricing strategies.

Having shown that behavior in this market is driven by both economic and prosocial motives, I further validate this by examining perceptions and practices on both sides of the market. First, passersby view street vending as distinct from begging. While 90% of respondents agree they should buy from adult vendors (74% from child vendors), merely 12% support giving money to adult beggars (23% from child beggars) commonly citing that "begging is wrong" and "a bad habit". In contrast, passersby support street vending citing both economic considerations (affordability/cost-effectiveness) and prosocial motives (supporting vendors' families). This is also reflected in passerby behavior as less than 0.30% of interactions in the observational study and field experiment involved giving money or food without purchasing. Second, the heterogeneity in pricing and purchase patterns — e.g., roses being priced 2x higher and bought 2x more than pens (when prices are held constant) — contradicts a pure charitable giving model and aligns well with the elicited valuations for goods in the willingness-to-pay exercise. Lastly, vendors express pride in their work, emphasizing the effort involved in sourcing, transporting, and maintaining the goods. These findings demonstrate that vending is viewed distinctly and more favorably than begging, consistent with recent research highlighting the psychosocial value of work (Hussam et al., 2022; Macchi and Stalder, 2023; Sharma and Malik, 2024).

Finally, I discuss the challenges in evaluating the welfare implications of social preferences in this market. On the one hand, vendors can survive in a competitive environment by charging "socio-emotional markups" — markups influenced by social preferences and perceptions of vulnerability rather than just market forces. On the other hand, this creates a source of comparative advantage for children and may create perverse incentives for their presence on the street. However, an outright ban on child vendors may worsen outcomes particularly if their participation stems from economic need. Alternative means of earning for street children — begging and rag picking — are much more dangerous, less dignified, and constitute some of the worst forms of child labor (Edmonds, 2007). Interviews with local NGOs and the police reinforce that this setting is not one where criminal gangs control children; instead, many children express pride in earning and contributing to their families, reporting feeling safe working in public spaces. Three-quarters of the children also attend school. Providing safety nets to families may therefore help reduce incentives for child labor (as also suggested by Edmonds and Theoharides (2021)) and effective policymaking must adopt a holistic approach that recognizes and respects the voices of children.

This paper makes three key contributions. First, this paper contributes to the literature on child labor by shedding light on a common means of earning for street children in urban settings (Bhaskaran and Mehta, 2011). Despite the visible ubiquity of children working in these

markets, this context has received limited attention in the child labor literature (Edmonds and Theoharides, 2021; Edmonds, 2007; Edmonds and Pavcnik, 2005; Basu and Tzannatos, 2003). While previous studies indirectly collect data on child labor using school dropout rates, time spent on household chores, or on the farm, following wage or policy changes (Bau et al., 2020; Shah and Steinberg, 2017, 2021), I directly observe earnings as children work, mitigating the risks of misreporting, recall bias, and compensation measurement inaccuracies (Edmonds, 2007; Lichand and Wolf, 2023). Going further, partnering with child and adult vendors in a field experiment, I identify a source of comparative advantage for children in this market. Contrary to popular belief, and in line with the more recent studies surveying the scarce cross-country literature on child labor (Edmonds, 2007; Edmonds and Pavcnik, 2005; Basu and Tzannatos, 2003), I find that the majority of these children also attend school.

Second, the study adds to the vast literature on social preferences which has shown how image concerns and prosocial motives affect decisions in various domains including status goods consumption (Bursztyn et al., 2018), charitable giving (DellaVigna et al., 2012, 2013; Andreoni et al., 2017), voting (DellaVigna et al., 2016), technology adoption (Giaccherini et al., 2019) and educational investment (Bursztyn and Jensen, 2015, 2017; Bursztyn et al., 2019). This paper shows that the supply side — street vendors —understand how prosocial motives affect consumer decision-making and leverage this to strategically target and price discriminate. This is not a trivial or obvious insight as recent studies with low-income workers have highlighted that scarcity can limit cognitive bandwidth, financial decision-making, and productivity (Kaur et al., 2024; Shah et al., 2012; Mani et al., 2013). Moreover, while the marketing literature notes that personal selling can be an effective sales strategy (Misra, 2019; Dube and Rossi, 2019; Simester, 2017), we still lack micro-foundations for this. This paper shows that prosocial motives might be one reason behind this and that street vendors understand this. The fact that child vendors also learn to strategically target and engage in third-degree price discrimination, a skill which can be helpful in sales and marketing, complements the findings about mathematical proficiency of working children (Banerjee et al., 2017).

Finally, the paper most directly contributes to the nascent literature on street vending. Recent studies have investigated food safety practices (Daniele et al., 2021), borrowing behavior (Karlan et al., 2019), and profit maximization behavior (Banerjee et al., 2023) and gender gap in performance (Delecourt and Ng, 2021), focusing on adult vendors with fixed stalls/locations. This paper complements the existing literature by focusing on particularly socio-economically vulnerable street vendors, — those selling on foot and sitting on the ground using makeshift structures — including children, by overcoming several challenges in data collection. Combining multiple experiments and observational data, the paper takes a step towards systematically studying both buyer and seller transaction behavior in a difficult-to-study, yet common, market setting in a developing country context.

The rest of the paper proceeds as follows. Section 2 describes the context and the sample. Section 3 presents details of the design and Section 4 describes the main findings. Section 5 outlines the model. Sections 6 and 7 present evidence for mechanisms and evaluate alternative explanations. Section 8 discusses perceptions of this market and welfare. Section 9 concludes.

2 Context and Sample Descriptives

2.1 Site and Sample Selection

Site Selection: In the absence of a registry of street vendors, locations were selected based on an extensive scouting exercise of the well-known markets, transit stations, and traffic lights in Delhi, and conversations with NGOs that work with vendors or street-connected children.[6] Table A lists the 68 regions that enumerators visited between 11 a.m. and 7 p.m. on multiple days. Locations, where we could find multiple vendors, meeting the selection criteria outlined below, were selected for the study. Figure A.1 maps the regions scouted and the sites selected, which include 8 marketplaces, 4 metro stations, and 6 traffic lights.

Sample Selection: At every site selected, all vendors selling homogeneous goods either on foot, sitting on the ground, or using makeshift structures were invited to participate. They are socio-economically vulnerable and constitute the majority of vendors in this context and, more broadly, in developing countries.[7] To minimize selection, the research team visited a location at varying times of the day between 11 a.m. and 7 p.m. on different days of the week. Child vendors were screened according to age (7+ years) to allow for comprehension and parental/guardian consent was obtained first.[8] A total of 403 vendors participated in the observational study: 75% operated in markets, 18% near metro stations, and 7% at traffic lights. The refusal rate was less than 4%, so this sample is representative of vendors selling homogeneous goods.

Goods: Some examples of goods included include pens, balloons, roses, tissue boxes, masks, fashion accessories, hair accessories, envelopes, key chains, and showpieces (home decor items). A complete list of the goods included is given in Table B.3.[9] The price of these goods typically ranges from Rs 10 – 200 ($0.13 - 2.6).

2.2 Context and Sample Descriptives

Street vendors have access to a high volume of potential customers due to their location in markets, traffic lights, and transit stations, which are characterized by dense foot traffic and rapid passerby movement. On average, I record 104 passersby passing a vendor in an hour, i.e., 9 every 5 minutes. All interactions are very brief and mostly take-it-or-leave-it offers.[10] As these vendors lack a permanent location and frequently move, transactions are also one-shot.

[6] The list was compiled consulting the marketplaces listed as Street Bazaars and Markets on the Delhi Tourism Website, local news articles (for example, Times of India), and Trip Advisor. In addition, I conducted interviews with several local NGOs, including Salaam Baalak Trust, Save the Children, Butterfly, Chintan, and Railway Children, and the Office of Delhi Commission for Protection of Child Rights, Ministry of Housing and Urban Affairs.

[7] See footnote 1.

[8] Individuals up to the age of 16 were classified as children. The Ethics Appendix details the safety protocols.

[9] Food items like fruit and vegetables were not eligible because these goods are heterogeneous in quality, and are typically found at separate weekly markets (Banerjee et al., 2023; Delecourt and Ng, 2021).

[10] In nearly 80% of the transactions, the price paid equals the price quoted.

Observing nearly 50,000 passersby, I find that vendors target – by calling out and/or trying to make eye contact with – on average 40 passersby an hour (38% of those passing by). Despite this, they only make three to four sales an hour, the median being even lower at two.

Table 1: Summary Statistics

	Child	**Adult**
Panel A: Collected during the Observational Study		
Demographics		
Age	11.24	34.02
Female	0.52	0.35
Experience		
Less than 1 year	0.18	0.16
1-2 years	0.23	0.11
2-5 years	0.43	0.21
5-10 years	0.13	0.15
10+ years	0.02	0.37
Observations	199	204
Panel B: Collected during the Lab-in-the-Field Experiment		
Schooling		
None	0.25	0.50
Primary (up to grade 5)	0.57	0.12
Secondary (up to grade 10)	0.17	0.24
Higher Secondary (up to grade 12)	0.01	0.11
College	0.00	0.02
Financial		
Hours Worked Daily	6.96	8.41
Daily Earnings (Rs)	326.71	556.29
Observations	174	162

Notes: The table presents summary statistics on child and adult vendors collected during the Observational Study (Panel A) and the Lab-in-the-Field Experiment (Panel B). See text for details on sampling.

Notably, nearly 50% of vendors in my sample are children (Table 1). The average age of adult vendors is 34 years, while child vendors are, on average, 11 years old. 57% of children are in primary school, 17% are in secondary school, and 25% are out of school. 84% of children have less than five years of experience. The majority of adult vendors lack schooling and 52% have more than five years of vending experience. Adults and children report working 8 and 7 hours, respectively, six days a week.[11] Average daily (gross) earnings are Rs 450 ($6), which is 40% of the daily per capita income in Delhi during this period.[12] Although adults report higher daily gross earnings than children, the observed hourly revenue does not differ significantly between children and adults accounting for the product, location, time, and day of the week when there was no bundling (that is, only one good was sold).[13]

[11] Working hours were collected during intermittent school closures due to COVID-19. Children shifted to work in the evenings and weekends once schools resumed.

[12] Based on Delhi Economic Survey 2021 referenced in The Indian Express and exchange rate in 2021.

[13] See Table B.4 in the Supplemental Appendix Columns 5 and 6.

3 Study Design

I now describe each study component in detail. All parts of the study had a separate consent procedure as it was anticipated that street vendors would be hard to track given their frequent mobility. Table 2 at the end of this section summarizes all study components.

3.1 Observational Study

Protocol: The observational study was conducted with each vendor for an hour at a time, up to three times across multiple visits if we could find the vendor again. The aim was to collect detailed, real-time, objective data on buyer-seller interactions. In particular, we recorded the observable characteristics of passersby — those walking in the direction of the seller within 15-20 feet away (or as far as the seller could see if it was crowded) — along with the price quoted, whether a sale was made, and, if so, the number of goods sold and the price paid. The observational study tool and protocol (detailed in Section D.3 in the Design Appendix) were developed after extensive piloting, iterating, and enumerator training to ensure all the important and common variations in seller and passerby reactions were captured. Specifically, we noted whether the seller approached the passerby or the passerby approached the seller first, and whether the passerby avoided the seller, purchased the goods, simply walked away, or whether there was any verbal abuse.[14]

Minimizing Observer Effects: Using direct observation significantly reduces measurement error due to recall error or misreporting. A potential concern that one might have is, however, the introduction of Hawthorne effects. However, they are unlikely to affect the results since (a) all proceeds of any transactions were kept by the vendors so there was no reason to work any less than they would ordinarily, (b) the participation compensation was fixed at Rs 50 per hour which was not too large (between a tenth to sixth of daily earnings of child and adult vendors respectively) to induce them to shirk, (c) it was made clear to all participants that the compensation is not tied to their sales, and (d) participants were told that we would simply observe their interactions and sales; we did not make them feel conscious about whom they approached or the price they charged. Finally, even if observer effects could affect the levels of sales and earnings if the vendor worked harder (or less) than usual, there is still no reason to suspect that these would affect the differences in approach rates and prices charged across customer types as the study hypothesis was unknown to the vendors and even to the enumerators. For robustness, I also control for surveyor fixed effects in the regressions.

Sample: Table B.1 provides summary statistics for 399 vendors who consented to participate. Table B.3 lists the goods included. The refusal rate for the observational study was 4.2%. Therefore, the sample is representative of adult and child vendors selling homogeneous goods on foot or with makeshift structures. Among these vendors, we could conduct more than one round of observation with 16% of vendors. The reason for not being able to complete 3 rounds

[14] Audio or video recording of interactions was not permitted by the IRB given the inclusion of child vendors.

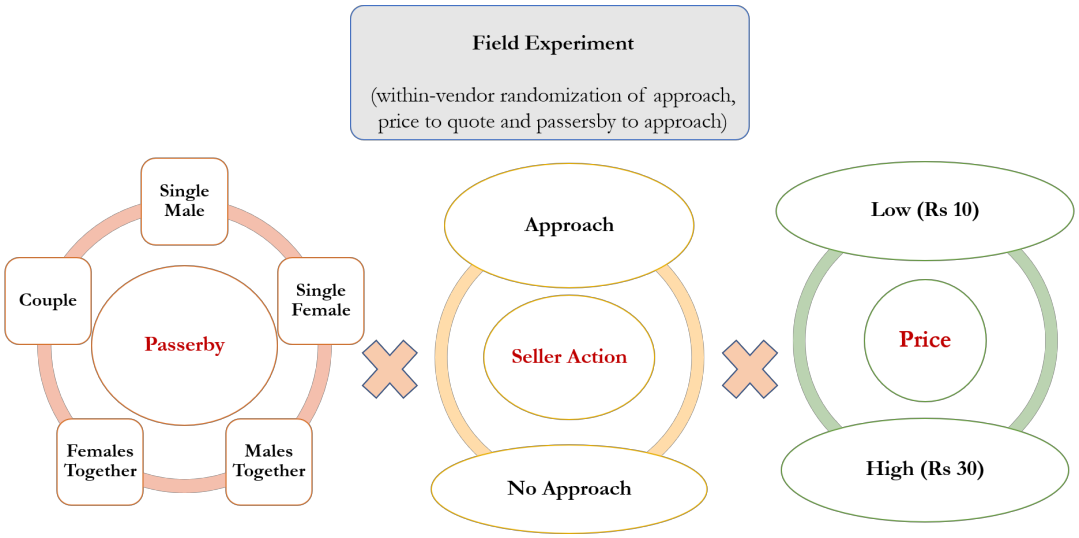
with each participant was the inability to find them on subsequent visits rather than refusals to participate. Table B.4 shows that there is no difference in characteristics across vendors by participation rounds.

3.2 Field Experiment

3.2.1 Randomization

The field experiment with the street vendors was similar to the observational study except for inducing random variation in the seller's approach and pricing. In particular, partnering with both adult and child street vendors, I randomized whether and which buyer category (Single Male, Single Female, Males Together, Females Together and Couples) they approached to sell, and the price (Rs 30 or Rs 10) they quoted. The randomization was within-vendor. This yields a 5x2x2 experimental design illustrated in Figure 1. A partnering vendor would go through each of the combinations (formed by the 5x2x2 design) twice in a random order in each session of participation (lasting roughly an hour). That is, each session involved going through recording the reactions of 40 passersby in total. The randomization was pre-programmed.

Figure 1: Field Experiment Design



Note: *'Approach'* means the vendor requested a passerby using the script outlined in the text. *'No Approach'* means the vendor passively stood by not making any request or gesture toward the passerby during that interval.

3.2.2 Script For Vendors

When asked to 'approach' a buyer, the vendor used the following script (translated in Hindi): "Brother/Sister, would you like to buy this [item] for Rs [price]? Please buy it brother/sister." The script was designed to closely mimic the natural way vendors approach buyers, as noticed in our observational study. Vendors typically use similar language, combining direct product offers with repeated polite appeals. To ensure consistency, vendors were instructed to repeat

the second statement ('Please buy it brother/sister') twice and refrain from saying anything else, negotiating, or making additional gestures. Both child and adult vendors practiced this script with surveyors before implementation. The use of a standardized script as part of the experimental protocol ensures comparability across vendors while maintaining the authenticity of a typical buyer-seller interaction. All vendors practiced the experimental protocol a few times before partnering with us and surveyors ensured that there were no discrepancies between children and adult vendors concerning the adherence to the script.

3.2.3 Implementation Details

Implementation Logistics and Randomization Process: A surveyor stood next to the vendor throughout the experiment to ensure adherence to the protocol. For each interaction, the surveyor identified the closest passerby from the randomized buyer category who was walking toward the vendor. The surveyor informed the vendor of the randomized price (High or Low) to be charged for the interval and monitored compliance with instructions.

In the 'Approach' condition, the vendor was directed to request the passerby using the script. In the 'No Approach' condition, the vendor was instructed to stand passively, and the randomized price was the price to be quoted if the passerby initiated the interaction. Throughout the experiment, the selection of buyers, making a request, and prices to quote followed the randomization and were not left to the discretion of vendors. Detailed experimental protocols are outlined in Section **??** of the Design Appendix.

Incentives for Participation: Vendors received a fixed compensation of Rs. 100 per hour, approximately a fifth of their average daily earnings, for their time and participation. It was explicitly communicated that this participation compensation was independent of their sales to mitigate concerns about income dependency on outcomes. Vendors kept any earnings they made during the experiment, ensuring that this was not perceived as a job recruitment.

Products: The experiment was conducted using the four most commonly sold, similarly priced, and collectively a diverse set of goods collated during the observational study: pens, balloons, masks, and roses (Appendix Table B.3).

Site and Sample Selection: Given safety concerns, this component did not recruit vendors at traffic lights. Only those vendors who are actively working at transit stations and markets were invited to partner for the study to avoid any inducement to work among children, and we only included those locations (four in total) where we found at least one adult and child vendor selling (or agreeing to sell) the selected goods.[15] There is no statistical difference in the average earnings for child and adult vendors across the locations included in the field experiment and those not.[16]

[15]The Ethics Appendix describes the the recruitment procedure in greater detail.

[16]Since there was a time lapse between the observational and lab-in-in-the-field pricing experiment, both of which preceded the field experiment, and because there are few participants that participated across all these components, it is not possible to compare the earnings at the vendor level.

Balance: All observations were conducted between 12 p.m. – 6 p.m., which is a busy time in markets and transit stations. Balance across the number of child and adult surveys, for each good, was monitored and maintained carefully while surveyors rotated across locations daily. At each location, we conducted roughly 80 hours of experimentation with each good, split evenly across children and adults. The exact spots were kept the same across child and adult vendors to ensure they faced similar working environments. Table B.7 gives the summary statistics for participating vendors. Tables B.8 and B.9 show balance in observations across child and adult vendors, and passerby groups, respectively.

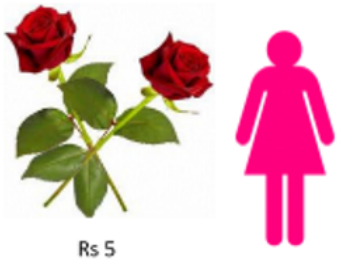
Unobtrusive and Inconspicuous Experimentation: Given that the markets and transit stations are busy, crowded places, the fact that the surveyor stood next to the vendor and monitored every interaction did not stand out to passersby. Further, all surveys were collected via a mobile phone rather than pen and paper (which would have made the research team stand out), and all surveyors were local, which made it very easy for them to blend in with the local public. The experiment also seemed very natural to the vendors since they are used to making an approach and pricing decisions themselves, and the exercise was very easily comprehensible to them. The surveyor also clarified all aspects of the exercise before partnering.

3.3 Lab-in-the-field Pricing Experiment

The purpose of this experiment was to cleanly identify and isolate the pricing strategy of vendors for different buyer groups. Vendors were given information about the unit cost of five commonly sold items (balloons, pens, masks, tissues, and roses), and were asked to report what price they would quote to the randomly selected buyer category (Single Male, Males Together, Single Female, Females Together, and Couple) shown. The order of the goods and buyer category shown was randomized within individual and pre-programmed. The passerby category was shown via a stick figure cartoon, as illustrated in Figure 2.

Figure 2: Lab-in-the-Field Experiment: Illustration

How much will you charge a woman for this flower which costs you Rs 5 per piece?



Note: This figure illustrates a sample question from the lab-in-the-field experiment.

Vendors were informed that their quoted price for randomly selected five choices would be compared with the passerby's willingness to pay and that if their price was lower, then they would make the trade, and receive their quoted price less the cost of the good for those five

choices.[17] Lastly, vendors were also asked a few questions about their daily earnings, and their beliefs about which passerby groups were kinder and found it harder to say no.[18] Figure D.1 in the Supplemental Appendix summarizes the structure of this lab-in-the-field exercise. Table B.10 shows the summary statistics for the participating 307 vendors. The refusal rate was 3.2% and therefore the sample is representative of vendors selling homogeneous goods.

3.4 Passerby Survey

Eliciting Willingness to Pay: The survey began with a standard incentivized willingness to pay (Becker-DeGroot-Marshak) exercise using the same four goods in the field experiment – pen, balloons, masks, and roses. The framing of the exercise was kept neutral; passersby were told: *"We will show you 4 commonly sold items on the streets and ask you whether you would like to purchase them at given prices"*. Surveyors also carried the goods with them for the passersby to see. This survey was conducted at the same locations as the field experiment, ensuring that the context matched the environment in which the goods were sold by street vendors.

Incentivised Dictator Game: The second component of the survey involved an incentivized dictator game. Participants could win Rs 100 via a lottery. They were then shown a profile of a child and an adult, vendor and panhandler (i.e., 4 profiles in total, in randomized order) and asked to decide whether they like to give the individuals shown any money if they were to win.[19] Participants were informed that this money would be deducted from their payment and given to the person shown if they won the lottery. To try to closely mimic the actual decision-making scenario that a passerby commonly encounters on the street, all the profiles contained a standardized photo, name, age, and what the recipient sold (if vending).[20] Within each of the four categories (i.e., {child/adult} x {vendor/panhandler}), a profile was randomly picked out of all the profiles we collected.[21]

Beliefs and Perceived Social Norms: The third component of the survey involved a few questions related to the perceived social norms and beliefs related to street vendors and panhandlers. Figure D.2 summarizes the structure of the passerby survey.

[17] The exact wording was: *For each item you will be given some information about the potential buyer through a sketch cartoon and asked to report the price which you would quote the buyer if you were selling the good. We will survey the buyers in this and other markets to obtain the average maximum price they would be willing to buy the good at, from a seller like you. If your price is below this price a typical buyer in the category you are shown was willing to pay, you will make the trade and your profit would be your quoted price less the unit cost.* The Hindi translation of 'average' was 'typical'.

[18] The survey also included four unincentivized questions asking what price the vendor would quote when selling a mask to a "rich" or "poor", "single male" or "single female" passerby to see how sellers react to the wealth status of the buyer. These results are in the Supplemental Appendix.

[19] The survey included profiles of panhandlers, as passersby were later asked about their views on street vending and begging (discussed in Section 8). I control for an occupation fixed effect when presenting these results.

[20] All photos were standardized, passport-sized images, collected with full informed consent.

[21] All participants were randomized to see either male or female profiles which gives us the ability to detect within-participant discrimination across child and adult sellers for every passerby.

Table 2: Summary of Empirical Exercises

Brief Description of the Empirical Exercise	Objective	Key Outcome(s)
Observational Study: Enumerators observed street vendors and collected data on the observable characteristics of passersby that a vendor approached (or did not approach) such as passerby gender, whether they were accompanied, along with transaction data - price quoted, whether a sale was made, and goods sold.	Collecting real-time, objective, and verifiable data on the selling practices, buyer-seller interaction, and sales for the street vendors through direct observation.	Seller approach strategy
Field experiment: Randomized whether and which passerby a vendor approached, and the price quoted.	Isolating buyer behavior by holding seller strategy constant. This allows for clean identification of purchasing differentials driven by buyer behavior.	Purchasing differentials by buyer and seller identity Sales with and without seller approach
Lab-in-field Experiment: Vendors were given information about the average cost of some commonly sold goods and were asked to quote a price that they would sell the goods for to the randomly selected buyer category. Participants were also asked a few questions about the average cost and average price of the product they sell and their daily earnings, how they decide who to target, and inferences about passersby social preferences and relative income.	Gathering evidence on the price discrimination, factors influencing vendors' target strategy, and beliefs of the street vendors about passersby.	Price discrimination Seller inferences about buyers
Passerby Survey: The survey involved a standard willingness to pay exercise. Participants also played an incentivized dictator game where they were shown profiles of child and adult sellers and panhandlers to closely mimic their actual behavior when approached on the street and solicited for donations. Participants were also asked a few questions related to the social norms and their opinions on street vending and panhandling.	Gathering data on buyers' valuations for commonly sold items and altruism towards individuals working on the street. The survey questions also help investigate if other beliefs influence passerby differences in purchasing behaviors.	Willingness to pay Donations Perceived social norms and beliefs

Sampling: The randomization for the willingness to pay exercise (whether a participant's choice is implemented, and which good and price is chosen) along with the randomization of the profiles involved in the dictator game was pre-programmed. These passersby surveys were conducted in the same locations as the field experiment and the sampling procedure for passersby was similar to the field experiment. One of the five passersby categories (Single Male, Single Female, Males Together, and Couples) was pre-programmed to be randomly chosen at any instance for the enumerator to approach to invite to participate in the study. When there were multiple passersby from the randomly chosen category at a given instance, the surveyors were instructed to pick the passerby who was the closest in terms of physical distance, i.e. the next passerby from that category who was walking towards them. Section **??** in the appendix contains a more detailed step-by-step outline and protocols for the conduct of the passerby survey and the willingness to pay exercise. We invited 668 passersby for this survey, 76% of whom accepted. Table B.11 gives the summary statistics for the participant demographics and shows balance across passerby type.

4 Main Findings

I organize the main findings as follows. First, I show evidence for differential purchasing patterns by buyer and seller identity using the observational study and field experiment results. I then show that the purchasing differentials across passerby groups cannot be explained by differences in valuation for the goods. Finally, I present results on seller targeting in observational study and their pricing decisions in the lab-in-the-field pricing experiment. Throughout the paper, I pool passerby categories *single female* and *females together*, and *single male* and *males together* respectively (which was pre-registered in the pre-analysis plan).[22]

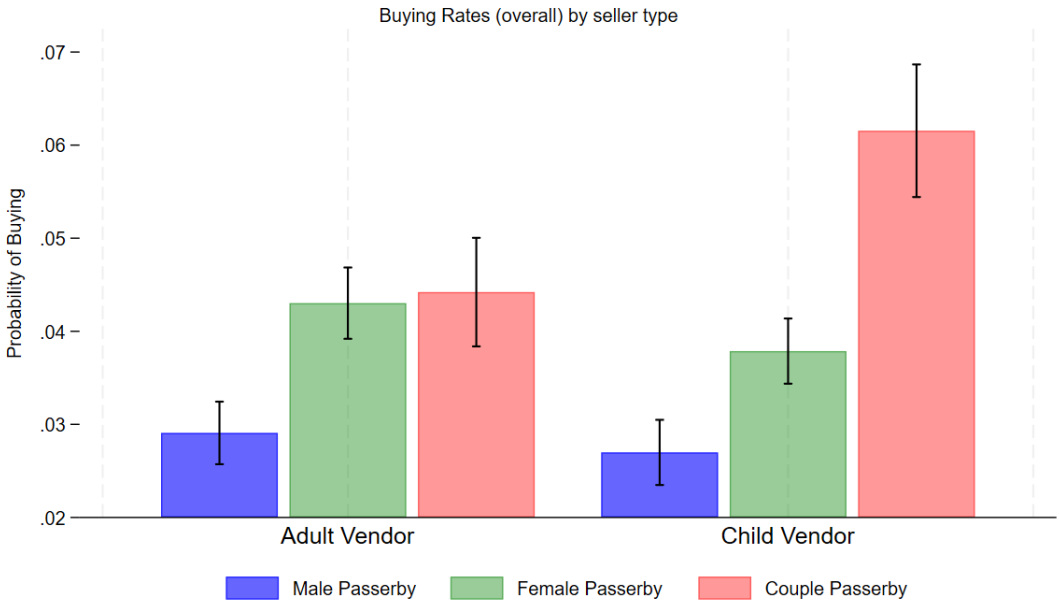
4.1 Purchasing Differentials by Buyer and Seller Identity

Observing nearly 50,000 passersby, as Figure 3 shows, we see differential purchasing patterns by buyer and seller identity. These differences in purchasing probability are robust to controlling for a product, location type, weekday/weekend, time of the day, and surveyor fixed effect (Table C.1).[23]

[22] This is because there are little differences in seller targeting or buying rates between these categories. Results with all categories (without pooling) are presented in the Online Appendix (Figure **??**, Table A.2 and Table A.3).

[23] Note that the outcome is a fraction of individuals passing by who purchased so the results are not driven by the differences in the aggregate numbers of a particular type of passerby.

Figure 3: Purchasing Rates by Type of Buyer and Seller (Observational Study)



Note: The figure plots the purchase rates (fraction of passersby that made a purchase) by passersby category and the type of vendor, showing 95% confidence intervals. The figure pools passerby categories *single female* and *females together*, and *single male* and *males together* respectively.

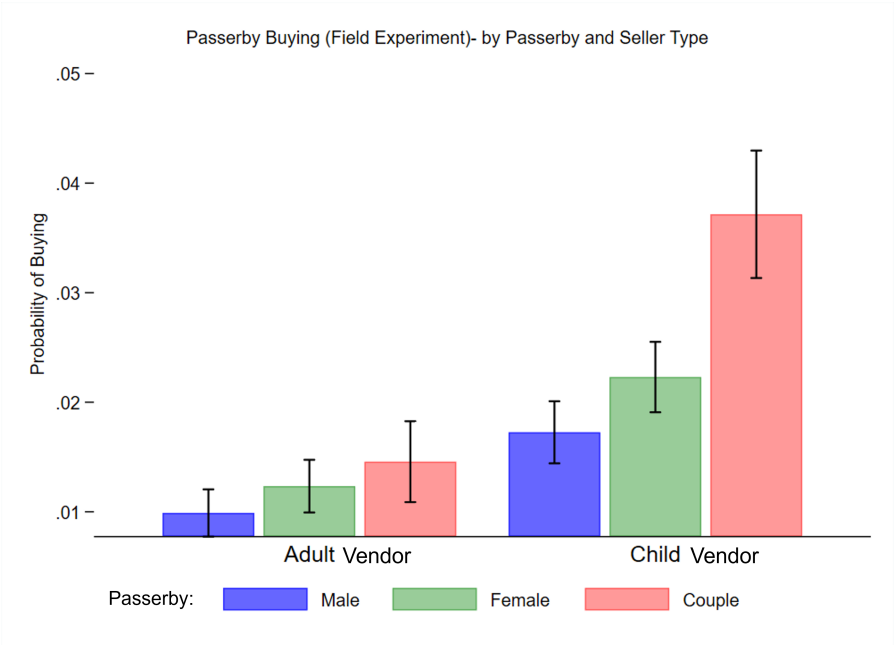
These patterns are further confirmed in the field experiment where I ensure that both adult and child vendors are selling identical goods at the same spot in a given location (Figure 4). Table C.2 Column 1 shows that, on average, the purchasing probability is almost 2x higher for child vendors compared to adult vendors (2.32% compared to 1.18%). Further, as Column 4 shows, the likelihood of purchase is greater by 90% for couples compared to males (2.59% versus 1.36%).[24] On average, females are also around 28% more likely to purchase than males (statistically significant at the 10% significance level). These patterns are robust across products, time of the day, location type, and whether we consider a weekend or a weekday. Furthermore, Figure 5 shows that the demand curve a child vendor faces is shifted to the right compared to that of an adult vendor; that is, all else equal, a child vendor faces a higher probability of purchase compared to an adult vendor. Purchase rates, however, do not differ by the gender of the seller in both the observational data and the field experiment.

In line with the purchasing differentials, we also see that children on average earn twice as much as adult vendors in the field experiment. This difference is even greater when accounting for a product, time of the day, location, and day fixed effect (Tables 8 and **??**). The field experiment shows that holding everything else constant, children have a comparative advantage in this market.[25]

[24]The magnitude of purchasing rates in the field experiment is lower than that of the observational study as these are partial equilibrium results holding seller strategy constant. In the observational data, as I show in Section 4.3, sellers systematically target passersby which exaggerates these differentials across buyers.

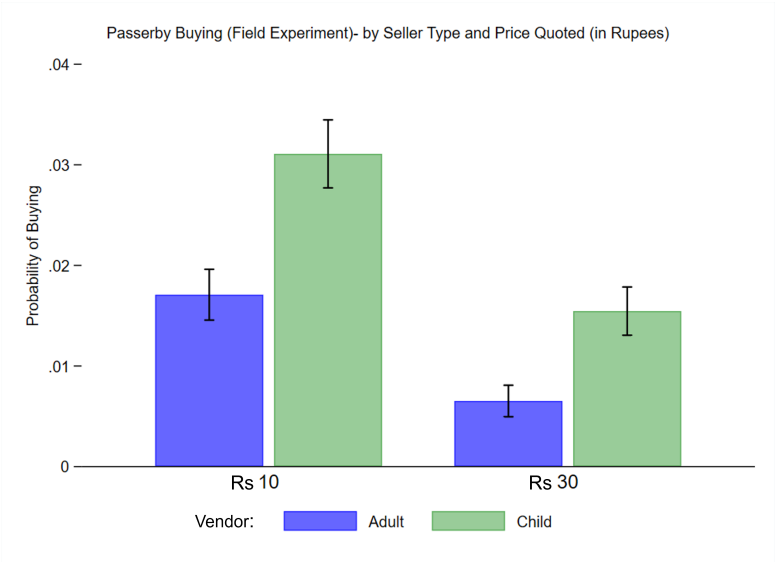
[25]This does not necessarily translate to children having an absolute advantage in this market as the gap in earnings across child and adult vendors is not visible in the observational study (Table B.4) or reported earnings (Table 1). This is likely because adult vendors work an hour and a half longer on average, typically can carry and bring greater inventory to the market, and there is also some sorting across children and adults in the type of goods sold

Figure 4: Purchasing Rates by Type of Buyer and Seller (Field Experiment)



Note: The figure plots the purchase rates by passersby category and the type of vendor (with 95% confidence intervals). Passerby categories *single female* and *females together*, and *single male* and *males together* are pooled together respectively.

Figure 5: Buying Rates by Type of Seller and Price Quoted (Field Experiment)



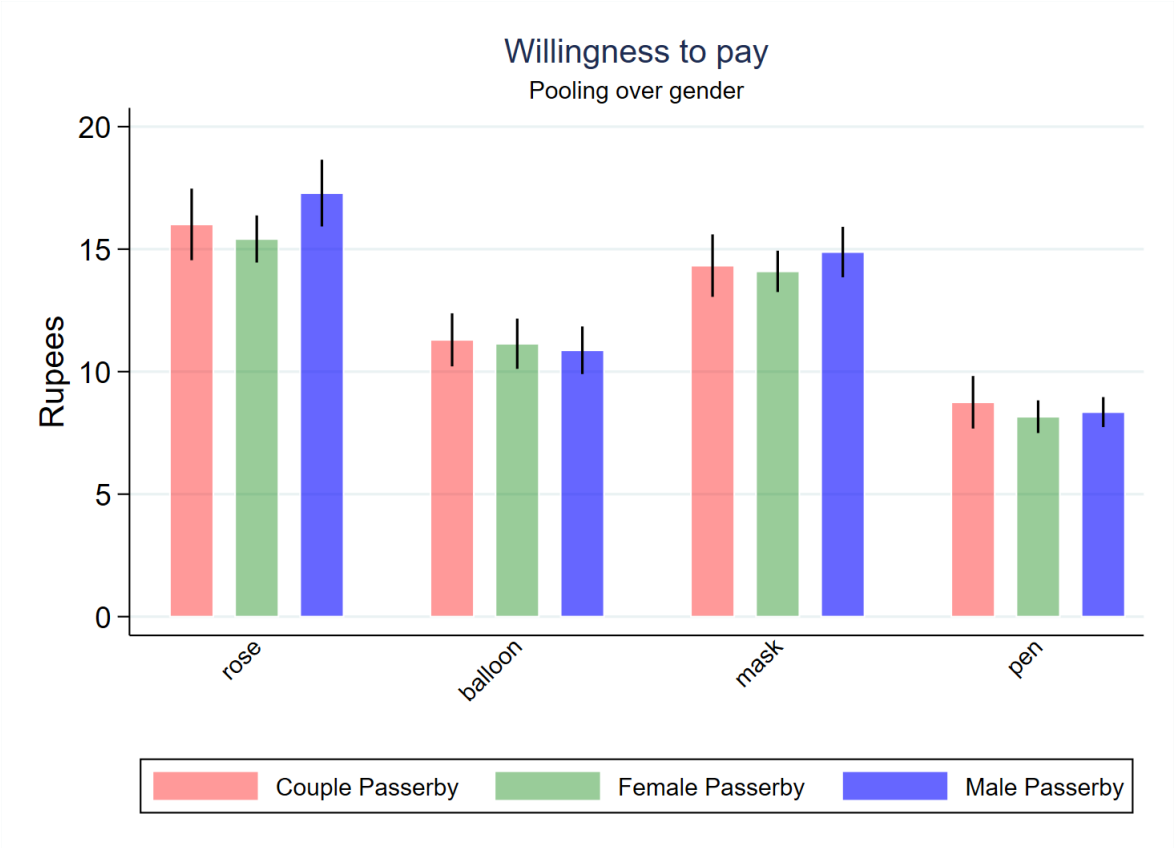
Note: The figure shows purchase rates by type of vendor for the two prices (Rs 10 and Rs 30) used in the field experiment. 95% confidence intervals are shown. The figure pools over the passerby categories and whether or not the seller approached.

(with adults being relatively more likely to sell heavier goods like car mats). The observational study also did not hold constant the spots where vendors were selling in the market (unlike the field experiment).

4.2 Passerby Valuation of the Goods

Figure 6 shows the results from the incentivized willingness to pay exercise. The results show that the differences in purchasing behavior across buyer groups seen in the field experiment and observational data cannot be explained by differences in willingness to pay.

Figure 6: Willingness to Pay (Passerby Survey)



Note: The figure plots the average willingness to pay for each good by passerby category. The figure pools passerby categories *single female* and *females together*, and *single male* and *males together* respectively.

If anything, Table 3 shows that, on average, couples and females have a lower willingness to pay than males, although this difference is not statistically significant. The results are robust to products considered, location, time, and weekend fixed effects, along with passerby characteristics such as income and education. The three surveyors conducting the passerby survey were of the same age and the results are also robust to controlling for surveyor gender and fixed effect.[26]

Furthermore, I find no statistical differences in the distribution of willingness to pay for each good across couples, male and female customers using the Kruskal-Wallis non-parametric equality-of-populations rank test. The p-values of the test are 0.54, 0.90, 0.42, and 0.59 for pens, masks, balloons, and roses.

[26]Further, a joint significance of the surveyor fixed effects in Column 7 yields an F-statistic of 2.49 with p-value of 0.084 and a test of equality of coefficients yields an F-statistic of 0.27 with a p-value of 0.603. The magnitude of the coefficients of the surveyor fixed effects are 1.14 and 1.59.

Table 3: Willingness to Pay

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Couple Passerby	-0.252	-0.252	-0.264	-0.325	-0.317	-0.331	-0.354
	(0.516)	(0.516)	(0.526)	(0.524)	(0.527)	(0.524)	(0.557)
Female Passerby	-0.587	-0.587	-0.586	-0.549	-0.540	-0.532	-0.711
	(0.433)	(0.433)	(0.432)	(0.428)	(0.429)	(0.430)	(0.450)
Product FE		✓	✓	✓	✓	✓	✓
Surveyor Gender			✓				
Surveyor FE				✓	✓	✓	✓
Location Type FE					✓	✓	✓
Time of the Day FE						✓	✓
Weekend/Weekday FE							✓
Passerby Characteristics							✓
Adjusted R^2	0.000	0.164	0.164	0.168	0.167	0.167	0.176
Mean of Dep. Var	12.567	12.567	12.567	12.567	12.567	12.567	12.590
Observations	2080	2080	2080	2080	2080	2080	1944

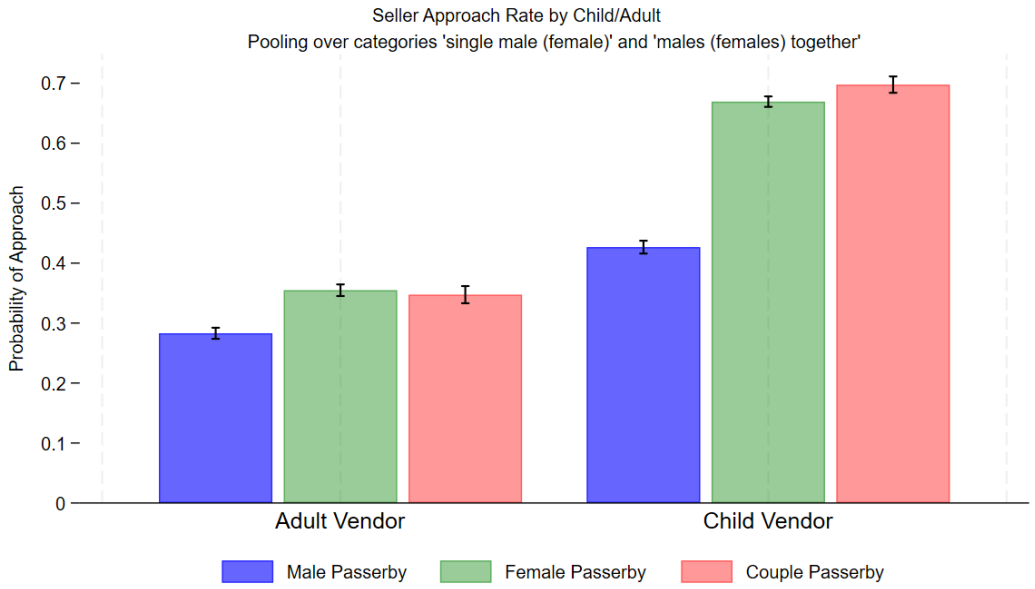
Note: The outcome is passerby willingness to pay. Passerby categories *single female* and *females together*, and *single male* and *males together* are pooled together respectively. As the randomization is within-passerby, we cannot control for a passerby fixed effect when comparing across passerby groups. Standard errors are clustered at the passerby level.

Since the field experiment and the willingness to pay exercise involve different sets of passersby, we cannot directly quantify the contribution of pure economic valuation versus prosocial motives in driving purchasing behavior at the individual level. However, we can still examine averages to draw comparisons between the two study components. In the field experiment, the average quoted price was Rs 20 by construction (as prices are randomized to be either Rs 10 or Rs 30), and the average price paid was Rs 14, which exceeds the average willingness to pay of passersby (Rs 12.5) by over 10%. This shows that individuals are induced to end up paying more on average when facing sellers in person than their maximum willingness to pay.

4.3 Seller Targeting

I now show results on seller approach from the observational study. Figure 7 shows that both adult and child vendors frequently approach passersby and that child vendors do so much more than adult vendors on average. More specifically, Table C.3 shows that vendors approach 43% of passersby and child vendors approach 20 percentage points more than adult vendors (Column 3). Table C.3 Column 6 and Figure **??** show that females and couples are 40% more likely to be approached on average than males and that there is little difference across single male/female versus males/females together, respectively (Figure **??** and Table A.2). Further, child vendors are around 20 percentage points more likely to approach females and couples than adult vendors (Column 9, Table C.3). The pattern is robust to controlling for a product, location type, weekend/weekday, and surveyor fixed effect.

Figure 7: Seller Approach Rate by Type of Seller (Observational Study)



Note: The figure plots seller approach by passerby category. 95% confidence intervals are shown. "Approach" includes making eye contact/gesture or verbal requests as outlined in Figure D.3. The figure pools passerby categories *single female* and *females together*, and *single male* and *males together* respectively.

One might also wonder whether these patterns are being driven by a few select vendors or are relatively common. To answer this, I compute the approach rate for each buyer category for each vendor. I find that the most approached buyer category was couples for 45% of vendors, females for 30% of vendors, and males for only 10% of vendors, and the remaining 5% of vendors did not exhibit a difference in approach rates across passerby groups. Child vendors are even more likely to have their most approached buyer category as couples (56%) compared to adult vendors (33%). This is in line with the results of the field experiment which shows that couples and females are more likely to buy from children all else equal (Figure 4).

4.4 Pricing

As Table 4 shows, in the lab-in-the-field experiment, vendors, on average, charged a markup of Rs 16 which is almost three times the average cost of items. Looking across the items, we can see that typically a vendor charges a markup which is roughly 1–4x the cost price. The cheaper goods, pens, and balloons — which cost Rs 2 per unit — have the highest markup, and the good that has the highest cost — a tissue box at Rs 50 — faces the lowest markup over cost as a percentage. This amounts to the markup roughly being 44–82% of the price. Table 5 shows that children on average charge a higher price and a markup equivalent to nearly three times the cost price.

Table 4: Price and Markup By Item

	(1) Balloons	(2) Rose	(3) Mask	(4) Pen	(5) Tissue	(6) Overall
Price	10.86	19.05	14.88	9.01	89.17	28.54
	(0.21)	(0.36)	(0.22)	(0.22)	(0.74)	(0.38)
Markup	8.86	14.05	9.88	7.01	39.17	15.77
	(0.21)	(0.36)	(0.22)	(0.22)	(0.74)	(0.22)
Markup/Cost	4.43	2.81	1.98	3.51	0.78	2.70
	(0.10)	(0.07)	(0.04)	(0.11)	(0.01)	(0.04)
N	1680	1680	1680	1680	1680	8400

Note: The table reports the average price, markup, and the ratio of markup over cost charged by vendors in the lab-in-the-field experiment for each good. The unit cost of each item (gathered based on actual costs vendors selling these had reported) was Rs 2 for a Pen and Balloon, Rs 5 for a rose and mask, and Rs 50 for a tissue box.

Table 5: Average Price and Markup By Child/Adult Vendor

	(1) Adult Vendor	(2) Child Vendor	(3) (1) vs. (2), p-value
Price	26.45	30.47	0.00
Markup	13.71	17.67	0.00
Markup/Cost	2.40	2.98	0.00
N	4050	4350	

The table reports the average price, markup, and the ratio of markup over cost charged by child and adult vendors in the Lab-in-the-Field Pricing Experiment. The unit cost of each item (gathered based on actual costs vendors selling these had reported) was Rs 2 for a Pen and Balloon, Rs 5 for a rose and mask, and Rs 50 for a tissue box.

Looking across buyer categories, Table 6 (Column 4) shows that, on average, vendors charge a couple 38% more compared to males (Rs 2.96 more compared to Rs 7.86 charged to males). The price charged to males (base category) is captured by the constant. A female buyer is also charged 4.45% more although this difference is not statistically significant. The pattern of markup across passerby groups continues to hold if we control for a seller fixed effect (Columns 5 and 8).

The pattern of females and couples being charged a higher markup compared to males and child vendors charging a higher price can also be seen in the price quoted by vendors in the observational study which covers a larger set of products, including much higher-priced goods up to Rs 200 (Table B.1).[27] Looking at the average prices charged to different buyer groups for each vendor, I find that this pattern is not driven by a few selected vendors. Specifically, 53% of

[27] I compare these results with the price quoted in the observational study when analyzing seller strategy rather than the price paid as the latter can be affected by buyer's actions and what was said in the interaction. While the patterns of price discrimination are qualitatively similar in the lab-in-the-field experiment and the observational study, the recorded pricing data in the observational study is much more noisy since there were instances of selling multiple goods as a bundle, in which case enumerators were instructed to calculate and record the per unit price paid. This can also be seen in the observed hourly revenue in Table B.4 as the results vary depending on whether we include the sales of multiple goods (Columns 3-4), which is more prone to measurement error, or when these instances are excluded (Columns 5-6).

Table 6: Price Quoted

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Child Vendor	4.015***	3.413***				3.560***	2.909***	
	(0.888)	(0.907)				(0.831)	(0.844)	
Female Passerby			0.366	0.350	0.356	0.165	0.098	0.091
			(0.240)	(0.237)	(0.242)	(0.256)	(0.253)	(0.258)
Couple Passerby			3.005***	2.957***	2.933***	2.220***	2.147***	2.169***
			(0.518)	(0.512)	(0.505)	(0.417)	(0.417)	(0.424)
Female Passerby×Child Vendor						0.385	0.482	0.510
						(0.470)	(0.466)	(0.475)
Couple Passerby×Child Vendor						1.500	1.550	1.465
						(1.004)	(0.992)	(0.982)
Constant	26.451***	7.574***	27.794***	7.858***	2.780***	25.941***	7.106***	2.975***
	(0.474)	(1.017)	(0.433)	(1.067)	(0.430)	(0.459)	(1.038)	(0.413)
Product FE		✓		✓	✓		✓	✓
Surveyor FE		✓		✓			✓	
Seller FE					✓			✓
Adjusted R^2	0.003	0.780	0.001	0.779	0.829	0.004	0.781	0.829
Mean of Dep. Var	28.542	28.542	28.542	28.542	28.542	28.542	28.542	28.542
Observations	8330	8330	8330	8330	8330	8330	8330	8330

Note: The outcome here is the price quoted in the lab-in-the-field experiment. Columns 1-2 compare the price quoted by child vendors to that of adult vendors. Since the randomization was within-vendor, it is not possible to control for a seller fixed effect in this comparison. Columns 3-5 compare the price quoted for females and couples compared to males. The table pools the categories *single female* and *females together*, and *single male* and *males together*. Columns 6-8 separate the price quoted by passerby and seller type. Since the randomization was within-vendor, the regression omits the inclusion of a Child/Adult Vendor dummy in Column 8 when controlling for a seller fixed effect. Standard Errors are clustered at the vendor level.

vendors charged the highest average price (across all goods) to a couple, while 24% to females and the rest 23% to males. Moreover, the standard deviation of the average price charged across passerby groups (a proxy for price discrimination) among child vendors is twice that of adult vendors, which shows that children price discriminate across passerby groups more.

5 Model

5.1 Setup

Street vendors (sellers henceforth) and passersby (buyers henceforth) interact as follows.

Timing

1. Sellers observe buyer identity and decide whether to approach/request ($r = \{0, 1\}$). The effort cost of approach is e.
2. The seller quotes a price p determined by maximizing expected profits.
3. Buyer decides whether to purchase the good $d = \{0, 1\}$.

The interaction is one-shot and a buyer interacts with one seller at a time, as is characteristic of these transactions.

5.2 Buyers

As in the standard consumer theory model, the purchase decision depends on the consumption utility of the good g, denoted by v_g, and the price of the good, p_g. The marginal utility of the good does not vary by buyer identity, which is empirically supported (Section 4). Additionally, I allow buyers to have social preferences — altruism, $a \in [0, 1)$, and a cost of refusal, s, when a request is made — which can vary by buyer and seller identity (denoted by subscripts b and s respectively) .[28] The utility of a buyer can therefore be written as:

$$U = \begin{cases} v_g - p_g + a_{bs} p_g & \text{if } d = 1 \\ -s_{bs} & \text{if } d = 0 \ \& \ r = 1 \\ 0 & \text{if } d = 0 \ \& \ r = 0 \end{cases} \tag{1}$$

Buyer's valuation $v \in [0, \bar{v}]$ is drawn from a continuous distribution: $v \sim F(v)$. Note that setting the social preference parameters to zero allows comparison with the standard consumer demand model and setting consumption utility to zero yields the pure charitable giving model.

5.3 Sellers

A seller makes a profit of $p_g - c_g$ if there is a sale (where c is the unit cost of the good). Additionally, the seller pays an effort cost, $e \sim E(e)$, if physically approaching and/or calling out to the buyer. Sellers take buyer preferences as given and seek to maximize utility by choosing whether to approach a buyer and the price to charge. In doing so, they use inferences about the buyer's purchase probability based on their gender and who they are traveling with.

5.4 Equilibrium and Testable Predictions

I use Perfect Bayesian Nash Equilibrium to solve the model, that is, the strategies of each buyer and seller are sequentially rational given the player's beliefs.[29]

5.4.1 Buyer Strategy

It is worth noting that the demand is decreasing in price (as in the standard consumer theory model), and it is weakly increasing in altruism, the cost of refusal, and the seller's request. The following proposition yields testable implications for the probability of purchase. All formal statements and proofs are in the Appendix Section E.

Proposition 1. *Testable implications of the model on purchasing behavior are:*

1. *If goods have no consumption utility, purchase rates should not vary across goods (holding price constant). By reverse implication, if purchase rates vary across goods (holding price constant), consumption utility is nonzero and varies across goods.*

[28] I adapt the model in DellaVigna et al. (2012) allowing prosocial motives to vary by buyer and seller identity and extend their model to this market setting with prices and sellers.

[29] As the uninformed party (seller) moves first, there are no restrictions on the beliefs of vendors due to Bayes Rule. Sequential rationality, however, means that the seller's strategy should be consistent with their prior beliefs.

2. *If social preferences (altruism and refusal costs) do not matter, purchase rates should not differ by seller or buyer identity. By reverse implication, if purchase rates differ across buyer groups and seller identity, social preferences matter in decision-making.*

3. *If consumers do not face a cost of refusal, purchase rates should not differ depending on whether the buyer was approached, and vice versa.*

4. *If altruism does not matter, purchase rates should not vary across buyer or seller identity when the seller does not approach. By reverse implication, if purchase rates differ across buyer groups and seller identity without seller approach, altruism matters in decision-making.*

Comparing predictions with data: The proposition yields intuitive empirical tests for economic and prosocial motives affecting consumer behavior. Part (1) of the proposition gives an empirical test for a pure charitable giving model. Specifically, if goods had zero consumption value, we should not see varying purchasing rates vary across goods in the field experiment (where prices are held fixed). However, as purchasing rates vary systematically, for instance with roses and masks purchased 2x more than pens, we can reject a pure charitable giving model. Part (2) of the proposition allows us to test for the role of social preferences in purchasing behavior by examining whether purchase rates vary by buyer or seller identity. As we see systematic purchasing probability differentials across buyer and seller identity in the field experiment, we can therefore also reject a pure consumption utility model. Thus, comparing predictions (1) and (2) with the results of the field experiment, establishes that both economic and prosocial motives affect consumer behavior in this market.

Going further, parts 3 and 4 of the proposition allow us to independently empirically test for the influence of altruism and refusal costs in the buyer's decision-making. In particular, examining whether purchase rates vary by a seller's approach yields a simple test for refusal cost affecting consumer behavior, and examining whether they differ across buyer or seller identity (without a seller's approach) yields a test for altruism affecting a buyer's decision-making. I empirically test these predictions in the next section.

5.4.2 Seller Strategy

Seller strategy has two components – pricing and approach. The following proposition characterizes the testable implications of this model on seller strategy.

Proposition 2. *Testable implications of the model on seller strategy are:*

1. *If goods have no consumption utility, prices should not vary across goods. By reverse implication, if prices vary across goods, consumption utility is nonzero and varies across goods.*

2. *If social preferences (altruism and refusal costs) do not affect buyer decision-making, prices should not differ by buyer or seller identity. By reverse implication, if prices differ by buyer or seller identity, then social preferences affect buyer decision-making.*

3. *If refusal costs do not affect buyer decision-making, then sellers will not find it optimal to approach at all. By reverse implication, if the seller approach rate is nonzero, then refusal costs affect decision-making.*

Comparing predictions with data: Part (1) of the proposition gives a simple prediction to test whether behavior in this market can be characterized by a pure charitable giving model. Specifically, if goods do not have any consumption utility and purchases are driven solely by prosocial motives, then we should not see heterogeneity in prices across goods. Intuitively, in the absence of any consumption utility of the good, profit-maximizing sellers would charge the maximum amount that passersby are willing to pay (owing to altruism and refusal costs), and these do not depend on the good. However, we see that prices vary systematically across goods in the lab-in-the-field pricing experiment. For instance, sellers price roses at Rs 19 on average and pens at Rs 9. Therefore, examining seller pricing behavior, we can reject a pure charitable giving model.

Parts (2) and (3) of the proposition yield empirical tests for the role of social preferences in purchasing behavior. The intuition behind the tests is straightforward; if social preferences did not play a role in buyer decision-making, there would be no reason to price discriminate between buyer groups or expect prices to vary across child or adult sellers. Similarly, profit-maximizing sellers will not find it optimal to approach buyers if refusal costs do not matter as approaching is costly. However, we see that sellers frequently approach buyers in the observational data and we see systematic price discrimination across buyers in the lab-in-the-field experiment. Therefore, comparing the predictions of the model with the observed seller behavior further strengthens the case for prosocial motives affecting consumer behavior in this market. The model helps us reconcile the results on seller targeting and price discrimination (outlined in section 4) even with homogeneous buyer valuations.

6 Main Mechanism: Social Preferences

I now empirically test for the influence of altruism and refusal costs on buyer decision-making following the predictions (3) and (4) of Proposition 1.

6.1 Altruism

In an incentivized dictator game, Table 7 below shows that passersby on average donate Rs 5 more to children than adults, which is roughly 16% more than the average donations made to adults. The pattern is robust to controlling for the recipient gender, work (vendor or panhandler), passerby education, income, and a passerby fixed effect.

When looking across passersby, we note that there is no difference in generosity on average across passersby (Columns 5 and 7), controlling for passerby characteristics. These results are robust even if we restrict ourselves to looking at profiles with recipients who are vendors and exclude those who are panhandlers. Donations also do not differ by the gender of the recipient. These findings confirm that there is differential altruism towards child and adult vendors. However, we do not see evidence of differential altruism by passerby groups. As I discuss in the next sub-section, these findings are consistent with the purchasing patterns we

see in the field experiment. In particular, child vendors face a greater probability of purchase than adult vendors without the seller approach but purchasing differentials across buyers are not as pronounced without the seller approach (Figure 9). Therefore altruism alone cannot explain all the purchasing patterns we see in the data.

Table 7: Donations in Dictator Game

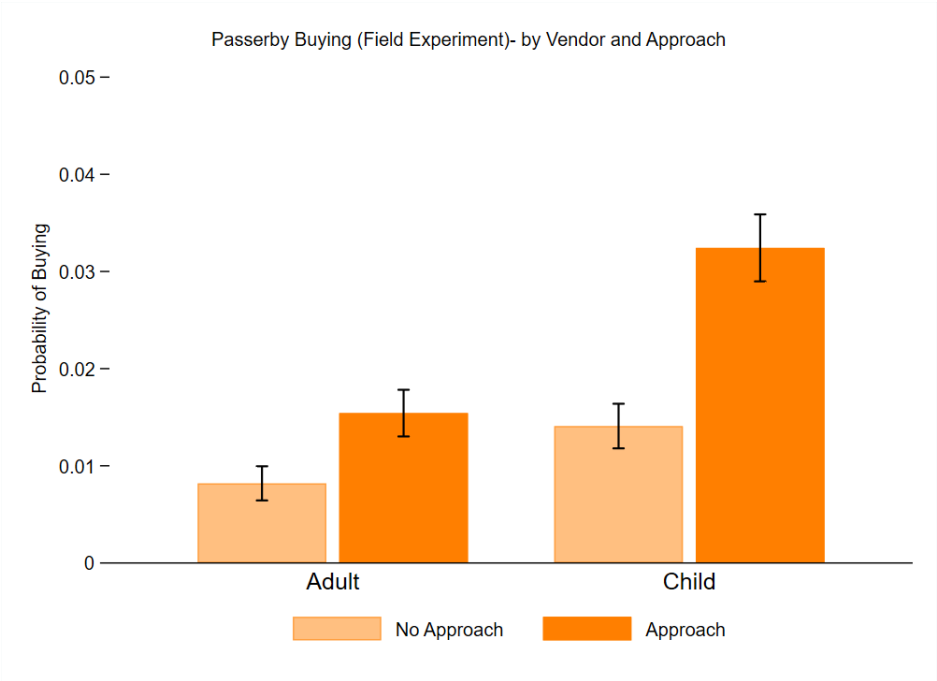
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Child	5.17***	5.31***	5.17***			6.81***	6.97***	6.81***
	(0.93)	(0.97)	(1.07)			(1.56)	(1.63)	(1.79)
Couple Passerby				-5.77*	-5.64	-3.83	-3.58	
				(3.47)	(3.56)	(3.55)	(3.62)	
Female Passerby				-5.63**	-4.56	-4.51	-3.47	
				(2.86)	(3.00)	(2.92)	(3.06)	
Child×Couple Passerby						-3.87	-4.11	-3.87
						(2.51)	(2.62)	(2.88)
Child×Female Passerby						-2.23	-2.19	-2.23
						(2.09)	(2.19)	(2.40)
Vendor/Panhandler FE	✓	✓	✓	✓	✓	✓	✓	✓
Recipient Gender	✓	✓	✓	✓	✓	✓	✓	✓
Order FE	✓	✓	✓	✓	✓	✓	✓	✓
Passerby Characteristics		✓			✓		✓	
Passerby FE			✓					✓
Adjusted R^2	0.012	0.054	0.647	0.012	0.052	0.017	0.057	0.647
Mean of Dep. Var	33.20	33.35	33.20	33.20	33.35	33.20	33.35	33.20
Observations	1996	1900	1996	1996	1900	1996	1900	1996

Note: The outcome is the amount donated (out of Rs 100) in the Dictator Game. Columns 1-3 compare the donations made to a child recipient compared to an adult recipient (controlling for whether they are a panhandler or vendor). Columns 4-5 compare donations made by females and couples to that of males. The table pools the categories *single female* and *females together*, and *single male* and *males together*. As the randomization is within-passerby, we cannot control for a passerby FE when comparing donations across passerby groups. Columns 6-8 compare donations by passerby category and whether the recipient is a child or an adult. Standard errors are clustered at the passerby level.

6.2 Refusal Cost

To test for the existence of a refusal cost, I examine the purchase rates following the (randomized) seller approach in the field experiment. Figure 8 shows that the seller's verbal request increases the probability for both adult and child vendors. In particular, the seller approach, on average, more than doubles the probability of purchase (2.39% versus 1.11%). Table C.4 Columns 1-3 confirm that this is robust to controlling for a product, location type, time of the day, and a weekday/weekend fixed effect. Moreover, Figure **??** shows that the demand curve with approach is shifted to the right of the demand curve without approach for both child and adult sellers.

Figure 8: Buying Rates by Type of Seller and Approach - Field Experiment

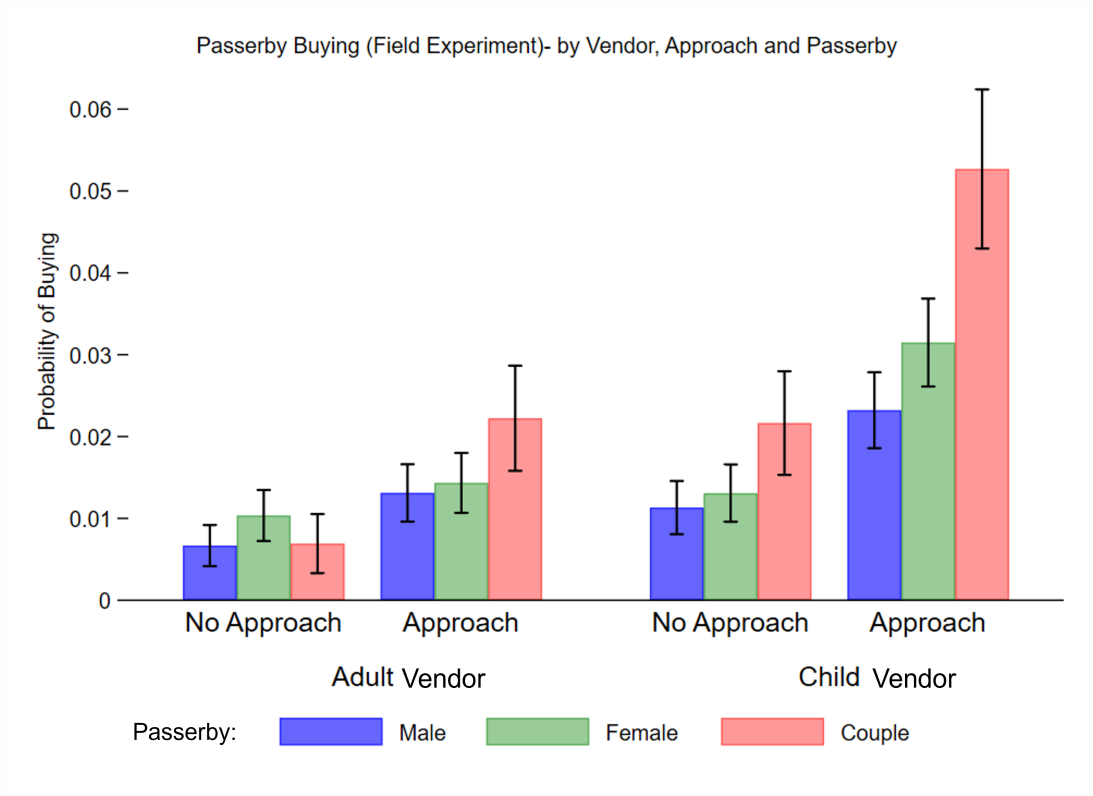


Note: The figure shows purchase rates by the type of vendor and seller approach (with 95% confidence intervals). "Approach" involves a verbal request using the script outlined in the text.

Figures 8 and 9 also confirm that passersby are differentially responsive to a seller's request. Specifically, Figure 8 shows that the increase in the purchasing probability following a child vendor's approach is twice that following an adult vendor's approach (1.83 versus 0.72 percentage points). Columns 4-6 of Table C.4 confirm that this pattern is robust to accounting for a product, location type, time of the day, and a weekday/weekend fixed effect. Further, Figure 9 shows how purchasing rates vary with and without the seller approach for each seller and passerby category combination. The purchasing rate of couples rises by 1.37 and 3.10 percentage points (which can be computed using the coefficients in Column 7 in Table C.4), when approached by an adult and child vendor, respectively. For males, the corresponding increase is 0.64 and 1.19 percentage points. For females, it is 0.42 and 1.84 percentage points.

Figure 9 also helps illustrate that the purchasing rate differentials across passersby are not as pronounced in the absence of a seller's approach. Thus, refusal costs across buyers help reconcile the differences we see across purchasing probability by passerby categories (as seen in Figure 3). I also show in Section 7 that alternative explanations such as consumer search costs, perceptions about hard work, or limited attention cannot fully explain these nuanced patterns of purchasing behavior.

Figure 9: Buying Rates by Type of Seller, Buyer Category and Approach - Field Experiment



Note: The figure shows purchase rates by seller approach, the type of vendor and the passerby category (pooling *single female* and *females together*, and *single male* and *males together* categories together respectively). 95% confidence intervals are shown."Approach" involves a verbal request using the script outlined in the text.

6.3 Vendor Inferences, Strategic Targeting, and Price Discrimination

An implicit assumption of the model is that profit-maximizing sellers will use inferences about buyer social preferences in their targeting and pricing strategy. Figure D.1 provides evidence that the patterns of seller approach seen in Section 4 are indeed strategic, i.e., vendors consciously choose to target more females and couples (73%) than males (only 10%). Both child and adult vendors report that they would choose to target females and couples when given a choice (Figure **??**). Open-endedly asking their reasons for this preference, over 70% of vendors report that they consider which passerby group would find it harder to say 'no' or who is kinder/more altruistic (Figure **??**).[30] By contrast, only around 5% mention that they consider clothing and looks in addition as an indicator of income. These findings on perceived differences in prosocial motives across genders are also consistent with recent studies (Babcock et al., 2017; Exley et al., 2024).

Similarly, based on an open-ended question about all the factors that vendors take into account when determining pricing, Figure D.2 shows that gender is the second most commonly reported factor.[31] Additionally, we see that children are also more likely to take into account

[30]This is despite evidence from a recent study on vegetable street markets in India, which indicates that men constitute the majority of buyers and decision-makers in these purchases (Delecourt and Ng, 2021).

[31]Vendors also commonly report taking into account passerby clothing (especially accessories such as jewelry) to gauge passerby wealth when making pricing decisions.

who is accompanying the passerby. Consistent with this in Table A.4, while we do not see much difference in pricing for single male (female) versus males (females) together by adult vendors, we do see a larger difference in pricing for these groups by child vendors.

7 Alternative Mechanisms

7.1 For Purchasing Differentials across Buyer and Seller Identity

7.1.1 Beliefs and Perceived Social Norms

Could the purchasing patterns be explained by other beliefs or perceptions related to social norms across different buyer groups? I find that this is not the case. As Figure D.5 illustrates, when asked whether people should buy from vendors or give to panhandlers on the street, people are, in fact, more supportive of buying from adult vendors than child vendors (91% versus 76%). This runs contrary to the fact that we see child vendors making more sales than adult vendors. Hence, personal normative beliefs cannot explain the difference in purchasing rates by seller identity. Looking along passerby groups, we can also see hardly any differences in these normative beliefs that can explain the purchasing patterns across buyer groups that we see in the field experiment.

One might also wonder that since buying on the streets is a publicly visible action, perceived social norms might have a stronger influence on a passerby's choices rather than their normative beliefs. Figure D.6, however, shows that most people think that others are much more likely to buy from an adult rather than a child vendor. Therefore, acting in line with perceived social norms also cannot explain the difference in sales success rates that we see across seller identity. One might then ask if pure altruistic concerns (as opposed to warm glow or impure altruism) might instead be the explanation – that is, since more people expect others to give to an adult, passersby may instead, therefore, end up buying from a child. However, looking at the limited differences across passerby groups along these perceived norms and the fact that these do not align with the purchasing patterns by passerby groups that we see, this cannot be the whole explanation either.

Another relevant question in this setting is whether there may be differences in the extent to which different buyer groups think about the downstream consequences and the impact on child labor that buying from children may lead to. Figure D.7 shows that, on average, nearly 90% of people think that buying from children or giving money to them on the streets encourages children to work more, and there are hardly any differences across passerby groups in this belief. Hence, a passerby's beliefs about the longer-term consequences of giving money to children on the streets would, if anything, predict the opposite patterns of sales rates across child and adult vendors than what we see. Taken together, these findings about passerby beliefs and perceived norms suggest that normative beliefs, or perceived social norms, are unlikely to be the explanations for the behavior we observe.

7.1.2 Trust and Quality Concerns

Could the differences in purchasing rates across adult and child sellers be driven by differential trust? If children, for instance, are seen as more trustworthy about the quality of the product that they are selling, we might overestimate the significance of emotions in this market. On the other hand, if adults are seen as more trustworthy, the differences in purchasing rates might be a lower bound on the effect of emotions. However, the possibility for this is minimized by design given the nature and type of goods included in the field experiment. In particular, we ensured that all products – pens, masks, roses, and balloons – were identical (i.e., of the same type and quality) across both child and adult sellers in the field experiment and also when eliciting a passerby's willingness to pay. All goods in the experiment were procured and provided by us except for roses already sold by rose sellers (which we checked were fresh) to ensure standardization of quality across products sold by child and adult vendors.

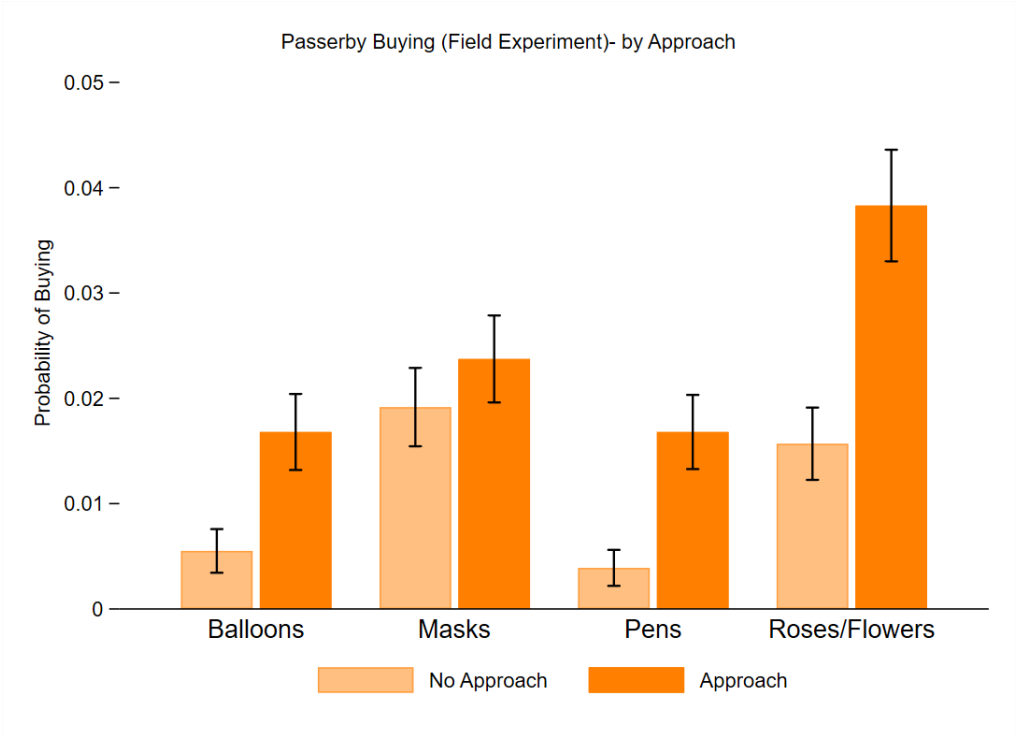
Consumers can easily see and/or readily test the quality of these products at the point of purchase.. Additionally, when noting down reasons that passersby gave for their support or lack thereof for buying from vendors (Figure D.9), there was not a single mention of *differential* quality concerns between child and adult sellers (although people often compared the quality of products to retail shops and commented on the relative cost-effectiveness). Finally, varying trust levels across seller groups would still leave the differences in purchasing patterns across buyer groups unexplained.

7.2 For Purchasing Differentials by Seller Approach

7.2.1 Attention

An alternative explanation for the rise in purchase rates following the seller approach could theoretically be that it grabs a passerby's attention. In a setting where passersby are commuting, or in a crowded setting like street markets, one might naturally wonder whether a seller's approach increases sales by making the product more noticeable rather than through social pressure. However, I show in Figure 10 that attention is not the main mechanism through which the seller approach is effective as the more visible goods are, in fact, the ones that see greater increases in purchases following a seller's approach. If attention was the only reason behind the increase in sales after a seller's approach, we would have expected the bigger differences to come from products that are less visible and small such as pens and masks. Additionally, as Figure 8 shows, we see passerby differences in purchasing even conditional on approach by child vendors. Furthermore, attention cannot explain why purchasing rates differ by seller identity conditional on approach. Finally, the experimental protocol was to only include the passersby who walked right in front of the vendor and noticed them. The only difference induced experimentally was whether the vendor requested them to buy.

Figure 10: Purchasing Rate by Products and Approach (Field Experiment)



Note: The figure plots purchase rates for different goods by seller approach. "Approach" involves a verbal request using the script outlined in the text.

7.2.2 Search Costs and Convenience Factor

Another possible explanation for increased purchasing rates following a seller's approach in this setting could be search costs. In particular, when the seller approaches the buyer, this saves the buyer time and effort in searching for another seller. However, this channel is unlikely to play a major role here for three reasons. First, if this was the case, theoretically incorporating search costs in the standard economic model would predict that passersby who approach the seller are higher value customers (who are sorting in by paying the effort costs of approaching the seller) than those whom the seller may approach. In this scenario, we would expect, intuitively, that the sellers would charge these customers higher than the ones that the seller approaches inferring their higher willingness to pay. However, in the observational data, looking at the prices quoted when the passerby approached the seller compared to when the seller approached, we see that passersby approaching the seller are, in fact, on average qualitatively charged a lower price (Table B.2). Second, search costs also cannot help explain passerby differences in purchasing conditional on approach that we see in the case of child vendors (Figure 8), or why they differ across seller identity conditional on approach.

7.2.3 Inference about hard work, need and/or smartness

One might be concerned that a street vendor approaching a passerby could lead them to perceive the vendor as hardworking and, therefore, may result in a purchase as they reward hustle. However, this is unlikely to be the explanation for the following reasons. First, in the field

experiment, all vendors were mobile and standing with goods in hand. It is therefore highly unlikely that one would think of them as being lazy or not making an effort. Second, by controlling the script and the number of times the vendors could request a passerby, differential hustle or perceptions of being smart cannot explain the differential purchasing patterns across vendors. The script also constitutes a simple verbal ask rather than hustle as such. Third, street vendors as a group of individuals are perceived to be hardworking as evidenced by an almost universal report of people perceiving vendors to be strictly more hardworking than panhandlers (Figure D.8).

Can a seller's approach shift perceptions of who is needy and, therefore, lead to greater purchase rates? First of all, it is important to realize that even if a seller's approach was to shift perceptions of need, this does not preclude the fact that this could be the reason making the passerby feel a greater refusal cost to buy following a request. However, as mentioned above, the fact that all vendors were standing with their goods, and approaching passersby every few minutes, it is, in reality, quite unlikely that passersby would believe that vendors who did not approach them were not needy. In fact, as Figure D.8 shows, the majority of passersby believe that vendors are even more needy than panhandlers. Moreover, by giving the vendor a script, we prevented the possibility of vendors from saying anything that could intentionally shift the passerby's beliefs about need. Therefore, although the perception of need could have affected observational study results, they are unlikely to drive the experimental findings.

7.2.4 Expected Annoyance

One could argue that it is not the refusal cost but rather the annoyance of having to interact with a street vendor longer (anticipating that the vendor will try to persuade them) that motivates greater sales following the seller's approach. While this is theoretically possible to affect the observational study results, by carefully controlling the vendors' script and capping the number of times a vendor could say 'Please buy it brother/sister.' to two, this mechanism is unlikely to affect the results in the field experiment. Further, in the observational study, even when the seller's script or the number of times they made a request was not controlled for, the instances of passersby shouting or abusing or making fun of the vendors – all being different forms of expressions of annoyance – were recorded to be less than 0.5%. This also aligns with the overwhelming perception of street vendors as hardworking and needy. Figure D.8 shows that when asking passersby about vendors and panhandlers, 94% reported that they considered a street vendor to be more hardworking than a panhandler and nearly 80% reported that they think a street vendor is equally or more needy than a panhandler. Further, when asked, "Do you think people should give to/buy from a child or adult selling on the street?", Figure D.5 shows that nearly 90% support buying from an adult vendor, and 74% support buying from a child vendor. Finally, even in the observational study, while this channel could affect the increase in purchase rates following the seller approach, it still cannot explain differential purchase rates across passerby groups with and without the seller approach.

8 Discussion

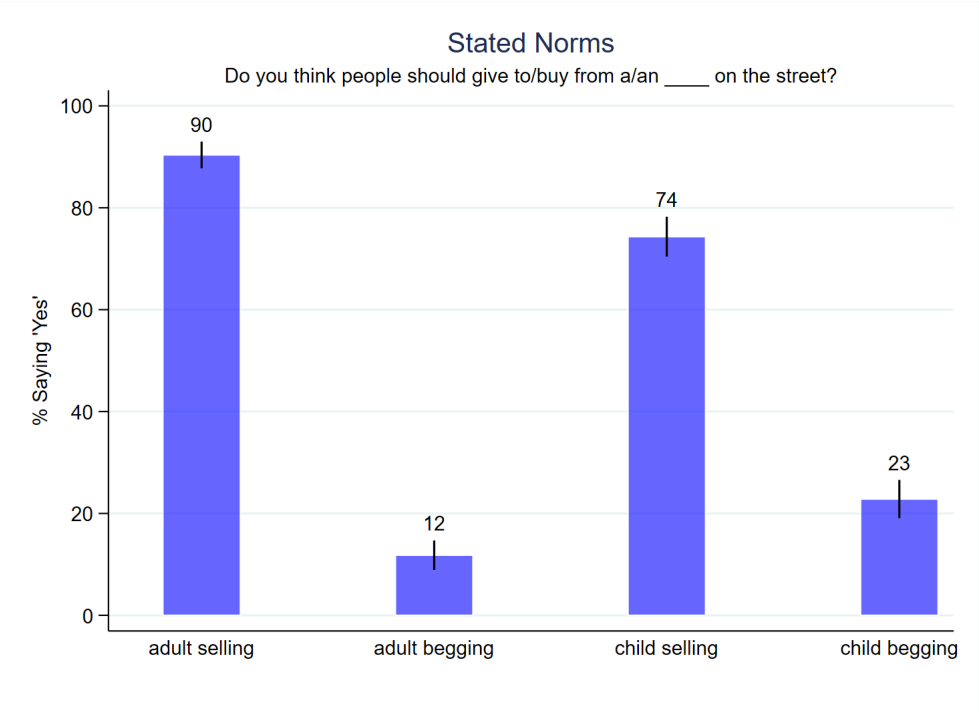
8.1 Street Vending as a Market Perceived Distinct from Begging

I now discuss how perceptions and behavior on the demand and supply sides show that it is most accurate to characterize these vendors as operating in a "hybrid market" with exchanges influenced by both economic and prosocial motives.

8.1.1 Passerby Psychology: Vending versus Begging

The passerby survey reveals that passersby perceive street vending markedly differently from begging, which is largely looked down upon. Figure 11 shows that while 90% of respondents agree they should buy from adult vendors and 74% from child vendors, this starkly contrasts with the 12% and 23% agreeing they should give money to adult and child panhandlers, respectively.[32] The most commonly cited reasoning is viewing begging as a "bad habit" and "wrong" (Appendix Figure D.10).

Figure 11: Stated Norms - Passerby Survey



The figure reports the percentage of people who agree with the statement that *"People should buy from (or give money to) a {child/adult} {vendor/panhandler} on the street."* The order of these four questions was randomized within each passerby and these were asked after the willingness to pay exercise with passersby. 95% confidence intervals are shown.

[32] These questions were asked following the willingness-to-pay exercise involving the four goods from the field experiment, ensuring that passersby were thinking of sellers of these goods when thinking about street vending.

By contrast, the most frequently cited consideration for their decision whether or not to buy goods on the streets was the trade-off between cost-effectiveness and the quality of the goods sold by vendors compared to retail markets (Appendix Figure D.9). This was followed by statements such as buying from vendors also helps support their families. Therefore, both economic and prosocial motives underpin passersby purchases in this market. Reinforcing this, we see that the goods used in the field experiment are not without market value, as evidenced by the positive valuations of buyers in the incentivized willingness to pay exercise (Figure 6).[33]

The fact that passersby do not view or treat vendors as solely recipients of charity is further reinforced through their behavior. In particular, the instances of passersby offering food or money without purchasing the goods amount to 0.27% and 0.30% of all interactions in the observational data and field experiment respectively. Moreover, passersby also have a clear distinction in their perception of vendors and panhandlers. In particular, 94% report that they think a street vendor is more hard-working than a panhandler (Figure D.8). This difference in perception of an individual's preference for hard work and ability between vendors and panhandlers is corroborated by a recent working paper (Sharma and Malik, 2024). More broadly, this aligns well with the findings on the psychosocial value of work (Hussam et al., 2022; Macchi and Stalder, 2023).

8.1.2 Purchasing and Pricing Patterns are Inconsistent with a Pure Charitable Giving Model

As Proposition 1 part 1 shows, if passersby perceived vending as a form of dignified begging and their motive to buy was purely driven by charitable giving, the specific products being sold should have little relevance in these transactions. Consequently, we should not expect to observe any variation in the valuations of the goods or differences in purchasing rates in the field experiment (when prices are held constant). However, as Figure C.1 demonstrates, purchasing rates vary across goods, with roses and masks being purchased at twice the rate of pens and balloons (this difference is statistically significant at a 5% level). These patterns match the elicited valuations for the goods in the willingness to pay exercise.

Furthermore, the variation in consumer demand is mirrored in vendors' pricing and vendors respond by setting higher prices for higher-demand goods. For instance, roses (valued at Rs 16) are priced at Rs 19 and pens (valued at Rs 7) are priced at Rs 9 (Figure 6 and Table 4). At the same time, prosocial considerations of passersby also influence prices, as child vendors charge higher prices and markups compared to adult vendors, and couples are charged more than male buyers. It is worth noting that this pattern also holds for tissue boxes — a high-priced good (average price: Rs 90), included in the pricing experiment but not in the field experiment for safety reasons (as it is sold at traffic lights). Child vendors charged an average of Rs 95 for a tissue box, compared to Rs 83 by adult vendors (p-value of 0.000). Similarly, couples were charged more than male buyers for the tissue box (p-value of 0.006).

[33]This exercise was conducted at the same locations and with the same goods as the field experiment, and passersby were explicitly told that we were asking about the goods sold on the streets to ensure the accuracy of the valuations collected.

Additionally, vendors frequently switch goods over time to cater to consumer demand. For instance, masks — deemed necessary for entering public spaces during pandemic restrictions — became a commonly sold good outside markets and metro stations during the study period.[34] Similarly, many vendors in our sample switched to selling flags around Independence Day and festive items during celebrations such as Diwali and Christmas. These adaptive behaviors indicate that vendors' actions are guided by economic considerations as well.

8.1.3 Self-perceived Identity of Vendors and Differences in the Eyes of the Law

Anecdotally, vendors express pride in working hard to make a living rather than relying on people's charity through begging. Street vending indeed requires effort in sourcing products from wholesale markets, carrying them to the market, and preventing damage to them in challenging weather conditions such as extreme heat and rain in open-air markets. The hard work involved in street vending is also widely documented in news articles on vendors' lives across the globe (for example, (Hong and Ley, 2023; Handagama, S. and Petroni, A., 2024). Characterizing them simply as 'dignified beggars' therefore risks overlooking their effort, agency, and sense of self-esteem. Recent work by Hussam et al. (2022) and Macchi and Stalder (2023) also highlights how employment, even in informal settings, provides individuals with a sense of agency, dignity, and psychosocial value.

Finally, the distinction between begging and vending is also recognized in the law. The Street Vendors Act, 2014 defines a street vendor as someone *"engaged in vending of articles, goods, wares, food items or merchandise of everyday use [...] in a street, lane, sidewalk,... or any other public place [...] from a temporary built-up structure or by moving from place to place and includes hawker, peddler, etc."*[35] This underscores the distinction of street vending from begging in the law.

8.2 Welfare Considerations

While this paper does not take a normative stance on whether prosocial motives lead to better or worse welfare outcomes overall, it is clear that given the multiple factors at play, drawing inferences about welfare is fraught with difficulties and nuances. On the one hand, vendors can charge "socio-emotional markups" — markups affected by social preferences and perceptions of vulnerability (Figure D.9 — and survive in a competitive market. Since the urban poor depend on street vending for their livelihoods and making sales in this competitive market is so hard, consumer emotions help vendors, even the most vulnerable of them – child vendors – to make a modest living. On the other hand, strategic targeting and price discrimination mean that the incidence of the burden of payment falls unevenly across passersby. Most importantly, there is an open and difficult ethical question as to whether in the longer run, this comparative advantage (leading to higher revenue and hourly earnings holding all else equal as seen in Table 8 below), might induce more children to work on the streets.

[34] Fines and mandates for masks in public markets during this period were widely reported in the news, e.g., The Week, Indian Express, NDTV News.

[35] The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014

Table 8: Hourly Earnings by Vendor Type - Field Experiment

	(1)	(2)	(3)	(4)	(5)
Child	8.635***	8.671***	8.694***	8.723***	8.724***
	(2.078)	(1.700)	(1.614)	(1.657)	(1.658)
Constant	7.122***	1.559	3.023*	1.046	1.152
	(1.144)	(1.528)	(1.660)	(2.074)	(2.204)
Product FE		✓	✓	✓	✓
Location Type FE			✓	✓	✓
Time of the Day FE				✓	✓
Weekend FE					✓
Adjusted R^2	0.045	0.160	0.168	0.174	0.173
Mean of Dep. Var	11.473	11.473	11.473	11.473	11.473
Observations	1028	1028	1028	1028	1028

Note: The table compares hourly earnings (in Rupees) across child and adult vendors. Standard Errors are clustered at the vendor level.

In this context, interviews with local NGOs and the police suggest that this setting is not one where criminal gangs control children; instead, they suggest that children are driven by the financial needs of their families. Although it is difficult to establish this empirically, reviewing the cross-country literature, the handbook chapter by (Edmonds and Theoharides, 2021) also calls for providing social safety nets to families to reduce incentives for child labor.

When thinking about policy design, it is also essential to consider children's alternatives for earning, which are begging and rag-picking in this context (Bhaskaran and Mehta, 2011). These constitute some of the worst forms of child labor (Edmonds, 2007). Based on a survey with 217 street-connected children in Delhi (that I conducted before this study), I found that 4% engaged in rag picking, 17% in begging, and 79% in vending. Daily earnings were much lower in these other occupations compared to street vending even with longer working hours and much more hazardous conditions. Therefore, a blanket ban on children's involvement in street vending could inadvertently worsen outcomes, if their entry into child labor is driven by the economic needs of families (Edmonds and Theoharides, 2021; Basu and Van, 1998).

Finally, it is also essential to consider how children feel about their work and autonomy. Contrary to our priors, the majority of street-connected children reported that they feel safe working on the streets as they are public places and nearly 90% also reported that they "feel proud to earn", especially those engaged in street vending. Moreover, as noted in Section 2, 75% of these children are also attending school (which is free), making the policy landscape even more intricate. Therefore, understanding and addressing these nuances and complexities is crucial for informed policy decisions.

9 Conclusion

I combine large-scale observational data with experimentation to yield insights into an economically important and understudied market segment of street vending. In particular, overcoming several challenges in data collection, I focus on particularly socio-economically vulnerable street vendors — those selling on foot and sitting on the ground using makeshift structures. This is an important market for us to study because it is common to see children in this market in developing countries and with urbanization, hawking is increasingly becoming a common sight in cities around the world.

First, to understand the features of this market, I collect nearly 500 hours of observational data on vendors from well-known marketplaces, transit stations, and traffic lights in Delhi. I show that this market displays features characteristic of a competitive market but also has elements that allow social preferences to affect buyer decision-making. Then, using a field experiment, I rigorously establish purchasing differentials by buyer and seller identity even with identical goods. In particular, I show that child vendors have greater purchase rates and that females and couples buy more than males even without any differences in valuation for the goods. Consistent with this, I find that sellers target females and couples more than males in the observational data. Additionally, using a lab-in-the-field experiment, I show that sellers strategically price discriminate and charge "socio-emotional markups" — markups influenced by social preferences and perceptions of vulnerability rather than just market forces.

I show that these findings are consistent with a model that incorporates altruism and a cost of refusal in the buyer's decision-making. Model predictions also help establish that both economic and prosocial motives affect behavior in this market and that a pure charitable giving framework or a pure consumption utility model cannot explain all the patterns. In support of the model, I find that passersby are more altruistic towards children than adults in an incentivized dictator game. Additionally, passersby are differentially responsive to a seller's request in the experiment.

These findings illustrate that vendors understand and strategically leverage insights about consumer social preferences to inform their selling strategies. It is quite remarkable to see this sophisticated economic thinking among marginalized vendors in light of the recent studies that have shown how scarcity can limit cognitive bandwidth and productivity among low-income workers (Kaur et al., 2024; Shah et al., 2012; Mani et al., 2013). The fact that child vendors also learn to strategically target and price discriminate, a skill that can be helpful in sales and marketing, complements the findings about the mathematical proficiency of working children (Banerjee et al., 2017).

Additionally, perceptions and practices on both sides of the market demonstrate that street vending is viewed differently from begging, which is largely looked down upon in this context. This is consistent with recent research highlighting the psychosocial value of work (Hussam et al., 2022; Macchi and Stalder, 2023) from other developing country contexts.

Finally, I highlight the complexities in evaluating the welfare in this market. As prosocial motives create a source of comparative advantage for children, this may create perverse incentives for their presence on the street. Assessing the long-term impacts of these dynamics on child labor remains a critical direction for future research. However, an outright ban on child vendors may worsen outcomes, particularly if their participation is driven by economic need. Alternative means of earning for street children in urban settings — such as begging and rag picking — are far more hazardous and undignified (Alem and Laha, 2016; Bhaskaran and Mehta, 2011). Creating safety nets for vulnerable families, as also emphasized by (Edmonds and Theoharides, 2021), could help reduce reliance on child labor (Edmonds and Theoharides, 2021), and effective policymaking should also include the voices of children. As cities grapple with the challenges of rapid urbanization and growing economic disparities, crafting policies to support vulnerable vendors while promoting informed social preferences will be essential for fostering inclusive urban environments.

References

Alem, H. W. and Laha, A. (2016), 'Livelihood of street children and the role of social intervention: insights from literature using meta-analysis', *Child Development Research* **2016**.

Andreoni, J., Rao, J. M. and Trachtman, H. (2017), 'Avoiding the ask: A field experiment on altruism, empathy, and charitable giving', *Journal of Political Economy* **125**(3), 625–653.

Babcock, L., Recalde, M. P., Vesterlund, L. and Weingart, L. (2017), 'Gender differences in accepting and receiving requests for tasks with low promotability', *American Economic Review* **107**(3), 714–47.

Banerjee, A., Fischer, G., Karlan, D., Lowe, M. and Roth, B. N. (2023), Do Microenterprises Maximize Profits? A Vegetable Market Experiment in India, Report, National Bureau of Economic Research.

Banerjee, A. V., Bhattacharjee, S., Chattopadhyay, R. and Ganimian, A. J. (2017), 'The untapped math skills of working children in India: Evidence, possible explanations, and implications', *Unpublished manuscript* .

Basu, K. and Tzannatos, Z. (2003), 'The global child labor problem: what do we know and what can we do?', *The world bank economic review* **17**(2), 147–173.

Basu, K. and Van, P. H. (1998), 'The economics of child labor', *American economic review* pp. 412–427.

Bau, N., Rotemberg, M., Shah, M. and Steinberg, B. (2020), Human capital investment in the presence of child labor, Technical report, National Bureau of Economic Research.

Becker, G. M., DeGroot, M. H. and Marschak, J. (1964), 'Measuring utility by a single-response sequential method', *Behavioral science* **9**(3), 226–232.

Bhaskaran, R. and Mehta, B. (2011), 'Surviving the Streets: A census of street children in Delhi', *New Delhi: IHD and Save the Children* .

Bursztyn, L., Egorov, G. and Jensen, R. (2019), 'Cool to be smart or smart to be cool? understanding peer pressure in education', *The Review of Economic Studies* **86**(4), 1487–1526.

Bursztyn, L., Ferman, B., Fiorin, S., Kanz, M. and Rao, G. (2018), 'Status goods: experimental evidence from platinum credit cards', *The Quarterly Journal of Economics* **133**(3), 1561–1595.

Bursztyn, L. and Jensen, R. (2015), 'How does peer pressure affect educational investments?', *The quarterly journal of economics* **130**(3), 1329–1367.

Bursztyn, L. and Jensen, R. (2017), 'Social image and economic behavior in the field: Identifying, understanding, and shaping social pressure', *Annual Review of Economics* **9**(1), 131–153.

Daniele, G., Mookerjee, S. and Tommasi, D. (2021), 'Informational shocks and street-food safety: A field study in urban India', *Review of Economics and Statistics* **103**(3), 563–579.

Delecourt, S. and Ng, O. (2021), 'Does gender matter for small business performance? Experimental evidence from India', *Preprint, submitted April* **21**.

DellaVigna, S., List, J. A. and Malmendier, U. (2012), 'Testing for altruism and social pressure in charitable giving', *The Quarterly Journal of Economics* **127**(1), 1–56.

DellaVigna, S., List, J. A., Malmendier, U. and Rao, G. (2013), 'The importance of being marginal: Gender differences in generosity', *American Economic Review* **103**(3), 586–90.

DellaVigna, S., List, J. A., Malmendier, U. and Rao, G. (2016), 'Voting to tell others', *The Review of Economic Studies* **84**(1), 143–181.

Dube, J.-P. and Rossi, P. E. (2019), *Handbook of the Economics of Marketing*, North Holland.

Edmonds, E. V. (2007), 'Child labor', *Handbook of development economics* **4**, 3607–3709.

Edmonds, E. V. and Pavcnik, N. (2005), 'Child labor in the global economy', *Journal of Economic Perspectives* **19**(1), 199–220.

Edmonds, E. V. and Theoharides, C. (2021), Child labor and economic development, *in* 'Handbook of labor, human resources and population economics', Springer, pp. 1–29.

Exley, C. L., Hauser, O. P., Moore, M. and Pezzuto, J.-H. (2024), 'Believed gender differences in social preferences', *The Quarterly Journal of Economics* .

Giaccherini, M., Herberich, D. H., Jimenez-Gomez, D., List, J. A., Ponti, G. and Price, M. K. (2019), The behavioralist goes door-to-door: Understanding household technological diffusion using a theory-driven natural field experiment, Report, National Bureau of Economic Research.

Handagama, S. and Petroni, A. (2024), 'Exploited, abused, trapped: The lives of Italy's South Asian rose sellers', *Al Jazeera* .

Hong, N. and Ley, A. (2023), 'Turning to Street Vending, New Migrants Find a Competitive World', *New York Times* .

Hussam, R., Kelley, E. M., Lane, G. and Zahra, F. (2022), 'The psychosocial value of employment: Evidence from a refugee camp', *American Economic Review* **112**(11), 3694–3724.

Karlan, D., Mullainathan, S. and Roth, B. N. (2019), 'Debt Traps? Market Vendors and Moneylender Debt in India and the Philippines', *American Economic Review: Insights* **1**(1), 27–42.

Kaur, S., Mullainathan, S., Oh, S. and Schilbach, F. (2024), 'Do financial concerns make workers less productive?', *The Quarterly Journal of Economics* .

Lichand, G. and Wolf, S. (2023), 'Measuring child labor: the who's, the where's, the when's, and the why's', *Available at SSRN 4125068* .

Macchi, E. and Stalder, J. (2023), 'Work over just cash: Informal redistribution'.

Mani, A., Mullainathan, S., Shafir, E. and Zhao, J. (2013), 'Poverty impedes cognitive function', *science* **341**(6149), 976–980.

Misra, S. (2019), Selling and sales management, *in* 'Handbook of the Economics of Marketing', Vol. 1, Elsevier, pp. 441–496.

Raveendran, G. and Vanek, J. (2020), 'Informal Workers in India: A Statistical Profile'.

Roever, S. (2014), 'Informal economy monitoring study sector report: Street vendors', *Cambridge, MA, USA: WIEGO* pp. 1–72.

Shah, A. K., Mullainathan, S. and Shafir, E. (2012), 'Some consequences of having too little', *Science* **338**(6107), 682–685.

Shah, M. and Steinberg, B. M. (2017), 'Drought of opportunities: Contemporaneous and long-term impacts of rainfall shocks on human capital', *Journal of Political Economy* **125**(2), 527–561.

Shah, M. and Steinberg, B. M. (2021), 'Workfare and human capital investment: Evidence from India', *Journal of Human Resources* **56**(2), 380–405.

Sharma, N. and Malik, S. (2024), The economics of begging, Technical report, Working Paper.

Simester, D. (2017), Field experiments in marketing, *in* 'Handbook of economic field experiments', Vol. 1, Elsevier, pp. 465–497.

Vanek, J., Chen, M. A. and Raveendran, G. (2012), 'A guide to obtaining data on types of informal workers in official statistics: Domestic workers, home-based workers, street vendors and waste pickers', *WIEGO Statistical Brief* (8).

Appendix

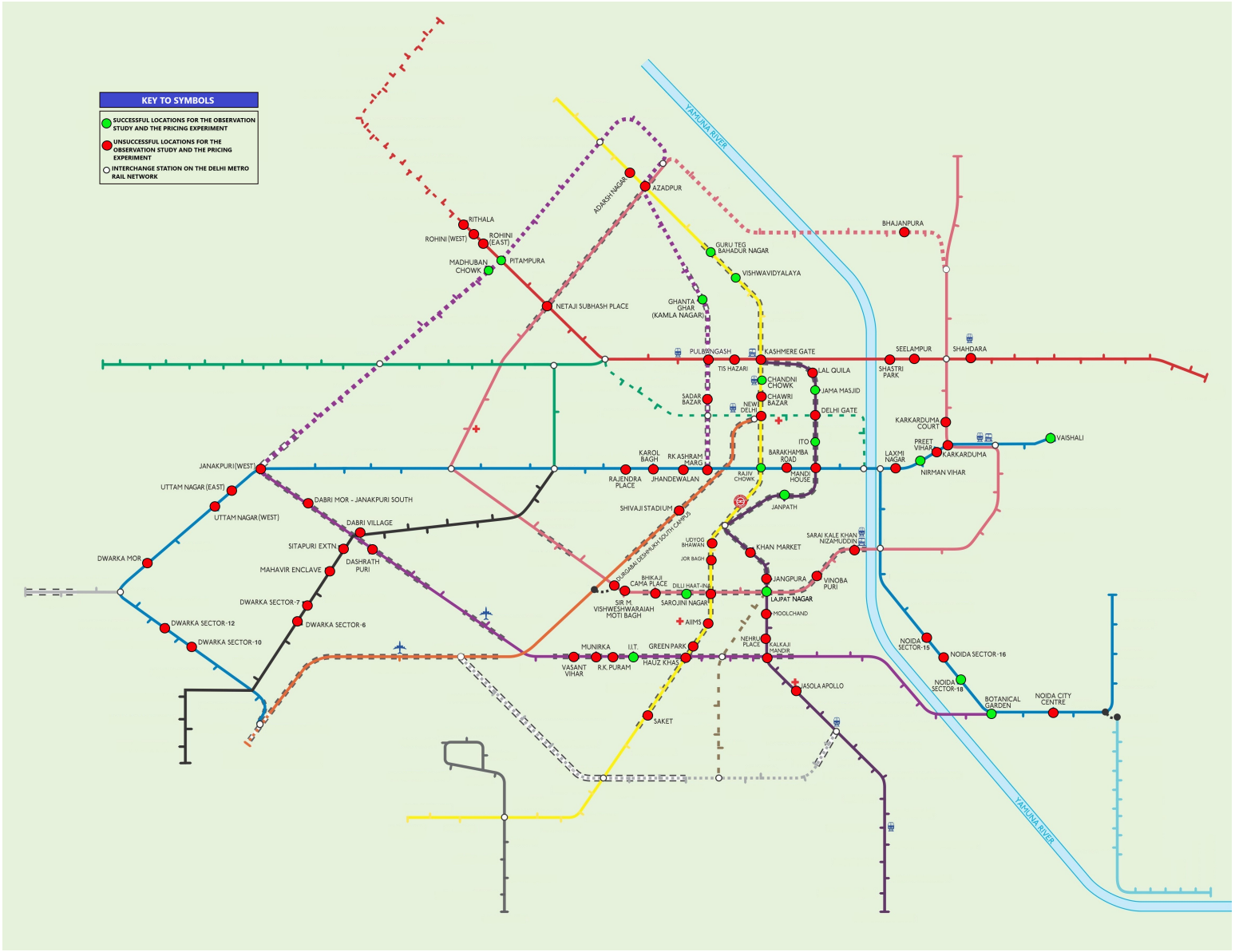
A List of Locations

No.	Area Name	Sub-Locations (Type)	NGOs	Reports	Scouted
1	Adarsh Nagar	Market, Metro Station			✓
2	Azadpur (Crossover Bridge, Lal Bagh Mosque area, New Sabzi Mandi)	Market, Metro Station, Traffic Lights		✓	✓
3	Barakhamba Road	Market, Metro Station			✓
4	Bhajanpura	Market			✓
5	Bhikaji Cama Place	Traffic Lights			✓
6	Chandni Chowk	Market, Metro Station	✓	✓	✓
7	Chawri Bazar	Market		✓	✓
8	Connaught Place (Inner Blocks, Outer Blocks, Hanuman Mandir)	Market, Religious Place	✓	✓	✓
9	Dashrath Puri	Market, Metro Station			✓
10	Delhi Gate	Market, Metro Station			✓
11	Durgabai Deshmukh South Campus (Satya Niketan)	Market, Metro Station			✓
12	Dwarka (Sector 6, Sector 7, Sector 10, Sector 12, Dabri Village)	Market, Traffic Lights		✓	✓
13	Green Park	Market, Metro Station			✓
14	Guru Tegh Bahadur Nagar (Hudson Lane, GTB Nagar Red Lights, GTB Nagar Metro Station)	Metro Station, Traffic Lights, Market	✓		✓
15	Hauz Khas (Hauz Khas Village)	Traffic Lights			✓
16	IIT Delhi	Traffic Lights			✓
17	INA Market	Market, Metro Station			✓
18	Income Tax Office	Metro Station, Traffic Lights		✓	✓
19	Jama Masjid – Meena Bazaar	Market, Metro Station, Historical Monument		✓	✓
20	Janakpuri (Dabri Mod-Janakpuri South, Sitapuri)	Market, Metro Station			✓
21	Jangpura	Metro Station			✓
22	Janpath (Metro Station and Traffic Lights, Janpath Market)	Metro Station, Traffic Lights, Market	✓		✓
23	Jasola Apollo Metro Station	Metro Station			✓
24	Jhandewalan Mandir	Religious Place			✓
25	Kalkaji Mandir	Religious Place	✓		✓
26	Kamla Nagar Market	Market	✓	✓	✓
27	Karkardooma Metro Station, Karkardooma Court Metro Station, Jagatpuri Traffic Lights	Metro Station, Traffic Lights	✓		✓

No.	Area Name	Sub-Locations (Type)	NGOs	Reports	Scouted
28	Karol Bagh	Main Market			✓
29	Kashmere Gate (Inter State Bus Terminal, Metro Station, Monastery Market)	Market, Metro Station			✓
30	Khan Market	Market, Metro Station			✓
31	Lajpat Nagar Central Market (Moolchand Flyover, Shri Laxmi Narayan Sanatan Dharma Mandir)	Market, Traffic Lights	✓	✓	✓
32	Laxmi Nagar	Market, Metro Station			✓
33	Mahavir Enclave	Market, Metro Station			✓
34	Mandi House	Market, Metro Station			✓
35	Moti Bagh	Market, Metro Station			✓
36	Munirka	Market, Metro Station			✓
37	Nehru Place	Market, Metro Station			✓
38	Netaji Subhash Place Metro Station	Market, Metro Station			✓
39	New Delhi Railway Station	Railway Station	✓	✓	✓
40	Nirman Vihar Metro Station	Metro Station, Traffic Lights		✓	✓

Note: The table lists all the regions/areas and the types of separate sub-locations included in each area (marketplaces, traffic lights, train stations). The list of areas and sub-regions to scout was compiled based on conversations with organizations working with street vendors and street children (indicated under 'NGOs') in addition to the marketplaces listed as Street Bazaars and Markets on Delhi Tourism Website, local news articles (for example, Times of India), secondary reports (Bhaskaran and Mehta, 2011) and Trip Advisor. In total, the scouting covered 44 marketplaces, 41 train stations, 16 traffic lights, and 8 religious places as sub-locations. Figure A.1 additionally shows these regions and those selected for inclusion in the study using a Delhi Metro Station Map.

Figure A.1: Map of Locations (Scouted and Selected)



Note: Locations are marked on the Delhi Metro Map accessible at https://www.delhimetrorail.com/map. Table A categorizes these locations into marketplaces, train stations, and traffic lights. A more detailed description of each location is intended for inclusion in an online appendix and is available from the author upon request.

B Sample Descriptives

B.1 Observational Study

Table B.1: Summary Statistics for Observational Study Sample

	Adult	**Child**	**Overall**
Demographics			
Age	34.02	11.24	22.77
Female	0.35	0.52	0.44
Experience			
Less than 1 year	0.16	0.18	0.17
1-2 years	0.11	0.23	0.17
2-5 years	0.21	0.43	0.32
5-10 years	0.15	0.13	0.14
10+ years	0.37	0.02	0.20
Type of Location			
Market	0.81	0.68	0.75
Metro Station	0.11	0.25	0.18
Red Light	0.08	0.07	0.07
Observations	204	199	403

Table B.2: Total Hours of Observation

	(1) Adult	(2) Child	(3) Overall
Market	0.828	0.691	0.760
Metro Station	0.104	0.252	0.177
Red Light	0.068	0.057	0.062
N	250	246	496

The table shows the total number of hours of observation conducted at various types of locations for children and adults separately.

Table B.3: Items Sold By Vendors in the Observational Study Sample

	Percent
Balloons	6.95
Bamboo Plants	0.25
Books	1.24
Car Accessories	0.25
Decor	0.25
Ornaments	13.65
Envelopes	1.74
Festive Items	0.25
Hair accessories	13.90
Lace	6.95
Masks	17.12
Pens	12.90
Roses	8.44
Shoe Polish	1.99
Showpiece	5.46
Socks	0.50
Tissue/Foil	1.99
Toys	3.97
Weight Checker	2.23
Total Count	403

Table B.4: Rounds of Observations and Characteristics of Adult Vendors

	(1) 1 Obs.	(2) >1 Obs.	(3) (1) vs. (2), p-value
Age	33.318	37.000	0.123
Female	0.339	0.410	0.407
Experience			
<1 year	0.167	0.154	0.847
1-2 years	0.130	0.026	0.062
2-5 years	0.210	0.205	0.948
5-10 years	0.160	0.103	0.365
10+ years	0.333	0.513	0.037
Type of Location			
Market	0.800	0.872	0.303
Metro Station	0.109	0.103	0.906
Red Light	0.091	0.026	0.174
N	165	39	

The table compares the demographic variables of the adult vendors whom the research team was able to complete a single and multiple (two or three) observational study rounds with.

Table B.5: Rounds of Observations and Characteristics of Child Vendors

	(1) 1 Obs.	(2) >1 Obs.	(3) (1) vs. (2), p-value
Age	11.145	11.600	0.311
Female	0.528	0.500	0.750
Experience			
<1 year	0.205	0.100	0.127
1-2 years	0.218	0.300	0.277
2-5 years	0.436	0.425	0.902
5-10 years	0.135	0.100	0.561
10+ years	0.006	0.075	0.006
Type of Location			
Market	0.673	0.700	0.745
Metro Station	0.239	0.300	0.429
Red Light	0.088	0.000	0.052
N	159	40	

The table compares the demographic variables of the child vendors whom the research team was able to complete a single and multiple (two or three) observational study rounds with.

B.2 Field Experiment

Table B.6: Summary Statistics for Field Experiment Hours

	Adult	**Child**
Type of Location		
Market	0.54	0.53
Metro Station	0.46	0.47
Day		
Weekend	0.36	0.36
Time of the Day		
Afternoon	0.60	0.59
Evening	0.40	0.41
Item		
Balloons	0.24	0.24
Masks	0.26	0.26
Pens	0.25	0.26
Roses	0.25	0.25
Gender of the Vendor		
Female	0.80	0.71
Observations	510	518

Table B.7: Summary Statistics for Partnering Vendors in the Field Experiment

	Adult	**Child**
Demographics		
Age	28.35	11.34
Female	0.88	0.59
Experience		
Less than 1 year	0.20	0.16
1-2 years	0.05	0.14
2-5 years	0.36	0.50
5-10 years	0.20	0.19
10+ years	0.20	0.01
Type of Location		
Market	0.55	0.59
Metro Station	0.45	0.41
Observations	66	80

Table B.8: Balance Table Across Child/Adult Vendor- Field Experiment

	(1) Adult	(2) Child	(3) (1) vs. (2), p-value
Group			
Couple	0.200	0.200	0.992
Woman	0.200	0.200	0.870
Women	0.200	0.200	0.953
Man	0.199	0.200	0.903
Men	0.200	0.200	0.978
Price			
Rs.10	0.500	0.499	0.890
Rs.30	0.500	0.501	0.890
Action			
Approach	0.500	0.501	0.901
No Approach	0.500	0.499	0.901
Place			
Market	0.536	0.532	0.360
Metro Station	0.464	0.468	0.360
Item			
Balloons	0.242	0.241	0.838
Masks	0.257	0.258	0.740
Pens	0.253	0.253	0.996
Roses	0.249	0.248	0.898
Day			
Weekend	0.355	0.358	0.634
Time			
Afternoon	0.595	0.591	0.400
Evening	0.405	0.409	0.400
N	20266	20339	

The table shows balance across child and adult vendors in the types of passersby, vendor action and the price quoted which were randomized within vendor. The table also shows balance in observations by the time of the day, whether it was a weekday or weekend, and the product sold.

Table B.9: Balance Table Across Passerby Type- Field Experiment

	(1) Couple	(2) Woman	(3) Women	(4) Man	(5) Men	(6) (1) vs. (2), p-value	(7) (1) vs. (3), p-value	(8) (1) vs. (4), p-value	(9) (1) vs. (5), p-value	(10) (2) vs. (3), p-value	(11) (2) vs. (4), p-value	(12) (2) vs. (5), p-value	(13) (3) vs. (4), p-value	(14) (3) vs. (5), p-value	(15) (4) vs. (5), p-value
Vendor															
Child	0.501	0.500	0.501	0.502	0.501	0.913	0.975	0.943	0.981	0.888	0.857	0.931	0.968	0.956	0.925
Price															
Rs.10	0.499	0.500	0.499	0.501	0.500	0.913	0.944	0.736	0.888	0.969	0.820	0.975	0.790	0.944	0.844
Rs.30	0.501	0.500	0.501	0.499	0.500	0.913	0.944	0.736	0.888	0.969	0.820	0.975	0.790	0.944	0.844
Action															
Approach	0.500	0.501	0.501	0.501	0.499	0.913	0.950	0.919	0.881	0.962	0.994	0.796	0.969	0.832	0.802
No Approach	0.500	0.499	0.499	0.499	0.501	0.913	0.950	0.919	0.881	0.962	0.994	0.796	0.969	0.832	0.802
Place															
Market	0.534	0.534	0.533	0.535	0.534	0.924	0.885	0.976	0.970	0.961	0.900	0.954	0.861	0.915	0.946
Metro Station	0.466	0.466	0.467	0.465	0.466	0.924	0.885	0.976	0.970	0.961	0.900	0.954	0.861	0.915	0.946
Item															
Balloons	0.242	0.241	0.241	0.242	0.241	0.905	0.935	0.983	0.923	0.970	0.889	0.982	0.918	0.988	0.906
Masks	0.257	0.258	0.257	0.257	0.258	0.907	0.978	0.995	0.946	0.885	0.912	0.961	0.973	0.924	0.951
Pens	0.253	0.252	0.253	0.253	0.252	0.906	0.979	0.975	0.939	0.885	0.931	0.967	0.954	0.918	0.964
Roses	0.248	0.249	0.249	0.248	0.249	0.906	0.935	0.997	0.917	0.971	0.909	0.989	0.938	0.982	0.920
Day															
Weekend	0.357	0.356	0.356	0.357	0.357	0.861	0.894	0.995	0.988	0.966	0.865	0.873	0.899	0.906	0.993
Time															
Afternoon	0.594	0.594	0.594	0.593	0.593	0.951	0.993	0.958	0.921	0.944	0.910	0.873	0.965	0.928	0.963
Evening	0.406	0.406	0.406	0.407	0.407	0.951	0.993	0.958	0.921	0.944	0.910	0.873	0.965	0.928	0.963
N	8122	8124	8128	8109	8119										

The table shows balance across passersby categories in vendor's action (i.e., approach or no approach) and the price quoted which were both randomized within-vendor. The table also shows balance in observations across the time of the day, location type, product sold, and the type of vendor.

B.3 Lab-in-the-Field Pricing Experiment

Table B.10: Summary Statistics for Pricing Game Sample

	Adult	**Child**
Demographics		
Age	34.75	11.40
Female	0.36	0.50
Schooling		
None	0.50	0.25
Primary (up to grade 5)	0.12	0.57
Secondary (up to grade 10)	0.24	0.17
Higher Secondary (up to grade 12)	0.11	0.01
College	0.02	0.00
Experience		
Less than 1 year	0.14	0.22
1-2 years	0.10	0.23
2-5 years	0.21	0.39
5-10 years	0.15	0.15
10+ years	0.40	0.01
Type of Location		
Market	0.75	0.71
Metro Station	0.12	0.20
Red Light	0.13	0.09
Financial		
Hours Worked Daily	8.41	6.96
Daily Earnings (Rs)	556.29	326.71
Earnings on a good day (Rs)	1334.20	713.81
Earnings on a bad day (Rs)	236.51	150.56
Observations	162	174

B.4 Passerby Survey

Table B.11: Summary Statistics for Passerby Survey Sample

	Mean
Age	
18-24	0.68
25-30	0.25
31-40	0.05
41-50	0.01
50+	0.00
Schooling	
No schooling	0.00
Secondary (up to grade 10)	0.02
Higher Secondary (up to grade 12)	0.02
College	0.25
Undergraduate	0.51
Postgraduate	0.20
Monthly Income (Rs)	
0-10k	0.60
10-20k	0.13
20-30k	0.13
30-40k	0.06
40-50k	0.04
50-60k	0.04
Type of Location	
Market	0.26
Metro Station	0.74
Passerby Group	
Male	0.21
Males together	0.20
Female	0.20
Females together	0.19
Couple	0.20
Observations	520

C Results Tables

Table C.1: Buying Probability - Observational Study

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.001	0.002	-0.001				-0.002	-0.003	-0.006
	(0.004)	(0.005)	(0.005)				(0.005)	(0.006)	(0.006)
Female Passerby				0.012***	0.016***	0.014***	0.014***	0.016***	0.013***
				(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
Couple Passerby				0.024***	0.026***	0.024***	0.015***	0.016***	0.014***
				(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Female Passerby×Child Vendor							-0.003	0.000	0.001
							(0.006)	(0.005)	(0.006)
Couple Passerby×Child Vendor							0.019***	0.021***	0.022***
							(0.007)	(0.007)	(0.007)
Constant	0.038***	0.046***	0.035***	0.028***	0.035***	0.026***	0.029***	0.035***	0.029***
	(0.003)	(0.009)	(0.009)	(0.003)	(0.008)	(0.008)	(0.004)	(0.009)	(0.009)
Product FE		✓	✓		✓	✓		✓	✓
Location Type FE			✓			✓			✓
Weekend FE			✓			✓			✓
Time of the Day FE			✓			✓			✓
Surveyor FE			✓			✓			✓
Adjusted R^2	-0.000	0.006	0.011	0.002	0.008	0.013	0.002	0.008	0.013
Mean of Dep. Var	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038	0.038
Observations	49159	49159	49159	49159	49159	49159	49159	49159	49159

Note: The outcome is overall purchase rates. Columns 1-3 compare the approach rates of child vendors to that of adult vendors. Columns 4-6 compare approach rates for females and couples compared to males. The table pools the categories *single female* and *females together*, and *single male* and *males together*. Columns 7-9 separate approach rates by passerby and seller type. Standard Errors are clustered at the vendor level.

Table C.2: Buying Rate (%) - Field Experiment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	1.145***	1.144***	1.150***				0.737**	0.736**	0.741***
	(0.301)	(0.259)	(0.224)				(0.326)	(0.287)	(0.261)
Female Passerby				0.374*	0.374*	0.374*	0.245	0.245	0.245
				(0.194)	(0.194)	(0.194)	(0.170)	(0.170)	(0.170)
Couple Passerby				1.231***	1.231***	1.231***	0.468**	0.469**	0.469**
				(0.244)	(0.244)	(0.244)	(0.206)	(0.206)	(0.206)
Female Passerby×Child Vendor							0.259	0.258	0.259
							(0.396)	(0.396)	(0.396)
Couple Passerby×Child Vendor							1.522***	1.522***	1.522***
							(0.420)	(0.421)	(0.421)
Constant	1.181***	0.543**	0.669**	1.358***	0.718**	0.847*	0.989***	0.351	0.477
	(0.203)	(0.248)	(0.306)	(0.192)	(0.347)	(0.441)	(0.232)	(0.256)	(0.310)
Product FE		✓	✓		✓	✓		✓	✓
Location Type FE			✓			✓			✓
Time of the Day			✓			✓			✓
Weekday/Weekend			✓			✓			✓
Adjusted R^2	0.002	0.005	0.006	0.001	0.004	0.005	0.003	0.006	0.007
Mean of Dep. Var	1.754	1.754	1.754	1.754	1.754	1.754	1.754	1.754	1.754
Observations	40539	40539	40539	40536	40536	40536	40536	40536	40536

Note: The outcome is purchase rate (%). Columns 1-3 compare the purchase rates from child vendors to those of adult vendors. Columns 4-6 compare purchase rates by females and couples compared to males. The table pools the categories *single female* and *females together*, and *single male* and *males together*. Columns 7-9 separate purchase rates by passerby and seller type. Standard Errors are clustered at the vendor level.

Table C.3: Seller Targeting/Approach Probability

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.266***	0.225***	0.206***				0.144***	0.079**	0.069**
	(0.029)	(0.034)	(0.030)				(0.032)	(0.034)	(0.030)
Female Passerby				0.175***	0.192***	0.181***	0.072***	0.086***	0.081***
				(0.020)	(0.017)	(0.016)	(0.025)	(0.020)	(0.017)
Couple Passerby				0.173***	0.189***	0.183***	0.064***	0.073***	0.077***
				(0.018)	(0.015)	(0.013)	(0.021)	(0.018)	(0.016)
Female Passerby×Child Vendor							0.171***	0.188***	0.182***
							(0.036)	(0.034)	(0.031)
Couple Passerby×Child Vendor							0.207***	0.224***	0.212***
							(0.031)	(0.028)	(0.026)
Constant	0.325***	0.393***	0.425***	0.351***	0.428***	0.441***	0.283***	0.348***	0.398***
	(0.024)	(0.055)	(0.058)	(0.017)	(0.047)	(0.051)	(0.025)	(0.057)	(0.057)
Product FE		✓	✓		✓	✓		✓	✓
Location Type FE			✓			✓			✓
Weekend FE			✓			✓			✓
Time of the Day FE			✓			✓			✓
Surveyor FE			✓			✓			✓
Adjusted R^2	0.071	0.141	0.202	0.029	0.138	0.202	0.103	0.178	0.235
Mean of Dep. Var	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
Observations	46541	46541	46541	46541	46541	46541	46541	46541	46541

Note: The outcome here is seller approach, which includes making eye contact/gesture and/or verbal request as outlined in Figure D.3. Columns 1-3 compare the approach rates of child vendors to that of adult vendors. Columns 4-6 compare approach rates for females and couples compared to males. The table pools the categories *single female* and *females together*, and *single male* and *males together*. Columns 7-9 separate approach rates by passerby and seller type. Standard Errors are clustered at the vendor level.

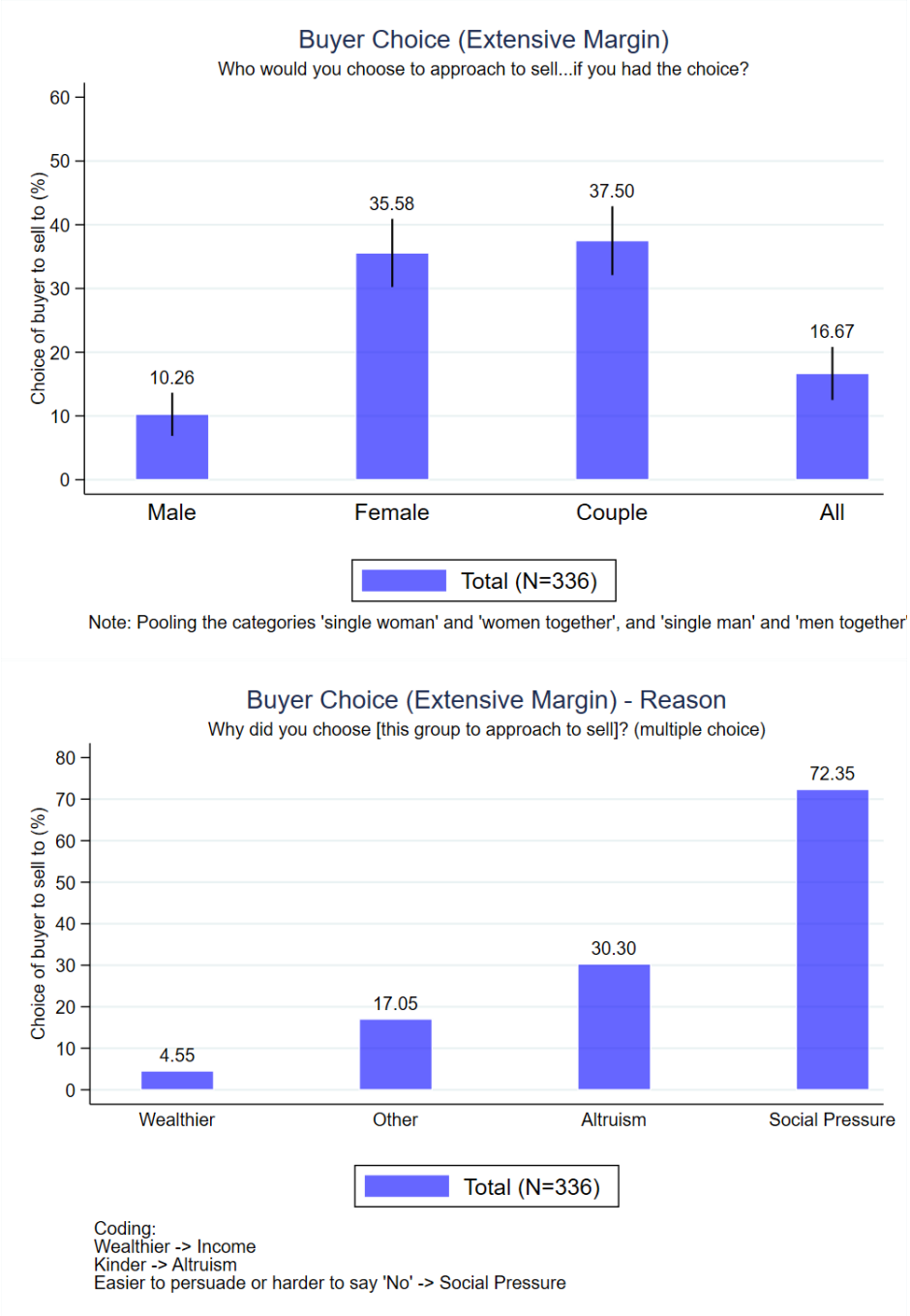
Table C.4: Buying Rate (%) by Approach - Field Experiment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Approach	1.279***	1.278***	1.278***	0.723***	0.722***	0.722***	0.644**	0.644**	0.645**
	(0.283)	(0.283)	(0.283)	(0.220)	(0.221)	(0.220)	(0.267)	(0.267)	(0.267)
Child Vendor				0.590**	0.589**	0.595**	0.465	0.466	0.471
				(0.251)	(0.235)	(0.273)	(0.303)	(0.288)	(0.331)
Child Vendor×Approach				1.111**	1.110**	1.110**	0.546	0.542	0.542
				(0.495)	(0.495)	(0.495)	(0.636)	(0.636)	(0.636)
Female Passerby							0.368**	0.369**	0.369**
							(0.164)	(0.164)	(0.164)
Couple Passerby							0.024	0.026	0.026
							(0.163)	(0.163)	(0.163)
Female Passerby×Child Vendor							-0.191	-0.195	-0.194
							(0.362)	(0.362)	(0.362)
Couple Passerby×Child Vendor							1.008***	1.005***	1.005***
							(0.379)	(0.380)	(0.380)
Female Passerby×Approach							-0.246	-0.248	-0.248
							(0.379)	(0.379)	(0.379)
Couple Passerby×Approach							0.888*	0.886*	0.885*
							(0.475)	(0.476)	(0.476)
Female Passerby×Child Vendor×Approach							0.896	0.900	0.900
							(0.611)	(0.611)	(0.611)
Couple Passerby×Child Vendor×Approach							1.026	1.033	1.033
							(0.762)	(0.762)	(0.762)
Constant	1.115***	0.477**	0.605*	0.819***	0.183	0.309	0.667***	0.030	0.155
	(0.137)	(0.234)	(0.351)	(0.185)	(0.247)	(0.329)	(0.206)	(0.264)	(0.334)
Product FE		✓	✓		✓	✓		✓	✓
Location Type FE			✓			✓			✓
Time of the Day			✓			✓			✓
Weekday/Weekend			✓			✓			✓
Adjusted R^2	0.002	0.005	0.006	0.005	0.007	0.008	0.007	0.009	0.010
Mean of Dep. Var	1.754	1.754	1.754	1.754	1.754	1.754	1.754	1.754	1.754
Observations	40539	40539	40539	40539	40539	40539	40536	40536	40536

Note: The outcome is purchase rate (%). Columns 1-3 compare the purchase rates with and without the seller approach (i.e., a verbal request using the script outlined in the text). Columns 4-5 allow for differences across child and adult vendors. Columns 7-9 allow for interactions between approach, seller, and passerby categories (for ease of interpretation, Figure 9 plots the results from Column 7). The table pools the categories *single female* and females together, and *single male* and *males together*. Standard Errors are clustered at the vendor level.

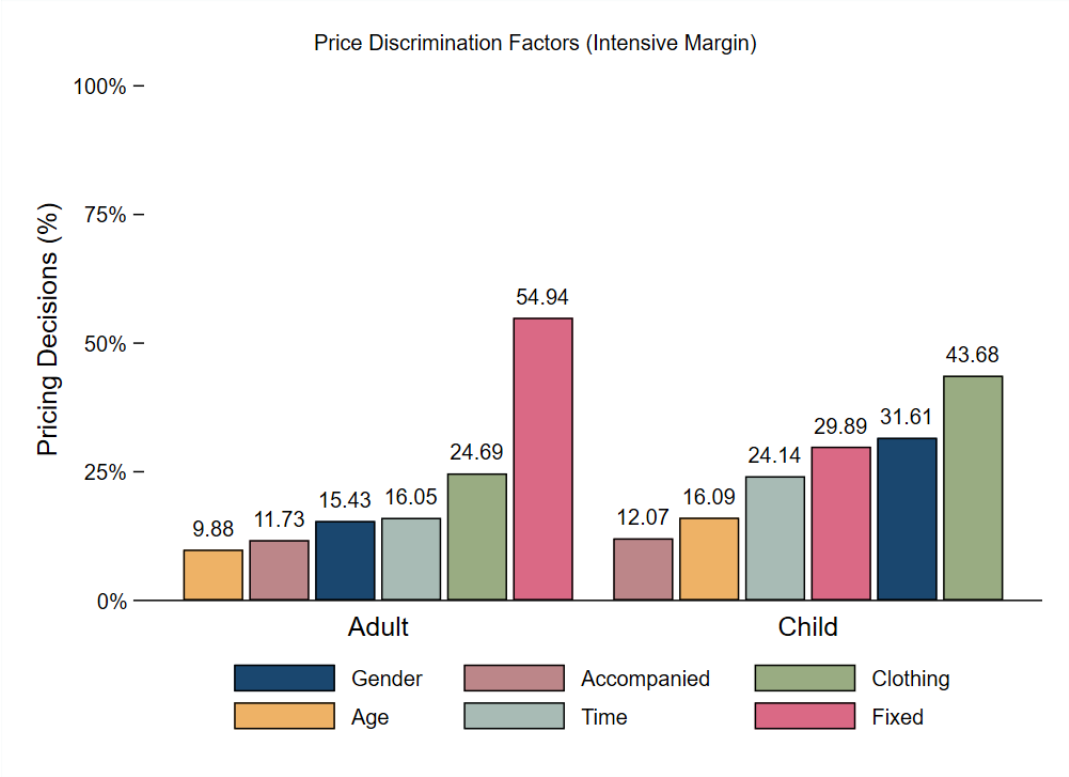
D Figures

Figure D.1: Reported Seller Approach Strategy and Reasons



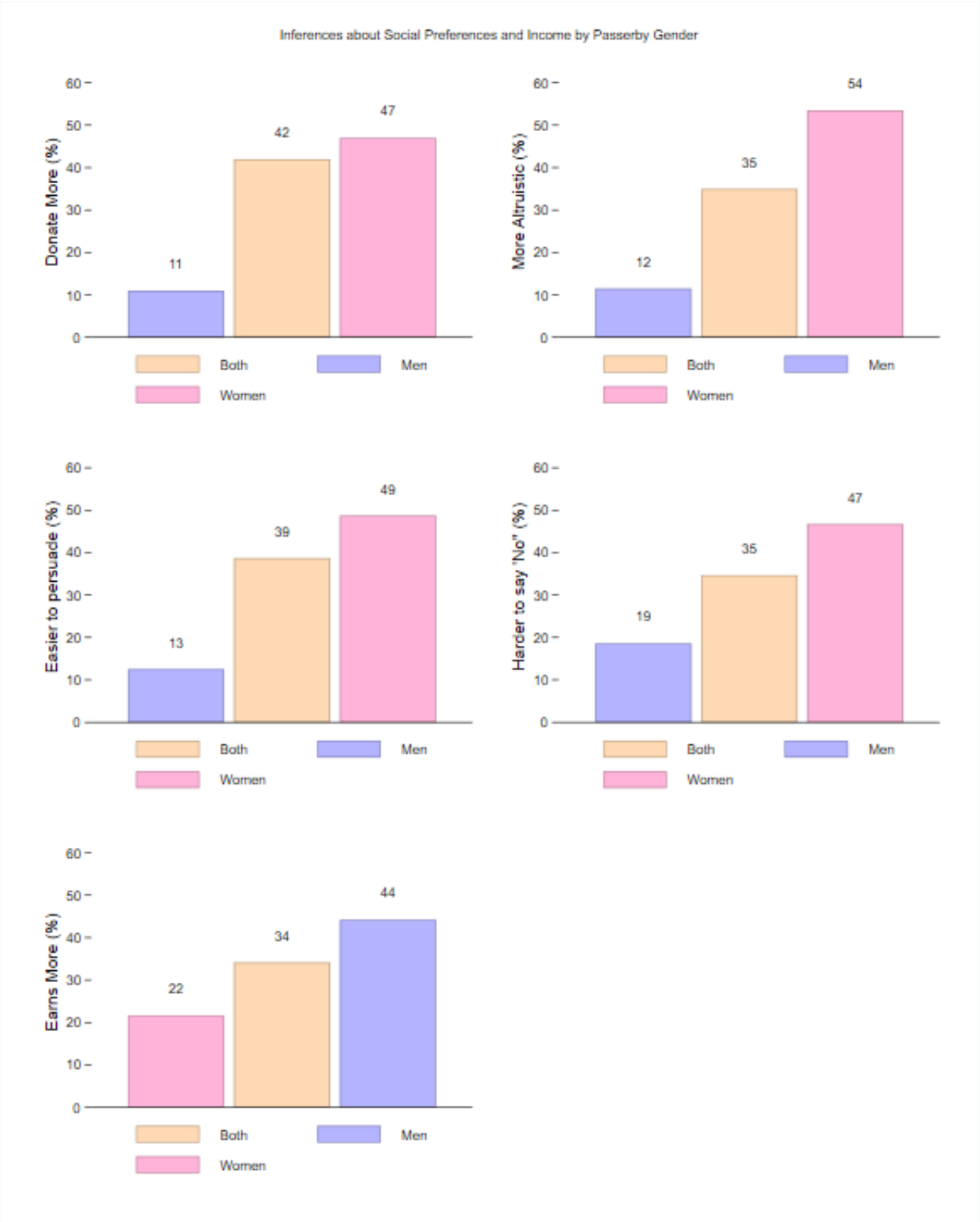
The top figure plots the percentage of vendors mentioning each passerby category as their top choice to approach to sell. The top panel pools the categories *single female* and *females together*, and *single male* and *males together*, while the bottom panel separates the choices by all categories. The option 'All' was selected if the vendor said they would approach anyone or everyone and did not have a select preference. The bottom figure plots the percentage of vendors mentioning their reason for choosing a particular passerby as their top choice to approach to sell (plotted in Figure D.1). The question was open-ended and was asked without any nudges. Surveyors listened to the participant's response and ticked one or more of the multiple choices, for example, income or social preference considerations like altruism and social pressure, along with any other reasons vendors gave.

Figure D.2: Factors Affecting Pricing Strategy by Type of Seller



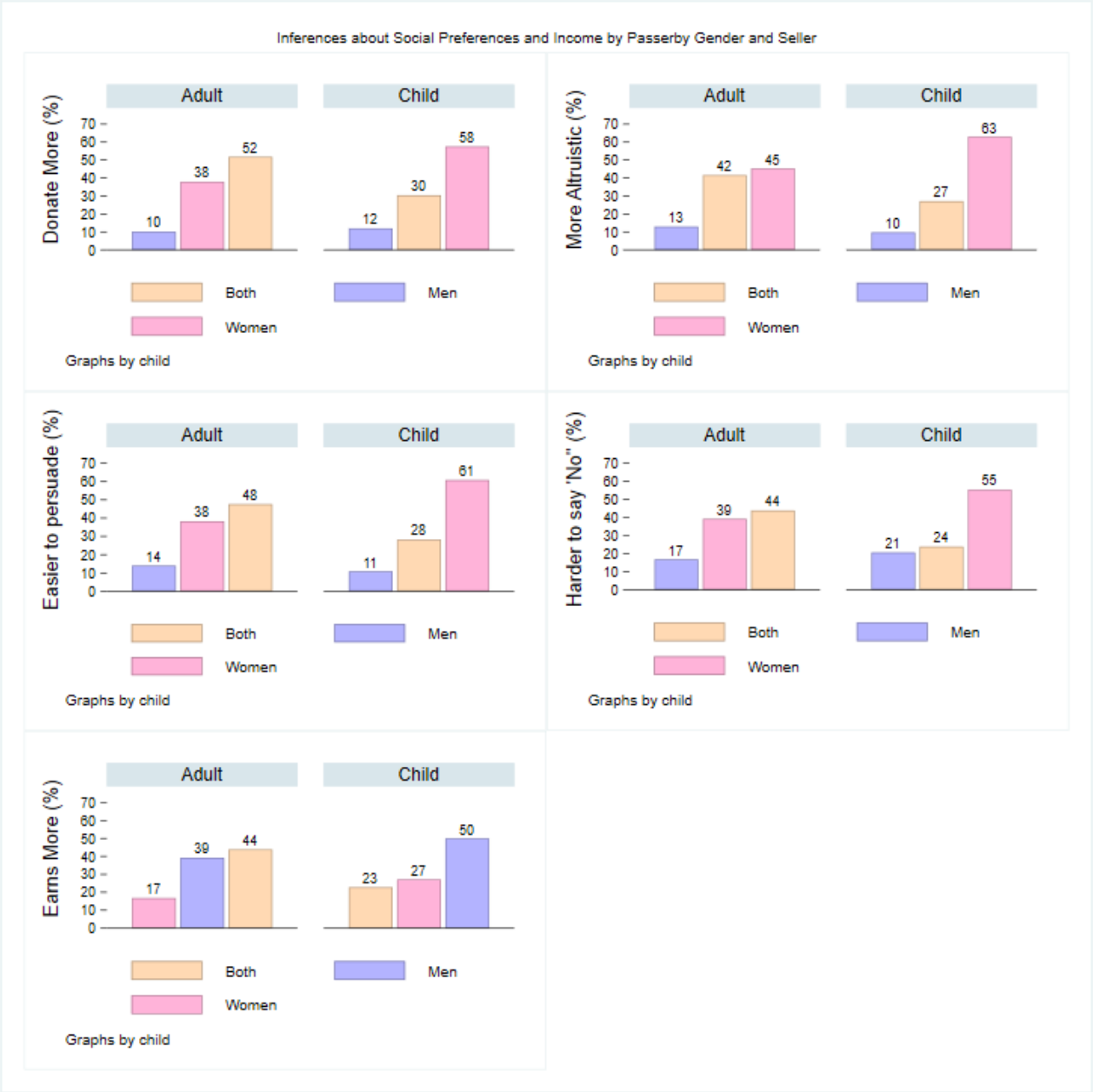
The figure plots the percentage of vendors mentioning what factors they consider when determining pricing. The question was open-ended and was asked without any nudges. Surveyors listened to the participant's response and ticked one or more of the multiple choices among observable characteristics of the buyer. The category 'Fixed' was marked if the vendor reported they charge a fixed price to everyone.

Figure D.3: Seller Inferences about Passerby Social Preferences and Income



The figure plots the percentage of vendors mentioning (from left to right, top to bottom) whether men or women donate more, are more altruistic, are easier to persuade, find it harder to say 'no', and earn more. If the vendors reported that both men and women were equally likely to have these traits, the option 'Both (are equally likely)' was selected.

Figure D.4: Seller Inferences about Passerby Social Preferences and Income by Type of Seller



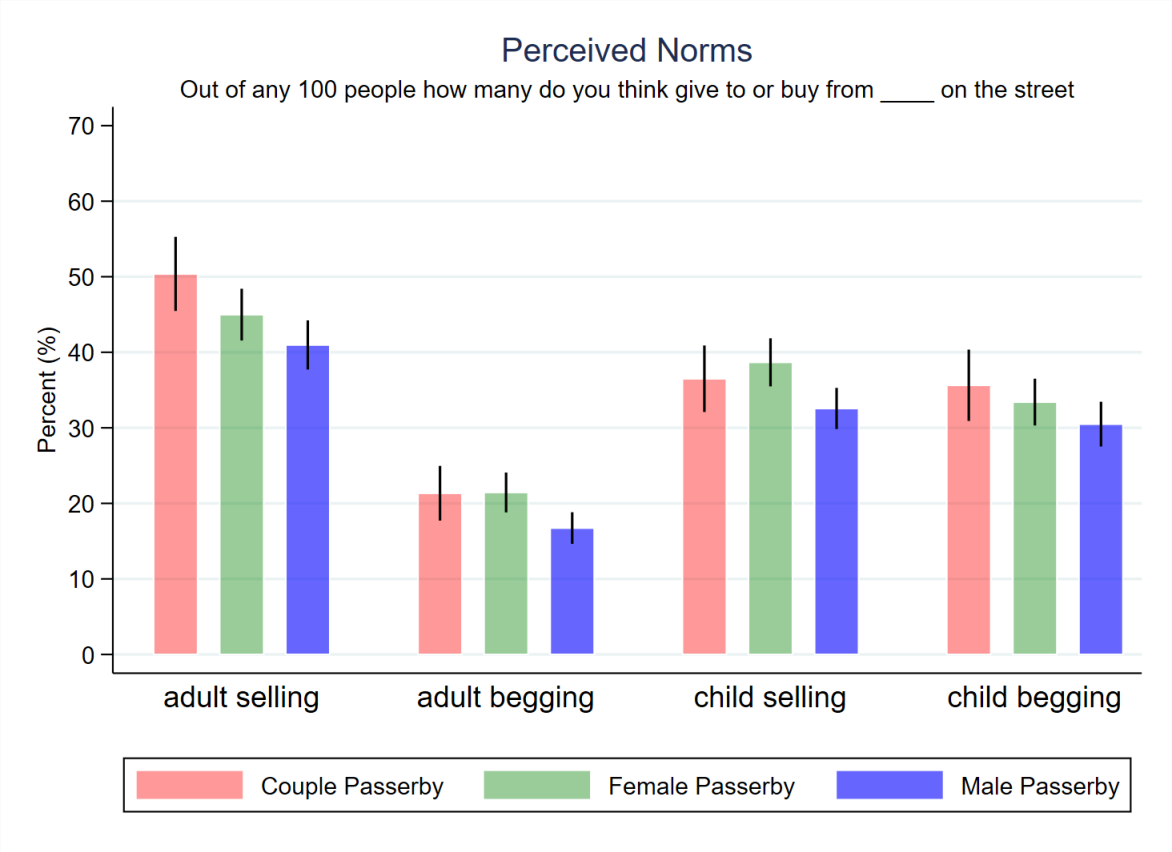
The figure plots the percentage of adult and child vendors mentioning (from left to right, top to bottom) whether men or women donate more, are more altruistic, are easier to persuade, find it harder to say 'no', and earn more. If the vendors reported that both men and women were equally likely to have these traits, the option 'Both (are equally likely)' was selected.

Figure D.5: Stated Norms - Passerby Survey



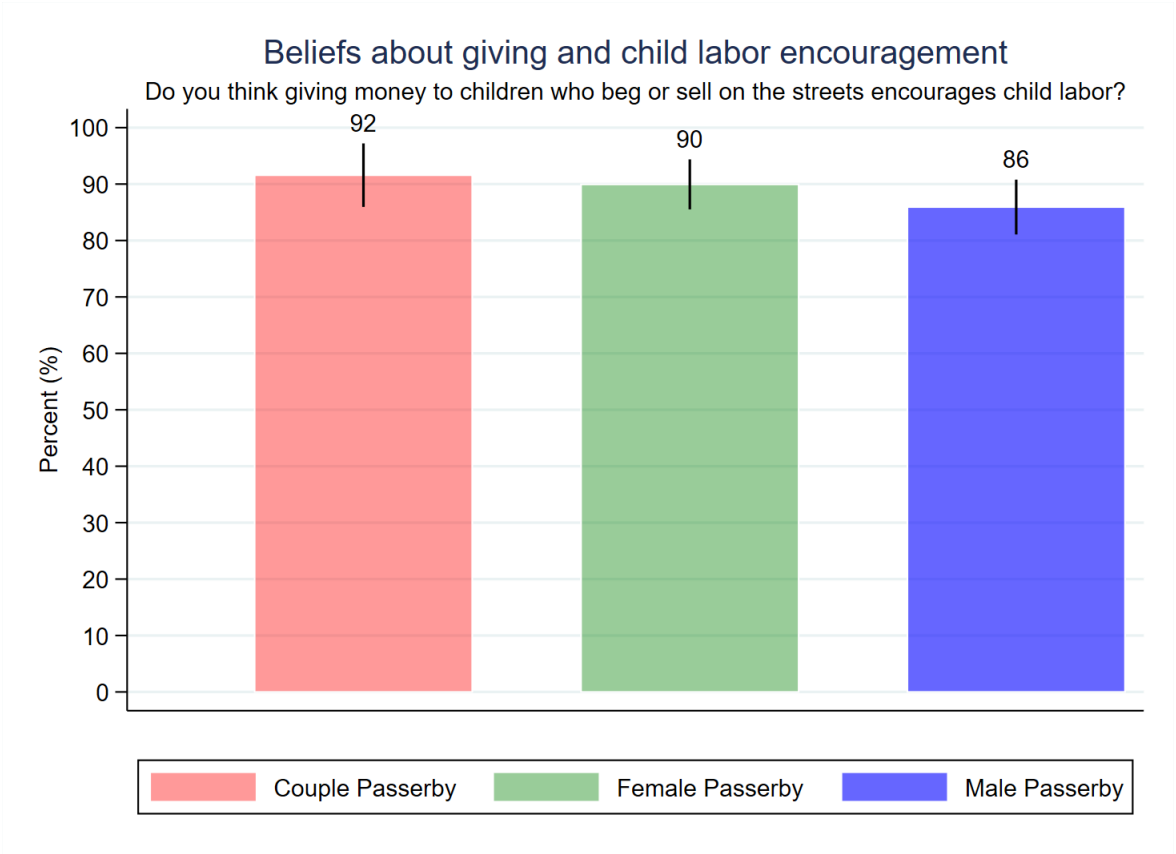
The figure reports the percentage of people who agree with the statement that "People should give to or buy from a {child/adult} {vendor/panhandler} across passersby. The figure pools over the categories *single female* and *females together*, and *single male* and *males together* respectively.

Figure D.6: Perceived Norms - Passerby Survey



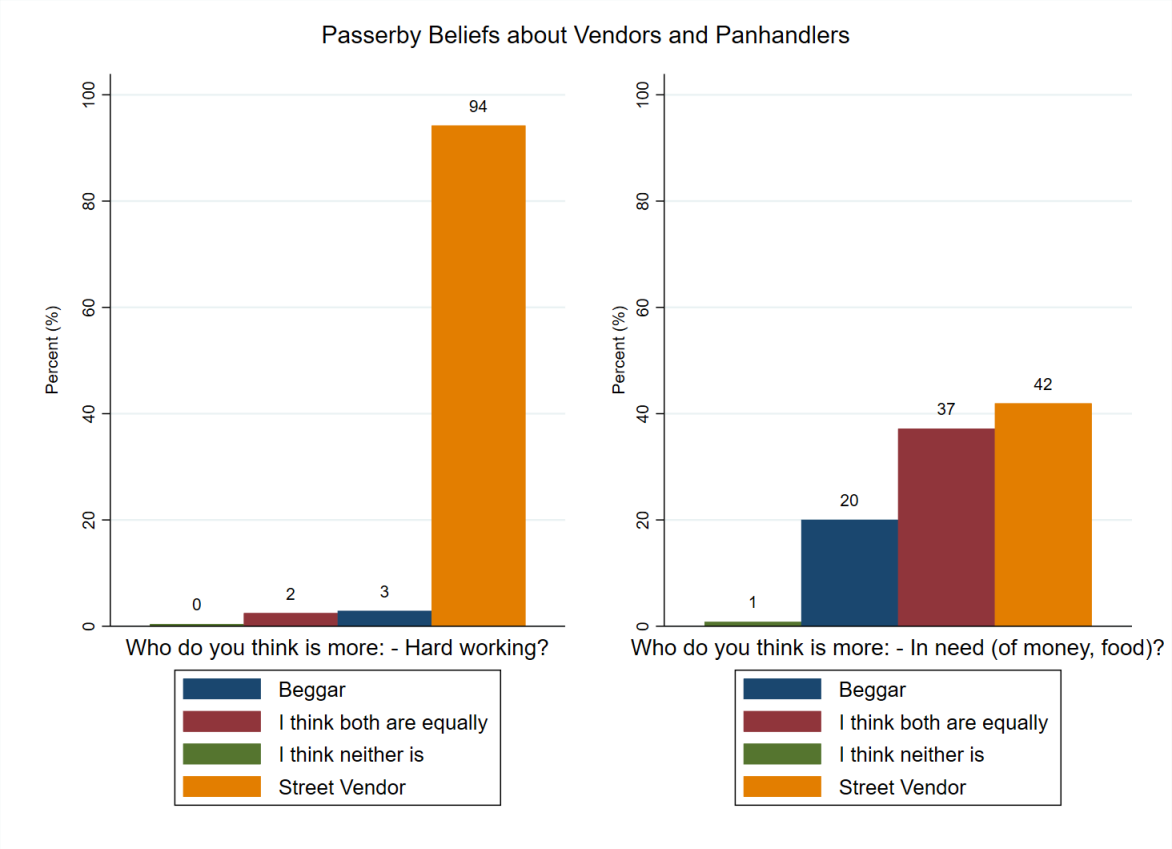
The figure reports a passerby's perception about how many out of 100 people give to or buy from a child/adult vendor/panhandler by passerby category. The figure pools over the categories *single female* and *females together*, and *single male* and *males together* respectively.

Figure D.7: Passerby Beliefs about Child Labor - Passerby Survey



The figure reports the percentage of passersby who report they think that buying from or giving money to street children encourages child labor. The figure pools over the categories *single female* and *females together*, and *single male* and *males together* respectively.

Figure D.8: Passerby Beliefs about Vendor and Panhandlers - Passerby Survey



The figure reports the beliefs of passersby about vendors and panhandlers. The left panel reports beliefs about who is more hardworking and the right panel reports beliefs about who is more needy.

Figure D.9: Passerby comments regarding buying from an adult (top) or child (bottom) vendor



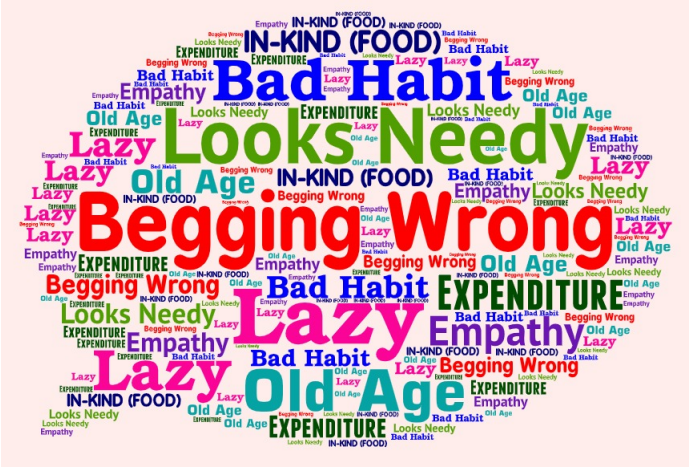
Panel A: Buying from an adult vendor



Panel B: Buying from a child vendor

Notes: These word clouds summarize passerby quotes noted when they expressed whether they think one should buy from a child (bottom panel) or adult (top panel) vendor. The height of the word denotes the relative weight of the times it was mentioned by passersby. 'Quality Product' summarizes statements when passersby compared the quality of products to retail shops and commented on the relative cost-effectiveness of buying from vendors. There was not a single mention of any differential concerns about quality when buying from a child or an adult vendor. 'Looks Needy', 'Supports Family', and 'Empathy', capture passerby sentiment that buying from vendors supports them and their families financially. 'Compromises Education' and 'Child Labor' capture statements that were made by passersby that street vending hurts the education of children while 'Supports Education' refers to statements that vending may allow children to be educated by having financial support from part-time work. 'Forced' captures statements where passersby believed that children were being forced to work either by parents/guardians or someone else while 'Compelled' captures the sentiment that vendors have no other means of earning. 'Bad Habit' refers to statements where passersby believe that working on the street has become a habit and way of life for them.

Figure D.10: Passerby comments regarding giving money to an adult (top) or child (bottom) beggar



Panel A: Giving money to an adult beggar



Panel B: Giving money to a child beggar

Notes: These word clouds summarize passerby quotes noted when they expressed whether they think one should give money to a child (bottom panel) or adult (top panel) beggar. The height of the word denotes the relative weight of the times it was mentioned by passersby. 'Begging Wrong', 'Bad habit', and 'Lazy' capture statements such as 'living off one's charity is wrong' or 'beggars are lazy'. 'In-kind (food)' captures instances when passersby mentioned that one should not give money but only food to beggars. 'Empathy' and 'Looks needy' capture passerby sentiment that beggars are needy and one must show empathy towards them. 'Compromises Education' and 'Child Labor' capture statements where passersby reported that supporting a child beggar might compromise their education and encourage child labor. 'Forced' captures statements where passersby believed that children were being forced to beg either by parents/guardians or someone else while 'Compelled' captures the sentiment that vendors have no other means of earning.

Figure D.11: Products used in the Field Experiment



Notes: The chart illustrates the products used in the Field Experiment. These are pens (from a well-known brand 'Cello'), balloons, masks, and roses from left to right.

E Theoretical Appendix

Proofs

Lemma 1 (Properties of Demand)**.** *Denote the probability of buying as B. We have (i)* $\frac{\partial B}{\partial p} \leq 0$*, (ii)* $\frac{\partial B}{\partial a} \geq 0$*, (iii)* $\frac{\partial B}{\partial s} \geq 0$*, (iv)* $\frac{\partial B}{\Delta r} \geq 0$*.*

Proof (Lemma 1: Probability of Purchase)**.** *For simplicity, subscripts for goods (g) and buyer and seller identity (b and s) are suppressed in this proof. A buyer's strategy will be given by:*

$$If \;\; r = 0 : d = 1 \;\; if \;\; v \geq (1-a)p$$

$$If \;\; r = 1 : d = 1 \;\; if \;\; v \geq (1-a)p - s$$

By backward induction:

$$Pr(Buy) = Pr(v \geq (1-a)p) \;\; if \;\; r = 0$$

$$Pr(Buy) = Pr(v \geq (1-a)p - s) \;\; if \;\; r = 1$$

Using $v \sim F(v)$ *we have:*

$$Pr(Buy) = 1 - F(1-a)p) \;\; if \;\; r = 0$$

$$Pr(Buy) = 1 - F((1-a)p - s) \;\; if \;\; r = 1$$

The result follows by taking partial derivatives and comparing them across cases.

Proof (Proposition 1: Testable Implications of the Model on Purchasing Behavior)**.** *Denote the probability of buying as* B_{gbs} *where g indexes goods, b denotes the buyer identity and s denotes the seller identity. Then:*

1. *If consumption utility is set to zero for all goods, i.e.* $v_g = 0 \; \forall \; g$*, and prices are held constant, i.e.* $p_g = p'_g = p$*, this implies* $B_{gbs} = B_{g'bs} = Pr(s_{bs} * r \geq (1 - a_{bs})p) \; \forall \; (g, g')$*, that is, the probability of purchase (conditional on seller's request* $r \in \{0,1\}$*) should not vary across goods. By reverse implication, if* $B_{gbs} \neq B_{g'bs}$*, holding prices fixed, then* $v_g \neq v'_g$ *and* $(v_g, v'_g) \neq \boldsymbol{0}$*.*

2. *If prosocial motives do not affect behavior, i.e.,* $a_{bs} = 0$ *&* $s_{bs} = 0 \; \forall$ *buyer and seller pairs* (b, s)*, then* $B_{gbs} = B_{gb's'} = Pr(v_g \geq p_g) \; \forall \; (b, s), (b', s')$*. By reverse implication, if* $B_{gbs} \neq B_{gb's'}$ *then* $(s_{bs}, s_{b's'}, a_{bs}, a_{b's'}) \neq \boldsymbol{0}$*.*

3. *If refusal costs do not exist, i.e.* $s_{bs} = 0 \; \forall$ *buyer and seller pairs* (b, s)*, then* $B_{gbs}(r = 1) = B_{gbs}(r = 0) = Pr(v_g \geq (1 - a_{bs})p_g) \;\; \forall \; (b, s)$*, that is, the probability of purchase should not vary depending on whether the seller made a request (and vice versa).*

4. *If altruism does not affect behavior, i.e.* $a_{bs} = 0 \; \forall$ *buyer and seller pairs* (b, s)*, then* $B_{gbs}(r = 0) = B_{gb's'}(r = 0) = Pr(v_g \geq p_g)$*, that is, the probability of purchase should not vary depending on buyer or seller identity (without seller's approach). By reverse implication,* $B_{gbs}(r = 0) \neq B_{gb's'}(r = 0) \implies (a_{bs}, a_{b's'}) \neq \boldsymbol{0}$*.*

Proof (Proposition 2: Testable Implications of the Model on Seller Strategy)**.** *We have:*

1. *With goods having no consumption utility, i.e., $v_g = 0 \; \forall \; g$, maximizing the seller's utility gives $p_g^*(r=1) = argmax_{p_g}(p_g - c_g)$ subject to $s_{bs} \geq (1 - a_{bs})p_g) \; \forall \; g$, i.e., the buyer making the purchase. Therefore, it will be optimal for the seller to charge the maximum price possible that makes the buyer indifferent between buying and not, i.e., $p_g^*(r=1) = s_{bs}/(1-a_{bs}) \; \forall \; g$. Note that this does not vary across goods. In the case with no seller approach, as the net utility from purchasing, $-(1-a_{bs})p_g$, is negative for the consumer with any positive price, $p_g^*(r=0) = 0$. Thus, if the goods have no consumption utility and purchases are solely driven by pure charitable giving prosocial motives, prices will not vary across goods. By reverse implication, if $p_g^* \neq p_g'^*$, then $v_g, \neq v_g'$ and $(v_g, v_g') \neq \boldsymbol{0}$.*

2. *Maximizing the seller's utility yields:*

$$p_g^*(r=0) = argmax_{p_g} Pr(v_g \geq (1-a_{bs})p_g)(p_g - c_g)$$

$$p_g^*(r=1) = argmax_{p_g} Pr(v_g \geq (1-a_{bs})p_g - s_{bs})(p_g - c_g)$$

   Now, if prosocial motives do not affect behavior, i.e., $a_{bs} = 0$ & $s_{bs} = 0 \; \forall$ buyer and seller pairs (b,s), then $p_g^* = argmax_{p_g} Pr(v_g \geq p_g)(p_g - c_g) \; \forall$ buyer and seller pairs (b,s). That is, the price charged for a good should not vary across buyer or seller identity. By reverse implication, if $p_{gbs}^*(r=1) \neq p_{gb's'}^*(r=1)$, then $(s_{bs}, s_{b's'}, a_{bs}, a_{b's'}) \neq \boldsymbol{0}$ for any two buyer and seller pairs $(b,s),(b',s')$ and similarly, if $p_{gbs}^*(r=0) \neq p_{gb's'}^*(r=0)$, then $(a_{bs}, a_{b's'}) \neq \boldsymbol{0}$ for any two buyer and seller pairs $(b,s),(b',s')$.

3. *A seller's expected utility conditional on the approach strategy and optimal pricing is*[36]*:*

$$\mathbb{E}[V] = \begin{cases} Pr(v \geq (1-a)p_{r=1}^* - s)(p_{r=1}^* - c) - e & \text{if } r = 1 \\ Pr(v \geq (1-a)p_{r=0}^*)(p_{r=0}^* - c) & \text{if } r = 0 \end{cases}$$

   Here $Pr\Big(v \geq (1-a)p_{r=1}^* - s\Big)$ is the expected probability of purchase conditional on approach (using backward induction incorporating beliefs about the buyer's best response function); similarly, $Pr\Big(v \geq (1-a)p_{r=0}^*\Big)$ is the expected probability of purchase when the seller does not approach.

   Therefore, the seller's optimal approach strategy is:

$$r = \begin{cases} 1 & if \;\; Pr(v \geq (1-a)p_{r=1}^* - s)(p_{r=1}^* - c) - Pr(v \geq (1-a)p_{r=0}^*)(p_{r=0}^* - c) \geq e \\ 0 & Otherwise \end{cases}$$

   Now, if refusal costs do not exist, i.e., $s_{bs} = 0 \; \forall$ buyer and seller pairs (b,s), then $p_{r=1}^* = p_{r=0}^*$ and the probability of purchase $B_{gbs}(r=1) = B_{gbs}(r=0) = Pr(v_g \geq (1-a_{bs})p_g^*) \; \forall \; (b,s)$. That is, the optimal price and probability of purchase will not vary depending on the seller's approach. The result that the optimal approach rate is zero follows immediately as the seller has no net gain from approaching, which is costly. That is, the condition for approach $r = 1$ will never be satisfied if $s_{bs} = 0 \; \forall \; (b,s)$. By revealed preference, the reverse implication also holds true, that is, if the approach rate is nonzero, $r^* \neq 0$, then $s_{bs} \neq 0 \; \forall \; (b,s)$.

[36] For ease of notation, subscripts for goods (g) and buyer and seller identity (b and s) are suppressed.

Market equilibrium

The market equilibrium will therefore be characterized by a vector of equilibrium probabilities-Probability of Purchase/Sales B^*_{bs}, and Probability of Approach R^*_{bs} $\forall\{b,s\}$ such that[37]:

$$B^*_{bs} = R^*_{bs}B^*_{bs}(r=1) + (1-R^*_{bs})B^*_{bs}(r=0) \tag{2}$$

That is, the total equilibrium purchasing probability of a buyer group b from a seller of type s is the sum of the rate of approach of the seller weighted by the conditional probability of purchase following approach and the probability of the purchase without the seller approach weighted by the probability of not being approached by the seller. Rewriting this as:

$$B^*_{bs} = B^*_{bs}(r=0) + R^*_{bs}(B^*_{bs}(r=1) - B^*_{bs}(r=0)) \tag{3}$$

we can intuitively see that the sales rate of a seller for a particular buyer group will equal the purchasing rate without approach plus an additional increase in purchasing probability when approaching weighted by the seller's approach probability. Total sales of a seller will therefore equal $\sum_b N_b B^*_{bs}$, where N_b denotes the size of each buyer group.

Expected profits and utility for seller s in equilibrium will be:

$$E[\pi_s] = \sum_b N_b(R^*_{bs}B^*_{bs}(r=1)(p^*_{bs}(r=1)-c) + (1-R^*_{bs})B^*_{bs}(r=0)(p^*_{bs}(r=0)-c)) \tag{4}$$

$$E[V_s] = E[\pi_s] - \sum_b N_b R^*_{bs} e \tag{5}$$

A buyer's realized utility will be:

$$U = \begin{cases} v-(1-a_{bs})p^*_{bs}(r=1) & \text{if } d=1 \;\&\; r=1 \\ v-(1-a_{bs})p^*_{bs}(r=0) & \text{if } d=1 \;\&\; r=0 \\ -s_{bs} & \text{if } d=0 \;\&\; r=1 \\ 0 & \text{if } d=0 \;\&\; r=0 \end{cases}$$

A buyer's ex-ante expected utility will be[38]

$$\begin{aligned} E[U_{bs}] = {} & R^*_{bs}[B^*_{bs}(r=1)(v-(1-a_{bs})p^*_{bs}(r=1)) - (1-B^*_{bs}(r=1))s_{bs}] \\ & + (1-R^*_{bs})[B^*_{bs}(r=0)(v-(1-a_{bs})p^*_{bs}(r=0))] \end{aligned} \tag{6}$$

We can also rewrite this as:

$$\begin{aligned} E[U_{bs}] = {} & B^*_{bs}(r=0)(v-(1-a_{bs})p^*_{bs}(r=0) \\ & + R^*_{bs}[B^*_{bs}(r=1)(v-(1-a_{bs})p^*_{bs}(r=1)) - B^*_{bs}(r=0)(v-(1-a_{bs})p^*_{bs}(r=0)] \\ & - R^*_{bs}(1-B^*_{bs}(r=1))s_{bs} \end{aligned} \tag{7}$$

which helps to illustrate that the expected utility of a buyer can be decomposed as the utility from buying without being approached, plus the utility gain from buying when approached compared to that when not approached weighted by the probability of being approached, less the expected social pressure cost incurred when approached and not buying.

[37] For simplicity, the subscript for goods, g is suppressed here.

[38] As one passerby only interacts with one seller in this model, we do not aggregate over all sellers here.