

# Entrepreneurs of Emotions: Evidence from Street Vending in India

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## Abstract

Street vending is an important source of self-employment for the urban poor. I use primary observation, survey, and experimental data from Delhi to study this market. Partnering with street vendors to randomize both prices and the passersby they solicit to try to make sales, I find that even with identical goods, child vendors are 97% more likely to make a sale and earn more than twice that of adult vendors. Despite no differences in valuation for the goods, couples and female customers are 90% and 28% more likely to buy than male customers. Females and couples are also 50% more likely to be targeted by vendors than males and are charged higher prices on average (4-38%) than males. I show that these findings are consistent with a model that incorporates altruism and a cost of refusal in the buyer's decision-making. I find that passersby are more altruistic towards children than adults in an incentivized dictator game. Additionally, requesting passersby to buy, increases the purchasing probability twofold for adult vendors and fourfold for child vendors. Survey data confirms that vendors target females or couples, over males, because they consider who would find it harder to refuse. The paper demonstrates that sellers leverage insights into consumer social preferences to inform their selling strategies, which can be effective in markets with personal selling.

**Keywords:** Consumer Behavior, Price Discrimination, Social Preferences, Targeting

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# 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).<sup>1</sup> It constitutes an even larger share (12-24%) of the urban informal employment in Sub-Saharan Africa (Roever, 2014). Street vendors are an economically vulnerable population with low and irregular income (Vanek et al., 2012). In developing countries, street vending is also a market with visible child labor (Alem and Laha, 2016; Bhaskaran and Mehta, 2011). Given its ubiquity and importance as a means of self-employment for the urban poor, it is surprising how little we know about buyer-seller interactions and trade in this market.<sup>2</sup> 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, especially on child vendors.<sup>3</sup>

To systematically investigate this market, I first collect observational data on around 400 vendors across major street vending locations in Delhi.<sup>4</sup> During this, I observe nearly 50,000 passersby and seller actions. Notably, in my sample, half of the vendors are children.<sup>5</sup> With over 104 people passing by a vendor in an hour, most of the buyer-seller interactions are brief, one-shot, take-it-or-leave-it offers. Analyzing the transaction data, I find that even with vendors selling similar goods such as pens, masks, balloons, etc., there is variation in the probability of purchase across seller and buyer identity (that is, whether the seller is an adult or child and whether the buyer is female, male, or a male-female pair).<sup>6</sup> Additionally, I observe systematic differences in the prices quoted by child and adult vendors, as well as for different buyer groups, even accounting for location, product, weekend/weekday, and surveyor fixed effects. This is despite there being, on average, 7 sellers in a given location (for the most commonly sold goods by 80% of the vendors).<sup>7</sup> Moreover, these goods are almost identical and often sourced from the same wholesale market. Standard consumer theory, however, would predict that transactions in a competitive market should be unaffected by seller or buyer identity unless there are quality concerns or differences in valuation across buyers.

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<sup>1</sup>A recent article in the New York Times (October 4, 2023) also notes the increasing number of migrants turning to street vending in New York: *Turning to Street Vending, New Migrants Find a Competitive World*.

<sup>2</sup>Most of the existing literature on street vending comes from ethnographic studies based on largely qualitative data with a small sample of vendors (for example, Duneier (2001); Kanigel (2017)) Recent economic studies have focused exclusively on adult vendors with a fixed stall, studying their food safety practices (Daniele et al., 2021), borrowing (Karlan et al., 2019), and profit maximization (Banerjee et al., 2023).

<sup>3</sup>The Informal Economy Monitoring Study on Street Vendors found that less than 25% of vendors in five developing country cities have a fixed stall. The majority instead use a makeshift structure, sit on the ground, or sell on foot (Vanek et al., 2012). Collecting a representative sample of adult vendors from 15 markets, I find that this is also the case in Delhi. They earn 25-50% of that of fixed stall vendors (who represent less than 13% of vendors).

<sup>4</sup>The map in appendix section A.1 shows the 68 locations scouted and the 17 locations chosen.

<sup>5</sup>I focus on the most socio-economically vulnerable vendors - those selling on foot, sitting on the ground, or using makeshift structures like crates. More details on the sampling strategy are given in Section 2.

<sup>6</sup>For the sake of brevity, I will use the term "couple" to refer to a male-female pair henceforth. However, this designation does not intend to impose hetero-normative assumptions but rather reflects a common perception that vendors may hold when encountering a male-female pair in this context.

<sup>7</sup>Across all goods, the average is 5 sellers per good at a location.

I therefore design three additional empirical exercises to investigate these transaction patterns further as they are influenced by the actions of both buyers and sellers. 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 and the price charged (within each hour). I use four commonly sold goods — masks, pens, roses, and balloons — and include both child and adult vendors. Second, to assess buyers' valuation 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 a lab-in-the-field experiment. In this exercise, vendors are shown the unit cost of the goods and report the price they would quote to different buyers (shown in random order).<sup>8</sup>

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%).<sup>9</sup> 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, I use a standard Becker-DeGroot-Marshak incentivized willingness to pay exercise. 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 experimenter. The results are robust to controlling for product, location, time of the day, weekend/weekday, and a surveyor fixed effect, along with passerby characteristics like education and income. Furthermore, there are no statistical differences in the distribution of willingness to pay for each good 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%). They also discriminate more in targeting than adult vendors. They approach females and couples 17-20 percentage points more than males, while adult vendors approach females and couples 6-7 percentage points more than males. This suggests that vendors are aware of and strategically use buyers' predicted reaction functions in their targeting strategy.

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<sup>8</sup>Vendors were informed that their quoted prices for randomly selected five choices would be compared with the actual willingness to pay of passersby (when buying from a vendor like them) collected separately and that they would receive profits for those sales accordingly.

<sup>9</sup>All results are statistically significant at the 5% significance level unless otherwise stated

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. On average, couples face 38% higher prices than those offered to 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.<sup>10</sup> 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<sup>11</sup> that varies by buyer and seller identity.<sup>12</sup> The model illustrates that with homogeneous buyer valuations, we cannot explain the differential purchasing patterns across buyer or seller identity without prosocial motives. It also demonstrates that social preferences create a rationale for sellers to request passersby and to price discriminate even when there are no differences in valuation for goods. Additionally, the model yields two testable predictions for the relevance of both altruism and refusal costs on the buyer's decision-making. First, in the absence of a refusal cost, a seller's request should have no 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 request.

I then empirically test for the existence of altruism and refusal costs, and the findings prove 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.<sup>13</sup> 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;

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<sup>10</sup>These patterns are also qualitatively similar to those seen in the observational data. There, controlling for product, location, time of the day, and day of the week, I find that children quote more than twice the price of adult vendors. Couples are quoted more than 50% of the price quoted to males but this difference is not statistically significant. Females are quoted prices that are 1.6 times that of males and this is statistically significant.

<sup>11</sup>This could be driven by several reasons such as the guilt cost of saying no, or the social or self-image cost of not being perceived as generous. I am unable to distinguish between these and do not take a stance here.

<sup>12</sup>I adapt the model in (DellaVigna et al., 2012) for charitable giving to this setting with prices and sellers.

<sup>13</sup>In the dictator game, I showed profiles involving a standardized photo and age of a child and an adult vendor and a panhandler, and what they sell if vending (in a randomized order holding gender constant).

for males and females the corresponding figure is 1.19 and 1.84 percentage points. Taken together, the findings show that altruism is needed to explain the purchasing differentials across sellers (without a request) and refusal costs are needed to reconcile the purchasing differentials across buyers.

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 majority (70%) report that this is because they consider who would find it the hardest to refuse or would be the easiest to persuade.<sup>14</sup> Moreover, their beliefs about passerby income reinforce that their targeting strategy is influenced more by inferences about social preferences than income disparities, as 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.<sup>15</sup>

This paper makes three key contributions. First, the paper sheds light on the trade in an under-studied, difficult-to-study, yet common, market setting in a developing country context. The recent economic literature on street vending has exclusively focused on adult vendors with fixed stalls, investigating their food safety practices ([Daniele et al., 2021](#)), borrowing ([Karlan et al., 2019](#)), and profit maximization ([Banerjee et al., 2023](#)). This paper overcomes several challenges in data collection when working with the most socio-economically vulnerable vendors, including children, and takes a step towards systematically studying both buyer and seller behavior in street vending.

Second, this paper adds 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 ([Basu and Tzannatos, 2003](#); [Edmonds and Pavcnik, 2005](#); [Edmonds, 2007](#)). Previous economic studies indirectly collect data on children's engagement in work using school dropout rates, time spent on household chores, or on the farm in agricultural markets, following wage or policy changes ([Basu and Tzannatos, 2003](#); [Bau et al., 2020](#); [Edmonds and Pavcnik, 2005](#); [Shah and Steinberg, 2017, 2021](#)). By contrast, I directly observe earnings as children work, mitigating the risks of misreporting, recall bias, and compensation measurement inaccuracies ([Edmonds, 2007](#)). Contrary to popular belief, and in line with the more recent papers surveying the scarce literature on child labor across countries ([Basu and Tzannatos, 2003](#); [Edmonds and Pavcnik, 2005](#); [Edmonds, 2007](#)), I find that the majority of these children also attend school. Going further, partnering with child and adult vendors in the field experiment, I identify a source of comparative advantage for children in this market. It is also remarkable to see that children as young as ten years use learning, reflection, and causal reasoning to devise simple rules of thumb in business strategies. This complements the findings on the mathematical abilities of street children in [Banerjee et al. \(2017\)](#).

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<sup>14</sup>The next most common response is to consider who is kinder.

<sup>15</sup>The most common factor reported is clothing (including accessories such as jewelry) which the vendors use to gauge passerby wealth.

Third, the study yields insights into how prosocial motives influence economic transactions in consumer markets. Previous research has highlighted the significance of altruism, social pressure, and signalling in charitable giving (DellaVigna et al., 2012, 2013; Andreoni et al., 2017; Sharma, 2022) and how social image concerns influence decisions in various domains, including education and investment (Bursztyn and Jensen, 2017). This paper extends our understanding by showing that these factors also affect consumer purchases, complementing the findings of Giaccherini et al. (2019) that social norms, curiosity, and social pressure affect household technology adoption.<sup>16</sup> The findings on perceived differences in prosocial motives across genders are also consistent with recent studies (Babcock et al., 2017; Exley et al., 2022). Notably, this study goes beyond the existing research by showing how prosocial motives may vary by the identity of both participants in a transaction and how perceptive sellers may use insights on consumer social preferences to inform their selling strategies and charge “emotional markups”. It, therefore, also adds to the marketing literature (Misra, 2019; Dube and Rossi, 2019; Simester, 2017) by explaining why personal selling can be an effective sales strategy. These insights may also apply in other marketplaces with non-anonymous exchanges like door-to-door sales, local transport (auto/taxi) markets, corner shops, daily wage or temporary manual labor spot markets, and the Facebook marketplace.

The rest of the paper proceeds as follows. Section 2 describes the context and sample selection. Section 3 outlines the design of all empirical exercises. Section 4 presents the main findings. Section 5 outlines the model, and Section 6 presents empirical results supporting the model. Section 7 evaluates alternative explanations. Section 8 discusses the nomenclature and welfare, and Section 9 concludes.

## 2 Context and Sample Descriptives

### 2.1 Site and Sample Selection

In the absence of a registry of street vendors, locations were selected based on an extensive scouting exercise of the well-known major markets, transit stations, and traffic lights in Delhi, and conversations with NGOs working with vendors or street-connected children.<sup>17</sup> The map in Section A.1 shows all the locations scouted (68 in total) during the study.<sup>18</sup> In total, 17 locations with potential participants who satisfied the selection criteria outlined below were selected.<sup>19</sup>

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<sup>16</sup>In contrast, List (2006) finds that reputation rather than social preferences matter in the US sports cards market.

<sup>17</sup>To understand the local context and sensitivities involved in working with street children, I first conducted interviews with several local NGOs, including Salaam Baalak Trust, Save the Children, Butterfly, Chintan, and Railway Children. To comprehensively understand the policy landscape, I also conducted interviews at the Office of Delhi Commission for Protection of Child Rights, Ministry of Housing and Urban Affairs, along with undertaking focus group discussions with street families. The Ethics Appendix contains a more detailed outline of all protocols to ensure the safety and comfort of all the participants.

<sup>18</sup>A brief description of each location is attached in the online appendix.

<sup>19</sup>Enumerators visited these locations between 11 a.m. and 7 p.m., noting vendor counts and gathering information from local shopkeepers or auto-rickshaw drivers.

All vendors who were mobile, seated on the ground or used makeshift structures, and sold homogeneous goods, were invited to participate. They are socio-economically vulnerable and constitute the majority of vendors in this context and, more broadly, in developing countries.<sup>20</sup> Some examples of goods covered include pens, balloons, roses, tissues, masks, fashion accessories, envelopes, key chains, and showpieces.<sup>21 22</sup> The price of these items typically ranges from Rs 10 – 200 (\$0.13 - 2.6), which constitutes a very small fraction of a passerby's monthly income. 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 and invited every adult and child vendor who met the selection criteria to participate.<sup>23</sup> The refusal rate was less than 4%, so this sample is representative of vendors selling fairly homogeneous goods.

## 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.<sup>24</sup> As these vendors lack a permanent location and frequently move, transactions are also one-shot. 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.

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. Among adult vendors, the majority of them lack any schooling and 52% have more than five years of experience in the market. Adults and children report working 8 and 7 hours, respectively, six days a week.<sup>25</sup> Average daily (gross) earnings are Rs 450 (\$6)<sup>26</sup>, which is 40% of the daily per capita income in Delhi during this period.<sup>27</sup> Although adults report daily gross earnings of Rs 556 (approximately \$7.5) and children of Rs 327 (approximately \$4), the difference in observed hourly revenue is not statistically significant controlling for the product, location, time of day, day of the week when there was no bundling (that is, only one good was sold).<sup>28</sup>

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<sup>20</sup>See footnote 3

<sup>21</sup>Some items excluded in the study were clothing, food, fruit, and vegetables. This is because these vendors fall more into the "market trader" classification category of a street vendor, i.e., they are likely to have stalls, be in fixed locations in markets, and transactions with them are likely to be repeated interactions rather than one-off.

<sup>22</sup>A complete list of the items covered is given in Table A.3.

<sup>23</sup>Child participants were screened based on age (7+ years) to allow for the possibility of comprehension, and parental/guardian consent was sought first.

<sup>24</sup>In nearly 80% of the transactions, the price paid equals the price quoted.

<sup>25</sup>Working hours were collected during intermittent school closures due to COVID-19. Children shifted to work in the evenings and weekends once schools resumed.

<sup>26</sup>Based on the average exchange rate in 2021 (taken from <https://www.exchangerates.org.uk/>).

<sup>27</sup>Based on Delhi Economic Survey 2021 referenced in *The Indian Express* and *The New Indian Express*.

<sup>28</sup>See Table A.9 Columns 5 and 6.

Table 1: Summary Statistics

	<b>Child</b>	<b>Adult</b>
<i>Panel A: Collected during the Observational Study</i>		
<b>Demographics</b>		
Age	11.24	34.02
Female	0.52	0.35
<b>Experience</b>		
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
<i>Panel B: Collected during the Lab-in-the-Field Experiment</i>		
<b>Schooling</b>		
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
<b>Financial</b>		
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). The sample is representative of all vendors selling homogeneous goods on foot or using makeshift structures. See Section 2 for details on sampling.

### 3 Study Design

I now describe each study component in detail. Table 2 summarizes all study components and their objective. 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 and since vendors may not wish to participate in all the study components.<sup>29</sup> For the field experiment, only vendors in markets and transit stations (and not traffic lights) were invited to partner with us, given the safety, logistical, and design-related elements (discussed below). Passerby surveys were also conducted in the same locations as the field experiment.

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<sup>29</sup>Participants were also allowed to maintain anonymity if they wished, and in all such instances (which were few), it was easy to avoid double counting given that every effort was made to have the same research team members visit a given location across multiple visits.

### 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, and objective, data on buyer-seller interactions. In particular, we recorded seller actions, the observable characteristics of passersby<sup>30</sup> along with the price quoted, passerby reaction, whether a sale was made, and, if so, the number of goods sold and the price paid. The observational study tool and protocol were developed after extensive piloting, iterating, and enumerator training to ensure all the important and common variations in seller and passerby reactions were captured. Section D.3 in the Appendix illustrates the protocol for coding behavior. 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.<sup>31 32</sup>

**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 A.1 provides summary statistics for 399 vendors who consented to participate. Table A.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 with each participant was the inability to find them on subsequent visits rather than refusals to participate.<sup>33</sup> Table A.4 shows that there is no difference in characteristics among those vendors by participation rounds.

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<sup>30</sup>A passerby was defined as anyone who is walking in the direction of the seller within 15-20 feet away (or as far as the seller could see to make their decisions if it was crowded). See D.3 for more details.

<sup>31</sup>The survey tools of the main study are given in the Survey Instruments Appendix.

<sup>32</sup>It was not possible to record any interactions through photography or audio recording given ethical concerns around the inclusion of children in recorded media.

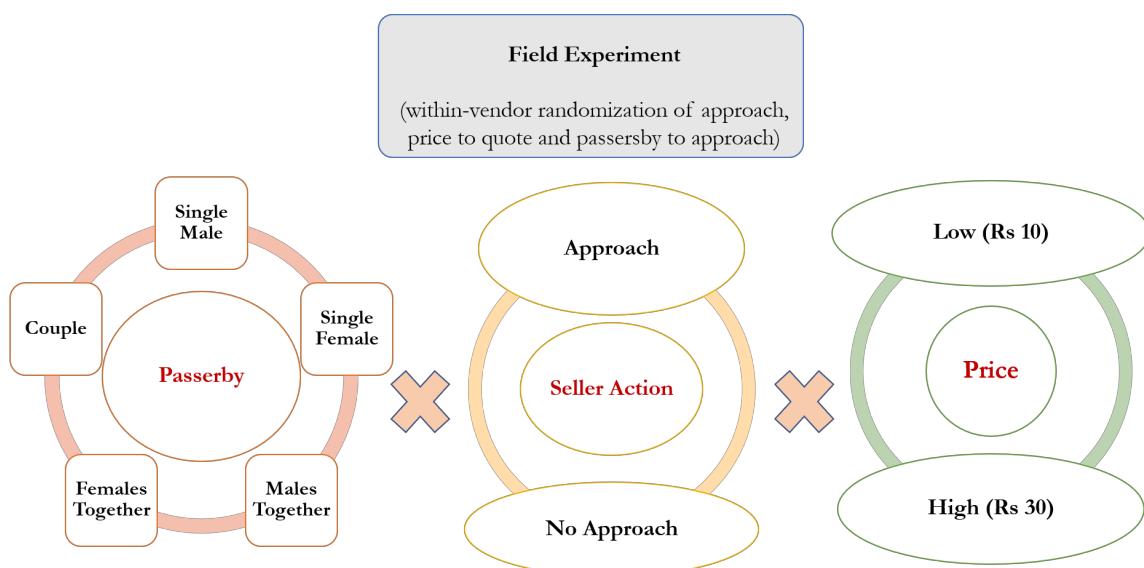
<sup>33</sup>We were often informed by other vendors that the individuals had gone back to their village, or were away temporarily.

## 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  $5 \times 2 \times 2$  experimental design illustrated in Figure 1. A partnering vendor would go through each of the combinations (formed by the  $5 \times 2 \times 2$  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 closely mimics the natural way of approach by street vendors. The vendor was instructed to use the second statement ('Please buy it brother/sister') two times and to not say anything else, negotiate, or make any other gesture. The vendor practiced the script with the surveyors before partnering with us.

### 3.2.3 Implementation Details

**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 A.3).<sup>34</sup>

**Sample:** Given safety concerns and feasibility, 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 the same item or agreeing to sell the same items.<sup>35</sup> There is no statistical difference in the average earnings for child and adult vendors across the locations that were included in the experiment, and those included in the observational and lab-in-the-field experiment but not included in the field experiment.<sup>36</sup>

**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 where these observations were conducted were kept the same across child and adult vendors to ensure that they faced similar working environments. Table A.7 gives the summary statistics for participating vendors. Tables A.8 and A.9 show balance in observations across child and adult vendors, and passerby groups, respectively.

**Fidelity:** For facilitating the implementation of the randomization and ensuring fidelity, a surveyor stood next to the vendor and depending on the randomly picked buyer category, action ('Approach' or 'Not'), and price to quote ('Low' or 'High') shown at each instance, the surveyor informed the vendor to approach or do nothing, what price to quote for that interval, and if approaching, which particular buyer (belonging to the category randomly chosen) to request. Surveyors stood close by and noted the reaction of the buyer and whether they purchased the goods. Surveyors always picked the buyer that was the closest to the participant in terms of the physical distance, i.e. the next buyer from that category who is walking in the direction of the vendor, in terms of whom to record the behavior of and/or ask the vendor to approach or not. Therefore, at any instance, the surveyors (and not the vendor) selected which passerby group or whom vendors approached in line with the randomization and protocol for picking a buyer from a given category. The surveyor also monitored that the participant followed the script correctly, and noted and corrected any deviations from the script if they occurred. Section D in the appendix gives a more detailed step-by-step outline and protocols for the conduct of the field experiment.

<sup>34</sup>For consistency, these goods are also used in the passerby survey for incentivized elicitation of willingness to pay and lab-in-the-field experiment for eliciting pricing strategy.

<sup>35</sup>The Ethics Appendix of the study details the logistical details of the recruitment procedure in greater detail.

<sup>36</sup>Since there was a time lapse between the observational and lab-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.

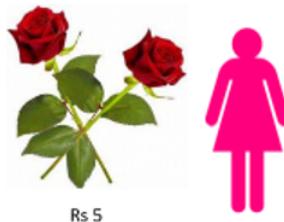
**Unobtrusive and Inconspicuous Experimentation:** Given that the markets and transit stations are busy, crowded places, the fact that the surveyor stood next to the vendor and monitored every interaction did not stand out or seem odd to passersby. Further, all surveys were collected via a mobile phone 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 ordinary 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 prices for randomly selected five choices would be compared with the willingness to pay to a seller like them for each buyer group and that if their price was the one that the buyer would, on average, be willing to buy at, then they would make the trade, and receive their quoted price less cost of the good for that five choices.<sup>37</sup> Additionally, to compare the magnitudes of price discrimination across passerby groups to the price discrimination by the wealth status of the buyer, the survey included four unincentivized questions (in randomized order) asking what price the vendor would quote when selling a mask to a "rich" or "poor", "single male" or "single female" passerby.

<sup>37</sup>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'.*

Lastly, vendors were also asked a few questions about their daily earnings, along with their beliefs about which passerby groups were kinder and found it harder to say no. Figure D.1 summarizes the structure of this lab-in-the-field exercise. Table A.10 shows the summary statistics for the participating 307 vendors. The refusal rate was 3.2% and therefore the sample should be considered representative of vendors selling homogeneous goods (as the observational study).

### 3.4 Passerby Survey

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.

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. 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).<sup>38</sup> 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.<sup>39</sup> 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.

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. 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 D 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 A.11 gives the summary statistics for the participant demographics.

<sup>38</sup>These photos were collected in a standardized way; enumerators captured a passport-sized image, and these profiles were collated with the full informed consent of the vendors and panhandlers of how they will be used in this survey.

<sup>39</sup>All participants were randomized to either see all male profiles or all female profiles to hold the gender of recipients constant within the participant. This ensures balance across genders in the profiles shown by construction and 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)
<b>Observational Study:</b> 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
<b>Field experiment:</b> 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
<b>Lab-in-field Experiment:</b> 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
<b>Passerby Survey:</b> 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

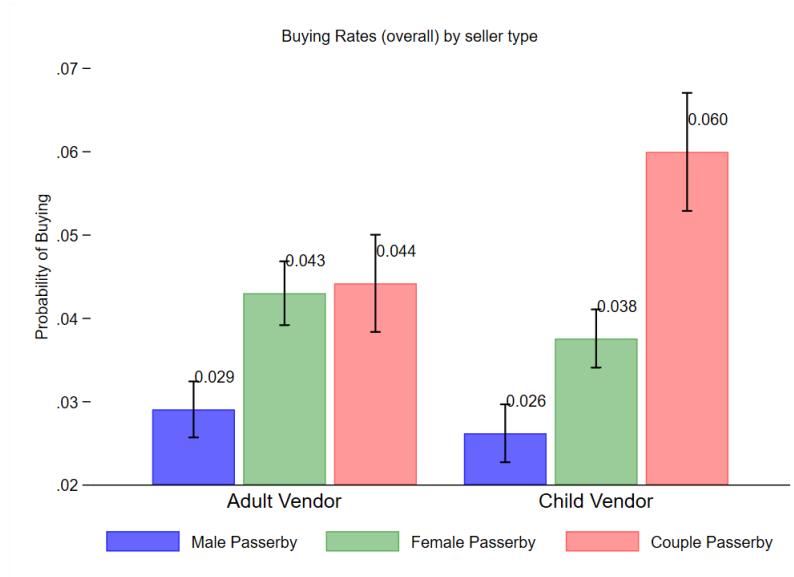
## 4 Main Findings

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 look at seller strategy: their targeting in observational study and their pricing decisions in the lab-in-the-field pricing experiment.

### 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. The differences in purchasing probability are robust to controlling for a product, location type, weekday/weekend, time of the day, and surveyor fixed effect (Table B.1).

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



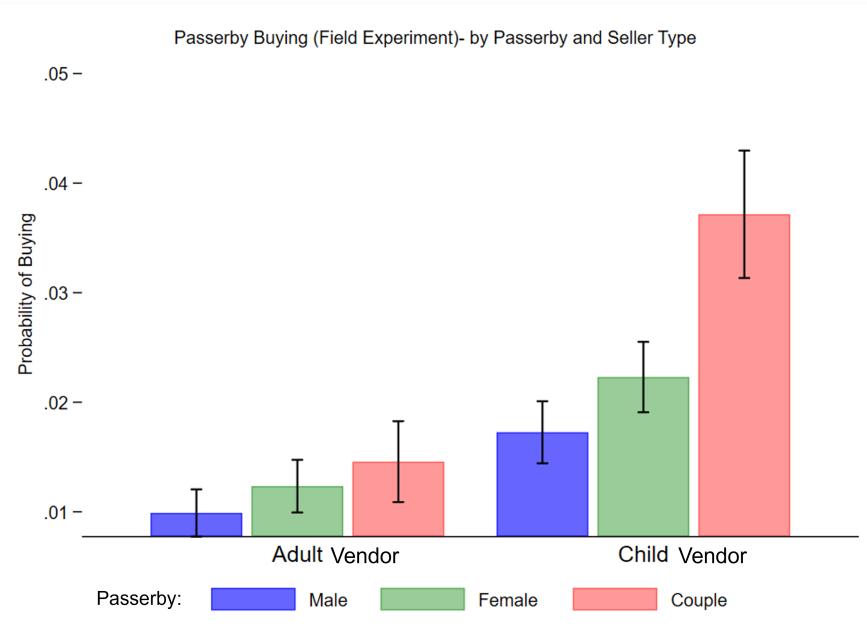
Note: The figure plots the purchase rates by passersby category and the type of vendor. The figure pools passersby categories *single female* and *females together*, and *single male* and *males together* respectively.

These differential purchasing 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). As Table B.2 Column 1 shows, 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%).<sup>40</sup> On average, females are also around 28% more likely to purchase than males (statistically significant at the 10% significance level). This pattern is

<sup>40</sup>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.

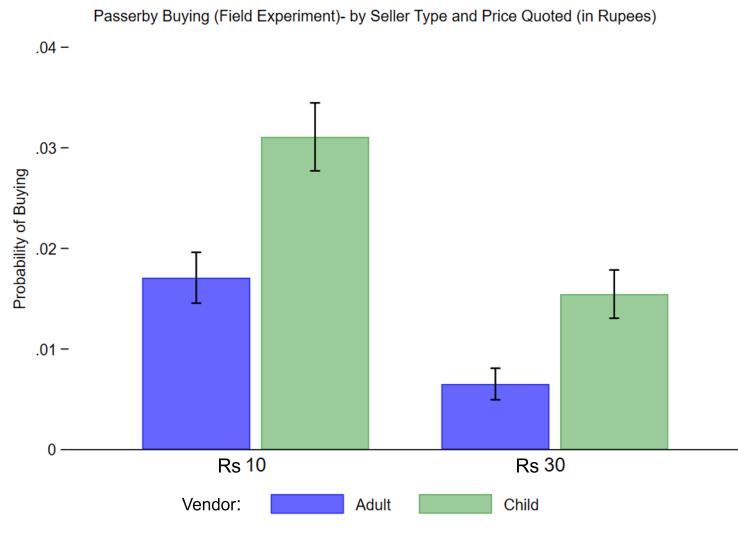
robust across products, time of the day, location type, and whether we consider a weekend or a weekday. Furthermore, Figure 5 shows that the demand curve that a child vendor faces is shifted to the right compared to that of an adult vendor; that is, a child vendor has a higher probability of a sale compared to the adult vendor, holding all else equal.

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



Note: The figure plots the purchase rates by passerby category and the type of vendor. The figure pools passerby categories *single female* and *females together*, and *single male* and *males together* respectively.

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



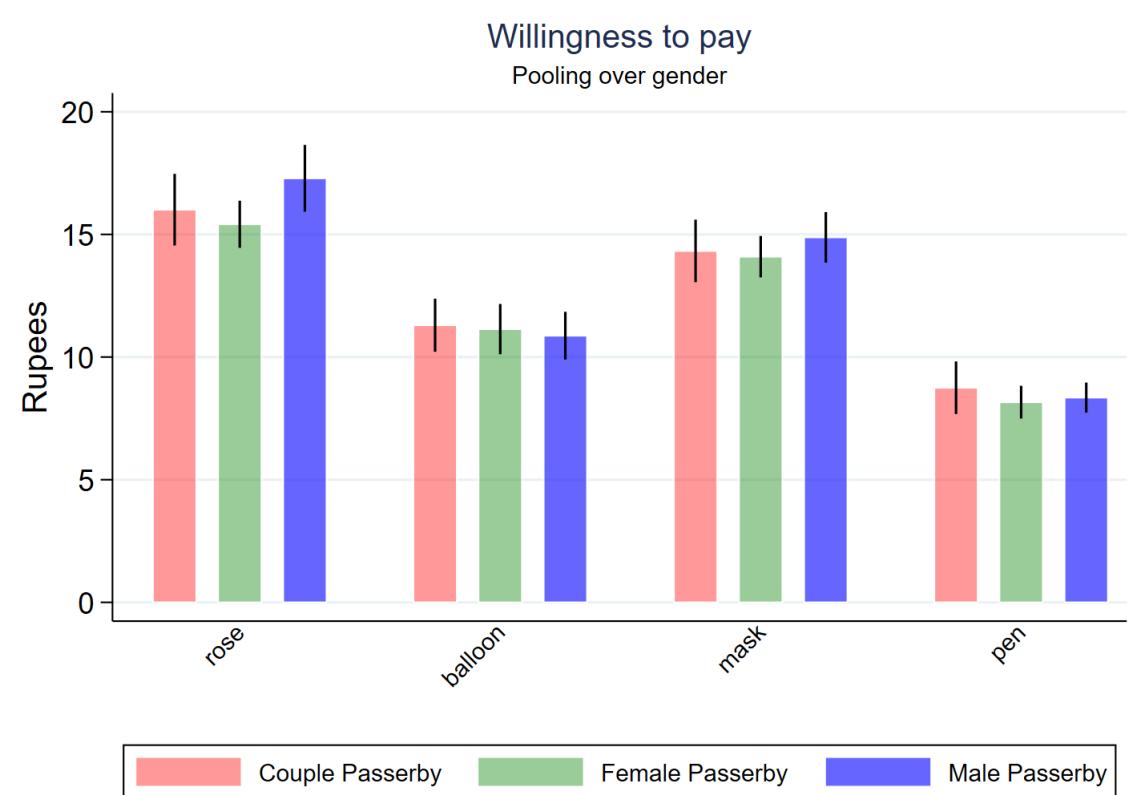
Note: The figure shows purchase rates by type of vendor for the two prices (Rs 10 and Rs 30) used in the field experiment. The figure pools over the passerby categories and whether or not the seller approached.

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 B.3). The field experiment shows that holding everything else constant, children have a comparative advantage in this market.<sup>41</sup>

## 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.

<sup>41</sup>This gap in earnings across child and adult vendors is, however, not visible in the observational study (Table A.9) or reported earnings (Table 1). This can be explained by the fact that adult vendors work an hour and a half longer on average, typically carry and bring greater inventory to the market, and I also see some evidence of sorting across children and adults in the type of goods sold. For example, adults are relatively more likely to sell books, bamboo plants, and car accessories (e.g. mats), which are heavier, and higher-priced goods. Additionally, the difference in recorded hourly earnings during observation and the field experiment could be explained by the differences in the exact spots where vendors were selling within a given location or how persistent they were in trying to sell, which are two other factors that were not controlled during observation. Therefore, while the field experiment establishes that children have a comparative advantage in this market, observational data shows us that they do not have an absolute advantage.

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.<sup>42</sup>

Table 3: Willingness to Pay

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Couple Passerby	-0.252 (0.516)	-0.252 (0.516)	-0.264 (0.526)	-0.325 (0.524)	-0.317 (0.527)	-0.331 (0.524)	-0.354 (0.557)
Female Passerby	-0.587 (0.433)	-0.587 (0.433)	-0.586 (0.432)	-0.549 (0.428)	-0.540 (0.429)	-0.532 (0.430)	-0.711 (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. 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 fixed effect when comparing across passerby groups. Standard Errors are clustered at the passerby level.

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.

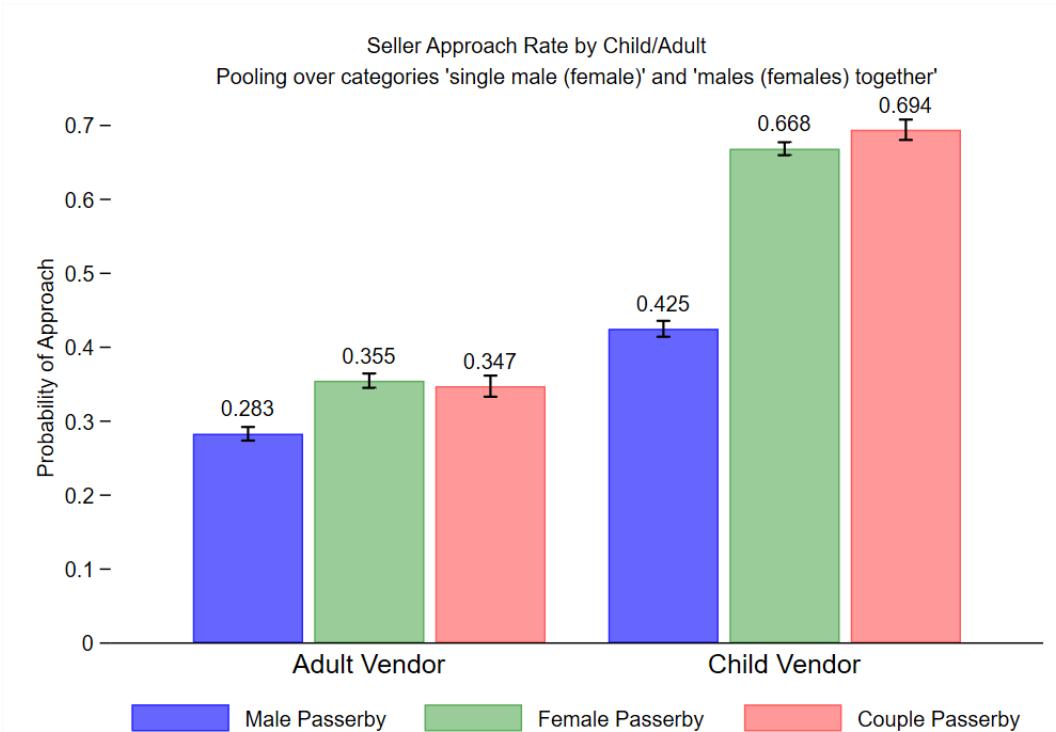
### 4.3 Seller Targeting

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 B.4 shows that vendors approach 43% of passersby and child vendors approach 20 percentage points more than adult vendors (Column 3). Table B.4 Column 6 and Figure A.5 show that females and couples are 40% more

<sup>42</sup>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.

likely to be approached on average than males and that there is little difference across single male/female versus males/females together, respectively (Figure A.5 and Table A.1). Further, child vendors are around 20 percentage points more likely to approach females and couples than adult vendors (Column 9, Table B.4). 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. “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 observed approach rate for each passerby 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, while the remaining did not exhibit a difference in approach rates across passerby groups (Figure B.9). Child vendors are even more likely to have their most approached buyer as couples (56%) compared to adult vendors (33%) (Figure B.9). Furthermore, computing the range of observed approach rates across different passerby groups for each vendor, which acts as a proxy for the extent of targeting or seller discrimination in approach, we can see that children on average are likely to exhibit greater differential targeting than adult vendors (Figure B.8). 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 (0.21)	19.05 (0.36)	14.88 (0.22)	9.01 (0.22)	89.17 (0.74)	28.54 (0.38)
Markup	8.86 (0.21)	14.05 (0.36)	9.88 (0.22)	7.01 (0.22)	39.17 (0.74)	15.77 (0.22)
Markup/Cost	4.43 (0.10)	2.81 (0.07)	1.98 (0.04)	3.51 (0.11)	0.78 (0.01)	2.70 (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).<sup>43</sup> 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).

<sup>43</sup>The price charged to males (base category) is captured by the constant.

Table 6: Price Quoted

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Child Vendor	4.015*** (0.888)	3.413*** (0.907)				3.560*** (0.831)	2.909*** (0.844)	
Female Passerby			0.366 (0.240)	0.350 (0.237)	0.356 (0.242)	0.165 (0.256)	0.098 (0.253)	0.091 (0.258)
Couple Passerby			3.005*** (0.518)	2.957*** (0.512)	2.933*** (0.505)	2.220*** (0.417)	2.147*** (0.417)	2.169*** (0.424)
Female Passerby × Child Vendor						0.385 (0.470)	0.482 (0.466)	0.510 (0.475)
Couple Passerby × Child Vendor						1.500 (1.004)	1.550 (0.992)	1.465 (0.982)
Constant	26.451*** (0.474)	7.574*** (1.017)	27.794*** (0.433)	7.858*** (1.067)	2.780*** (0.430)	25.941*** (0.459)	7.106*** (1.038)	2.975*** (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.

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 (Table A.7).<sup>44</sup> Consistent with this, Figure B.11 in the Appendix shows that 53% of vendors charged the highest average price (across all goods) to a couple, while 24% to females and the rest 23% to males. The pattern was similar for child and adult vendors. Looking at the standard deviation and the range of average price charged across passerby groups (Figure B.10), we can also see that for child vendors both values are two times that of adult vendors further illustrating that children price discriminate across passerby types much more.

## 5 Model

### 5.1 Setup

I use a simple model to illustrate decision-making in street vending. There are two types of agents – street vendors (sellers henceforth) and passersby (buyers henceforth) – who interact as follows.

<sup>44</sup>I compare these results with the price quoted in the observational study when analyzing seller strategy rather than 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, it is important to note that recorded pricing data in the observational study is comparatively 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 A.9 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).

## Timing

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

For simplicity, I assume that one buyer interacts with only one seller at a time. The interaction is one-shot, as is characteristic of many of these transactions. I allow for buyers to have social preferences denoted by an altruism parameter  $a \in [0, 1]$  and a cost of refusal  $s$  which can vary by buyer and seller identity.<sup>45</sup> <sup>46</sup> Setting these parameters to zero allows comparison with the standard consumer demand model.

## 5.2 Buyers

The utility of a buyer is:

$$U = \begin{cases} v - p + ap & \text{if } d = 1 \\ -s & \text{if } d = 0 \& r = 1 \\ 0 & \text{if } d = 0 \& r = 0 \end{cases} \quad (1)$$

Buyer's valuation  $v \in [0, \bar{v}]$  is drawn from a continuous distribution:  $v \sim F(v)$ .  $s$  is the refusal cost that the buyer faces when saying no to a seller when a request is made ( $r = 1$ ). I assume that the marginal utility for the good  $v$  and the price  $p$  enters linearly in the utility function. This is a reasonable assumption as the goods sold by street vendors are cheap, bought individually, and typically constitute a small component of a passerby's income. As in the standard consumer demand theory, the marginal utility of the good is independent of the seller's identity, assumed to be known by the buyers, and does not vary by buyer type.<sup>47</sup>

## 5.3 Sellers

A seller makes a profit of  $p - c$  if there is a sale (where  $c$  is the unit cost of the good). Additionally, if the seller approaches the buyer first, the seller pays an effort cost,  $e \sim E(e)$ , of moving physically towards the buyer and/or calling out to the buyer. Sellers take buyer preferences as given and seek to maximize their utility by choosing whether to request a buyer to buy and the price to charge. In doing so, they use their inferences about the buyer's purchase probability based on their gender and who they are traveling with, and trade-off against the possibility that the buyer will purchase when not approached.

<sup>45</sup>I do not take a stance about whether the refusal cost is due to self-signalling, other-signalling, or guilt. Similarly, I do not aim to distinguish between impure and pure altruism.

<sup>46</sup>I extend the model used by (DellaVigna et al., 2012) for studying charitable giving. Social preferences do not vary by the identity of the solicitor and therefore there are no predictions for solicitor strategy in their model.

<sup>47</sup>The latter two assumptions are also empirically grounded as the goods in question are homogeneous items and I show in Section 4, that there are no valuation differences across passerby groups.

## 5.4 Equilibrium

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.<sup>48</sup> Figure 8 depicts the interaction in an extensive form.

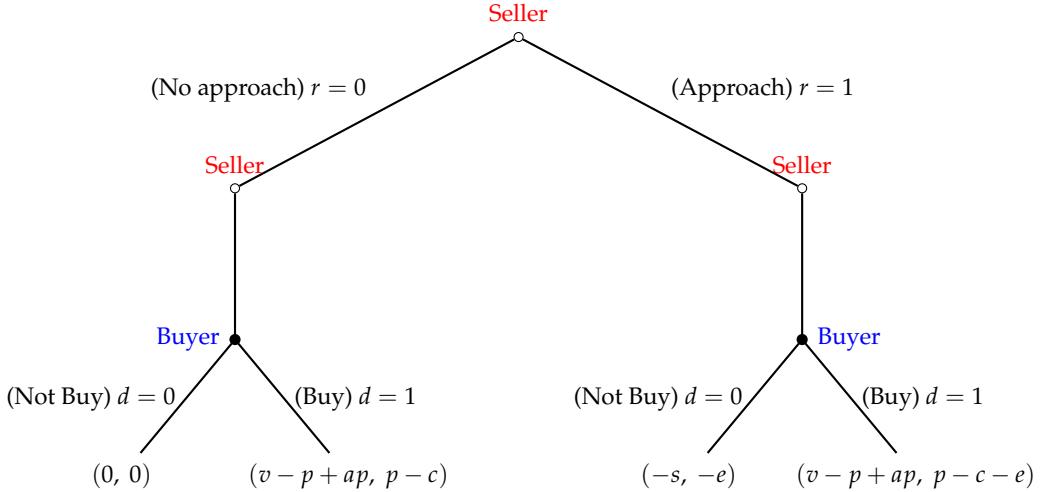


Figure 8: Extensive Form of the Game (Model)

### 5.4.1 Buyer Strategy

It is worth noting that this model implies that demand is weakly increasing in altruism, the cost of refusal and seller's request, along with the standard consumer theory prediction that demand is decreasing in price. All formal statements and proofs are in the Theoretical Appendix Section B. The following proposition yields testable implications for the probability of buying in this model compared to that of standard consumer demand theory.

**Proposition 1** (Testable Implications on Purchasing Behavior). *Testable implications of the model allowing for altruism and a refusal cost relative to the standard consumer demand theory are:*

1. *If social preferences do not matter, purchasing rates should not differ by seller or buyer identity. By reverse implication, if purchasing rates differ across buyer groups and seller identity, social preferences matter in decision-making.*
2. *If consumers do not face a cost of refusal, purchasing rates should not differ depending on whether the buyer was approached, and vice versa.*
3. *If altruism does not matter, purchasing rates should not vary across buyer or seller identity when the seller does not approach. By reverse implication, if purchasing rates differ across buyer groups and seller identity without seller approach, altruism matters in decision-making.*

<sup>48</sup>Note that since the uninformed party (seller) moves first here, there are no restrictions on beliefs of vendors i.e. Bayes' Rule does not impose any restrictions on beliefs in this game. Sequential rationality however means that seller strategy should be consistent with their prior beliefs.

The proposition yields an intuitive empirical test for the role of social preferences in purchasing behavior – namely, whether purchasing rates by buyer or seller identity. While part (1) of the proposition helps us reconcile the purchasing probability differentials seen in the observational study and the field experiment, parts (2) and (3) of the proposition allow us to empirically test for the existence of altruism and refusal costs playing a role in the buyer’s decision-making. In particular, examining whether purchase rates vary by a seller’s approach yields a simple test for the existence of a refusal cost, and whether they differ without a seller’s approach yields a test for altruism affecting a buyer’s decision-making.

#### 5.4.2 Seller Strategy

Seller strategy has two components – pricing and approach. The following proposition characterizes the testable implication of this model on seller strategy.<sup>49</sup>

**Proposition 2** (Testable Implications on Pricing and Seller Approach). *Testable implications of the model on seller strategy are:*

1. *If social preferences do not play a role in buyer decision-making, then prices should not differ by buyer or seller identity. By reverse implication, if prices differ by buyer or seller identity, then social preferences matter in decision-making.*
2. *If social preferences do not play a role in buyer decision-making, then sellers will not find it optimal to approach at all. By reverse implication, if the seller approach rate is non-zero, then social preferences matter in decision-making.*

The proposition yields two simple empirical tests for the role of social preferences in purchasing behavior – whether sellers approach buyers, and if prices vary by buyer or seller identity. 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, and the purchasing probability would not differ by the seller’s approach strategy. This in turn means that sellers will not find it optimal to approach buyers as approaching is costly if social preferences did not matter. The model, therefore, 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

The model assumes the existence of altruism and a refusal cost that affects passerby decisions, and that these differ by buyer or seller identity. I now empirically test these assumptions and outline below three findings that show social preferences are key drivers of the transaction patterns we observe.

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<sup>49</sup>To close the model, Section B in the Theoretical Appendix derives the market equilibrium. Additionally, I also discuss how a vendor may practically learn who to approach using the framework in Reinforcement Learning in Theoretical Appendix Section C.

## 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 Column 7), controlling for passerby characteristics.<sup>50</sup> 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 which suggests that the differential patterns of purchases across passersby might be driven by differential refusal costs instead. 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 10).

Table 7: Donations in Dictator Game (Overall)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Child	5.17*** (0.93)	5.31*** (0.97)	5.17*** (1.07)			6.81*** (1.56)	6.97*** (1.63)	6.81*** (1.79)
Couple Passerby				-5.77* (3.47)	-5.64 (3.56)	-3.83 (3.55)	-3.58 (3.62)	
Female Passerby				-5.63** (2.86)	-4.56 (3.00)	-4.51 (2.92)	-3.47 (3.06)	
Child × Couple Passerby						-3.87 (2.51)	-4.11 (2.62)	-3.87 (2.88)
Child × Female Passerby						-2.23 (2.09)	-2.19 (2.19)	-2.23 (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

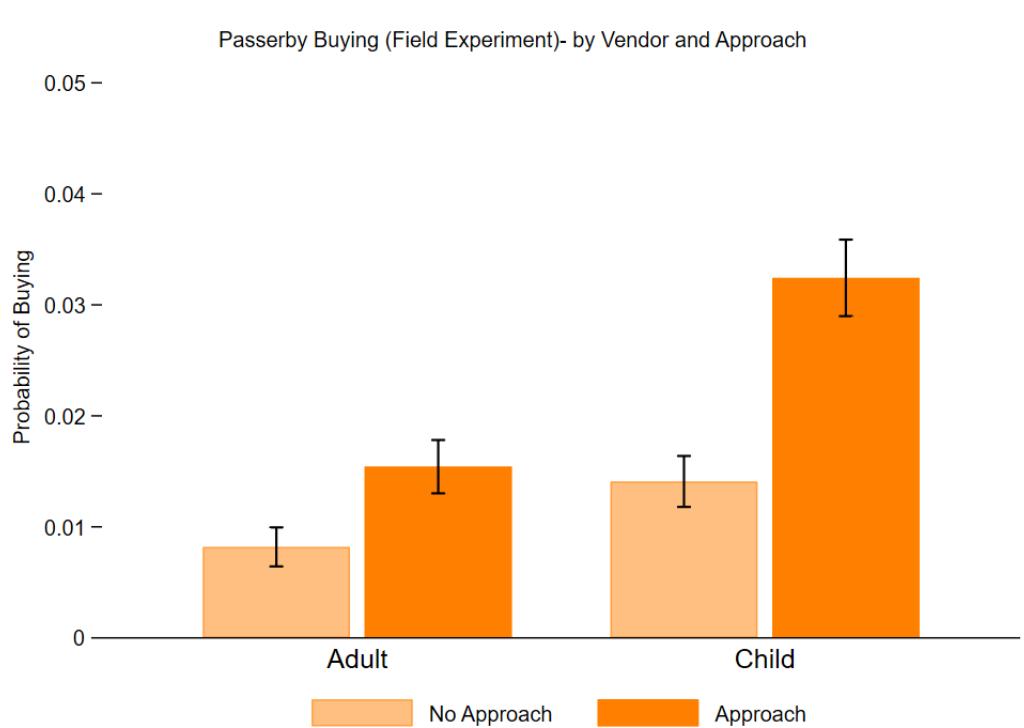
Note: The outcome is the amount donated (out of Rs 100) in the Dictator Game. Columns 1-3 compare the donations made to a child recipient compared to an adult recipient (controlling for whether they are a panhandler or vendor). Columns 4-5 compare donations made by females and couples to that of males.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

<sup>50</sup>These results are robust even when we restrict ourselves to looking at profiles with recipients who are vendors and exclude those who are panhandlers. Results are available upon request.

## 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 9 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 B.5 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 B.12 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 9: Buying Rates by Type of Seller and Approach - Field Experiment



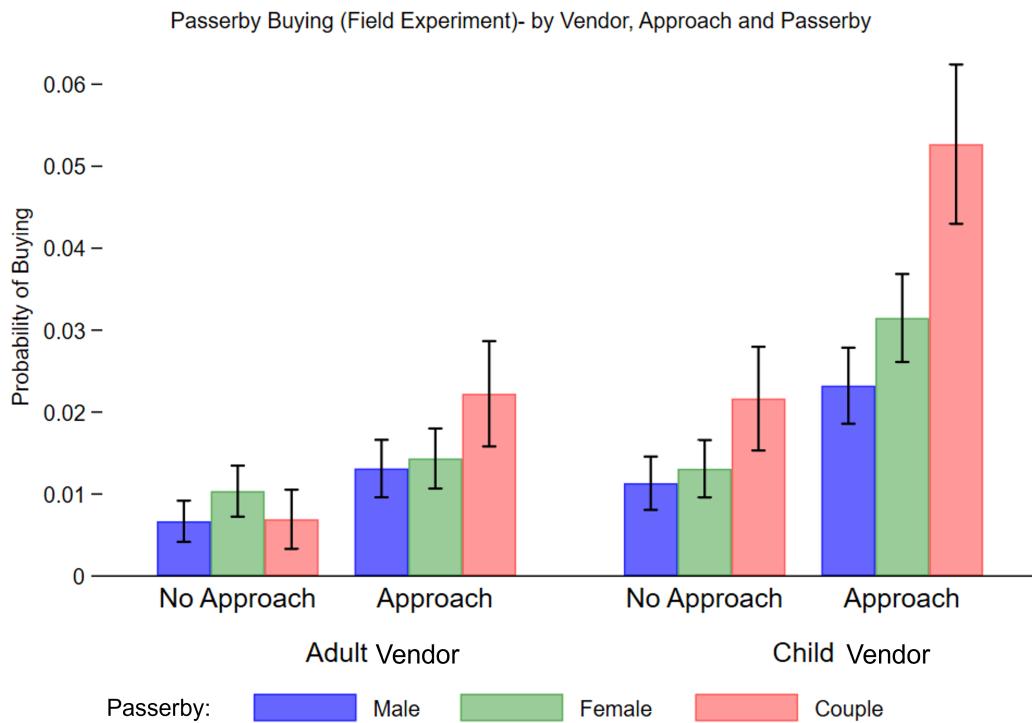
Note: The figure shows purchase rates by the type of vendor and seller approach. "Approach" involves a verbal request using the script outlined in the text.

Figures 9 and 10 also confirm that passersby are differentially responsive to a seller's request. Figure 9 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 B.5 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 10 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 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.<sup>51</sup>

<sup>51</sup>Can be computed using the coefficients in Column 7 in Table B.5.

Figure 10 also helps illustrate that without the seller approach, we do not see a statistically significant difference (using a 95% confidence interval) in purchasing rates across buyers, particularly when facing an adult vendor.<sup>52</sup> Thus, refusal costs across buyers are needed to help reconcile the differences we see across purchasing probability by passerby categories (as seen in Figure 3). I also argue 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 10: 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). “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 B.13 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

<sup>52</sup>Table B.5 Columns 7-9 show that if we cluster standard errors at the vendor level, the buying difference without seller approach between females and males when facing an adult vendor, and between couples and males when facing a child vendor, becomes statistically significant at the 5% significant level. However, the broad conclusion that we cannot explain all the patterns of purchasing differentials across buyers (as seen in Figure 3) – for instance, the purchasing difference between couples and males when facing an adult vendor – without the seller approach continues to hold.

choice (Figure B.14). 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 B.15). By contrast, only around 5% mention that they consider clothing and looks in addition as an indicator of income.

Similarly, based on an open-ended question about all the factors that vendors take into account when determining pricing, Figure B.16 shows that gender is the second most commonly reported factor.<sup>53</sup> Additionally, we see that children are also more likely to take into account who is accompanying the passerby. Consistent with this in Table B.1, 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 C.2 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 B.20, 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, I argue that this cannot be the whole explanation either.

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<sup>53</sup>Vendors also commonly report taking into account passerby clothing (especially accessories such as jewelry) to gauge passerby wealth when making pricing decisions. In line with this, when vendors were asked (unincentivized) to price a mask for a rich or poor woman or man, Table B.2 shows that wealth also plays an important role in affecting price discrimination and child vendors continue to price discriminate more than adult vendors.

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 B.21 shows that, on average, nearly 90% of people think that buying from children or giving money to those who buy or sell 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.

Quality concerns, in general, are also not first order here as the consumer can easily see and/or readily test the quality of the product at the point of purchase. Figure B.24 gives the photos of the goods used in the experiment. Additionally, in the passerby survey, when noting down reasons that people gave for their support or lack thereof for buying from vendors, 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 of buying from vendors).<sup>54</sup> 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

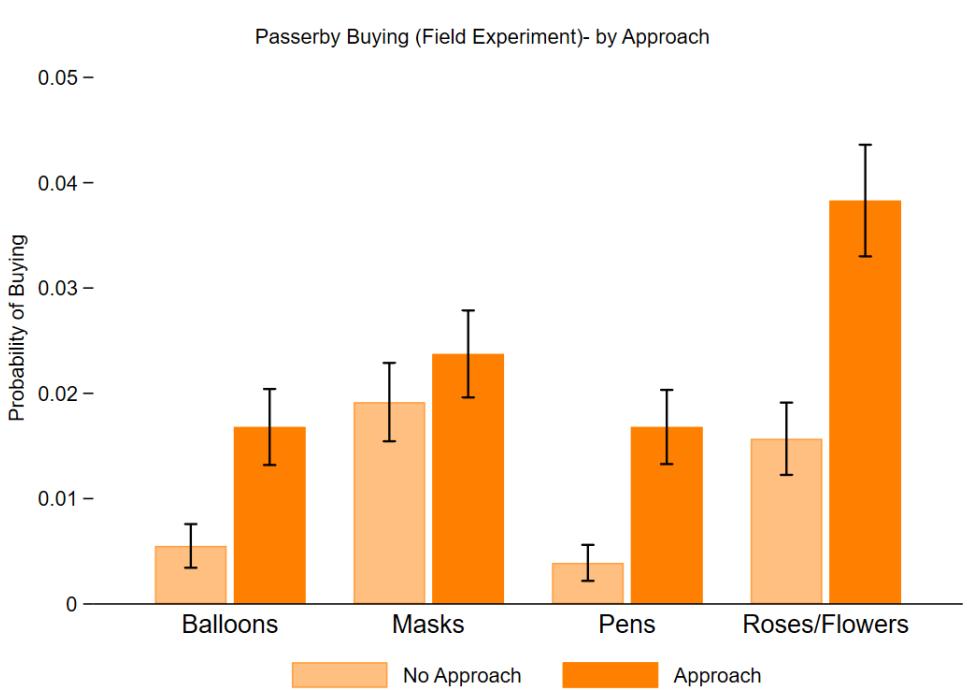
An alternative explanation for the rise in purchase rates following the seller approach could theoretically be that it grabs a passerby's attention. In a setting where passersby are commuting, or in a crowded setting like street markets, one might naturally wonder whether a seller's

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<sup>54</sup>See Figure B.23 for word clouds summarizing quotes from the passerby survey

approach increases sales by making the product more noticeable rather than through social pressure. However, I show in Figure 11 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 9 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 11: 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.<sup>55</sup> 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 A.8). Second, given the types of goods included in the study, these purchases reflect impulse buys and not goods a passerby would typically go to a market searching for. For instance, one would typically go to a stationary shop to buy a pen rather than a street market. Third, search costs also cannot help explain passerby differences in purchasing conditional on approach that we see in the case of child vendors (Figure 9), 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 B.22).

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 B.22 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

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<sup>55</sup>The solution of a theoretical model incorporating search costs is available upon request.

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 B.22 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 C.2 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 Nomenclature of Emotions

While several emotions can be invoked in the passerby as they interact with a vendor, the model uses the labels 'altruism' and a 'refusal cost' to stay consistent with the recent literature in behavioral economics that uses this terminology when examining charitable giving ([DellaVigna et al., 2012, 2013](#)). We could, however, relabel altruism to feelings of generosity, sympathy, pity, or compassion, and similarly relabel refusal cost as a guilt cost, a social pressure cost from self or social signaling, without altering the implications of the model.

### 8.2 Unpacking Further: Motives for Prosocial Behavior

Neither the theoretical model nor empirical results seek to distinguish further between the motives underlying altruism or the refusal cost. In particular, the paper is unable to pinpoint whether altruism in this context is due to a warm glow or pure altruism ([Andreoni, 1990](#); [Ottoni-Wilhelm et al., 2017](#)), or if the refusal cost is due to social pressure from self- or social-signaling ([Bénabou and Tirole, 2006](#); [Bursztyn and Jensen, 2017](#)) or a guilt cost. However, there is suggestive evidence to support the existence of some warm glow from the passerby survey. In particular, we find that even though most people think that giving money to children would encourage child labor (Figure B.21), they are, nonetheless, 7 percentage points (10% compared to the average) more likely to donate to a child working on the street than an adult in an incentivized dictator game and they donate 16% more to children than adults (Tables 7 and Table C.1). Similarly, we also have suggestive evidence that social signaling matters here as we do see a difference in purchasing behavior by seller identity and who is accompanying

the buyer. More specifically, we see the highest purchasing rates for couples who have the strongest signaling incentives and these are higher than the buying rates for females together or males together. Similarly, we see that it matters who is making the request which suggests a role for social pressure from signaling in forming part of the refusal cost – child vendors see higher purchasing rates than adults (Table D).

### 8.3 Welfare Considerations

While this paper does not take a normative stance on whether consumer emotions 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, these emotional responses make it possible for vendors to charge a markup and survive despite competition. 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, given that we see differences in the markups and strategic targeting of some passerby groups, the incidence of the burden of payment falls unevenly across groups of individuals. 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.<sup>56</sup>

Table 8: Hourly Earnings by Vendor Type - Field Experiment

	(1)	(2)	(3)	(4)	(5)
Child	8.635*** (2.078)	8.671*** (1.700)	8.694*** (1.614)	8.723*** (1.657)	8.724*** (1.658)
Constant	7.122*** (1.144)	1.559 (1.528)	3.023* (1.660)	1.046 (2.074)	1.152 (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.

When thinking about policy design, it is, however, very important to take into account children's outside options for earnings, which are begging and rag-picking in this context. Based on a survey with 217 street-connected children (that I undertook before the start of this study on street vending), I found that 4% engaged in rag picking, 17% in begging, and 79% in vend-

<sup>56</sup>Anecdotally, based on several of my conversations with parents/guardians of many street children and local NGOs, it is difficult to assess if parents are altruistic but financially forced to have their children work, or whether selfish motives explain the involvement of children in street work.

ing. Daily earnings for children were much lower in these other occupations compared to street vending even with longer working hours and much more hazardous conditions.<sup>57</sup> My conversations with NGOs, stakeholders, and many street-connected families, together with passersby, strongly echo that street vending is perceived to be relatively more dignified and humane than panhandling and rag-picking. Therefore, a blanket ban on children's involvement in street vending could inadvertently worsen their overall outcomes, as suggested by early theoretical studies on child labor as well (for example, [Basu and Tzannatos \(2003\)](#)).

Moreover, as noted in Section 2, most of these children continue to attend school (which is free), making the policy landscape even more intricate. Simple solutions such as providing (conditional) cash transfers therefore may not be effective. Finally, it is also paramount to consider how children feel about their work and autonomy. While surveying them, 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. Therefore, understanding and addressing these complexities is crucial for informed policy decisions here.

## 9 Conclusion

In conclusion, I combine large-scale observational data, experimentation, and surveys to provide insights into the economically significant yet understudied market of street vending. Using a field experiment, I first 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, in the observational data, I find that sellers target females and couples more than males. Additionally, using a lab-in-the-field experiment, I show that sellers strategically price discriminate and impose "emotional markups".

I show that these findings are consistent with a model that incorporates altruism and a cost of refusal in the buyer's decision-making. 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. For instance, requesting a passerby doubles the purchasing probability for adult vendors and quadruples it for child vendors, and couples are two times more likely to buy when approached. This shows that social preferences play an important role in this market.

The study illustrates that vendors understand and leverage insights about consumer social preferences to inform their selling strategies. The study thereby uncovers the presence of sophisticated economic thinking even in subsistence entrepreneurship. More broadly, the paper shows that social preferences play an important role in markets with face-to-face transactions or personal selling by influencing consumer purchasing behavior, seller targeting, and prices.

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<sup>57</sup>An earlier report on street-connected children in Delhi by Save the Children ([Bhaskaran and Mehta, 2011](#)) also notes begging and rag-picking as the common alternatives for child work.

## A Empirical Appendix

### A Sample Descriptives

#### A.1 Observational Study

Table A.1: Summary Statistics for Observational Study Sample

	<u>Adult</u>	<u>Child</u>	<u>Overall</u>
<i>Demographics</i>			
Age	34.02	11.24	22.77
Female	0.35	0.52	0.44
<i>Experience</i>			
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
<i>Type of Location</i>			
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 A.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 A.3: Items Sold By Vendors in the Observational Study Sample

	<u>Percent</u>
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
<hr/>	
Total Count	403

Table A.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
<i>Experience</i>			
< 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
<i>Type of Location</i>			
Market	0.800	0.872	0.303
Metro Station	0.109	0.103	0.906
Red Light	0.091	0.026	0.174
<i>N</i>	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 A.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
<i>Experience</i>			
< 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
<i>Type of Location</i>			
Market	0.673	0.700	0.745
Metro Station	0.239	0.300	0.429
Red Light	0.088	0.000	0.052
<i>N</i>	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.

Figure A.1: Locations



Note: Locations are marked on the Delhi Metro Map accessible at <https://www.delhimetrorail.com/map>. A brief description of each location scouted and documentation of the triangulation of locations is available separately in an online appendix.

## A.2 Field Experiment

Table A.6: Summary Statistics for Field Experiment Hours

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

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

	<u>Adult</u>	<u>Child</u>
<i>Demographics</i>		
Age	28.35	11.34
Female	0.88	0.59
<i>Experience</i>		
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
<i>Type of Location</i>		
Market	0.55	0.59
Metro Station	0.45	0.41
Observations	66	80

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

	(1) Adult	(2) Child	(3) (1) vs. (2), p-value
<b>Group</b>			
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
<b>Price</b>			
Rs.10	0.500	0.499	0.890
Rs.30	0.500	0.501	0.890
<b>Action</b>			
Approach	0.500	0.501	0.901
No Approach	0.500	0.499	0.901
<b>Place</b>			
Market	0.536	0.532	0.360
Metro Station	0.464	0.468	0.360
<b>Item</b>			
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
<b>Day</b>			
Weekend	0.355	0.358	0.634
<b>Time</b>			
Afternoon	0.595	0.591	0.400
Evening	0.405	0.409	0.400
<i>N</i>	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 A.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
<b>Vendor</b>															
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
<b>Price</b>															
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
<b>Action</b>															
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
<b>Place</b>															
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
<b>Item</b>															
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
<b>Day</b>															
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
<b>Time</b>															
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
<i>N</i>	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.

### A.3 Lab-in-the-Field Pricing Experiment

Table A.10: Summary Statistics for Pricing Game Sample

	<u>Adult</u>	<u>Child</u>
<i>Demographics</i>		
Age	34.75	11.40
Female	0.36	0.50
<i>Schooling</i>		
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
<i>Experience</i>		
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
<i>Type of Location</i>		
Market	0.75	0.71
Metro Station	0.12	0.20
Red Light	0.13	0.09
<i>Financial</i>		
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

## A.4 Passerby Survey

Table A.11: Summary Statistics for Passerby Survey Sample

	<u>Mean</u>
<i>Age</i>	
18-24	0.68
25-30	0.25
31-40	0.05
41-50	0.01
50+	0.00
<i>Schooling</i>	
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
<i>Monthly Income (Rs)</i>	
0-10k	0.60
10-20k	0.13
20-30k	0.13
30-40k	0.06
40-50k	0.04
50-60k	0.04
<i>Type of Location</i>	
Market	0.26
Metro Station	0.74
<i>Passerby Group</i>	
Male	0.21
Males together	0.20
Female	0.20
Females together	0.19
Couple	0.20
Observations	520

## B Main Results

### B.1 Differentials in Purchasing Rates (Observational Study & Field Experiment)

Figure B.1: Buying Rates - Observational Study

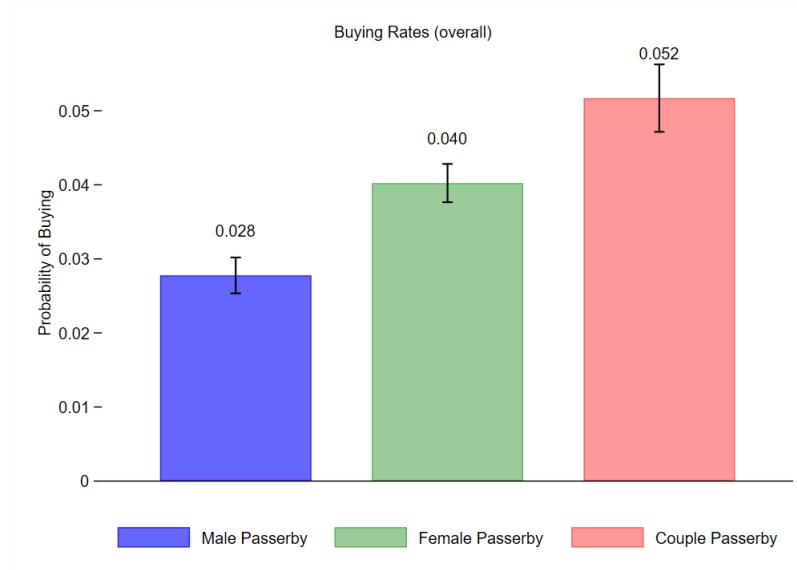
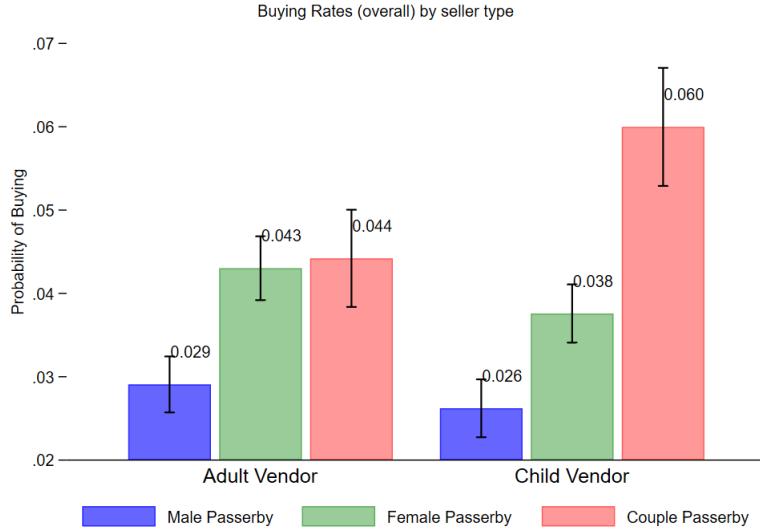


Figure B.2: Buying Rates by Type of Seller - Observational Study



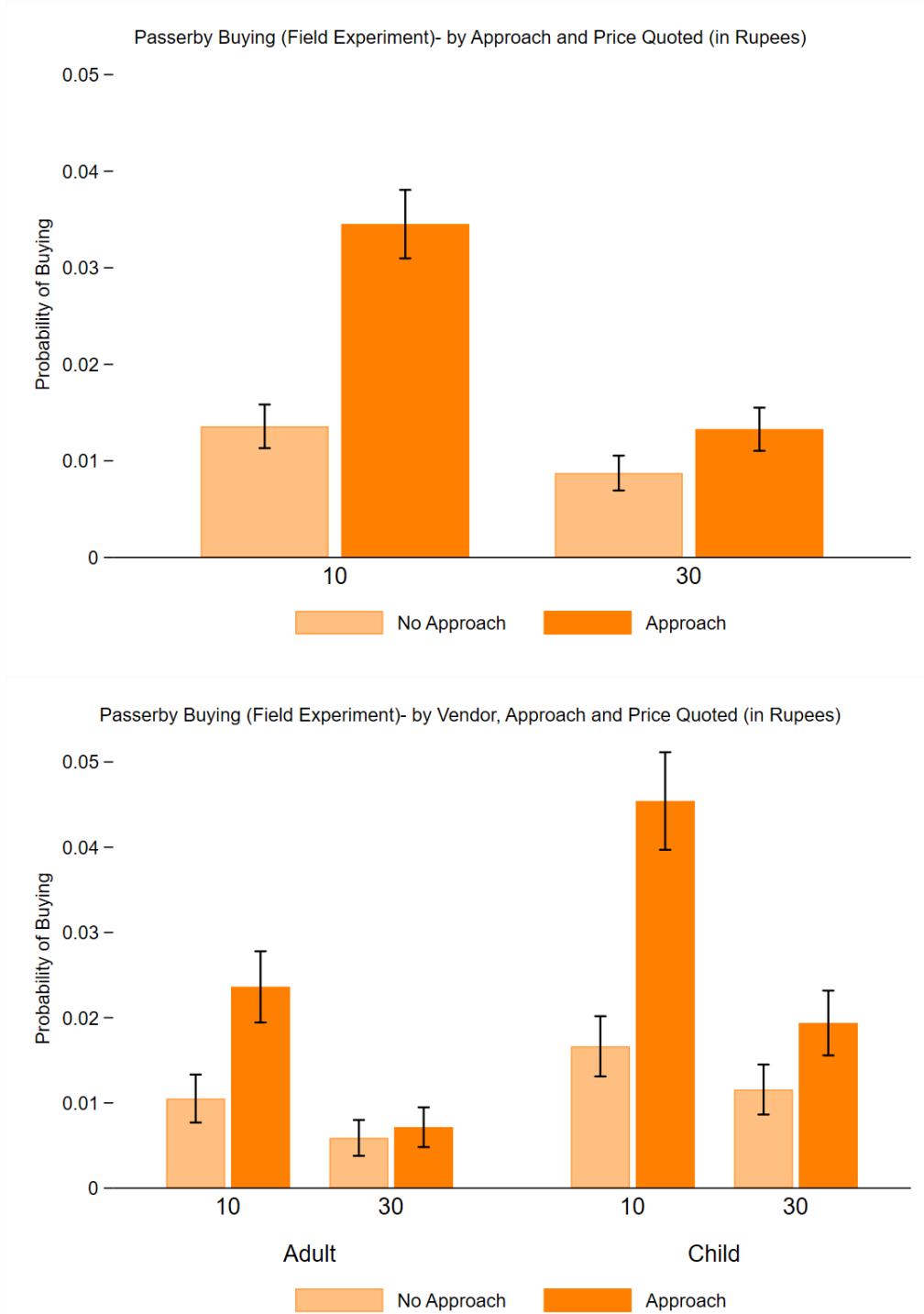
Note: The top panel plots the purchase rates by passersby categories and the bottom panel plots purchase rates by passersby and type of vendor. The figure pools passersby categories *single female* and *females together*, and *single male* and *males together* respectively.

Table B.1: Buying Probability (Overall) - Observational Study

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.001 (0.004)	0.002 (0.005)	-0.001 (0.005)				-0.002 (0.005)	-0.003 (0.006)	-0.006 (0.006)
Female Passerby				0.012*** (0.003)	0.016*** (0.003)	0.014*** (0.003)	0.014*** (0.004)	0.016*** (0.004)	0.013*** (0.004)
Couple Passerby				0.024*** (0.004)	0.026*** (0.004)	0.024*** (0.004)	0.015*** (0.005)	0.016*** (0.005)	0.014*** (0.005)
Female Passerby×Child Vendor							-0.003 (0.006)	0.000 (0.005)	0.001 (0.006)
Couple Passerby×Child Vendor							0.019*** (0.007)	0.021*** (0.007)	0.022*** (0.007)
Constant	0.038*** (0.003)	0.046*** (0.009)	0.035*** (0.009)	0.028*** (0.003)	0.035*** (0.008)	0.026*** (0.008)	0.029*** (0.004)	0.035*** (0.009)	0.029*** (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.

Figure B.3: Purchases by Price and Seller Type - Field Experiment



Note: The top panel shows purchase rates by seller approach and price (in Rupees, marked on the x-axis). The bottom panel disaggregates further by the type of vendor. "Approach" involves a verbal request using the script outlined in the text.

Figure B.4: Buying Rates - Field Experiment

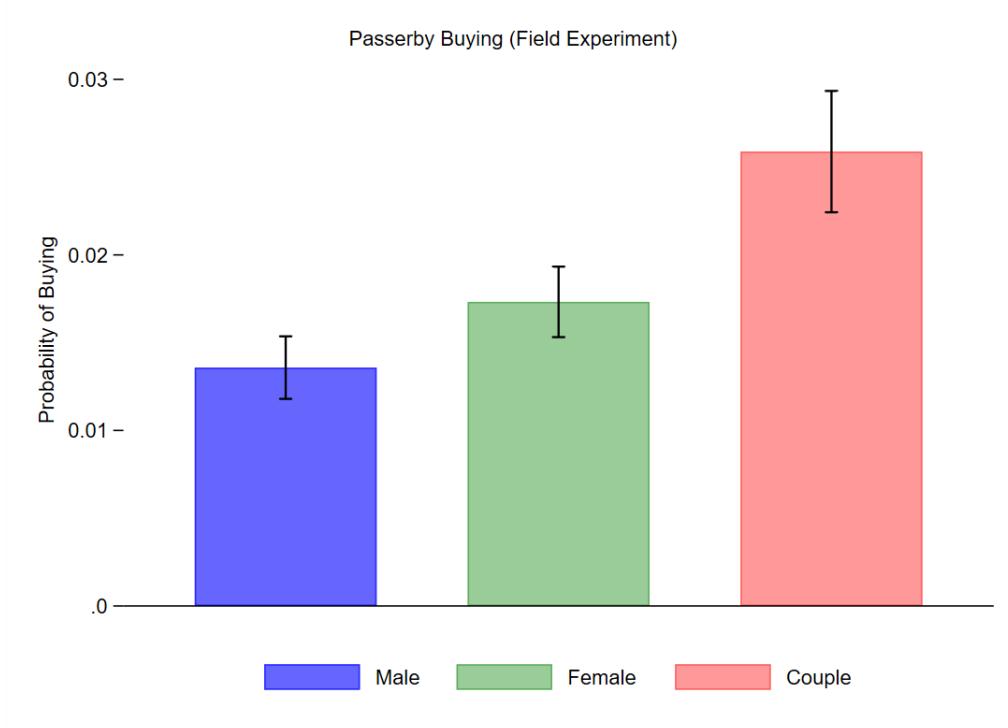
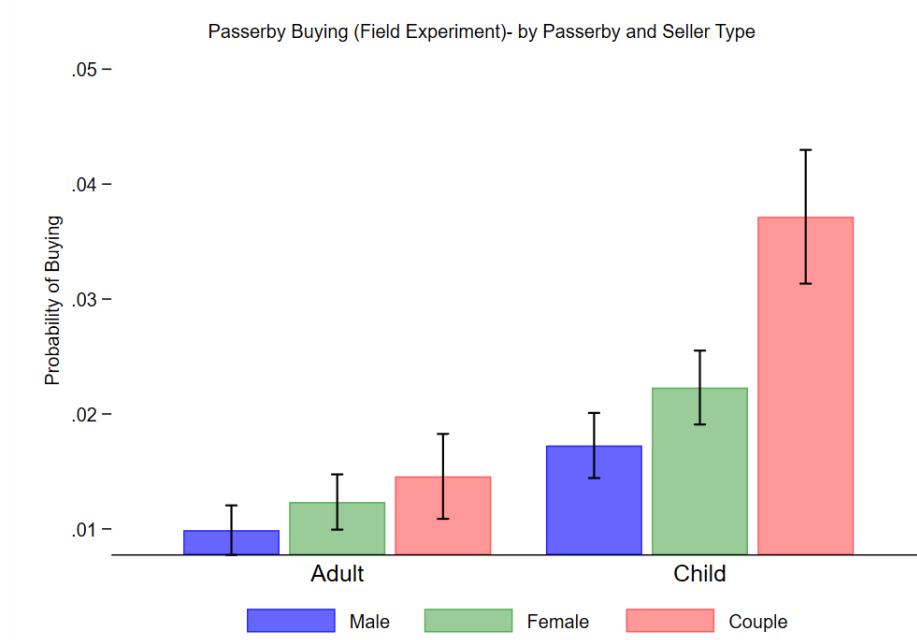
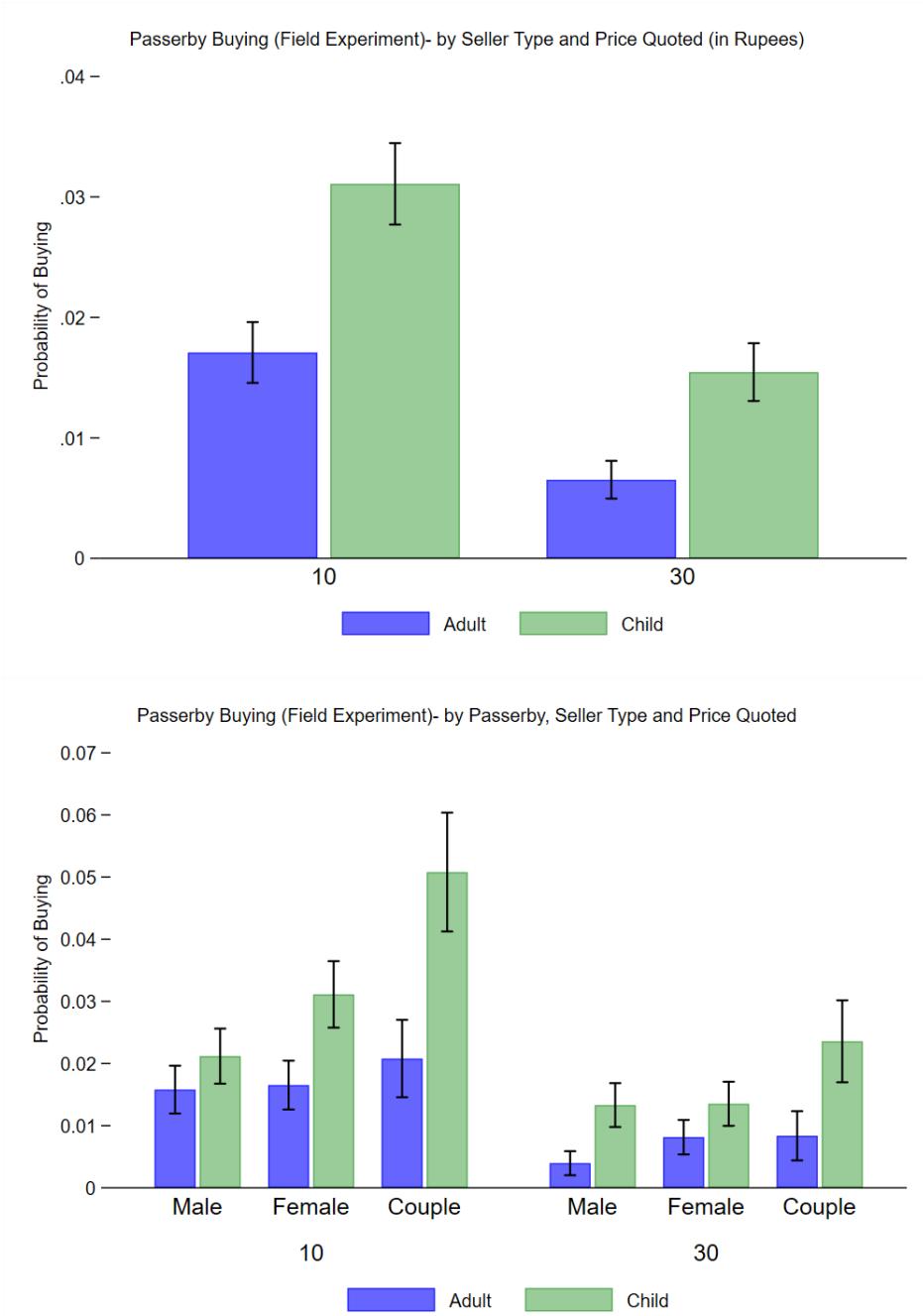


Figure B.5: Buying Rates by Type of Seller - Field Experiment



Note: The top panel shows purchase rates by passerby type (pooling *single female* and *females together*, and *single male* and *males together* categories together respectively). The bottom panel disaggregates further by the type of vendor.

Figure B.6: Buying Rates by Type of Seller, Passerby and Price Quoted - Field Experiment



The top panel shows purchase rates by price quoted (x-axis) and type of vendor. The bottom panel distinguishes further by the type of passerby (pooling *single female* and *females together*, and *single male* and *males together* categories together respectively).

Table B.2: Buying Rate (%) by Seller and Buyer Type - Field Experiment

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

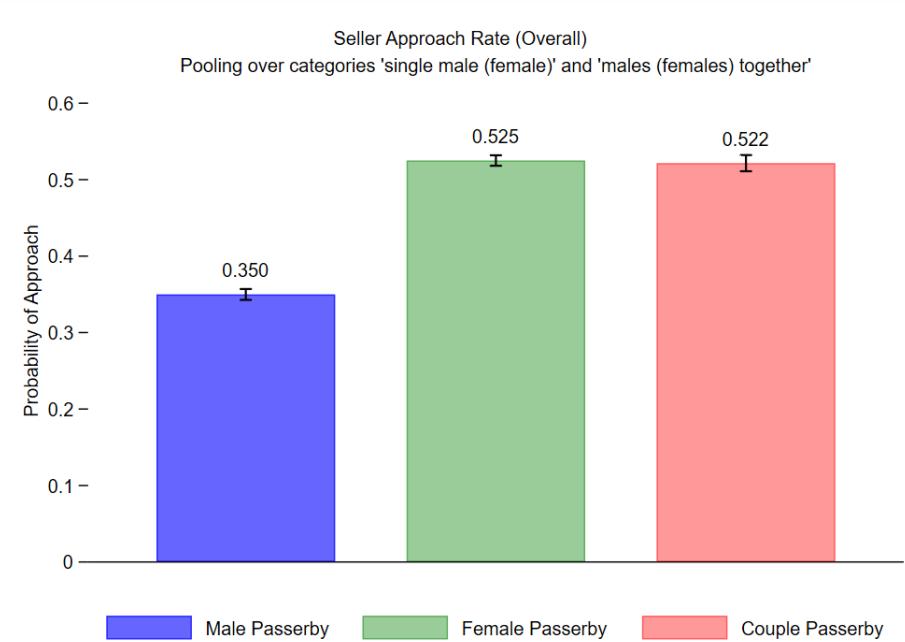
Table B.3: Revenue (Rs) - Field Experiment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.223*** (0.053)	0.223*** (0.043)	0.224*** (0.042)				0.141*** (0.053)	0.141*** (0.047)	0.142*** (0.049)
Female Passerby				0.089*** (0.034)	0.089*** (0.034)	0.089*** (0.034)	0.047* (0.026)	0.047* (0.026)	0.047* (0.026)
Couple Passerby				0.188*** (0.050)	0.188*** (0.050)	0.188*** (0.050)	0.068* (0.039)	0.068* (0.039)	0.068* (0.039)
Female Passerby×Child Vendor							0.086 (0.068)	0.086 (0.068)	0.086 (0.068)
Couple Passerby×Child Vendor							0.238*** (0.085)	0.239*** (0.086)	0.239*** (0.086)
Constant	0.222*** (0.065)	0.080 (0.064)	0.071 (0.077)	0.261*** (0.055)	0.118* (0.067)	0.109 (0.089)	0.190*** (0.067)	0.048 (0.067)	0.039 (0.080)
Pricequoted	✓	✓	✓	✓	✓	✓	✓	✓	✓
Product FE		✓	✓		✓	✓		✓	✓
Location Type FE			✓			✓			✓
Weekday/Weekend			✓			✓			✓
Time of the Day			✓			✓			✓
Adjusted $R^2$	0.002	0.005	0.005	0.001	0.004	0.005	0.002	0.006	0.006
Mean of Dep. Var	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
Observations	40521	40521	40521	40518	40518	40518	40518	40518	40518

Note: The outcome is revenue (in Rupees). Where there was no sale, revenue is re-coded as zero. Columns 1-3 compare the revenue of child vendors to that of adult vendors. Columns 4-6 compare this 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 by passerby and seller type. Standard Errors are clustered at the vendor level.

## B.2 Seller Targeting (Observational Study)

Figure B.7: Seller Approach Rate (Overall) - Observational Study



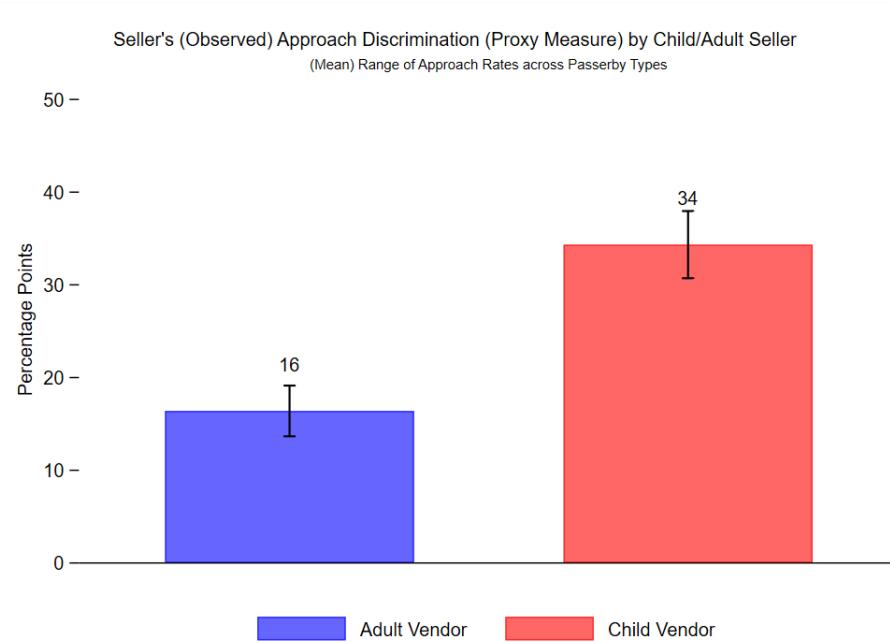
The figure on the plots seller approach by passerby category, pooling categories *single female* and *females together*, and *single male* and *males together*. "Approach" includes making eye contact, gesture and/or verbal request as outlined in Figure D.3.

Table B.4: Seller Approach Probability

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.266*** (0.029)	0.225*** (0.034)	0.206*** (0.030)			0.144*** (0.032)	0.079** (0.034)	0.069** (0.030)	
Female Passerby				0.175*** (0.020)	0.192*** (0.017)	0.181*** (0.016)	0.072*** (0.025)	0.086*** (0.020)	0.081*** (0.017)
Couple Passerby				0.173*** (0.018)	0.189*** (0.015)	0.183*** (0.013)	0.064*** (0.021)	0.073*** (0.018)	0.077*** (0.016)
Female Passerby×Child Vendor						0.171*** (0.036)	0.188*** (0.034)	0.182*** (0.031)	
Couple Passerby×Child Vendor						0.207*** (0.031)	0.224*** (0.028)	0.212*** (0.026)	
Constant	0.325*** (0.024)	0.393*** (0.055)	0.425*** (0.058)	0.351*** (0.017)	0.428*** (0.047)	0.441*** (0.051)	0.283*** (0.025)	0.348*** (0.057)	0.398*** (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

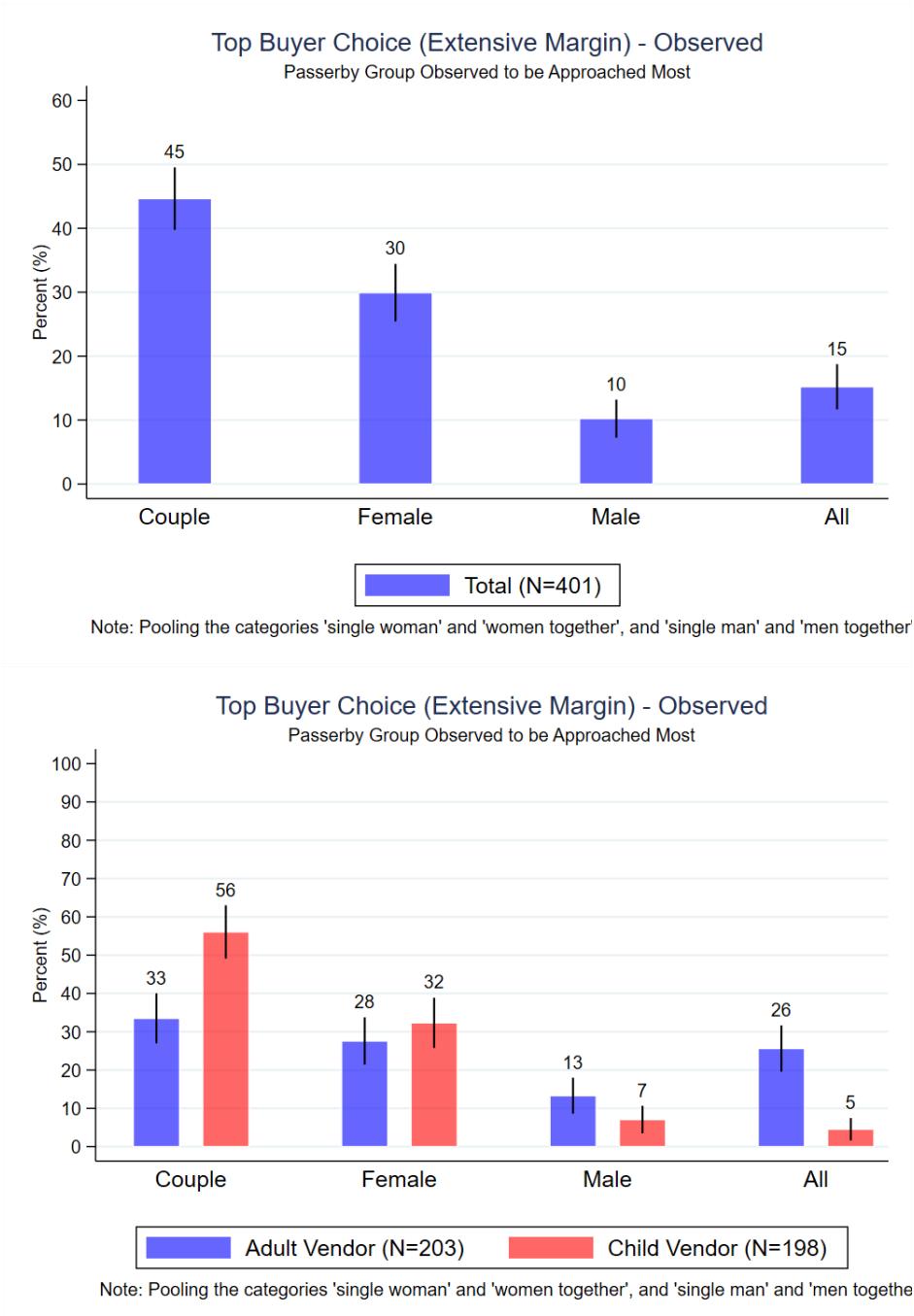
Note: The outcome here is seller approach, which includes making eye contact/gesture and/or verbal request as outlined in Figure D.3. Columns 1-3 compare the approach rates of child vendors to that of adult vendors. Columns 4-6 compare approach rates for females and couples compared to males. The table 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.

Figure B.8: Seller Approach Discrimination Proxy - Observational Study



The figure plots a calculated measure of approach discrimination or targeting when observing child and adult vendors. The measure calculates the range (maximum-minimum) of the approach rates for each passerby category. In calculating these measures, the categories *single female* and *females together*, and *single male* and *males together*, were pooled together averaging the approach rates for them.

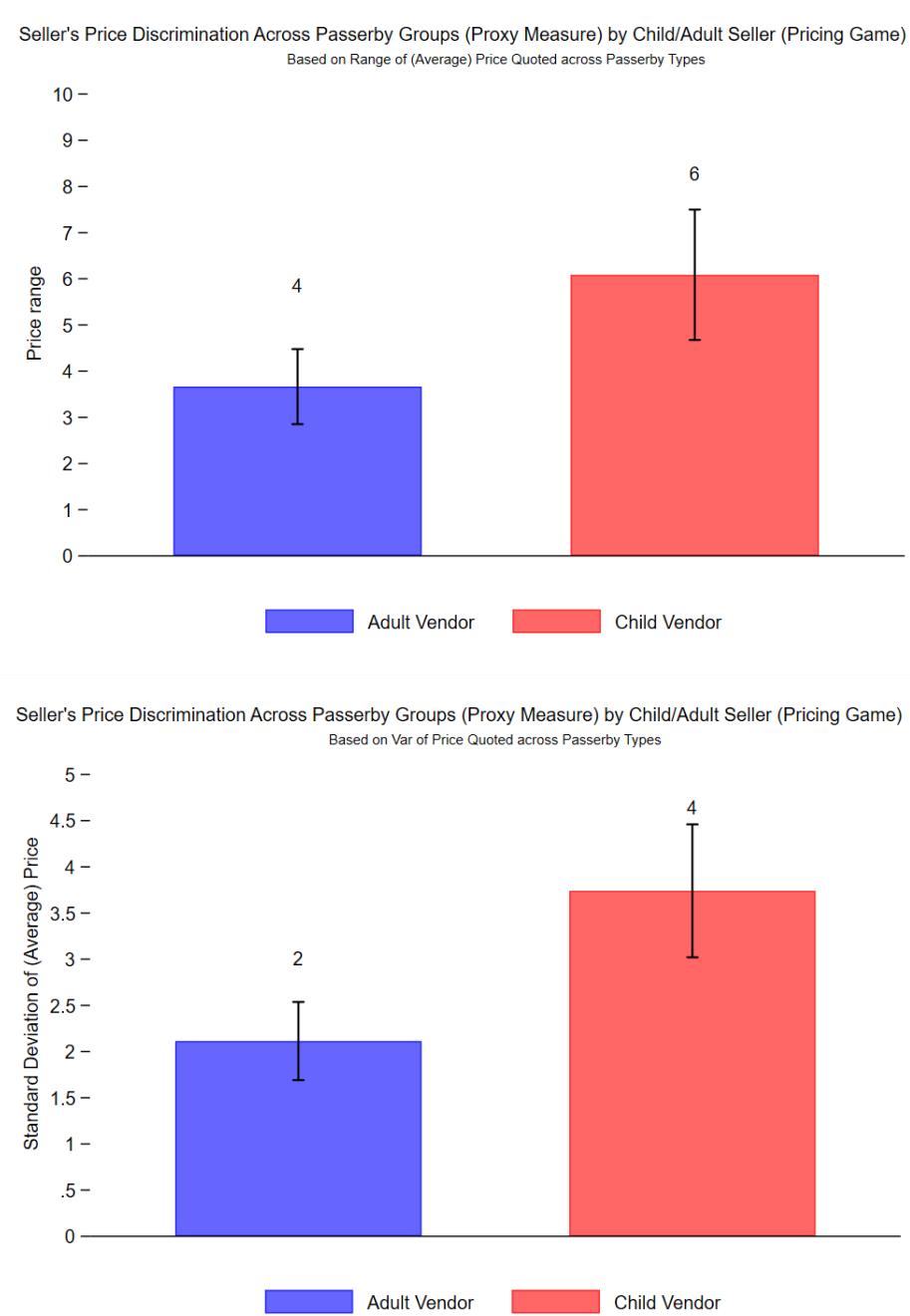
Figure B.9: Seller Approach Discrimination: Buyer Category Approached Most - Observational Study



The top panel calculates the buyer category approached most in the Observational Study for each vendor and plots the percentage of vendors for whom different passerby categories were observed to be targeted the most. If there was no difference in approach rates across passerby categories for a vendor, this is categorized as 'All'. The bottom panel separates this by child and adult vendors. The figure pools the categories *single female* and *females together*, and *single male* and *males together*.

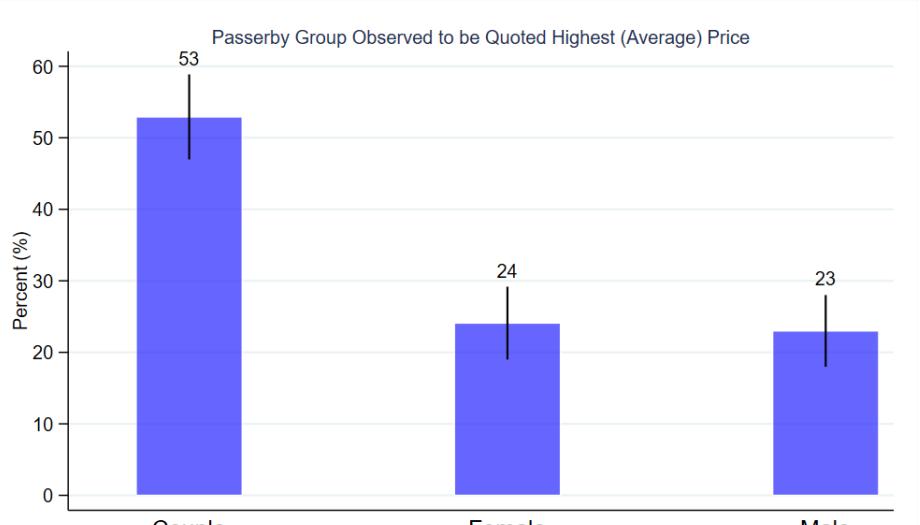
### B.3 Pricing (Lab-in-the-Field Experiment)

Figure B.10: Price Discrimination by Seller Type (Pricing Game)

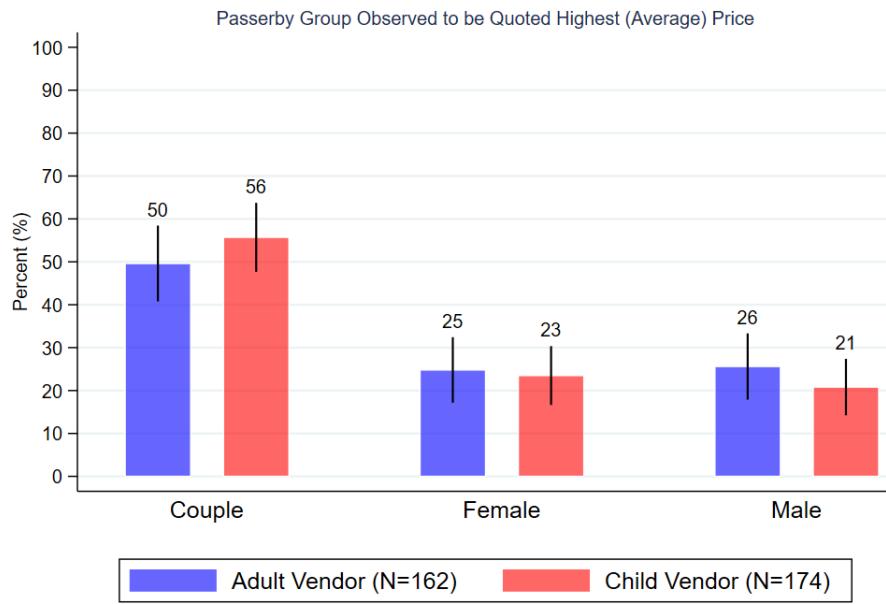


The figure plots two calculated measures of price discrimination in the Lab-in-the-Field Experiment for child and adult vendors. The top panel plots the range (maximum-minimum) of the average price (averaged over the five goods included and described in the text) charged to each passerby category as a proxy for discrimination. The bottom panel plots the standard deviation of the average price (averaged over the five goods included and described in the text) charged to each passerby category by adults and child vendors. In calculating these measures, the categories *single female* and *females together*, and *single male* and *males together*, were pooled together averaging the prices charged to them.

Figure B.11: Price Discrimination: Buyer Category Charged Highest Price (Pricing Game)



Note: Pooling the categories 'single woman' and 'women together', and 'single man' and 'men together'

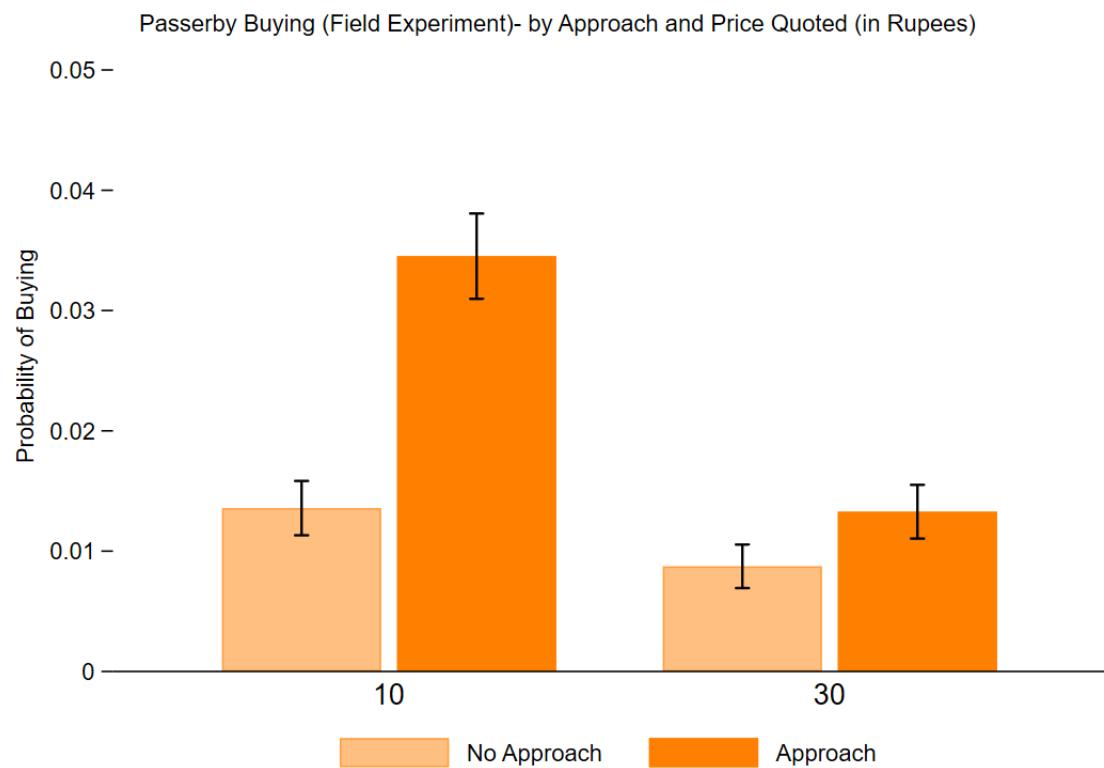


Note: Pooling the categories 'single woman' and 'women together', and 'single man' and 'men together'

The top panel plots the buyer category charged the highest average price (averaged over the five goods included and described in the text) in the Lab-in-the-Field Experiment. The bottom panel separates this by child and adult vendors. The figure pools the categories *single female* and *females together*, and *single male* and *males together*.

#### B.4 Buying Rates by Seller Approach and Price Quoted (Field Experiment)

Figure B.12: Demand with and without Seller Approach (Field Experiment)



Note: The figure shows purchase rates by seller approach and price quoted (Rs 10 and Rs 30, marked on the x-axis). “Approach” involves a verbal request using the script outlined in the text.

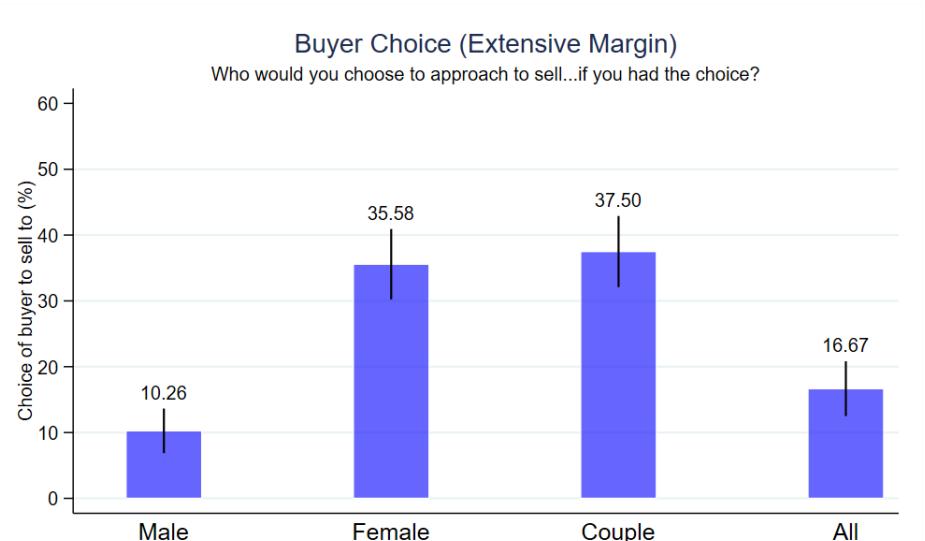
Table B.5: Buying Rate (%) by Approach - Field Experiment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Approach	1.279*** (0.283)	1.278*** (0.283)	1.278*** (0.283)	0.723*** (0.220)	0.722*** (0.221)	0.722*** (0.220)	0.644** (0.267)	0.644** (0.267)	0.645** (0.267)
Child Vendor				0.590** (0.251)	0.589** (0.235)	0.595** (0.273)	0.465 (0.303)	0.466 (0.288)	0.471 (0.331)
Child Vendor×Approach				1.111** (0.495)	1.110** (0.495)	1.110** (0.495)	0.546 (0.636)	0.542 (0.636)	0.542 (0.636)
Female Passerby							0.368** (0.164)	0.369** (0.164)	0.369** (0.164)
Couple Passerby							0.024 (0.163)	0.026 (0.163)	0.026 (0.163)
Female Passerby×Child Vendor							-0.191 (0.362)	-0.195 (0.362)	-0.194 (0.362)
Couple Passerby×Child Vendor							1.008*** (0.379)	1.005*** (0.380)	1.005*** (0.380)
Female Passerby×Approach							-0.246 (0.379)	-0.248 (0.379)	-0.248 (0.379)
Couple Passerby×Approach							0.888* (0.475)	0.886* (0.476)	0.885* (0.476)
Female Passerby×Child Vendor×Approach							0.896 (0.611)	0.900 (0.611)	0.900 (0.611)
Couple Passerby×Child Vendor×Approach							1.026 (0.762)	1.033 (0.762)	1.033 (0.762)
Constant	1.115*** (0.137)	0.477** (0.234)	0.605* (0.351)	0.819*** (0.185)	0.183 (0.247)	0.309 (0.329)	0.667*** (0.206)	0.030 (0.264)	0.155 (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

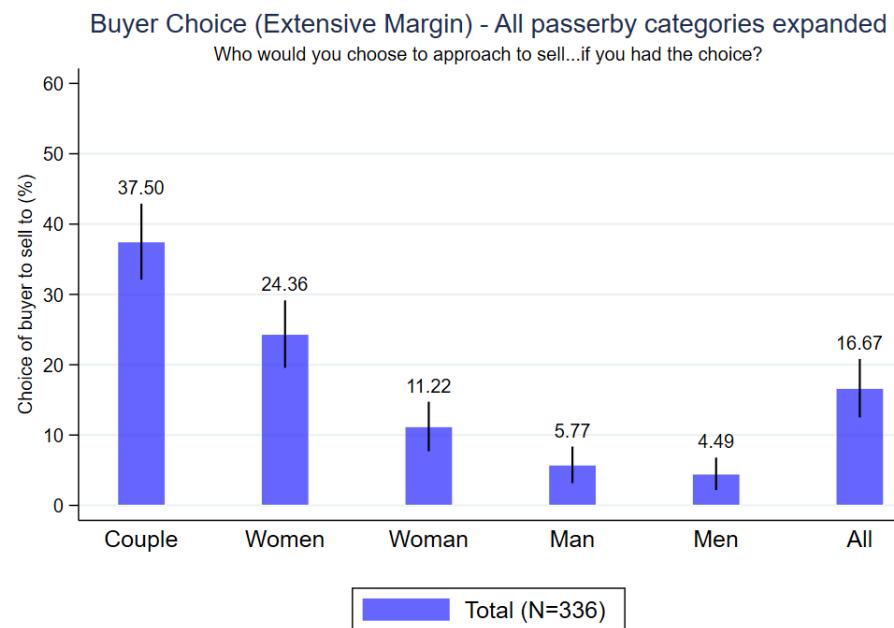
Note: The outcome is purchase rate (%). Columns 1-3 compare the purchase rates with and without the seller approach (i.e., a verbal request using the script outlined in the text). Columns 4-5 allow for differences across child and adult vendors. Columns 7-9 allow for interactions between approach, seller, and passerby categories (for ease of interpretation, Figure 10 plots the results from Col 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.

## B.5 Reported Vendor Strategy and Vendor Inferences about Income and Social Preferences

Figure B.13: Reported Seller Approach Strategy

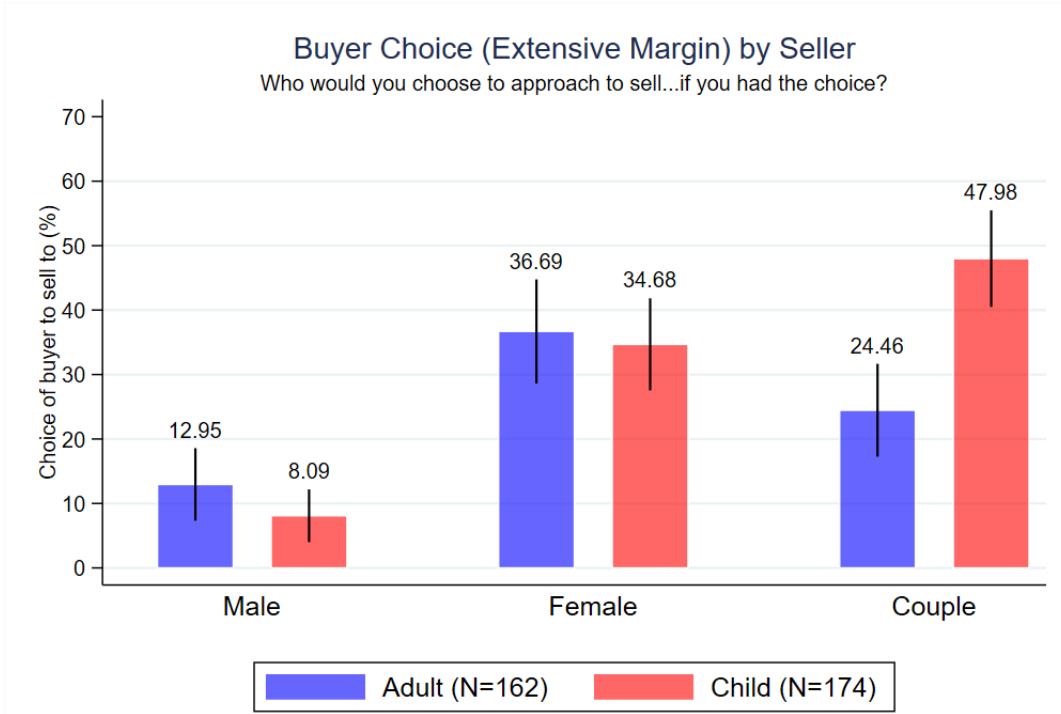


Note: Pooling the categories 'single woman' and 'women together', and 'single man' and 'men together'



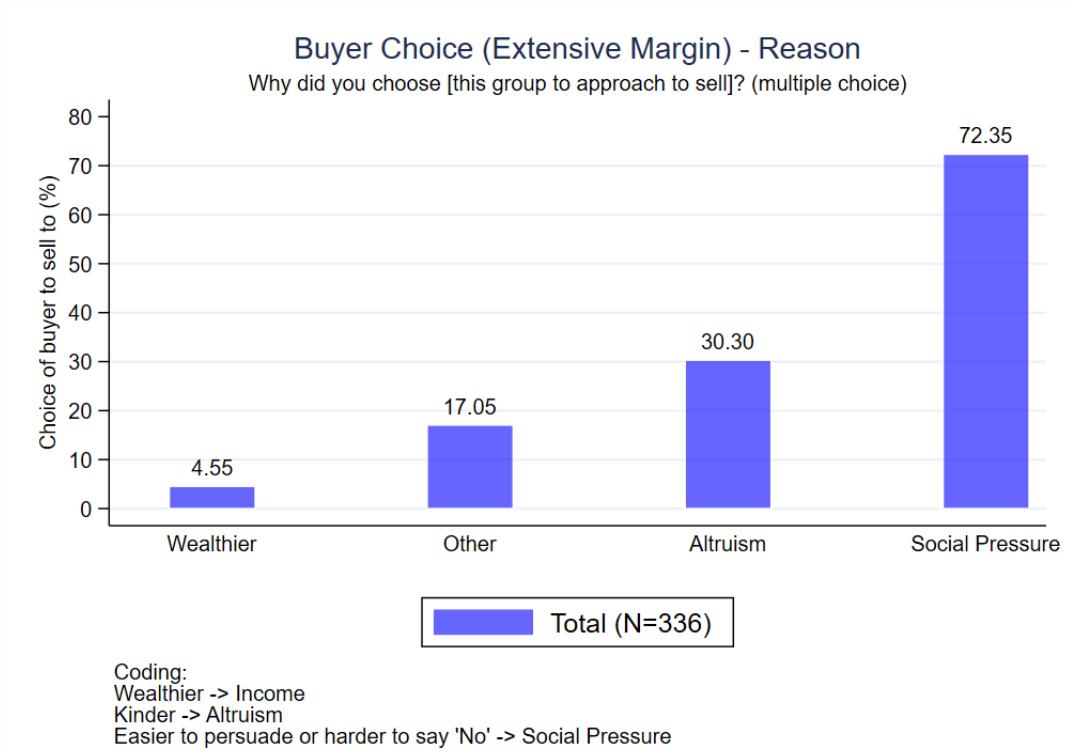
The figure plots the percentage of vendors mentioning each passerby category as their top choice to approach to sell. The top panel pools the categories *single female* and *females together*, and *single male* and *males together*, while the bottom panel separates the choices by all categories. The option 'All' was selected if the vendor said they would approach anyone or everyone and did not have a select preference.

Figure B.14: Reported Seller Approach Strategy by Type of Seller



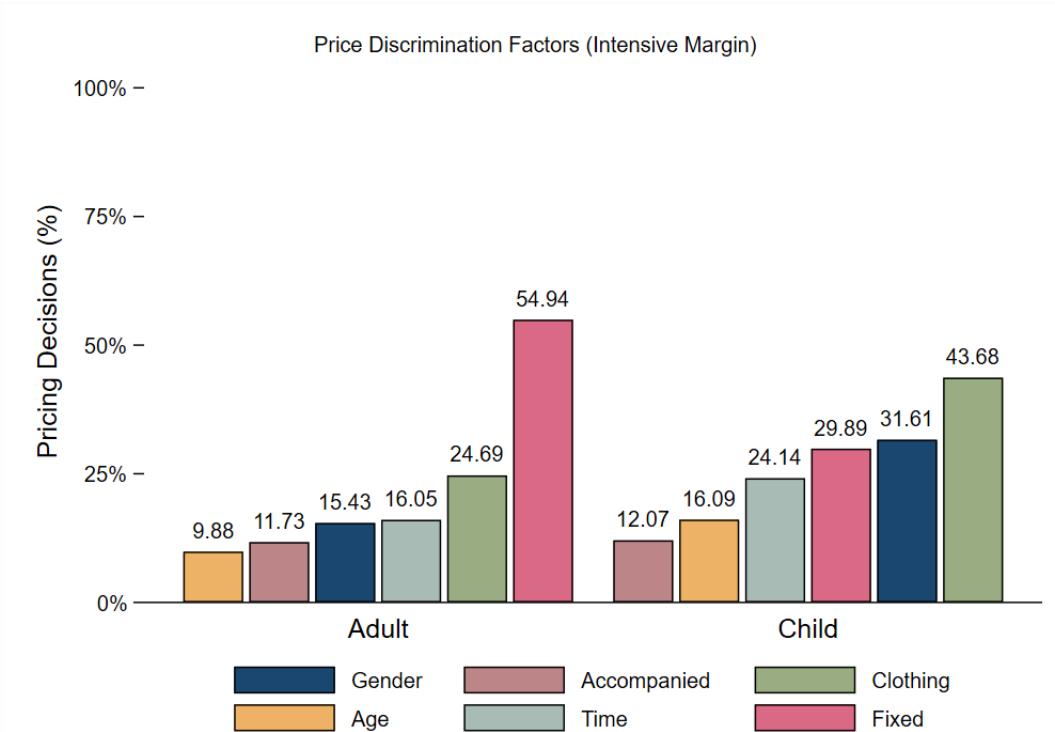
The figure plots the percentage of vendors mentioning each passerby category as their top choice to approach to sell by type of seller. The table pools the categories *single female* and *females together*, and *single male* and *males together*. The category 'All', representing if the vendor did not have a preference, is the omitted category.

Figure B.15: Reasons for Reported Seller Approach Strategy



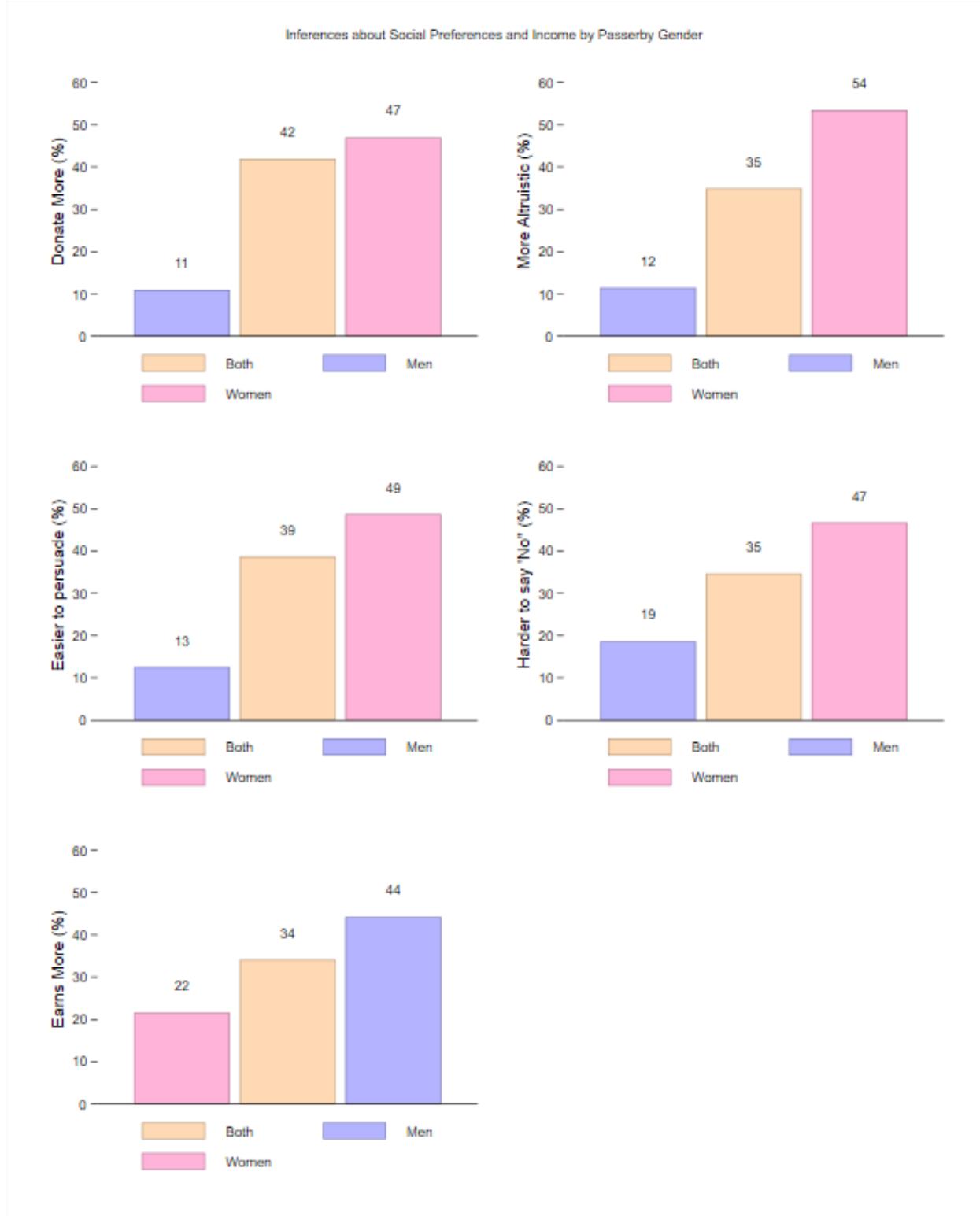
The figure plots the percentage of vendors mentioning their reason for choosing a particular passerby as their top choice to approach to sell (plotted in Figure B.13). The question was open-ended and was asked without any nudges. Surveyors listened to the participant's response and ticked one or more of the multiple choices, for example, income or social preference considerations like altruism and social pressure, along with any other reasons vendors gave.

Figure B.16: Pricing Strategy Factors by Type of Seller



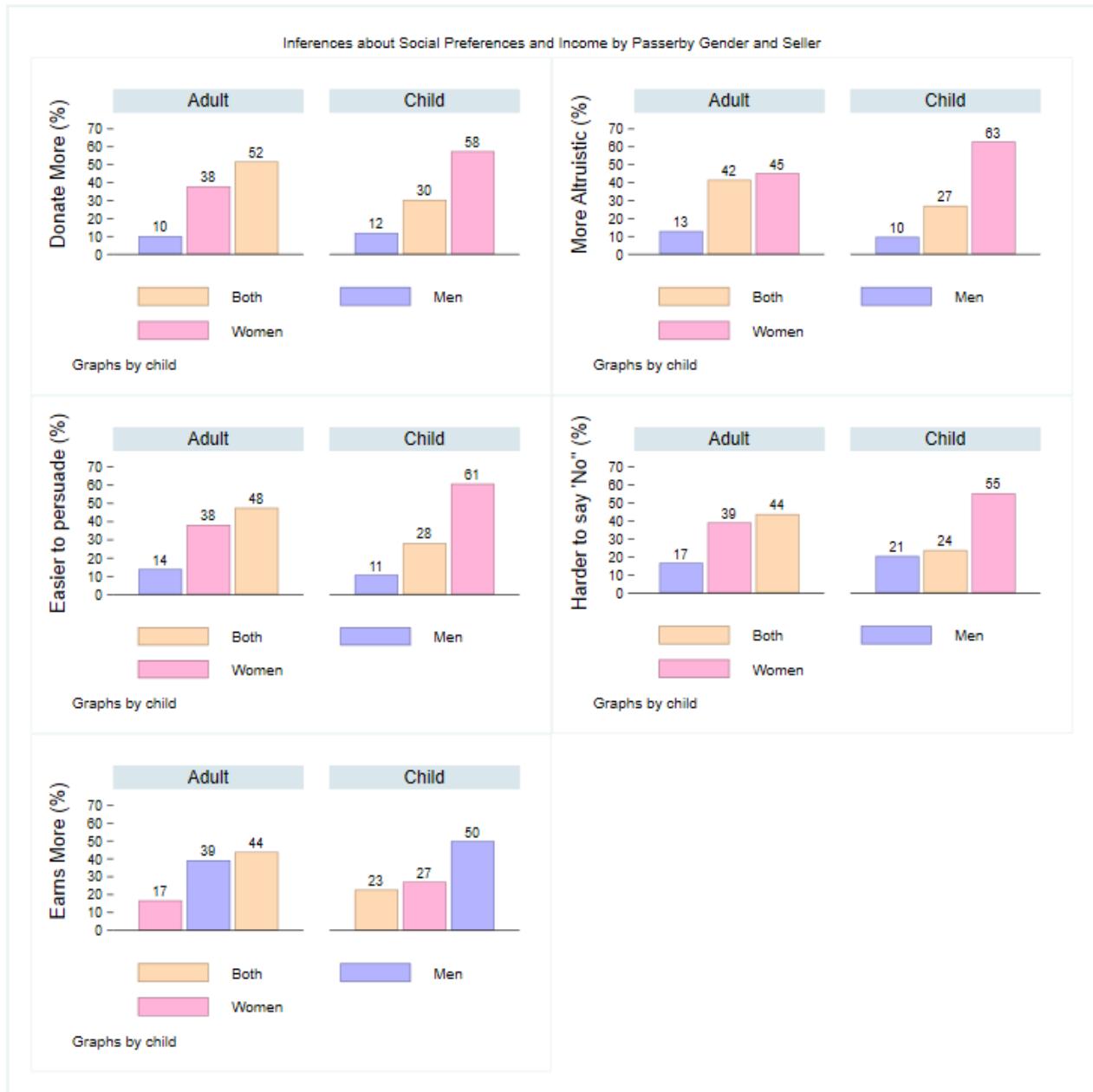
The figure plots the percentage of vendors mentioning what factors they consider when determining pricing. The question was open-ended and was asked without any nudges. Surveyors listened to the participant's response and ticked one or more of the multiple choices among observable characteristics of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

Figure B.17: 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.

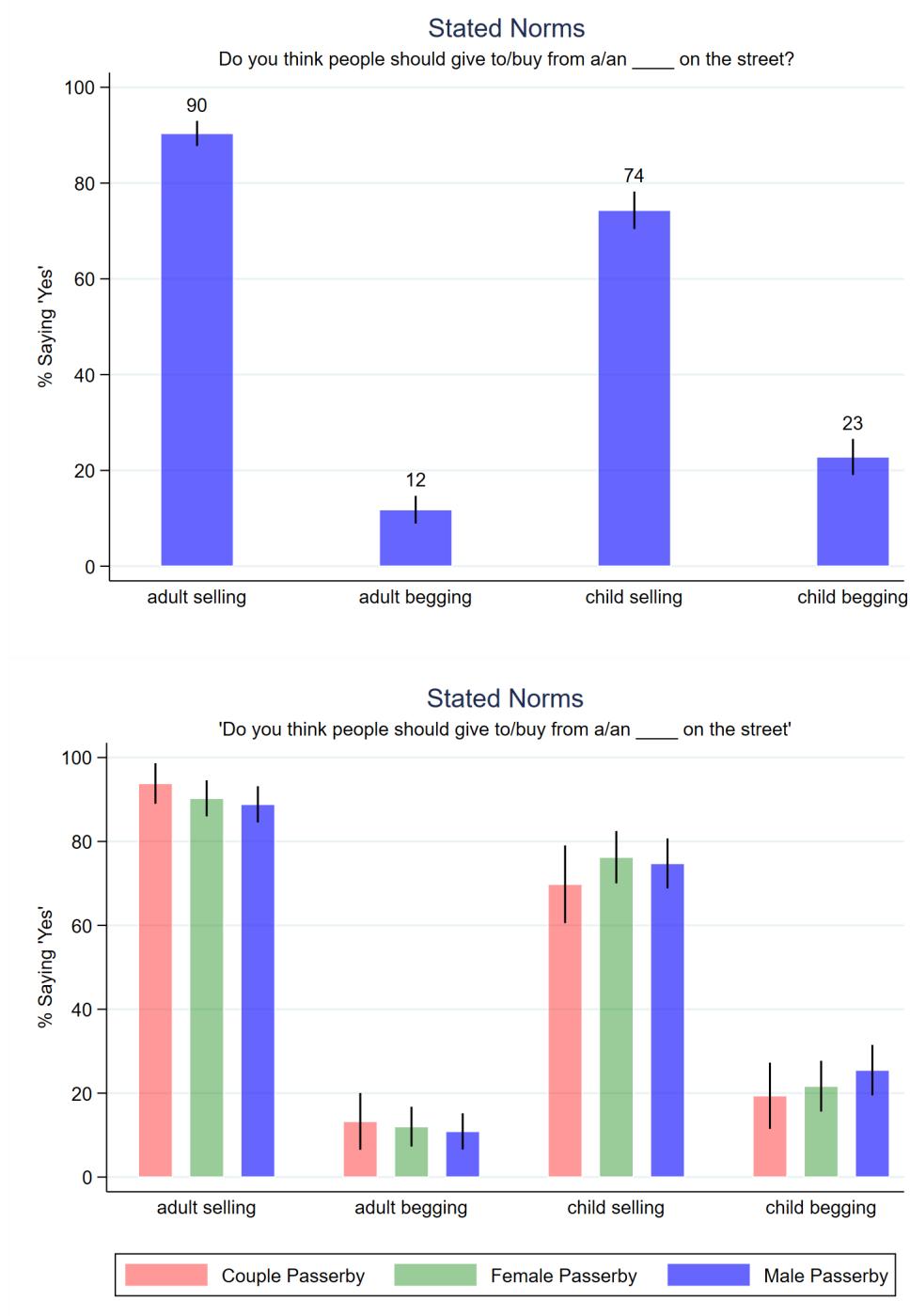
Figure B.18: Seller Inferences about Passerby Social Preferences and Income by Type of Seller



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.

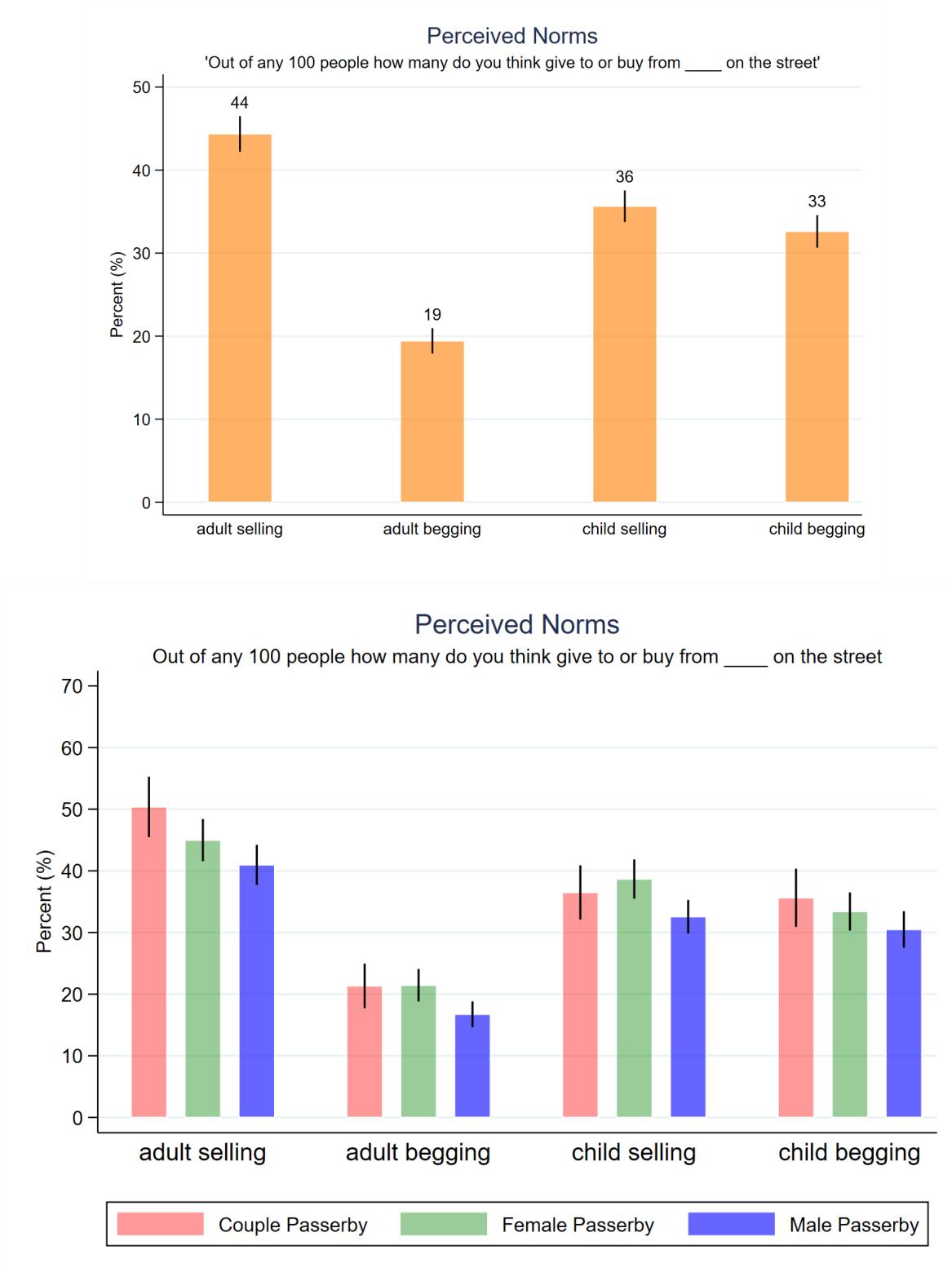
## B.6 Passerby Beliefs

Figure B.19: Stated Norms - Passerby Survey



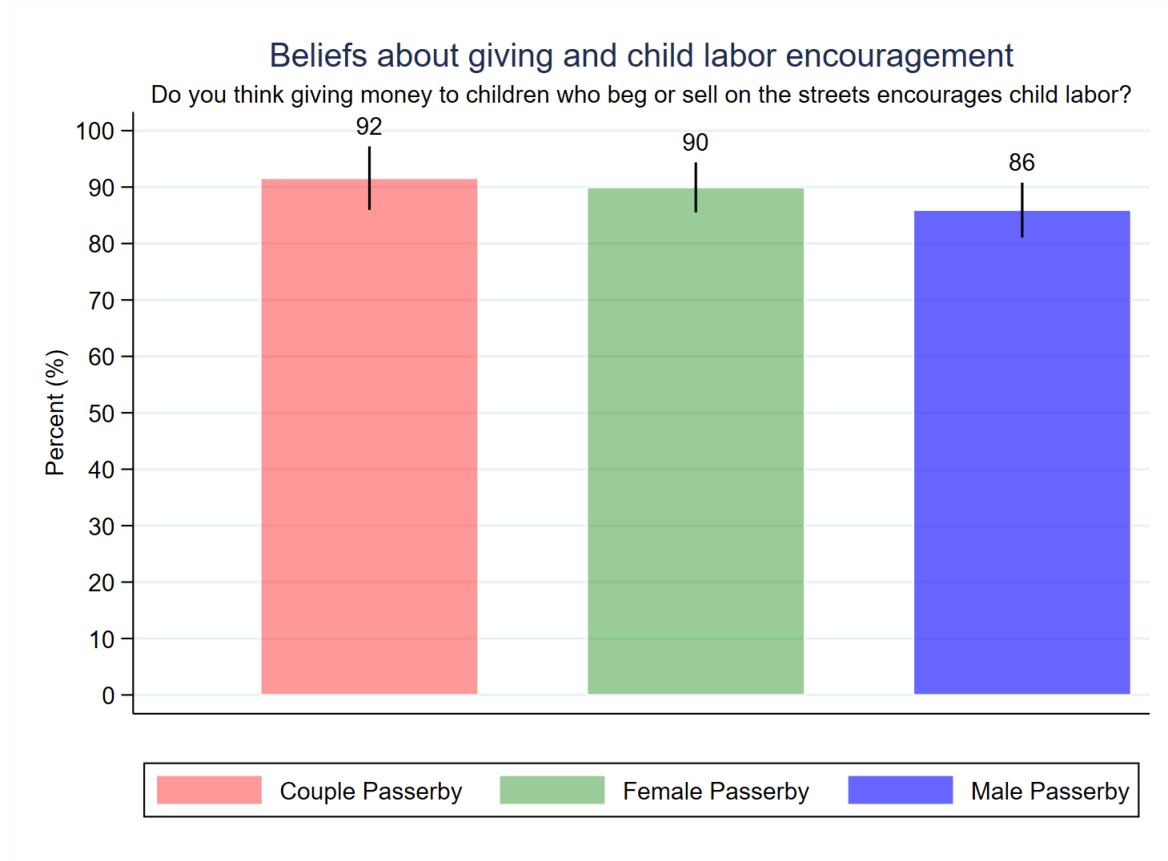
The top panel reports the percentage of people who agree with the statement that "People should give to or buy from a {child/adult} {vendor/panhandler} on the street." The bottom panel compares the responses across passersby pooling over the categories *single female* and *females together*, and *single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

Figure B.20: Perceived Norms - Passerby Survey



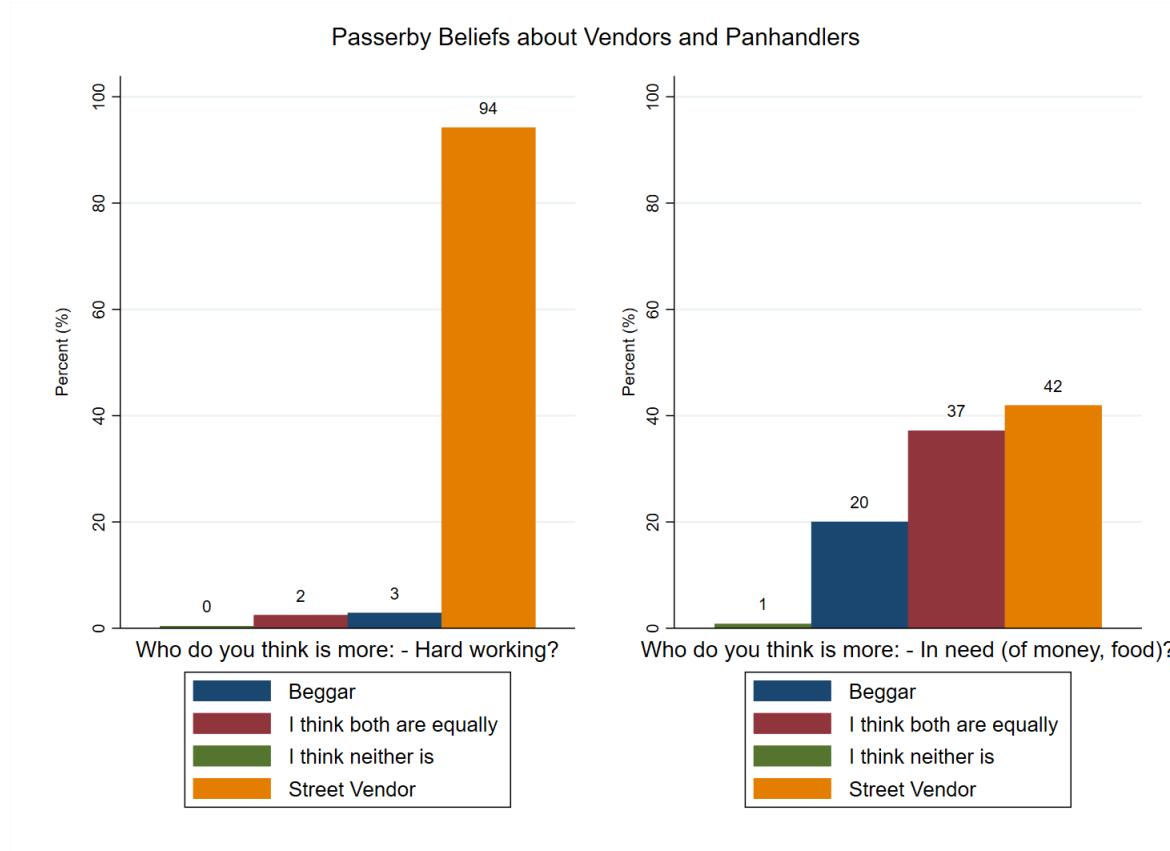
The top panel reports an individual's perception about how many out of 100 people give to or buy from a child/adult vendor/panhandler. The bottom panel compares the responses across passerby pooling over the categories *single female* and *females together*, and *single male* and *males together* respectively.

Figure B.21: Passerby Beliefs about Giving and 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 B.22: 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 B.23: 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.

## B.7 Products used in the Field Experiment)

Figure B.24: 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.

## B Theoretical Appendix

### A Proofs

**Lemma 1** (Probability of Purchase). 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). A buyer's strategy will be given by:

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

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

By backward induction:

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

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

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

$$Pr(Buy) = 1 - F(1 - a)p \text{ if } r = 0$$

$$Pr(Buy) = 1 - F((1 - a)p - s) \text{ if } r = 1$$

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

**Proof** (Proposition 1: Testable Implication of the Model on Purchasing Behavior). We have:

1.  $a_{g,s} = 0 \& s_{g,s} = 0 \forall (g,s) \implies B_{g,s} = B_{g',s'} = Pr(v \geq p) \forall (g,s), (g',s')$ . By reverse implication, if  $B_{g,s} \neq B_{g',s'}$  then  $(s_{g,s}, s_{g',s'}, a_{g,s}, a_{g',s'}) \neq \mathbf{0}$ .
2.  $s_{g,s} = 0 \forall (g,s), \implies B_{g,s}(r=1) = B_{g,s}(r=0) = Pr(v \geq (1 - a_{g,s})p) \forall (g,s)$ .
3.  $a_{g,s} = a_{g',s'} = 0$  gives  $B_{g,s}(r=0) = B_{g',s'}(r=0) = Pr(v \geq p)$ . By reverse implication,  $B_{g,s}(r=0) \neq B_{g',s'}(r=0) \implies (a_{g,s}, a_{g',s'}) \neq \mathbf{0}$ .

**Proof** (Proposition 2: Testable Implication of the Model on Pricing and Seller Approach). We have:

1. By maximizing the seller's utility, the first order condition yields:

$$p_{r=0}^* = \operatorname{argmax}_p Pr(v \geq (1 - a)p)(p - c)$$

$$p_{r=1}^* = \operatorname{argmax}_p Pr(v \geq (1 - a)p - s)(p - c)$$

Then,  $a_{g,s} = 0 \& s_{g,s} = 0 \forall (g,s) \implies p^* = \operatorname{argmax}_p Pr(v \geq p)(p - c) \forall (g,s), (g',s')$ . By reverse implication, if  $p_{g,s,r=1}^* \neq p_{g',s',r=1}^*$  or  $p_{g,s,r=0}^* \neq p_{g',s',r=0}^*$  then  $(s_{g,s}, s_{g',s'}, a_{g,s}, a_{g',s'}) \neq \mathbf{0}$ .

2. Seller's expected utility conditional on the approach strategy and optimal pricing will be given by:

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

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

Therefore, the seller's strategy is given by

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

Setting  $a_{g,s} = 0$  &  $s_{g,s} = 0 \forall (g,s) \implies B_{g,s} = B_{g',s'} = Pr(v \geq p^*) \forall (g,s), (g',s')$  regardless of approach. The result follows immediately as the seller has no return from approaching, which is costly. That is, the condition for approach  $r = 1$  will never be satisfied if  $a_{g,s} = 0$  &  $s_{g,s} = 0 \forall (g,s)$ .

## B Market equilibrium

The market equilibrium will therefore be characterized by a vector of equilibrium probabilities- Probability of Purchase/Sales  $B_{g,s}^*$ , and Probability of Approach  $R_{g,s}^* \forall \{g,s\}$  such that:

$$B_{g,s}^* = R_{g,s}^* B_{g,s}^*(r = 1) + (1 - R_{g,s}^*) B_{g,s}^*(r = 0) \quad (2)$$

That is, the total equilibrium purchasing probability of a passerby group 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:

$$B_{g,s}^* = B_{g,s}^*(r = 0) + R_{g,s}^*(B_{g,s}^*(r = 1) - B_{g,s}^*(r = 0)) \quad (3)$$

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  $\sum_g N_g B_{g,s}^*$ , where  $N_g$  denotes the size of each group of buyers.

Expected profits and seller utility in equilibrium will respectively be:

$$E[\pi_s] = \sum_g N_g (R_{g,s}^* B_{g,s}^*(r = 1)(p_{r=1}^* - c) + (1 - R_{g,s}^*) B_{g,s}^*(r = 0)(p_{r=0}^* - c)) \quad (4)$$

$$E[V_s] = E[\pi_s] - \sum_g N_g R_{g,s}^* e \quad (5)$$

where  $\pi_s$  is the profit for a seller of type  $s$ .

A buyer's realized utility will be:

$$U = \begin{cases} v - (1 - a)p_{r=1}^* & \text{if } d = 1 \& r = 1 \\ v - (1 - a)p_{r=0}^* & \text{if } d = 1 \& r = 0 \\ -s & \text{if } d = 0 \& r = 1 \\ 0 & \text{if } d = 0 \& r = 0 \end{cases}$$

A buyer's ex-ante expected utility will be<sup>58</sup>

$$\begin{aligned} E[U_{g,s}] &= R_{g,s}^*(B_{g,s}^*(r=1)(v - (1 - a_{g,s})p_{r=1}^*) - (1 - B_{g,s}^*(r=1))s_{g,s}) \\ &\quad + (1 - R_{g,s}^*)B_{g,s}^*(r=0)(v - (1 - a_{g,s})p_{r=0}^*) \end{aligned} \quad (6)$$

We can also rewrite this as:

$$\begin{aligned} E[U_{g,s}] &= B_{g,s}^*(r=0)(v - (1 - a_{g,s})p_{r=0}^*) \\ &\quad + R_{g,s}^*(B_{g,s}^*(r=1)(v - (1 - a_{g,s})p_{r=1}^*) - B_{g,s}^*(r=0)(v - (1 - a_{g,s})p_{r=0}^*)) \\ &\quad - R_{g,s}^*(1 - B_{g,s}^*(r=1))s_{g,s} \end{aligned} \quad (7)$$

which helps to illustrate that the expected utility of a buyer can be decomposed as the expected utility from buying without being approached, plus the expected 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.

## C Learning

While the theoretical framework helps conceptualize how a vendor may decide at an instance whether to approach a passerby or not, considering his net expected benefit from doing so, it still leaves open the questions of how a vendor knows or forms an expectation of the likelihood of purchase of different passerby types. In other words, how might a vendor practically learn the probabilities of purchase of different passerby types implicitly assumed in the model's decision-making process?

To understand and illustrate this, we can conveniently use the framework of Reinforcement Learning, which seeks to represent and analyze how intelligent agents (including machines) can learn to maximize rewards by interacting with their environments. The scenario that the vendor faces can be characterized using a simple Markov Decision Process. At each time step,  $t$ , the seller (agent) sees one of the five types of buyers (context/state):

$$S = \{SingleMale(sm), SingleFemale(sf), FemalesTogether(ft), MalesTogether(mt), Couple(c)\}.$$

and has two possible actions that they can take:

$$A = \{Approach(a=1), NoApproach(a=0)\}.$$

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<sup>58</sup>Note that since we assume that one passerby only interacts with one seller in this model, we do not aggregate over all sellers here.

The seller initially faces uncertainty in the purchase probability of a given type of buyer following action  $a$ . This can be represented using the Bernoulli probability mass function contingent on the action and state:

$$f_a(p(s)) = \begin{cases} p_a(s) & d = 1 \\ 1 - p_a(s) & d = 0 \end{cases}$$

where  $p_a(s)$  is the probability that passerby type  $s$  purchases and the agent makes a sale ( $d = 1$ ) following action  $a$ . Let  $R_a(s)$  denote the resultant expected reward<sup>59</sup>:

$$R_a(s) = \begin{cases} Pr(d = 1|a = 1) * (p - c) - e & \text{if } a = 1 \\ Pr(d = 1|a = 0) * (p - c) & \text{if } a = 0 \end{cases}$$

As the passerby flow is random, the probability of the transition from state  $s$  to state  $s'$  at each time step is independent of the seller's action

$$P_a(s, s') = Pr(s_{t+1} = s' | s_t = s, a_t = a) = Pr(s_{t+1} = s' | s_t = s) = P(s, s')$$

and the action does not affect future rewards. The problem the agent faces therefore is akin to that referred to as a Multi-Armed Stochastic (Bernoulli) Contextual Bandit (Slivkins, 2022, Sutton and Barto, 2020).<sup>60</sup> Over time, a seller's goal is to learn a policy  $\pi : A \times S \rightarrow [0, 1]$ , which gives the probability of taking an action  $a$  in state (or facing context)  $s$ ,  $\pi(a, s) = Pr(a_t = a | s_t = s)$ , which maximizes expected cumulative rewards  $E[R|a, s] = E[\sum_{t=0}^{\infty} R_t | a, s]$ .

As in a standard reinforcement learning problem, to maximize expected overall profits in the face of this uncertainty in the purchasing probability of buyers, the vendor's learning strategy would involve thinking through which buyer types to approach, how many times, and when to switch, balancing the exploration (approaching all buyers a sufficient number of times to uncover the true reward distribution) and exploitation (going with the action that yields the best instantaneous reward) trade-off.

The literature in the field of Reinforcement Learning and Contextual Bandits advocates several different algorithms – Ex3, Ex4, Thompson Sampling, and LinUCB, for instance (Sutton and Barto, 2020) – that can be used to learn an optimal policy for the agent (and while doing so learning or estimating the conditional reward probability – i.e. the probability of purchase – from each action in each state). Each of these algorithms differs in how they approach and seek to optimize the exploration and exploitation trade-off. By using the experimental data from the field experiment to simulate this optimal policy for each vendor, we can, in theory, compare it with vendors' actual approach behavior captured in the observational data. This comparison of the performance of vendors to that of an agent that acts optimally will allow us to compute and compare their regret, i.e., the deviation from an optimal policy.

However, since the objective of the current paper is not to evaluate whether *each vendor* accurately learns the probability of purchase of different passersby (which is an exciting research question on its own), but rather to illustrate that *on average* vendors' targeting strategies do align with their beliefs about passerby reaction function and that these beliefs align with infer-

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<sup>59</sup>I abstract from the pricing decision for simplicity of illustrating the learning process here.

<sup>60</sup>The problem is analogous to an agent deciding which lever to pull from the two bandits/slot machines (i.e. deciding between two choices – whether or not to approach) with i.i.d. rewards following a Bernoulli distribution after seeing a context (some information about the passerby) which affects the expected reward. See [Contextual Bandits and Reinforcement Learning](#) and [Multi-Armed Bandits](#) for example.

ences one can make from passerby behavior, I do not proceed to simulate the optimal policy for each vendor in this paper. Additionally, simulating the optimal policy in a realistic and meaningful way would also need to be mindful of the fact that the state transition probabilities, i.e. the probability with which a seller faces different passerby groups, might vary depending on the location they are and the time of the day and that the vendors may also use additional contextual factors such as other observable characteristics of the passerby and time of the day to price discriminate, another choice they have to make, which the current set up abstracts from for simplicity. This being a much larger choice set is computationally more complex to execute and would require a substantially larger dataset of observations for each individual than the current study.. Hence, for this paper, I do not proceed further with computing the optimal policy here.

Nevertheless, using this simplified reinforcement learning paradigm helps us to understand how an agent might practically learn who to target by repeatedly adjusting their actions based on the feedback they receive in terms of sales and revenue. Importantly, the framework also allows us to further appreciate the degree of sophistication of vendors since not only are they practically able to rank the likelihood of purchase of different passersby (as we learn through a revealed preference approach from their target strategy in the observational study), but they can go a step further and formulate a theory of the behavioral forces that influence the behavior of the agent they are interacting with and understand how these shape the other agent's decision and therefore their payoffs. In other words, sellers can infer something about the factors that may affect the stochastic probability distribution of the rewards by interacting with their environment. It is fascinating to see how human intelligence by being able to draw upon inferences from the feedback it gets, along with its intuition, can form a mental model of the forces shaping the environment. It is remarkable to realize how individuals with relatively low literacy and formal education can discover, learn, and apply profoundly insightful simple rules of thumb about human behavior. Further, the knowledge that even children as young as ten years, on average, show signs of this complex behavior incorporating learning, reflecting, causal reasoning, and understanding, is quite remarkable to see in this context.

## D Design Appendix

Figure D.1: Lab-in-the-Field Experiment Design

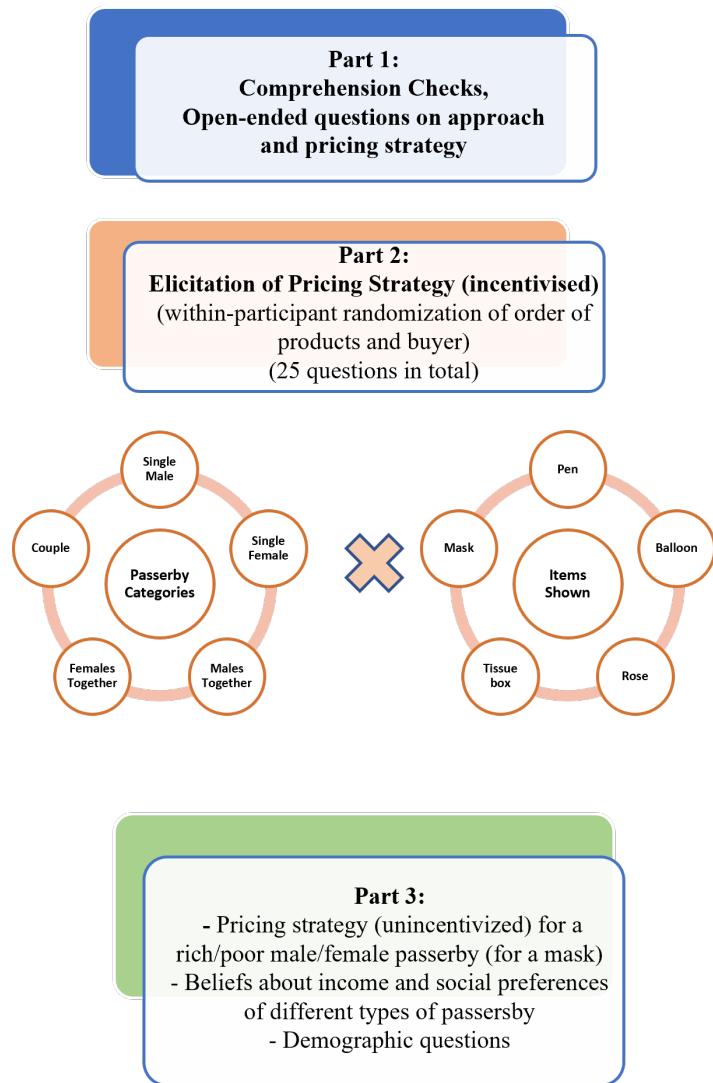


Figure D.2: Passerby Survey Design

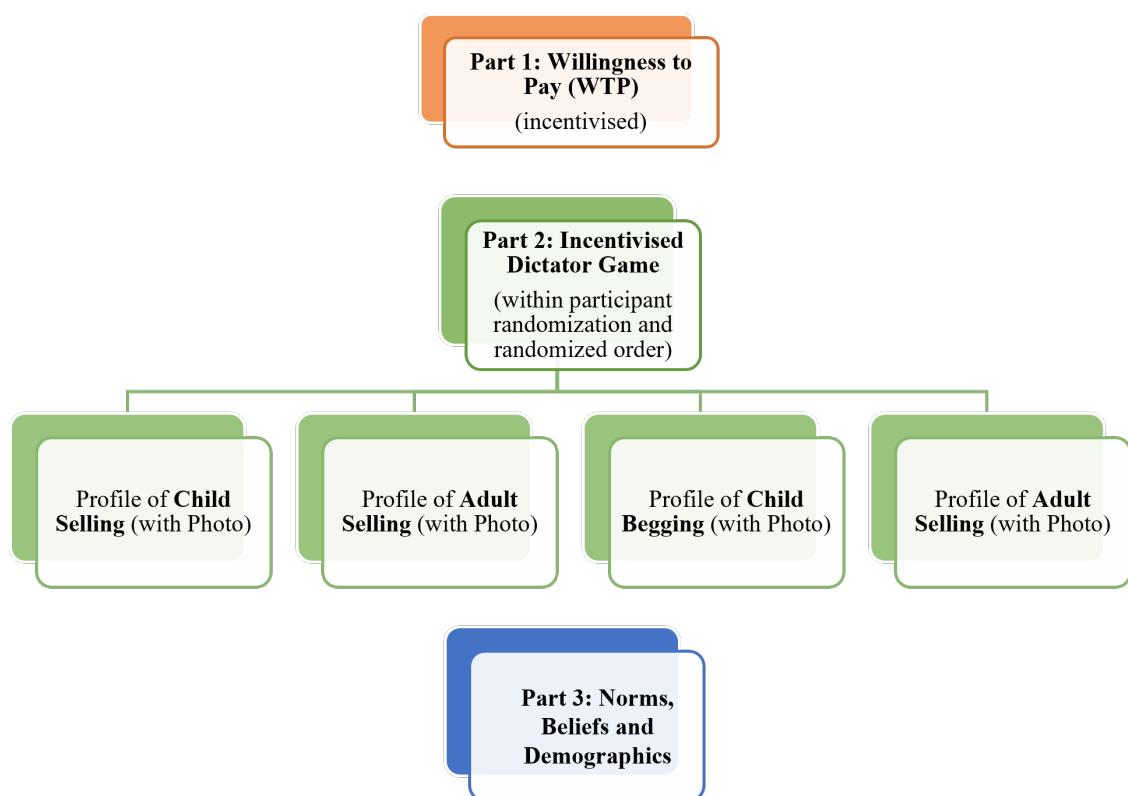
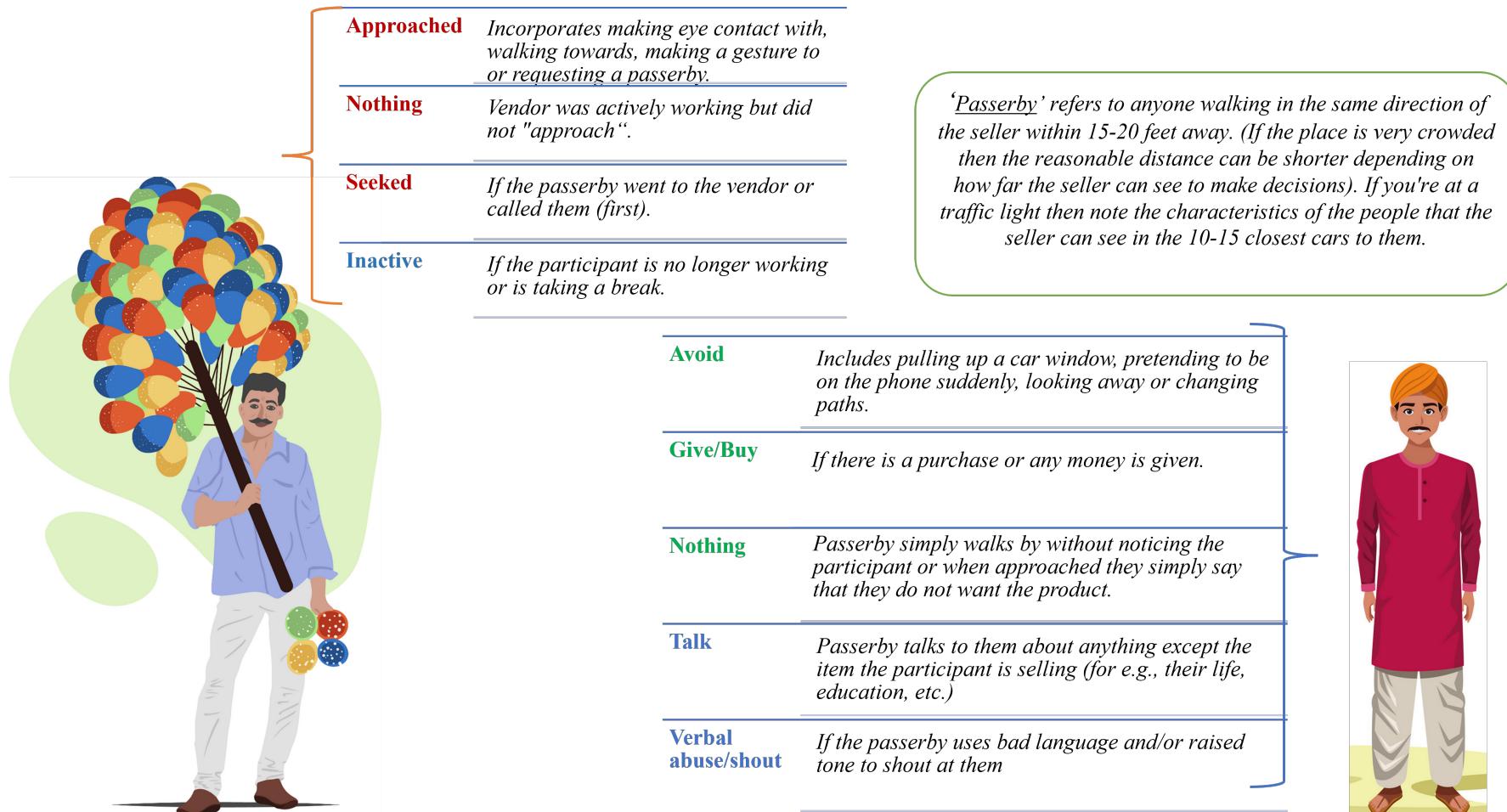


Figure D.3: Observational Study Coding



## **E.1 Research Protocols for The Field Experiment and Passerby Survey<sup>1</sup>**

### **General Instructions**

1. All the field staff have to strictly adhere to the COVID-19 protocols while surveying and interacting with the research participants – kindly wear a mask, use a sanitizer frequently to wash hands, and maintain social distancing (check out the area-specific guidelines issued by the Delhi Disaster Management Authority for more details).
2. Before beginning with any survey, we have to take the participant's consent (including that of parents in case of children between 7-16 years of age). Make the participant comfortable and assure them that we will respect their privacy and decisions. Convey to them that their participation is voluntary, they can withdraw their participation at any time during the survey without providing any explanation to the surveyor, and their refusal would not result in any loss of benefits they are otherwise entitled to. Answer all their questions regarding the survey or study before conducting the survey.
3. We are doing two kinds of experiments or surveys:
  - a. Field Experiment with Sellers
  - b. Willingness To Pay (henceforth, WTP) Experiment with Passersby

### **Specific Instructions**

#### **1. Field Experiment with Sellers**

- We will not do this experiment with vendors/sellers:
  - Who are not actively moving and approaching people or passersby
  - Who are working at traffic signals
  - Who are not selling the goods important for our study – balloons, masks, roses/flowers, or pens.
- Compensation for is fixed for every hour of observation.
- Like any other survey, participant consent is essential. Please spend some time explaining the survey to the participant -- objectives, instructions, and compensation - - and provide a demo to them before beginning the survey.
- Please also make sure that both the child as well as the adult participant face the same/a similar working environment, and keep the observation location/spot constant.

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<sup>1</sup> The research protocols are written by Swati Chauhan, Research Assistant and Field Manager for the Street Vending Project

- Instructions for noting down the observations in the survey:

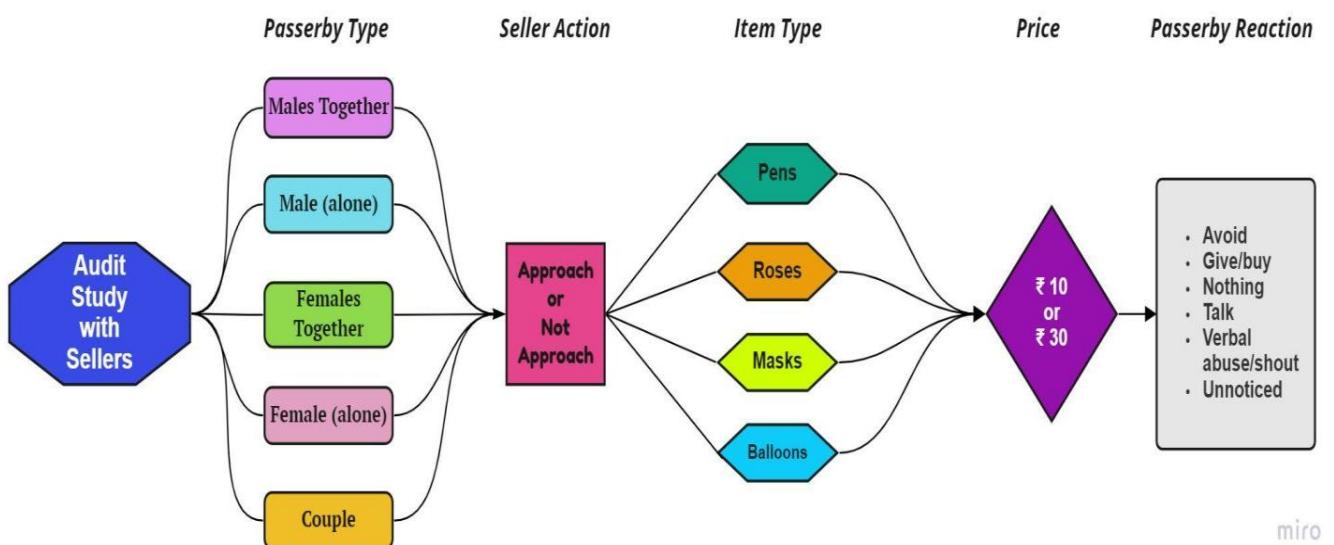
- Read all the instructions carefully. A wrong interpretation may lead to misreporting of the passerby reaction. For instructions on categorizing the behavior of the passersby, please memorize, if possible, the following cases of passerby reactions when a vendor approaches them (or does not):

Situation	Passerby Reaction
Vendor approaches/does not approach & passerby talks about anything except the item the vendor is selling (for eg., weather, education status, parents or guardians of the child, meals, etc.)	Talk
Vendor approaches/does not approach & passerby starts shouting or makes fun of or abuses the participant	Verbal abuse/shout
Vendor approaches/does not approach & passerby does any one or more of these: <ol style="list-style-type: none"> <li>1. Asks about the item the participant is selling or takes a look at the item but does not make a purchase</li> <li>2. Walks by without taking any action with respect to the vendor (but has noticed the vendor)</li> <li>3. Clearly says no when approached by the vendor but keeps their tone polite</li> </ol>	Nothing
Vendor approaches/does not approach & passerby makes a purchase or gives money	Give/buy
Vendor approaches/does not approach & passerby does any one or more of these: <ol style="list-style-type: none"> <li>1. Starts using their phone suddenly</li> <li>2. Starts walking quickly or runs away</li> <li>3. Clearly says no but in a stern voice and pretends to be in a rush</li> <li>4. Pulls up the mirror or moves their car</li> <li>5. Tries to move away or ignores them (even when the vendor follows them for some time or repeatedly approaches them)</li> <li>6. Changes their path or starts searching for something/someone</li> <li>7. Makes excuses (doesn't have money, will come later, etc.)</li> </ol>	Avoid
Vendor does not approach & passerby simply walks by or moves away without even noticing the vendor.	Unnoticed

- When recording a vendor's action, if for some reason the passerby you pointed to could not be approached (for e.g., they went by too quickly or turned away before they could be approached), pick the next passerby of the same category for that interval and record their reaction. Hence, 'Approached' and 'Unnoticed' should not appear together.
- When we ask the participant to not approach any passerby for a few minutes, we will only focus on noting down the reaction of the selected passerby that is the closest to the participant in terms of the physical distance or those who are walking in the direction of the participant (basically, the passerby should be able to see/notice the vendor). As such, 'Not approached' and 'Unnoticed' should be rarely used together as well.

- The participants themselves are **not** going to select which passerby group or whom they are going to approach. This is **strictly the role of the surveyors**. The passersby to be approached have to be chosen in a random manner.
- During the ‘no approach’ case, the participant should make no eye contact with the selected passerby. In case they do so, even by mistake, that particular entry will not be considered. The surveyors must try again with another passerby of the same category.

- Audit Study Workflow:



- Select the correct 'passerby category', 'price quoted', and 'seller action' as shown in the survey itself.
- If at any particular location you are unable to find a specific passerby category immediately, please wait for 8-10 mins until the passerby of that category turns up. Based on our experience, most likely, this would be males together in the markets or females together at the metro stations.
- Be mindful of how many times a participant uses 'please statement' and if they are deviating from the given script. If so, please repeatedly ask the participant to stick to the script and continue only after this is corrected.
- Write only **per unit price** in the 'price paid/amount given' column.

- A step-by-step guide on how to do the Field Experiment Survey if the participant works outside a metro station or mall (that is, they cover a very limited area for their work):

Stand beside the participant – maintain a hand's distance – and fill in all the participant's details in the Qualtrics survey.



Explain to them the workflow of the study – read out all the instructions clearly that are already given in the survey – and tell them about the compensation and for how long we are going to be with them. Please tell them that they can keep all the money from their sales with themselves.



Read out the script to the participant that they are supposed to use throughout the audit study. Make it clear to the participant that they should not deviate from the script and should not use the 'please statement' for more than two times.



As you are standing right next to the participant, point them to the passerby group they are supposed to approach for a given interval. We should not make much use of any hand movements as that can make people suspicious and curious about our study. Rather, inform the participant about the passerby by giving clear instructions about the appearance/approaching direction/color of their clothes of the passerby group and keep your voice low while doing so.



Listen to the interaction between the passerby and the participant carefully and note down the correct reaction of the passerby. Fill in the details properly in the event of the participant making a sale.



In cases where the participant is not supposed to approach anyone, especially the randomly chosen passerby, make sure that they are not trying to deliberately make eye-contact with a passerby or leave the site (for meeting someone, buying their food, etc.). It is important for the participant to be present throughout the survey duration. During the time when the participant would be away to perform any other task, no observations will be recorded.



Throughout the survey, the surveyors must ensure that the participant is quoting the right prices according to the randomly appearing prices in the Qualtrics survey. At no point the participants are allowed to bring down the price or raise the price at their own will. It should be a take it or leave it offer. In case they do so, please reiterate the protocol and no such instances should be recorded as an interval in the survey.

□

Leave comments and notes in the survey whenever required. After submitting the survey, give participation money to the participant, thank them for their participation, and tell them that we will be coming again to do this survey.

□

If, at any point, anyone asks you about your purpose of standing there with the participant for this long, politely tell them that you are studying the work of the street vendors as part of a research study.

- The instructions remain same for the situations when the participant is working in a busy market and covers a large area for work by moving around that location (for example, Sarojini Nagar Market). The only differences are likely to be:
  - You may now be moving with the participant and going to every lane or place that they usually cover for work. In these cases, walk behind the participant.
  - You will ask the participant to approach the chosen passerby group by pointing them to the people who are coming in the participant's direction from the front. As before, we should not make much use of any hand movements as that can make people suspicious and curious about our study. Rather, inform the participant about the passerby by giving clear instructions about the appearance/color of the clothes of the passerby group and keep your voice low while doing so.
  - When the participant is not approaching, they can still keep moving inside the market without using the script or sit/stand at one point where the passersby can be seen.
- In case a passerby gives/buys food for the seller, enter the details as follows:
  - Price paid: 0
  - Amount: 0
  - Comments: Offered food
  - Reaction: Give/buy

## 2. WTP Experiment with Passersby

- a. The survey will show you which passerby category to approach for the survey that appears in a randomized manner – please choose the correct passerby group while filling in the survey. Once the survey software chooses a passerby category, look for those specific passersby (if you are in a market) or wait for them (if you are outside a metro station). As a protocol, approach those passersby (after noting down what the software picks in the survey) who are the closest to you (but they should not have heard the questions while you were surveying someone else) or those who are moving in your direction. To eliminate any kind of bias in selecting the sample, the surveyors

are not going to only approach only a select set of people for example, those people who seem to be young or more educated or wealthy.

- b. As per the research protocol, emphasize the fact that participant's name and other personal information (such as their address or contact details) would not be asked and recorded in the survey, and that completion of survey will not take more than 5-10 minutes.
- c. Avoid going back to the previous questions as you are entering the participant's responses. Doing so can mess up the randomization added to several questions.
- d. Before beginning the actual survey, guide the participant regarding what kind of questions they are going to see in the survey. You will be provided a sheet with printed questions (as shown in the pictures below) to give a trial to the participant. Make sure you carry it every time we are doing the passersby survey.

- This is an example of questions related to the purchase decisions:

The image shows two side-by-side screenshots of a mobile survey application. Both screens have a header with a language dropdown set to 'English' and a progress bar at the top right indicating 100% completion.

**Left Screen (Current View):**

- Question: "Would you like to buy a pen at the following prices from {child name}?"
- Options:
  - Yes (radio button)
  - No (radio button)
- Price list:
  - Rs 0 (radio button)
  - Rs 5 (radio button)
  - Rs 10 (radio button)
  - Rs 15 (radio button)
  - Rs 20 (radio button)
  - Rs 25 (radio button)
  - Rs 30 (radio button)
  - Rs 50 (radio button)

**Right Screen (Previous View):**

- Question: "Would you like to buy a pen at the following prices from {child name}?"
- Options:
  - Yes (radio button selected)
  - No (radio button)
- Price list:
  - Rs 0 (radio button)
  - Rs 5 (radio button)
  - Rs 10 (radio button)
  - Rs 15 (radio button)

- This is an example of the questions related to the donate decisions:

The image shows a screenshot of a mobile survey application. At the top, there is a blue header bar with a progress bar indicating 100% completion. Below the header, there is a language dropdown set to 'English'.

Question: "If you won Rs 100, how much would you like to give to this boy who is begging?"

Below the question is a horizontal slider with numerical tick marks from 0 to 100 in increments of 10 (0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100). A blue '>>' button is located to the right of the slider.

A vertical list of numerical options is displayed on the right side of the screen, ranging from 0 to 100 in increments of 10 (0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100).

At the bottom of the screen, there is a small grey footer bar with the text "Powered by Qualtrics".

- e. Carefully explain the lottery rules to the participants – how their purchase and/or donate decisions are going to affect the outcomes of the lottery, that is, the participants may have to make an actual purchase and/or donation – and what is at stake so that they think about their choices and report truthfully. Make sure that you read out the instructions and explain the given example without skipping any detail as omission of any information can influence behavior and choices of the participant. You will be provided another sheet with the printed example that you can use to explain the workings of the lottery.
- f. In the purchase decision questions, keep emphasizing on the fact that the participants will at most purchase one item out of the four items shown to them only if they had agreed to purchase at the randomly chosen price. As such, always carry some stock of these four items with you if any participant wants to see the quality of the product or to assure them about the authenticity of our experiment.
- g. Similarly, in the donation decision questions, assure the participant that only one out of the given four choices will be implemented if they win the lottery (and they can keep the remaining money with themselves) and they have to choose an amount they wish to donate out of Rs. 100 for each profile presented to them, and not divide Rs. 100 among four profiles shown.
- h. Show the pictures of the vendors or panhandlers in the donation choice questions.
- i. If any participant wants to know finer details of the purchase decision questions or they are unable to understand the lottery part, use the following step-by-step guide to explain the WTP experiment to them below:

We are interested in learning how much you value the items. You will be shown the pictures of the items and you can also examine each of these items. In this survey, you may have the opportunity to purchase any **one** of these items.



For each of the items, we will give you a list of prices, and you will tell us whether you want to buy it at that price by indicating a '**yes**' or '**no**' to each price.



You should answer these questions truthfully. If you say that you **WANT** to purchase an item at a particular price, you might be charged that price and given the item depending on a lottery.

The lottery will involve you choosing a number and then seeing **if your chosen number matches with the number randomly selected by the survey software / computer.**



So, you should only say you want to purchase an item if you truly do want to purchase it. If not, you should simply say no. Saying no will not affect your participation in the research.



If the two numbers match, the software / computer will **randomly choose an item for purchase along with a randomly chosen price from the ones you were shown**. Each of the items has an **equal chance of being selected** by the software / computer.



Then, to decide the price of the item being offered to you, the software / computer will **randomly select one price from the list of all the prices you were earlier asked about**. Each of the prices you are asked about has an **equal chance of being selected** by the software / computer.



If you had earlier indicated that you want to buy the item at the selected price, we will give you the item and charge you the randomly selected price. If you had previously said that you do not want to buy it at the selected price, then you will not buy it.



**You cannot change your mind** after the software / computer selects a price.

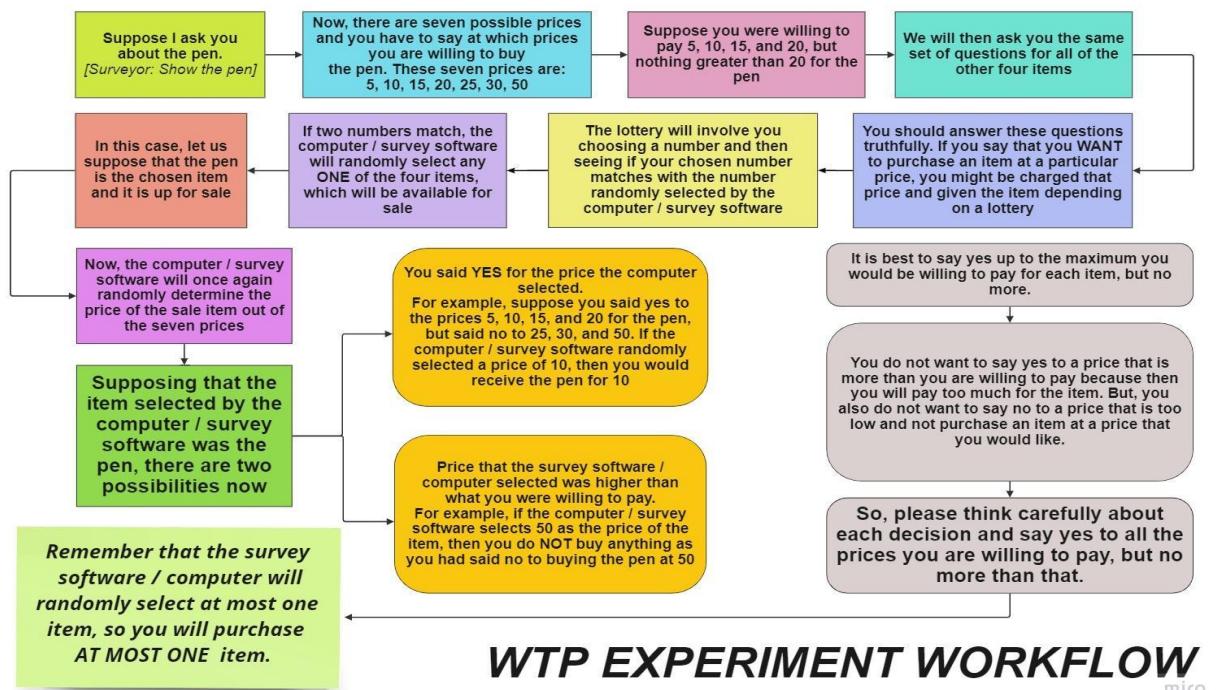


The selections made by the software / computer are **completely random**, and do not depend on your answers to the questions. How you answer the questions will not influence the price you are offered.



Therefore, it is **best to say yes up to the maximum you would be willing to pay for each item, but no more.**

Use the following example to further explain how the purchase lottery is going to work (please carry the sheet with you every time you are on the field):



## A Supplementary Appendix

### A Observational Study

Figure A.1: Buying Rates (overall) - Observational Study

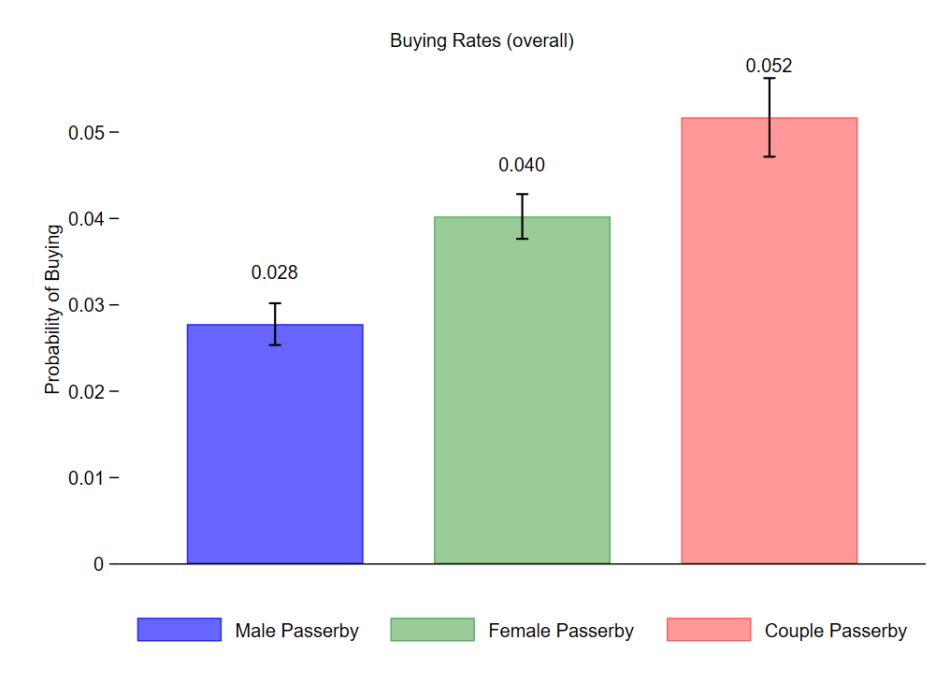
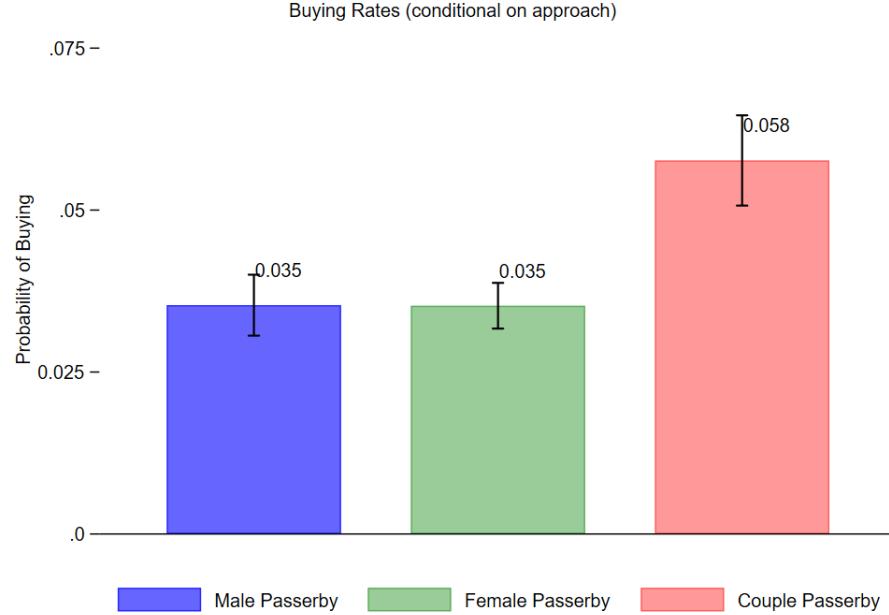


Figure A.2: Buying Rates (conditional on approach) - Observational Study



Note: The figures plot the purchase rates by passersby conditional on seller approach (bottom panel) and overall (top panel). The figure pools the passerby categories *single female* and *females together*, and *single male* and *males together*.

Figure A.3: Buying Rates (overall) by Type of Seller - Observational Study

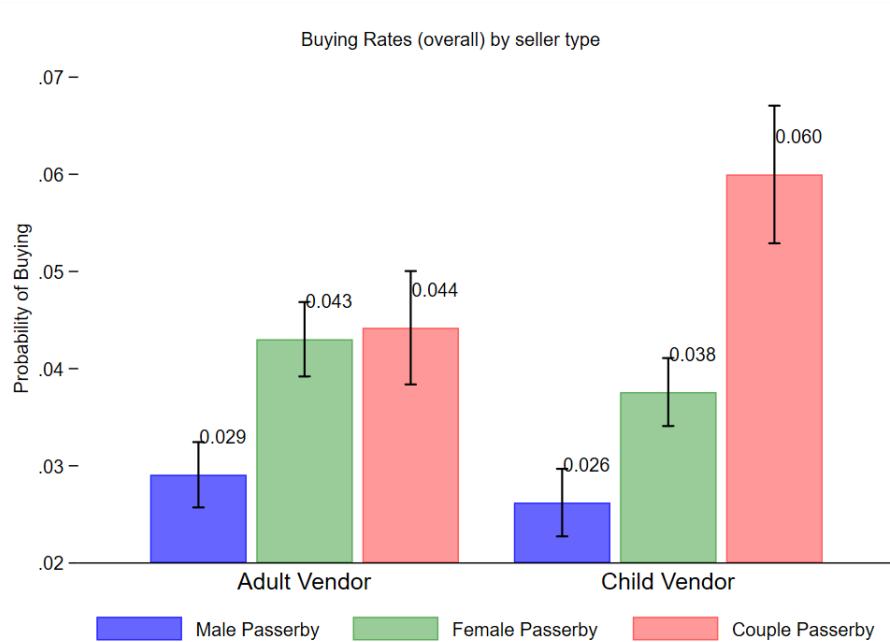
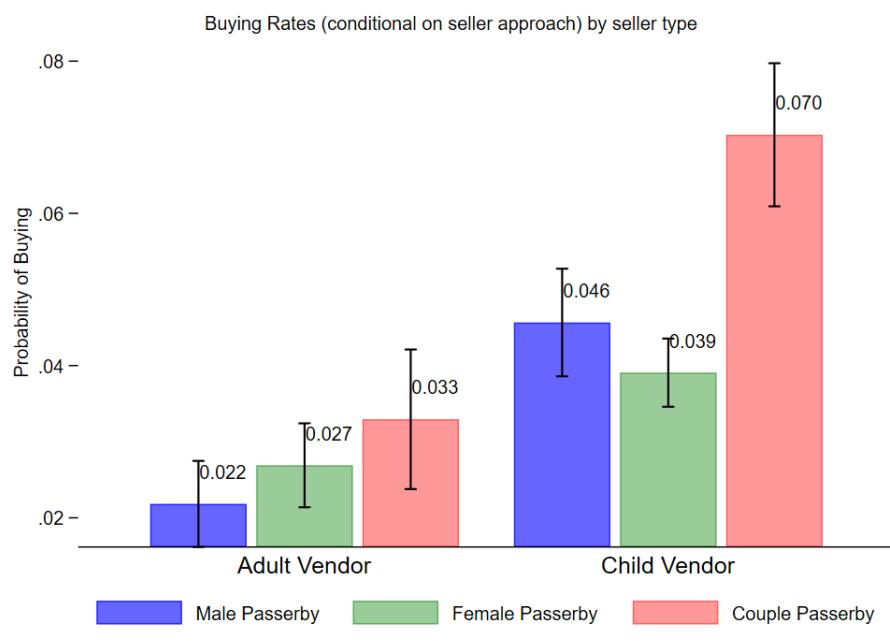
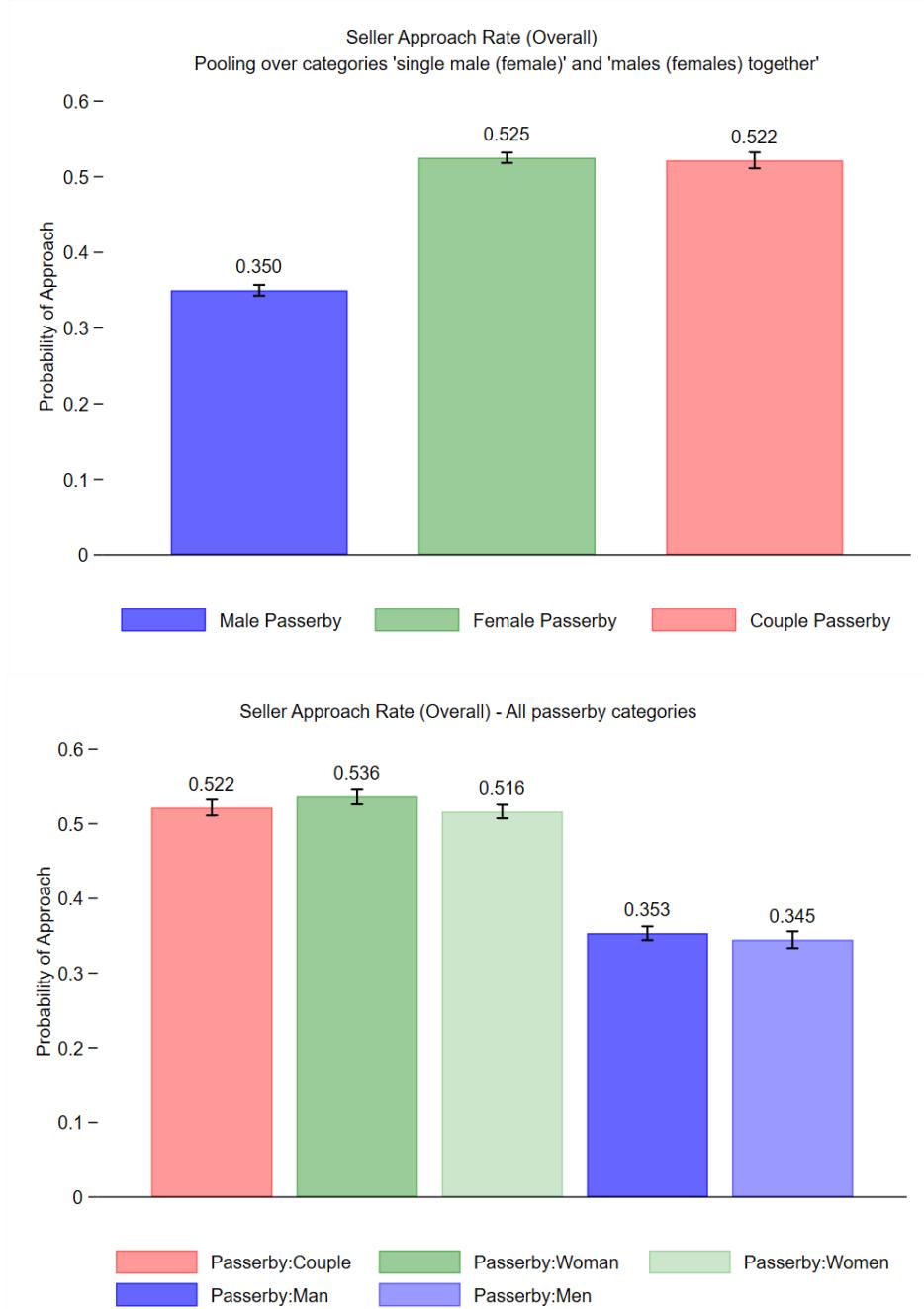


Figure A.4: Buying Rates (conditional on approach) by Type of Seller - Observational Study



Note: The figures plot the purchase rates by passersby category and seller type conditional on seller approach (bottom panel) and overall (top panel). The figure pools the passerby categories *single female* and *females together*, and *single male* and *males together*.

Figure A.5: Seller Approach Rate (Overall) - Observational Study



Note: The figure on the top plots seller approach by passerby category, pooling the passerby categories *single female* and *females together*, and *single male* and *males together*. The figure below gives the seller approach rate by all categories of passersby. "Approach" includes making eye contact, gesture, and/or a verbal request as outlined in Figure D.3.

Figure A.6: Avoidance Rates (when not approached) - Observational Study

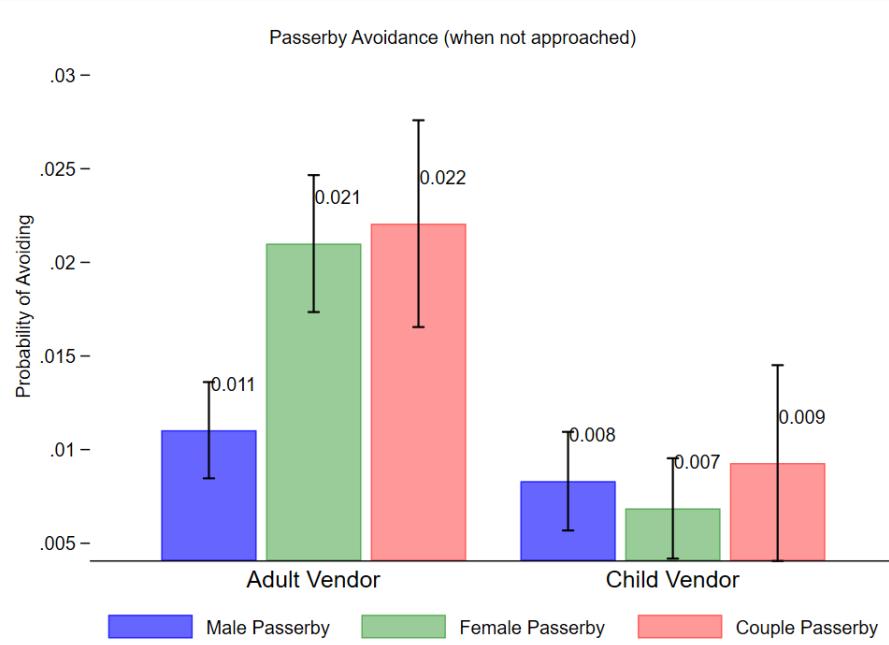
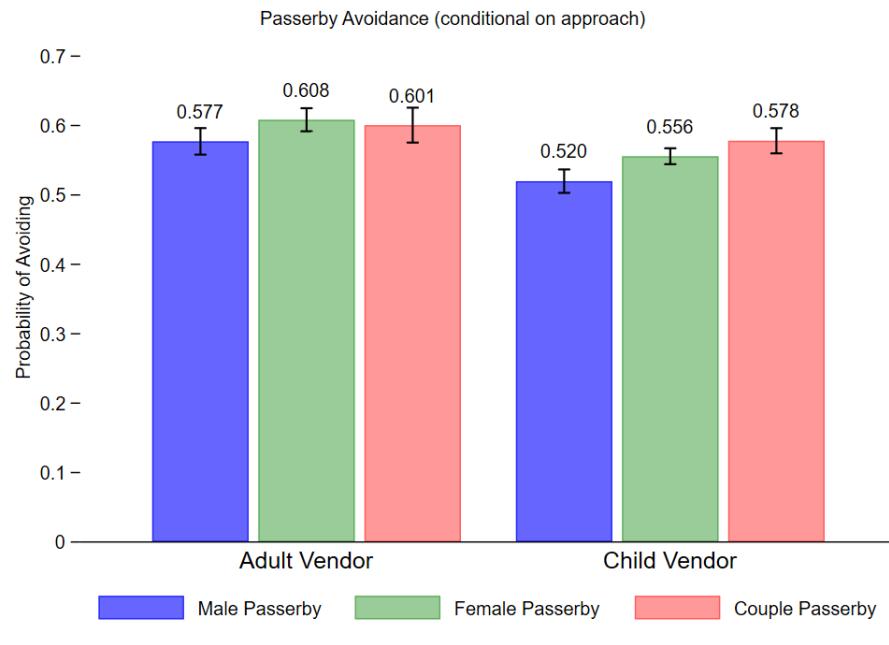


Figure A.7: Avoidance Rates (conditional on approach) - Observational Study



Note: The figures plot the avoidance rates by passersby conditional on seller approach (bottom panel) and overall (top panel). "Avoidance" includes avoiding eye contact, changing paths, etc. as outlined in Figure D.3. The figure pools the passerby categories *single female* and *females together*, and *single male* and *males together*.

Table A.1: Seller Approach Probability - All passerby categories expanded

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.266*** (0.029)	0.225*** (0.034)	0.206*** (0.030)			0.140*** (0.034)	0.079** (0.036)	0.066** (0.032)	
Passerby:Couple				0.170*** (0.020)	0.200*** (0.017)	0.197*** (0.016)	0.066*** (0.023)	0.083*** (0.022)	0.087*** (0.020)
Passerby:Woman					0.183*** (0.020)	0.194*** (0.018)	0.182*** (0.017)	0.088*** (0.025)	0.099*** (0.021)
Passerby:Women					0.163*** (0.024)	0.210*** (0.020)	0.204*** (0.018)	0.063* (0.032)	0.094*** (0.027)
Passerby:Men					-0.007 (0.014)	0.026** (0.013)	0.031** (0.013)	0.003 (0.018)	0.023 (0.017)
Passerby:Couple×Child Vendor							0.210*** (0.035)	0.223*** (0.032)	0.214*** (0.030)
Passerby:Woman×Child Vendor							0.154*** (0.037)	0.164*** (0.036)	0.162*** (0.035)
Passerby:Women×Child Vendor							0.189*** (0.044)	0.207*** (0.040)	0.203*** (0.036)
Passerby:Men×Child Vendor							0.011 (0.027)	0.001 (0.026)	0.009 (0.026)
Constant	0.325*** (0.024)	0.393*** (0.055)	0.425*** (0.058)	0.354*** (0.017)	0.416*** (0.047)	0.429*** (0.051)	0.282*** (0.026)	0.337*** (0.058)	0.390*** (0.059)
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	0.236
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 a 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. Columns 7-9 separate approach rates by passerby and seller type. Standard Errors are clustered at the vendor level.

Table A.2: Seller Approach Probability (Within-Interval)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.255*** (0.029)	0.202*** (0.033)	0.188*** (0.029)				0.137*** (0.032)	0.070** (0.033)	0.065** (0.030)
Female Passerby				0.166*** (0.017)	0.174*** (0.016)	0.165*** (0.015)	0.074*** (0.017)	0.079*** (0.016)	0.076*** (0.015)
Couple Passerby				0.191*** (0.015)	0.197*** (0.014)	0.190*** (0.014)	0.089*** (0.016)	0.088*** (0.016)	0.089*** (0.015)
Female Passerby $\times$ Child Vendor							0.171*** (0.031)	0.184*** (0.030)	0.176*** (0.029)
Couple Passerby $\times$ Child Vendor							0.196*** (0.027)	0.214*** (0.026)	0.204*** (0.026)
Constant	0.310*** (0.023)	0.401*** (0.055)	0.466*** (0.055)	0.326*** (0.017)	0.429*** (0.046)	0.470*** (0.049)	0.262*** (0.023)	0.354*** (0.055)	0.430*** (0.054)
Product FE		✓	✓		✓	✓		✓	✓
Location Type FE			✓			✓			✓
Weekend FE			✓			✓			✓
Time of the Day FE			✓			✓			✓
Surveyor FE			✓			✓			✓
Adjusted $R^2$	0.083	0.175	0.256	0.037	0.178	0.262	0.125	0.223	0.301
Mean of Dep. Var	0.434	0.434	0.434	0.434	0.434	0.434	0.434	0.434	0.434
Observations	20354	20354	20354	20354	20354	20354	20354	20354	20354

Note: The outcome here is seller approach within a 5-minute interval. ‘Approach’ includes making eye contact, gesture, and/or a 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 A.3: Seller Approach Probability (Within-Interval) - All passerby categories expanded

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.255*** (0.029)	0.202*** (0.033)	0.188*** (0.029)				0.139*** (0.034)	0.072** (0.035)	0.064** (0.032)
Passerby:Couple				0.194*** (0.017)	0.205*** (0.016)	0.198*** (0.016)	0.095*** (0.019)	0.096*** (0.019)	0.096*** (0.018)
Passerby:Woman					0.176*** (0.018)	0.177*** (0.017)	0.167*** (0.017)	0.085*** (0.018)	0.085*** (0.017)
Passerby:Women					0.164*** (0.020)	0.186*** (0.018)	0.180*** (0.018)	0.076*** (0.022)	0.089*** (0.021)
Passerby:Men					0.007 (0.011)	0.016 (0.011)	0.018 (0.011)	0.013 (0.014)	0.017 (0.014)
Passerby:Couple × Child Vendor							0.194*** (0.031)	0.213*** (0.030)	0.205*** (0.029)
Passerby:Woman × Child Vendor							0.161*** (0.033)	0.175*** (0.033)	0.170*** (0.032)
Passerby:Women × Child Vendor							0.177*** (0.036)	0.189*** (0.035)	0.184*** (0.034)
Passerby:Men × Child Vendor							-0.002 (0.022)	-0.003 (0.022)	0.002 (0.022)
Constant	0.310*** (0.023)	0.401*** (0.055)	0.466*** (0.055)	0.322*** (0.017)	0.421*** (0.046)	0.462*** (0.050)	0.256*** (0.025)	0.346*** (0.056)	0.424*** (0.056)
Product FE	✓	✓			✓	✓		✓	✓
Location Type FE			✓			✓			✓
Weekend FE			✓			✓			✓
Time of the Day FE			✓			✓			✓
Surveyor FE			✓			✓			✓
Adjusted $R^2$	0.083	0.175	0.256	0.037	0.178	0.262	0.125	0.223	0.301
Mean of Dep. Var	0.434	0.434	0.434	0.434	0.434	0.434	0.434	0.434	0.434
Observations	20354	20354	20354	20354	20354	20354	20354	20354	20354

Note: The outcome here is seller approach within a 5-minute interval, 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. Columns 7-9 separate approach rates by passerby and seller type. Standard Errors are clustered at the vendor level.

Table A.4: Buying Probability (Overall)- All passerby categories expanded

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.001 (0.004)	0.002 (0.005)	-0.001 (0.005)				-0.005 (0.007)	-0.006 (0.007)	-0.010 (0.008)
Passerby:Couple				0.022*** (0.004)	0.024*** (0.004)	0.022*** (0.004)	0.011** (0.005)	0.013** (0.005)	0.010* (0.005)
Passerby:Woman					0.006* (0.003)	0.011*** (0.003)	0.009*** (0.004)	0.007 (0.005)	0.010* (0.005)
Passerby:Women						0.013*** (0.004)	0.016*** (0.004)	0.013*** (0.004)	0.012** (0.006)
Passerby:Men							-0.006** (0.003)	-0.005 (0.003)	-0.005 (0.003)
Passerby:Couple × Child Vendor								0.022*** (0.008)	0.024*** (0.007)
Passerby:Woman × Child Vendor									-0.002 (0.007)
Passerby:Women × Child Vendor									0.002 (0.007)
Passerby:Men × Child Vendor									0.003 (0.007)
Constant	0.038*** (0.003)	0.046*** (0.009)	0.035*** (0.009)	0.030*** (0.003)	0.036*** (0.009)	0.028*** (0.008)	0.033*** (0.005)	0.039*** (0.010)	0.033*** (0.010)
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	0.003	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. Columns 7-9 separate approach rates by passerby and seller type. Standard Errors are clustered at the vendor level.

Table A.5: Buying Probability (Conditional on Approach)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.022*** (0.007)	0.012 (0.007)	0.008 (0.006)				0.026*** (0.007)	0.009 (0.009)	0.007 (0.007)
Female Passerby				-0.001 (0.004)	0.011*** (0.004)	0.006 (0.004)	0.005 (0.005)	0.013** (0.005)	0.009* (0.005)
Couple Passerby					0.023*** (0.005)	0.029*** (0.005)	0.024*** (0.005)	0.011 (0.007)	0.015** (0.007)
Female Passerby×Child Vendor							-0.013 (0.008)	-0.005 (0.007)	-0.005 (0.007)
Couple Passerby×Child Vendor							0.014 (0.010)	0.019* (0.010)	0.018* (0.009)
Constant	0.026*** (0.005)	0.057*** (0.016)	0.045*** (0.014)	0.037*** (0.004)	0.053*** (0.016)	0.043*** (0.015)	0.022*** (0.004)	0.047*** (0.016)	0.040*** (0.014)
Product FE	✓	✓			✓	✓		✓	✓
Location Type FE		✓				✓			✓
Weekend FE		✓				✓			✓
Time of the Day FE		✓				✓			✓
Surveyor FE		✓				✓			✓
Adjusted $R^2$	0.003	0.012	0.028	0.002	0.014	0.030	0.006	0.015	0.030
Mean of Dep. Var	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041
Observations	20863	20863	20863	20863	20863	20863	20863	20863	20863

Note: The outcome is purchase rates conditional on seller approach. 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 A.6: Buying Probability (Conditional on Approach)- All passerby categories expanded

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.022*** (0.007)	0.012 (0.007)	0.008 (0.006)				0.026*** (0.009)	0.009 (0.010)	0.007 (0.009)
Passerby:Couple				0.022*** (0.006)	0.031*** (0.006)	0.026*** (0.005)	0.012* (0.007)	0.017** (0.007)	0.014** (0.006)
Passerby:Woman				-0.005 (0.005)	0.007 (0.005)	0.002 (0.005)	-0.001 (0.006)	0.006 (0.006)	0.003 (0.007)
Passerby:Women				0.002 (0.006)	0.017*** (0.006)	0.012** (0.005)	0.011 (0.008)	0.022*** (0.007)	0.018** (0.007)
Passerby:Men				-0.001 (0.006)	0.004 (0.005)	0.004 (0.005)	0.001 (0.007)	0.004 (0.007)	0.003 (0.007)
Passerby:Couple×Child Vendor							0.014 (0.011)	0.019* (0.010)	0.019* (0.010)
Passerby:Woman×Child Vendor							-0.009 (0.009)	0.001 (0.009)	-0.000 (0.009)
Passerby:Women×Child Vendor							-0.017 (0.011)	-0.008 (0.011)	-0.008 (0.010)
Passerby:Men×Child Vendor							-0.000 (0.011)	0.000 (0.011)	0.002 (0.010)
Constant	0.026*** (0.005)	0.057*** (0.016)	0.045*** (0.014)	0.037*** (0.005)	0.051*** (0.017)	0.042*** (0.015)	0.021*** (0.005)	0.045*** (0.017)	0.040** (0.015)
Product FE		✓	✓		✓	✓		✓	✓
Location Type FE			✓			✓			✓
Weekend FE				✓		✓			✓
Time of the Day FE				✓		✓			✓
Surveyor FE				✓		✓			✓
Adjusted $R^2$	0.003	0.012	0.028	0.002	0.014	0.030	0.006	0.015	0.031
Mean of Dep. Var	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041	0.041
Observations	20863	20863	20863	20863	20863	20863	20863	20863	20863

Note: The outcome is purchase rates conditional on seller approach. 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. Columns 7-9 separate approach rates by passerby and seller type. Standard Errors are clustered at the vendor level.

Table A.7: Price Quoted

	(1)	(2)	(3)	(4)	(5)	(6)
Child Vendor	7.202*	7.732*			7.895**	7.755**
	(3.979)	(4.152)			(3.595)	(3.678)
Female Passerby			8.987***	7.901***	9.532**	8.036**
			(2.701)	(2.556)	(3.882)	(3.620)
Couple Passerby			3.882	2.913	2.798	1.658
			(2.579)	(2.487)	(4.031)	(3.775)
Female Passerby×Child Vendor					-2.302	-1.267
					(4.667)	(4.329)
Couple Passerby×Child Vendor					0.920	1.530
					(4.505)	(4.319)
Constant	6.509**	6.337	5.538***	4.695	1.961	2.811
	(2.650)	(5.041)	(1.862)	(5.222)	(3.493)	(5.927)
Product FE	✓	✓	✓	✓	✓	✓
Location Type FE		✓		✓		✓
Weekend FE		✓		✓		✓
Time of the Day FE		✓		✓		✓
Surveyor FE		✓		✓		✓
Adjusted $R^2$	0.553	0.563	0.555	0.563	0.559	0.567
Mean of Dep. Var	35.438	35.438	35.438	35.438	35.438	35.438
Observations	1452	1452	1452	1452	1452	1452

Note: The outcome is the price quoted (in Rupees). Columns 1-2 compare the price quoted by child vendors to that of adult vendors. Columns 3-4 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 5-6 separate the price quoted by passerby and seller type. Standard Errors are clustered at the vendor level.

Table A.8: Comparison of Price Quoted - Seller Approaches or Passerby Seeks

	(1)	(2)	(3)	(4)	(5)	(6)
Passerby Seeks	0.073 (3.474)	1.434 (3.276)	-1.250 (4.583)	-0.549 (4.433)	-1.360 (4.079)	-0.177 (3.858)
Child Vendor			2.884 (4.673)	2.870 (4.865)		
Passerby Seeks×Child Vendor			7.519 (6.194)	9.726 (6.475)		
Female Passerby					4.909* (2.853)	4.004 (2.841)
Couple Passerby					6.469** (2.967)	5.487* (3.003)
Passerby Seeks×Female Passerby					6.052 (4.480)	6.038 (4.242)
Passerby Seeks×Couple Passerby					-6.198 (4.793)	-5.682 (4.552)
Constant	10.366*** (1.500)	8.611* (4.947)	7.749** (3.189)	8.800 (5.750)	6.452*** (2.420)	5.437 (5.131)
Product FE	✓	✓	✓	✓	✓	✓
Location Type FE		✓		✓		✓
Weekend FE		✓		✓		✓
Time of the Day FE		✓		✓		✓
Surveyor FE		✓		✓		✓
Adjusted $R^2$	0.553	0.561	0.558	0.568	0.561	0.568
Mean of Dep. Var	35.337	35.337	35.337	35.337	35.337	35.337
Observations	1414	1414	1414	1414	1414	1414

Note: The outcome is the price quoted (in Rupees). Columns 1-2 compare the price quoted when the passerby seeks the vendor to the case when the seller approaches the passerby. Columns 3-4 allow for differences by vendor type as well. Columns 5-6 allow for differences by passerby type. The table pools the categories *single female* and *females together*, and *single male* and *males together*. Standard Errors are clustered at the vendor level.

Table A.9: Revenue/Earnings (Observational Study)

	(1)	(2)	(3)	(4)	(5)	(6)
Child	-0.660** (0.327)	-0.804*** (0.292)	-0.702** (0.328)	-0.827*** (0.292)	0.037 (0.118)	-0.003 (0.119)
Constant	1.100*** (0.261)	0.397 (0.399)	0.931*** (0.244)	0.303 (0.398)	0.290** (0.140)	0.158 (0.158)
Product FE	✓	✓	✓	✓	✓	✓
Location Type FE		✓		✓		✓
Weekend FE		✓		✓		✓
Time of the Day FE		✓		✓		✓
Surveyor FE		✓		✓		✓
Adjusted $R^2$	0.004	0.007	0.005	0.007	0.003	0.003
Mean of Dep. Var	1.804	1.804	1.770	1.770	0.672	0.672
Observations	34869	34869	34776	34776	34293	34293

Note: The table compares revenue/earnings (in Rupees) across child and adult vendors. Revenue is coded as zero for instances where there was no transaction. Columns 1-2 report the overall results, including instances where money was given but no sale was made. Columns 3-4 report earnings from sales, including those of multiple goods. Columns 3-4 restrict to those cases where only one good was sold, that is, excluding the cases where the vendor bundled two or more goods (and quoted a total price that would be a lower average price per unit). Standard Errors are clustered at the vendor level.

## B Lab-in-the-Field Experiment

Table B.1: Price Quoted - All passerby categories expanded

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Child Vendor	4.015*** (0.888)	3.413*** (0.907)				2.637*** (0.824)	1.918** (0.840)		
Passerby:Couple			3.603*** (0.544)	3.563*** (0.547)	3.555*** (0.549)	2.339*** (0.424)	2.239*** (0.423)	2.268*** (0.430)	
Passerby:Men				1.196*** (0.310)	1.213*** (0.303)	1.244*** (0.307)	0.237 (0.206)	0.183 (0.208)	0.197 (0.210)
Passerby:Woman				0.226 (0.308)	0.217 (0.301)	0.240 (0.306)	-0.046 (0.288)	-0.147 (0.286)	-0.147 (0.291)
Passerby:Women				1.703*** (0.344)	1.695*** (0.339)	1.717*** (0.345)	0.614 (0.377)	0.526 (0.374)	0.526 (0.381)
Passerby:Couple×Child Vendor						2.423** (1.049)	2.540** (1.056)	2.470** (1.060)	
Passerby:Men×Child Vendor						1.848*** (0.592)	1.983*** (0.580)	2.011*** (0.587)	
Passerby:Woman×Child Vendor						0.524 (0.601)	0.700 (0.588)	0.742 (0.597)	
Passerby:Women×Child Vendor						2.093*** (0.667)	2.245*** (0.657)	2.287*** (0.668)	
Constant	26.451*** (0.474)	7.574*** (1.017)	27.196*** (0.423)	7.252*** (1.094)	2.080*** (0.479)	25.822*** (0.481)	7.014*** (1.045)	2.864*** (0.427)	
Product FE		✓			✓	✓	✓	✓	
Surveyor FE		✓			✓		✓		
Seller FE						✓		✓	
Adjusted $R^2$	0.003	0.780	0.001	0.779	0.830	0.004	0.782	0.830	
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	

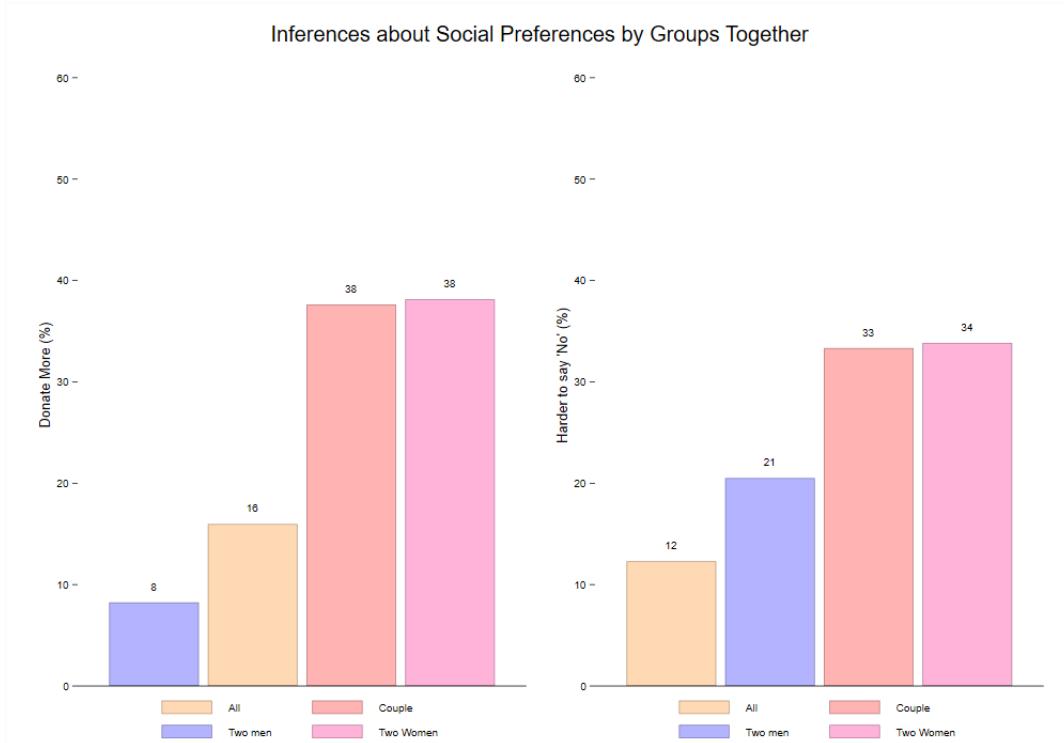
Note: The outcome here is the price quoted in the Lab-in-the-Field Pricing Experiment. Columns 1-2 compare the price quoted by child vendors to that of adult vendors. Since the randomization was within-vendor, it is not possible to control for a seller fixed effect in this comparison. Columns 3-5 compare the price quoted for females and couples compared to males. 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.

Table B.2: Price Discrimination along Passerby Income and Gender

	(1)	(2)	(3)	(4)	(5)	(6)
Child Vendor	4.449*** (1.226)			1.365 (0.958)	1.288 (0.854)	
Rich		13.408*** (0.981)	13.508*** (1.142)	9.984*** (1.222)	10.250*** (1.404)	10.250*** (1.622)
Female Passerby		-0.618 (0.438)	-0.683 (0.489)	-0.453 (0.498)	-0.188 (0.168)	-0.188 (0.195)
Child Vendor×Rich				6.657*** (1.920)	6.814*** (2.167)	7.110*** (2.507)
Child Vendor×Female Passerby				-0.341 (0.862)	-0.188 (0.493)	-0.188 (0.570)
Rich×Female Passerby					-0.531 (1.075)	-0.531 (1.243)
Child Vendor×Rich×Female Passerby					-0.313 (1.640)	-0.547 (1.831)
Constant	14.830*** (0.738)	10.767*** (0.486)	11.087*** (0.578)	10.064*** (0.564)	9.931*** (0.494)	9.277*** (0.856)
Seller FE				✓		✓
Adjusted $R^2$	0.017	0.157	0.495	0.182	0.181	0.507
Mean of Dep. Var	17.131	17.131	17.131	17.131	17.131	17.131
Observations	1326	1326	1326	1326	1326	1326

Note: The outcome here is the price quoted to a rich/poor female/male for a mask in the Lab-in-the-Field Pricing Experiment. This question was not incentivized. Column 1 compares 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 2-3 allow a comparison of prices quoted for a female compared to a male and a rich buyer compared to a poor buyer. Columns 4-6 separate the price quoted by passerby, seller type, and buyer wealth status. Since the randomization was within-vendor, the regression omits the inclusion of a Child/Adult Vendor dummy in Column 6 when controlling for a seller fixed effect. Standard Errors are clustered at the vendor level.

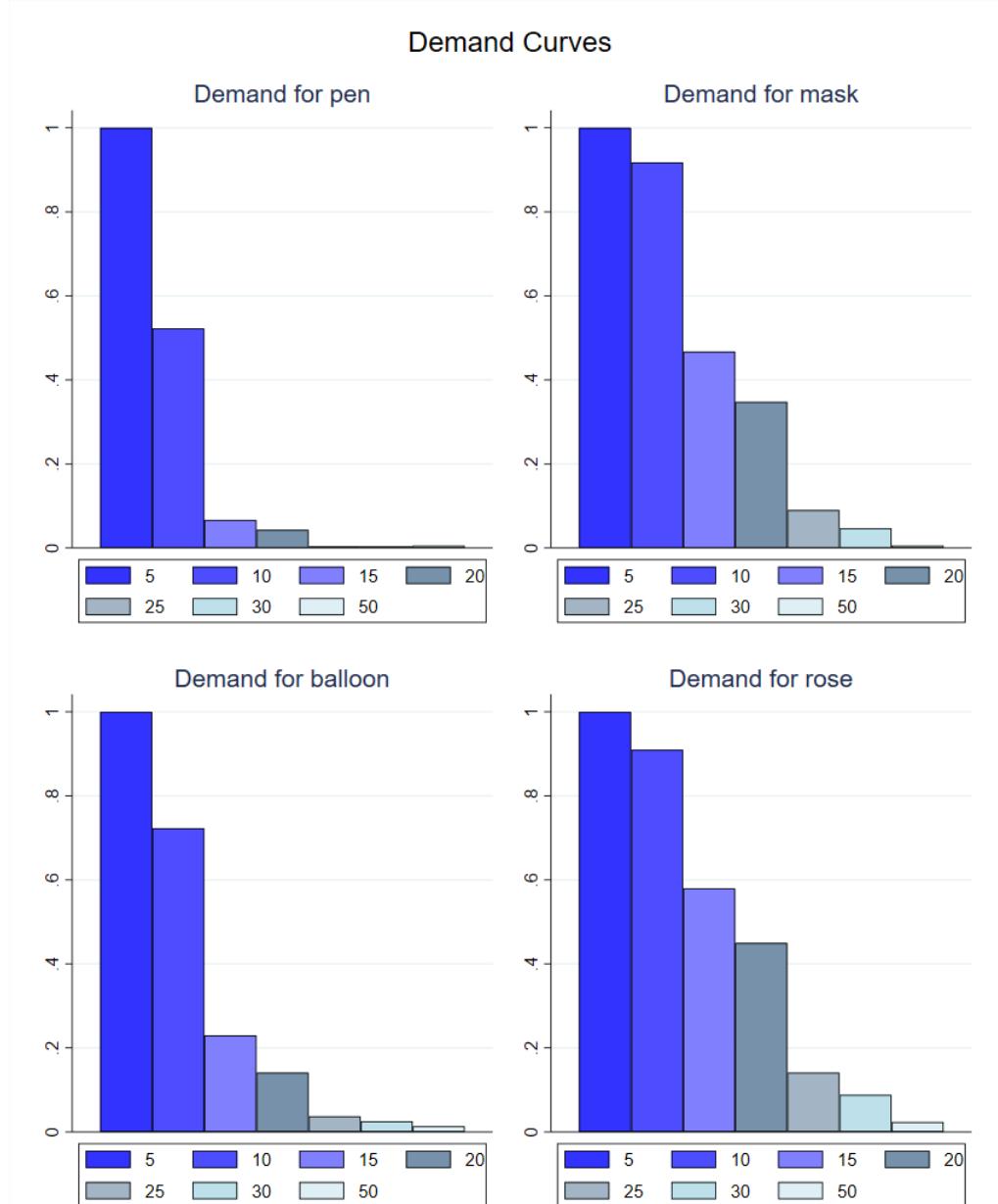
Figure B.1: Seller Inferences about Passerby Social Preferences (When in Groups)



Note: The figure plots the percentage of vendors mentioning (from left to right) whether men or women traveling in groups or together as a male-female pair donate more or find it harder to say no. If the vendors reported that everyone was equally likely to have these traits, the option 'All (are equally likely)' was selected.

## C Passerby Survey

Figure C.1: Demand Curves by Goods (from Willingness to Pay Exercise) - Passerby Survey



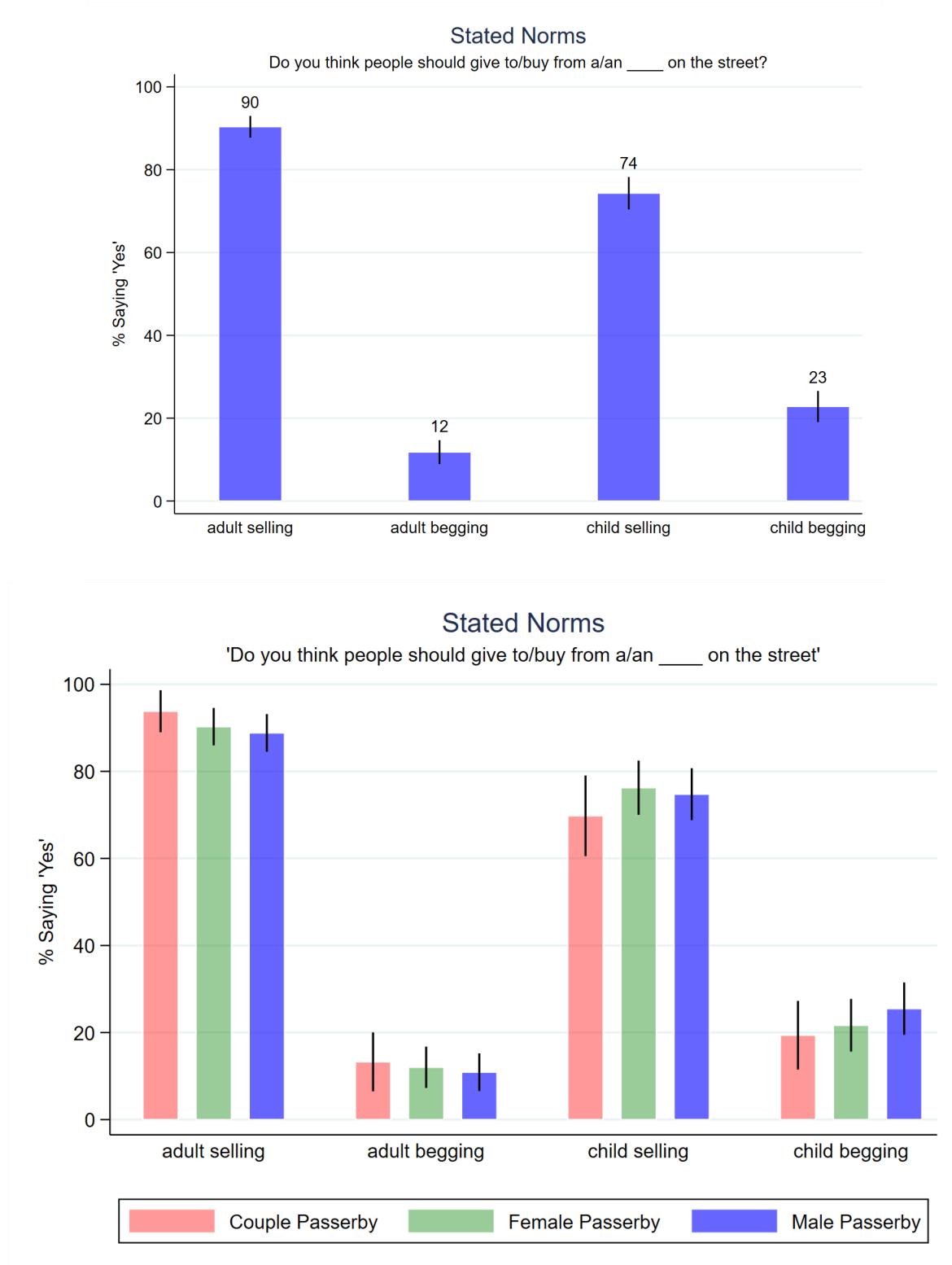
Note: The figure plots the fraction of individuals willing to buy each good at various prices (in increasing order on the x-axis) in the incentivized willingness to pay exercise described in the text. The top left Panel plots the demand curve for a pen, the top right plots the demand for a mask, the bottom left panel plots the demand for a balloon, and the bottom right for a rose.

Table C.1: Positive Donations in Dictator Game

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Child	0.069*** (0.013)	0.071*** (0.013)	0.069*** (0.014)			0.070*** (0.020)	0.073*** (0.021)	0.070*** (0.023)
Couple Passerby				-0.016 (0.035)	-0.011 (0.036)	-0.020 (0.041)	-0.011 (0.043)	
Female Passerby				0.002 (0.029)	0.015 (0.029)	0.006 (0.034)	0.018 (0.035)	
Child×Couple Passerby						0.008 (0.035)	-0.000 (0.037)	0.008 (0.040)
Child×Female Passerby						-0.007 (0.028)	-0.007 (0.029)	-0.007 (0.032)
Vendor/Panhandler FE	✓	✓	✓	✓	✓	✓	✓	✓
Recipient Gender	✓	✓	✓	✓	✓	✓	✓	✓
Order FE	✓	✓	✓	✓	✓	✓	✓	✓
Passerby Characteristics		✓			✓		✓	
Passerby FE			✓					✓
Adjusted $R^2$	0.017	0.045	0.435	0.009	0.036	0.016	0.043	0.434
Mean of Dep. Var	0.823	0.818	0.823	0.823	0.818	0.823	0.818	0.823
Observations	1996	1900	1996	1996	1900	1996	1900	1996

Note: The outcome is whether a person donates any positive amount 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-passerbys, we cannot control for a passerby FE when comparing 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.

Figure C.2: Stated Norms - Passerby Survey



Note: The top panel reports the percentage of people who agree with the statement that "People should give to or buy from a child/adult vendor/panhandler on the street." The bottom panel compares the responses across passerby pooling over the categories *single female* and *females together*, and *single male* and *males together* respectively.

## D Field Experiment

Table D.1: Buying Rate (%) - All passerby categories expanded - Field Experiment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	1.145*** (0.301)	1.144*** (0.259)	1.150*** (0.224)				0.613 (0.371)	0.611* (0.331)	0.616* (0.342)
Passerby:Couple				1.118*** (0.316)	1.118*** (0.316)	1.118*** (0.316)	0.294 (0.261)	0.293 (0.261)	0.293 (0.261)
Passerby:Woman				0.208 (0.241)	0.206 (0.241)	0.206 (0.241)	0.119 (0.247)	0.117 (0.246)	0.117 (0.246)
Passerby:Women				0.316 (0.249)	0.315 (0.249)	0.316 (0.249)	0.022 (0.223)	0.021 (0.223)	0.021 (0.223)
Passerby:Men				-0.225 (0.231)	-0.226 (0.231)	-0.226 (0.231)	-0.348* (0.193)	-0.352* (0.193)	-0.351* (0.193)
Passerby:Couple×Child Vendor							1.646*** (0.557)	1.647*** (0.557)	1.648*** (0.557)
Passerby:Woman×Child Vendor							0.179 (0.486)	0.179 (0.486)	0.179 (0.486)
Passerby:Women×Child Vendor							0.587 (0.493)	0.588 (0.493)	0.589 (0.492)
Passerby:Men×Child Vendor							0.248 (0.454)	0.251 (0.454)	0.251 (0.453)
Constant	1.181*** (0.203)	0.543** (0.248)	0.669** (0.306)	1.470*** (0.202)	0.831*** (0.304)	0.960** (0.388)	1.163*** (0.271)	0.527* (0.274)	0.652* (0.339)
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 that of adult vendors. Columns 4-6 compare purchase rates by females and couples compared to males. Columns 7-9 separate purchase rates by passerby and seller type. Standard Errors are clustered at the vendor level.

Table D.2: Revenue (Rs)- All passerby categories expanded - Field Experiment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child Vendor	0.223*** (0.053)	0.223*** (0.043)	0.224*** (0.042)				0.130** (0.065)	0.129** (0.063)	0.130* (0.067)
Passerby:Couple				0.170*** (0.059)	0.170*** (0.059)	0.170*** (0.059)	0.045 (0.048)	0.044 (0.048)	0.044 (0.048)
Passerby:Woman				0.026 (0.041)	0.025 (0.041)	0.025 (0.041)	0.022 (0.036)	0.021 (0.036)	0.021 (0.036)
Passerby:Women				0.117** (0.057)	0.117** (0.057)	0.117** (0.057)	0.024 (0.041)	0.024 (0.041)	0.024 (0.041)
Passerby:Men				-0.036 (0.038)	-0.036 (0.038)	-0.036 (0.038)	-0.047 (0.039)	-0.048 (0.038)	-0.048 (0.038)
Passerby:Couple×Child Vendor							0.250** (0.103)	0.251** (0.103)	0.251** (0.103)
Passerby:Woman×Child Vendor							0.009 (0.083)	0.009 (0.083)	0.009 (0.083)
Passerby:Women×Child Vendor							0.185* (0.109)	0.186* (0.109)	0.186* (0.109)
Passerby:Men×Child Vendor							0.023 (0.076)	0.024 (0.076)	0.024 (0.076)
Constant	0.222*** (0.065)	0.080 (0.064)	0.071 (0.077)	0.279*** (0.052)	0.136** (0.061)	0.127 (0.084)	0.214*** (0.065)	0.072 (0.066)	0.063 (0.081)
Pricequoted	✓	✓	✓	✓	✓	✓	✓	✓	✓
Product FE		✓	✓		✓	✓		✓	✓
Location Type FE			✓			✓			✓
Weekday/Weekend			✓			✓			✓
Time of the Day			✓			✓			✓
Adjusted $R^2$	0.002	0.005	0.005	0.001	0.004	0.005	0.002	0.006	0.006
Mean of Dep. Var	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291	0.291
Observations	40521	40521	40521	40518	40518	40518	40518	40518	40518

Note: The outcome is revenue (in Rupees). Where there was no sale, revenue is re-coded as zero. Columns 1-3 compare the revenue of child vendors to that of adult vendors. Columns 4-6 compare this by females and couples compared to males. Columns 7-9 separate further by passerby and seller type. Standard Errors are clustered at the vendor level.

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