

Pre-Analysis Plan: Street Vending

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November 15, 2022

1 Overview

Street vending is an important source of subsistence for the urban poor in developing countries. This study seeks to understand buyer and seller behavior in this market. More specifically, I investigate sellers' business strategies - namely, who they target and their price discrimination strategies - and how these relate to their beliefs and inferences about buyers and their social preferences.

I first outline here the randomization design and sampling details, along with the plan of analysis for the field experiment component of the study. The objective of the experiment is to test whether the seller and buyer identity matter in the transaction, even when the good involved is a gender-neutral homogeneous good. Specifically, the experiment seeks to establish whether purchase rates might differ across buyer groups (categorized into Single Male, Single Female, Males Together and Couples) and seller identity (Child or Adult Seller).

Additionally, in order to determine whether these differences are solely driven by inherent differences in willingness to pay for the goods across different buyer categories or any other differences in perceived norms or beliefs about types of vendors, I concurrently undertake an incentivised willingness to pay exercise with passersby and ask their beliefs and opinions about street vendors through a short minute survey with passersby. During this survey, I also conduct an incentivised dictator game to document whether social preferences systematically differ across seller identity (child versus adult seller) in charitable giving on the street (a common interaction along with street vending in developing countries). I outline the sampling procedure for the survey, and the randomization strategy used within the survey.

Finally, I also post-register the design of a lab-in-the-field experiment conducted with vendors to cleanly identify their pricing strategy across different passerby groups and collect survey data on their beliefs about various passerby groups.

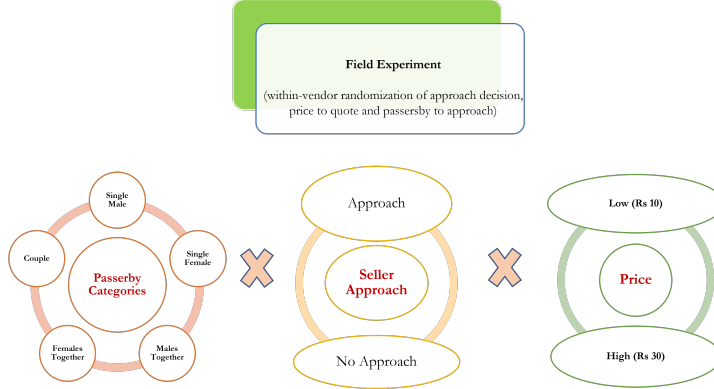
2 Field Experiment

2.1 Design

2.1.1 Randomization

Partnering with street vendors, I randomize whether and which buyer category (categorized into Single Male, Single Female, Males Together and Couples) they approach to sell, and the price (High or Low) they quote. The randomization is within-vendor. This yields the following 5x2x2 experimental design illustrated in Figure 1:

Figure 1: Experiment Design



A partnering vendor would go through each of the combinations (formed by the 5x2x2 design) twice in a random order at each instance of participation (lasting roughly an hour). That is, each instance of partnering with a vendor involves going through the forty intervals, recording the reactions of 40 passersby/buyers in total. The randomization is pre-programmed in Qualtrics.

2.1.2 Script For Vendors

When asked to ‘approach’ a buyer, the vendor is to use 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 mimics closely the natural way of approach by street vendors. The vendor will be instructed to not go off script, not say anything else, negotiate or make any other gesture. The vendors will practice the script with the surveyors prior to partnering.

2.1.3 Implementation

In terms of facilitating implementation of the randomization and ensuring fidelity, a surveyor will stand 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 will ask the vendor to either approach or not, what price to quote for that interval, and which particular buyer (belonging to the category randomly chosen) to approach or not. Surveyors will then stand close by and note the the reaction of the buyer and whether they purchased the good. When there are multiple buyers from the randomly chosen buyer category at a given instance, the surveyors will pick the buyer that is the closest to the participant in terms of the physical distance, i.e. the next buyer from that category who are walking in the direction of the vendor, in terms of who to record the behavior of and/or ask the vendor to approach or not. Therefore, at any instance, the surveyors (and not the vendor) select which passerby group or whom vendors approach in line with the randomization and protocol for picking a buyer from a given category. The surveyor will also monitor that the participant follows the script correctly and note any deviations from the script if they occur. Given ex ante safety concerns and feasibility and avoiding any inducement to work among children, this component will not be conducted at traffic lights and only those vendors who are actively working at metro stations and markets are to be invited to partner for the study.¹

¹The ethics appendix of the study details the logistical details of the recruitment procedure in greater detail.

2.2 Planned Sample Size

As the recruitment criteria follows the ethical protocol of only recruiting those already working during a particular time, given the irregularity of working times and days of vendors, and the possibility of the vendor exiting due to seasonal migration or unanticipated circumstances, there is considerable uncertainty in estimating an exact number of vendors working on any given day and the hours we are able to partner with them. Together with the lack of secondary data on the purchasing rates at the prices considered in the study, the exact number of observations and sample size is hard to determine and predict via power calculations. In light of this, I intend to collect sufficient number of observations in each treatment cell created by the randomization design, the intended sample size is 1000-2000 for each cell. To allow for comparison across child and adult vendors, the study will balance the number of instances of partnering (hours) with child and adult vendors across items considered in the study.

2.3 Analysis

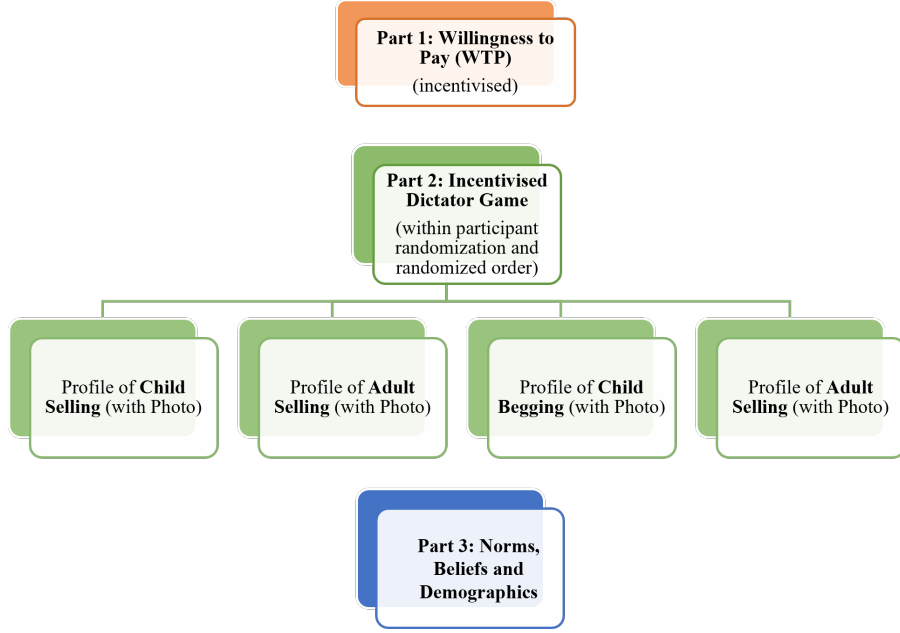
As the research seeks to compare purchasing behavior across different passerby and seller groups, all observations from child and adult vendors will be pooled together respectively in the analysis. In particular, I will compare purchase rates across child and adult vendors and across different passerby groups (one specification with treating separately all five passerby categories and one pooling across ‘Single Male’, ‘Males Together’ and ‘Single Female’, ‘Females Together’ respectively). I will additionally compare purchase rates by seller’s approach, and/or the price quoted to further investigate and distinguish the purchase rates across buyer and seller identity for different conditions under which interaction took place. In all the regression specifications, standard errors will be clustered at the vendor level. For robustness, I will additionally control for the product sold, location type (market/metro station), time of the day, weekend/weekday, and any other relevant characteristic that might be unbalanced to allow for the comparison of purchase rates across buyer and seller categories.

3 Passerby Survey

3.1 Design

The survey begins with a standard (incentivised) willingness to pay (Becker-DeGroot-Marshak) exercise involving 4 commonly sold items on the street - pen, balloons, masks, and roses. The second component of the exercise involves an incentivised dictator game where participants can win Rs 100 via a lottery and before knowing whether they win, they will be shown a profile of a child and an adult vendor and panhandler (therefore, 4 profiles in total, their order will be randomized), and asked to decide how much would they like to give to them if they win. They will be informed that that this money would be deducted from their payment and given to the person shown to them if they won the lottery. To closely mimic the actual decision making scenario that a passerby commonly encounters on the street, all the profiles contain photos, name, age and what the vendor sold (if vending). Photos of participants were collected in a standardized way to capture a passport sized image and these profiles were collated with full informed consent of the vendors and panhandlers of how they will be used in this survey. All participants were randomized to either see all male profiles or all female profiles to hold the gender of the profiles fixed within participant and within each of the four categories of profiles to be shown (i.e., {child/adult} x {vendor/panhandler}), a profile is randomly picked out of the profiles we have of each kind. The third component involves a few questions related to the perceived social norms and beliefs related to street vendors and panhandlers. The randomization for the willingness to pay exercise (whether a participant’s choice is implemented, and which item is chosen at which price) along with the randomization of the profiles involved in the incentivised dictator game is pre-programmed in Qualtrics. Figure 2 summarizes the structure of the passerby survey.

Figure 2: Passerby Survey Design



3.2 Sampling

The sampling procedure for passersby is similar to that in the field study. That is, one of the five passersby categories (Single Male, Single Female, Males Together and Couples) is randomly chosen for the enumerator to approach to invite to participate in the study. When there are multiple passersby from the randomly chosen category at a given instance, the surveyors will pick the passersby that is the closest in terms of the physical distance, i.e. the next passersby from that category who are walking towards the enumerator. As with the field experiment, we will avoid conducting this study at traffic lights due to logistical and safety concerns. Only metro stations and markets are to be included. Given that the passerby survey takes a short time (approx. 10 minutes), and to ensure balance across the time of the day, passerby surveys will be conducted within one afternoon hour slot and one evening hour slot during the same day and the location of the field experiment (to hold the passerby pool captured in these two components constant for ease of comparison). The intended sample size for the study is approximately 500 passersby.²

3.3 Analysis

I will compare willingness to pay across different passerby groups (one specification with all separate passerby categories and one pooling across 'Single Male', 'Males Together' and 'Single Female', 'Females Together' respectively). I will additionally control for the product sold, location type (market/metro station), time of the day, weekend/weekday, surveyor for robustness. The comparison for donations across passerby groups will follow a similar strategy and will also control for the seller identity shown (child/adult panhandler/vendor). In all these specifications, standard errors will be clustered at the passerby level. For analyzing beliefs about vendors and norms related questions in the third part of the survey, I intend to present responses across passerby groups via bar charts.

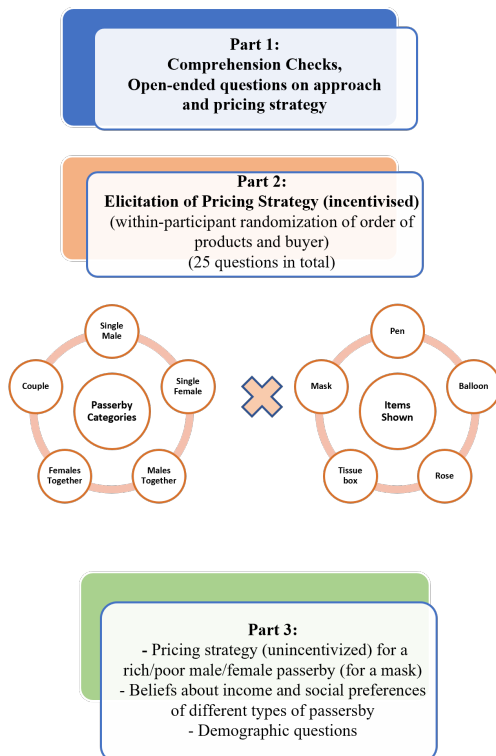
²This is estimated based on a previous trial run of this survey which used an unincentivised version of the willingness to pay exercise.

4 Lab-in-the-Field Experiment with Vendors

4.1 Design

Prior to the field experiment, I conducted a short lab-in-the-field experiment with street vendors to understand vendors' pricing strategy. I post-register the experimental design here. Vendors were given information about the unit cost of an item and they were asked to report what price they would quote to sell an item to the randomly selected passerby category ('Single Male', 'Males Together' and 'Single Female', 'Females Together' and 'Couple') shown via stick figure cartoon. Vendors were asked to price five items which are commonly sold in the markets - balloons, pens, masks, tissues and roses. The order of the goods and passerby category shown was randomized within individual and pre-programmed in Qualtrics. Vendors were informed that their quoted prices for randomly selected five choices will be compared with willingness to pay to a seller like them for each passerby group and that if their quoted price was the price that passersby would be willing to buy at (on average), then they would make the trade, and receive their quoted price less cost of the product for those five choices. Following this incentivised part of the survey, to shed some light on how the magnitudes of price discrimination across passerby groups compare to the price discrimination by income/wealth status of the passerby, the survey also included four unincentivised questions (appearing 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. Participants were then also asked a few questions about the average cost and average price of the product they sell, and their daily earnings and profits, along with their beliefs about which passerby groups were more altruistic or found it harder to say no. Figure 3 summarizes the structure of this survey.

Figure 3: Lab-in-the-field Experiment for Eliciting Pricing Strategy



4.2 Sampling

This component of the study was conducted with vendors selling at markets, metro stations and traffic lights. All vendors selling fairly homogeneous goods (pens, balloons, showpieces, lace, etc) at any of our study locations were invited to participate, and we conducted the study individually with each vendor. We were able to conduct the study with approximately 300 vendors in total between August 2021 - March 2022.

4.3 Analysis

I will compare the price charged by vendors across different passerby groups (one specification with all separate passerby categories and one pooling across 'Single Male', 'Males Together' and 'Single Female', 'Females Together' respectively) and seller identity (Child/Adult). I will additionally control for product, surveyor and vendor fixed effects for robustness. In these specifications, standard errors will be clustered at the vendor level. For analyzing beliefs of vendors in the third part of the survey, I intend to present responses across different sellers and different passerby groups via bar charts.