Beyond Enforcement: Understanding Street Vendor Preferences for Evidence-Based Urban Planning

Muskan Jain & Lachi Singh*

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Abstract

Place-based formalization programmes consistently fail to attract uptake from their intended beneficiaries, even when demand for secure tenure is high. We study the sources of this failure in the context of street vending, using a stated preferences experiment with 2,922 vendors across 206 marketplaces in Patna, Bihar. Because spatial frictions, zone design failures, coordination failure, and information frictions are observationally equivalent (each predicts low take-up), we design the experiment to jointly identify and quantify all four within a single framework. Vendors express large willingness to pay for formal zones, confirming that formality itself is valued; the barriers lie elsewhere. The binding constraints are spatial: marginal vendors are willing to pay approximately INR 1,322 (roughly two days of average profit) to reduce commuting distance by one kilometre, and rent sensitivity dominates all other zone attributes. Coordination failure exists but is quantitatively small; moving from zero to full peer coordination shifts relocation probability by less than the equivalent of a 0.5 km reduction in distance. An embedded information experiment reveals a credibility problem rather than an awareness problem: vendors who receive credible evidence of enforcement elsewhere value formal zones significantly more, by approximately INR 1,087 per month. Together, the results imply that place-based formalization fails not because of coordination traps or information gaps, but because zones are mis-targeted and overpriced relative to the people they are meant to serve.

*London School of Economics and Political Science

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1 Introduction

Street vending constitutes between 1.5% and 6.8% of employment in low- and middle-income countries and represents a critical livelihood for workers at the bottom of the urban labour market. Vendors operate without legal tenure and are subject to recurring eviction drives by municipal governments seeking to manage public space. Governments across the developing world have responded with formalization programmes centred on relocating vendors to designated formal vending zones, legally protected spaces with transferable use rights offered at a monthly rent. In India, the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act of 2014 mandates Urban Local Bodies to construct and populate such zones nationwide.

Yet these zones routinely fail to attract vendors. The Patna Municipal Corporation (PMC) in Bihar, our study setting, is a representative case, with most constructed zones recording zero occupancy. The puzzle is therefore not that formalization zones have been neglected, but that they exist yet sit empty.

This paper asks: **when place-based formalization policies fail, how large is each barrier to vendor take-up relative to the value of formality itself?** We decompose four candidate explanations that are observationally equivalent, each predicts low take-up and empty zones, and therefore cannot be disentangled using standard administrative or observational data. The first is *spatial frictions*: zones may be too far from vendors' residences or current customer bases, making commuting costs and foregone footfall prohibitive even if the zone is otherwise attractive. The second is *zone design and targeting failures*: zones may have rents that are too high, capacities that are too small, or infrastructure incompatible with vendor operations; or zones may have been sited without adequately matching vendor populations to zone locations. These are conceptually distinct, design failures concern the attributes of the zone itself, while targeting failures concern its spatial relationship to vendors and we estimate both. The third is *coordination failure*: vendors may prefer to relocate but only if a sufficient share of peers does so simultaneously, generating self-reinforcing empty-zone equilibria in which the zone remains empty precisely because it is expected to remain empty. This is a classic strategic complementarity (Brock & Durlauf, 2001; Cooper & John, 1988): the value of the zone to any individual vendor is increasing in the share of other vendors who adopt it. The fourth is *information frictions*: vendors may not trust that the policy will be enforced, distorting the perceived value of legal rights even where they are formally available.

A fundamental identification challenge prevents observational data from separating these explanations. Because 99% of vendors in our sample have never changed their marketplace, revealed preference data are effectively constant and provide no variation in location choices. Moreover, the share of peers relocating is simultaneously determined: it affects individual relocation decisions, but individual decisions aggregate to determine the share. We address both challenges with a stated preferences experiment that exogenously varies zone attributes and peer relocation share, allowing causal identification of each barrier separately. The results, presented in Section 4, show that spatial frictions and zone mis-targeting are the binding constraints, while coordination failure and information frictions play secondary roles.

Contribution. This paper makes two main contributions. First, we provide the first experimental decomposition of barriers to informal firm formalization that jointly identifies and quantifies spatial frictions, strategic complementarities, and information frictions within a single unified framework. Prior work has documented that place-based relocation programmes consistently underperform (Barnhardt et al., 2017; Harari & Wong, 2025; Takeuchi et al., 2006), but

has not identified which margins are binding or quantified the trade-offs across them. Second, we contribute to the literature on strategic complementarities and multiple equilibria (Brock & Durlauf, 2001; Cooper & John, 1988) by providing direct experimental evidence on the magnitude of peer effects in a relocation context. We show that strategic complementarities exist but are quantitatively small relative to spatial frictions: a finding that challenges coordination failure as the primary explanation for empty vending zones, as the theoretical literature on multiple equilibria and strategic complementarities might suggest.

Institutional Context. The Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act of 2014 mandates Urban Local Bodies to survey vendors, designate natural markets and promotion zones, issue vending certificates, and construct formal vending zones to which vendors can be allocated for a monthly fee. Vendors registered in zones receive legal protection from eviction and transferable use rights; upon full enforcement, vendors operating outside designated zones face fines and lose the right to operate anywhere in the city.

Patna Municipal Corporation (PMC) has enumerated approximately 30,000 vendors across 75 wards and constructed multiple formal vending zones, yet implementation has stalled: most zones record zero occupancy, and only one achieves below 25% utilisation. Ninety percent of vendors in our sample face eviction drives (*halla gadis*) at least monthly, yet only 1.3% are aware that the Street Vendors Act exists. This combination, active enforcement pressure alongside near-zero policy awareness, motivates both the study setting and the information experiment described in Section 3.5.

2 Data

Data collection proceeded in three stages: marketplace listing, vendor recruitment, and the main survey. The study is set in Patna, the capital city of Bihar, which is administratively divided into 75 wards. We selected 40 wards as the focus of the project based on vendor concentration, using the 2021 National Urban Livelihoods Mission (NULM) survey of vendors obtained from PMC. We geocoded potential vending locations, constructed vending zones, and overlaid these with ward boundaries to identify the 40 wards with the highest concentration of street vendor activity.

Marketplace listing. In August 2024, we conducted a comprehensive listing exercise across the 40 study wards. We define a marketplace as any public space where more than 10 vendors are clustered, and a street vendor as a self-employed person operating a business from a fixed temporary structure in a public space; mobile and hawker vendors are excluded. The listing exercise recorded the geolocation of each marketplace, characteristics of the surrounding area, and an approximate vendor count. The project specifically targets produce and street food vendors, who together comprise approximately two-thirds of the street vending sector according to EBRD informal enterprise surveys.

Recruitment and survey. We returned to the identified marketplaces between June and September 2025. Recruitment visits were conducted during peak marketplace hours using a systematic random walk strategy, approaching every third eligible vendor (produce or street food vendors at fixed locations) in each marketplace. We recruited 3,499 vendors. The main survey was administered in person within a few days of recruitment, lasting approximately 45 minutes, and collected information on vendor demographics, business practices, location attributes, physical and mental health, and the stated preferences experiment. Of the 3,499 recruited vendors, 2,935 completed the main survey, yielding an initial response rate of 84%. We exclude 13 observations with incomplete responses, leaving a final analytical sample of 2,922

Figure 1: Geo-location of vendors



Source: Street Vendor Survey, June to October 2025. Each point is a surveyed vendor across the 40 study wards selected by vendor concentration.

vendors across 206 marketplaces.

Sample construction. The 40 study wards contain approximately 17,000 static vendors, the substantial majority of Patna's stationary vendor population. The listing exercise identified 375 marketplaces, which were reduced to 206 analytical marketplaces in two steps. First, 43 marketplaces were excluded prior to the survey: their primary product was not produce or street food, one market had been declared a commercial zone on a first-come-first-served basis, and several could not have their locations confirmed prior to fieldwork, leaving 332 shortlisted marketplaces. Second, 126 of these were merged into nearby markets to mitigate spillover concerns in the information experiment, since treatment and control vendors in geographically proximate marketplaces could communicate between rounds.

Table 1 presents descriptive statistics for the analytical sample. Figure 1 shows the spatial distribution of surveyed vendors across the 40 study wards.

Vendor characteristics. The workforce is socially disadvantaged and long-tenured. Vendors are on average 39 years old with 6 years of education; 88% are male and 97% belong to historically disadvantaged caste groups (87% Other Backward Castes, 10% Scheduled Caste/Tribe). Vending is not transitional work: 53% have been vending for over 10 years, 95% work 7 days per week averaging 9 hours per day, and average daily profit is INR 619 (approximately £5.4) on average daily sales of INR 2,991. Eighty-five percent operate from stalls or carts on main roads, leaving them highly exposed to eviction.

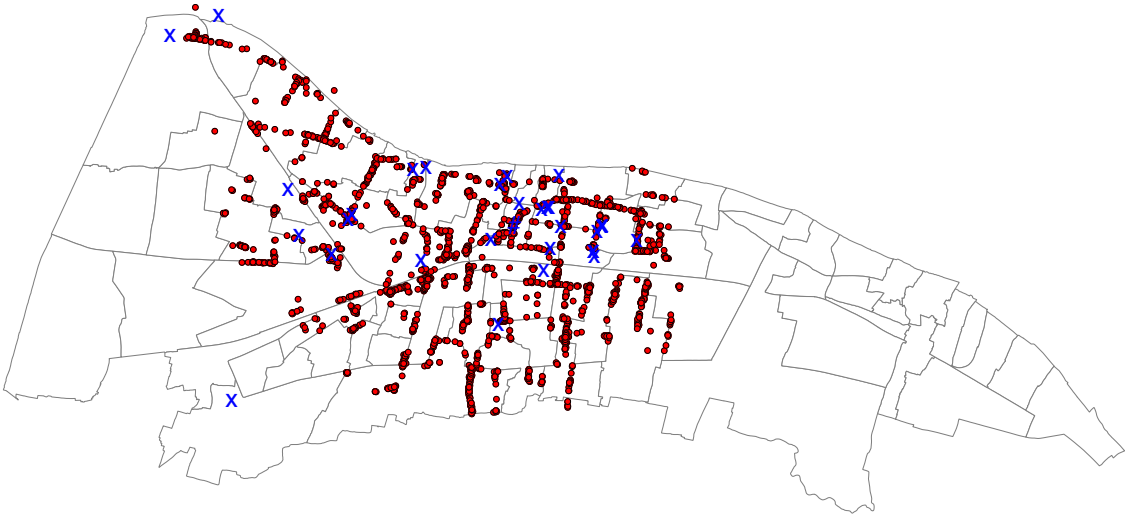
Existing vending zone infrastructure. PMC has constructed and proposed a number of formal vending zones across the city; Figure 2 shows their locations overlaid with vendor marketplaces. A critical but underappreciated feature of the existing zone designs is the space allocated to each vendor slot. Under the Bihar state implementation of the Street Vendors Act, each slot measures either 6 by 4 feet or 5 by 3 feet. Vendors in our sample typically operate from carts, stalls, and floor displays that occupy substantially more space, and many sell perishable produce or cooked food requiring storage, preparation area, and customer-facing display. Relocating to a formal zone would therefore require vendors to reduce the scale of their operations, a cost that no profit-maximising vendor would willingly accept.

Table 1: Summary Statistics

Variable	Mean	SD
Age	38.64	12.76
Education	6.08	4.76
Male	0.88	0.32
Marital Status		
Married	0.82	0.38
Single	0.16	0.36
Widowed/Divorced	0.02	0.15
Caste Group		
Backward Caste	0.87	0.34
Scheduled Caste/Tribe	0.10	0.30
General	0.04	0.19
Product Category		
Fresh Produce	0.58	0.49
Cooked Food/Drinks	0.42	0.49
Premises Type		
On Main Roads or streets	0.90	0.30
On Pedestrian Walkways	0.10	0.30
Infrastructure Type		
Have Stalls/Carts	0.85	0.36
On the Floor	0.15	0.36
Other Business related		
Work 7 days a week	0.95	0.22
Hours of Operation	9.22	3.67
Have employees	0.32	0.46
Yesterday's Sales (INR)	2,984.55	2,875.27
Yesterday's Profits (INR)	618.53	626.31
Weekly Sales (INR)	19,268.62	23,011.79
Weekly Profits (INR)	4,259.65	4,056.31
Own Other Businessess	0.15	0.35
Never Changed Marketplaces	0.99	0.08
Years in Business		
Upto 1 year	0.06	0.24
1 to 5 years	0.21	0.41
5 to 10 years	0.20	0.40
More than 10 years	0.53	0.50

Note: N = 2922. All monetary units are expressed in Indian Rupees (INR).

Figure 2: Proposed and Constructed Vending Zones across the City



Source: PMC records. Each X marks a proposed or constructed vending zone across the 40 study wards.

This provides a direct explanation for the divergence between stated willingness to relocate (43% always-movers in our experiment) and near-zero actual take-up. Our stated preferences experiment instructs vendors that their product mix, pricing, and, implicitly, their scale of operations remain unchanged in the new zone; by design, the space constraint is bracketed. Always-movers are therefore vendors who would genuinely relocate if a zone could accommodate them at their current scale. The fact that actual zones cannot do so means that even the most relocation-willing vendors face a structural impediment that rent subsidies, information campaigns, or coordination mechanisms cannot resolve without first addressing the allocated space per vendor.

3 Empirical Strategy

3.1 The Identification Challenge and the Case for Stated Preferences

Separating the four explanations requires exogenous variation in (i) zone attributes and (ii) the share of peers relocating. Neither source of variation exists in observational data. Because 99% of vendors have never changed their marketplace, revealed preference data offer no location choice variation. The simultaneity problem for peer effects is particularly acute: the individual relocation decision depends on the share s of peers relocating, but s is itself the aggregate of individual decisions. Observational estimates of peer effects therefore confound the causal effect of peer behaviour with common unobservables that jointly determine both.

We address both challenges with a stated preferences experiment that varies zone attributes and peer relocation share exogenously across hypothetical scenarios. This approach is well-established in transportation and environmental economics and has been applied to labour market choice under Mas and Pallais (2017). The personalised status quo, each vendor's actual current conditions, anchors choices to reality and mitigates hypothetical bias (Taylor & Cummings, 1999).

3.2 Stated Preferences Experiment

We conducted a stated preferences (SP) experiment embedded within the broader survey. Each respondent faced a series of binary choice scenarios, deciding between remaining in their current informal vending location or relocating to a hypothetical formal vending zone with varying characteristics. Prior to finalising the instrument, we conducted extensive cognitive testing with approximately 50 street vendors in Patna. Given that many vendors have low literacy, the final instrument incorporated visual aids and images to represent each attribute, replacing text-based comparisons. This testing confirmed that respondents understood the trade-offs presented and could reliably distinguish between attribute levels. A sample choice task, including the visual aids used to present each attribute, is reproduced in Appendix B.

Each respondent completed six choice tasks, of which the first served as a practice round and is excluded from all estimation. In each task, respondents chose between: (1) remaining at their current location, or (2) relocating to a formal vending zone. Both alternatives were described by six attributes that varied systematically across choice occasions, with the exception that the formal zone consistently offered legal rights to operate. Vendors were asked to assume they would maintain their existing product mix and pricing strategy across locations, so that differences in revenue arise from customer traffic and competition rather than product changes.

The six attributes were selected based on formative qualitative interviews and existing literature on informal sector formalization. Table 2 presents the full set of attributes and their possible values in the new market alternative.

Table 2: Possible Values of Attributes in the New Marketplace

Attributes	Levels
Monthly Rent (% of monthly sales)	0, 1, 2, 4, 8
Number of spots (levels)	same, 20, 40, 80, 160
Expected number of vendors relocating (% of vendors)	[0, 100]
Expected number of competitors (absolute change)	-10, -5, 0, +5, +10
	-50, -20, 0, 20, 50 if current $\in$ [10-60]
Expected number of daily customers (% change)	-30, -15, 0, 15, 30 if current $\in$ [61-120]
	-25, -10, 0, 10, 25 if current $\in$ [121-170]
Distance from residence (absolute change)	-1, 0, +1, +3, +5

A key design feature is that attribute values for the alternative zone were defined *relative to each vendor's self-reported status quo*, elicited in the survey module preceding the choice tasks. For example, if a vendor reported a current commuting distance of 2 km and the design specified +1 km, the alternative was presented as a 3 km commute. This personalisation ensures that all vendors face the same experimental variation in relative terms while the absolute values are grounded in their actual situation, substantially reducing hypothetical bias (Taylor & Cummings, 1999).

The design was constructed from the full factorial. We applied two restrictions: we removed dominated scenarios (alternatives strictly better than the status quo on all attributes, which provide no information on trade-offs) and restricted to scenarios where at most three attributes differed from the status quo, limiting cognitive burden. From the remaining valid pool, 150 scenarios were drawn using a fixed seed and organised into 25 blocks of 6 (1 practice, 5 analyt-

ical), with each respondent randomly assigned to one block. All pairwise attribute correlations in the design matrix are below 0.2, confirming that individual attribute effects can be reliably estimated without multicollinearity concerns (see Appendix A).

3.3 Discrete Choice Model

We estimate a McFadden conditional logit (McFadden, 1974). Vendor i relocates in scenario t if the net utility gain from relocation exceeds zero:

$$U_{it}^{\text{relocate}} - U_{it}^{\text{stay}} = V_i(s) + \varepsilon_{it} > 0 \tag{1}$$

where ε_{it} is distributed Type I Extreme Value independently across i and t, and the deterministic component is:

$$V_i(s) = \underbrace{\alpha}_{\text{formal zone}} + \underbrace{\beta_1 \Delta\text{Customers}_i}_{\text{demand}} + \underbrace{\beta_2\, s}_{\substack{\text{strategic} \\ \text{complementarity}}} + \underbrace{\beta_3 \Delta\text{Capacity}_i}_{\text{space}} + \underbrace{\beta_4 \Delta\text{Distance}_i}_{\substack{\text{commuting} \\ \text{cost}}} \tag{2}$$

$$+ \underbrace{\beta_5 \Delta\text{Rent}_i}_{\substack{\text{normalise} \\ \text{WTP}}} + \underbrace{\beta_6 \Delta\text{Competition}_i}_{\text{rivalry}} + \underbrace{\gamma' z_i}_{\substack{\text{vendor} \\ \text{characteristics}}}$$

The intercept α captures the value of formal zone conditional on all other attributes being equal to the status quo. The coefficient β_2 on s identifies the strategic complementarity: how much the probability of relocation rises with the share of peers also relocating. z_i includes vendor-level controls for legal rights importance (on a 1–5 scale), product category (cooked food vs. produce), and years in business.

The implied choice probability is:

$$P(\text{relocate} \mid V_i(s)) = \frac{\exp(V_i(s))}{1 + \exp(V_i(s))} \tag{3}$$

When $V_i(s) = 0$, the vendor is indifferent: $P(\text{relocate}) = 0.5$. Willingness to pay for attribute k is recovered by the ratio:

$$\text{WTP}_k = -\frac{\hat{\beta}_k}{\hat{\beta}_5} \tag{4}$$

measured in thousands of INR per month, using monthly rent as the numéraire. Standard errors are clustered at the marketplace level throughout (206 clusters). The estimation sample uses rounds 1–3 only, excluding the practice round and post-treatment rounds 4–5 to avoid treatment contamination.

3.4 Vendor Classification

We classify vendors into three types based on their choices across rounds 1–3. *Always-movers* relocate in all three rounds regardless of the zone attributes offered; they are vendors for whom the formal zone is unambiguously preferred across all scenario draws. *Never-movers* never relocate across any of the three rounds; they cannot be induced to move by zone design changes. *Marginal vendors* exhibit variation in choices across scenarios; their relocation decisions are sensitive to zone attributes and represent the policy-relevant margin. This classification uses only pre-treatment rounds to avoid contamination from the information experiment.

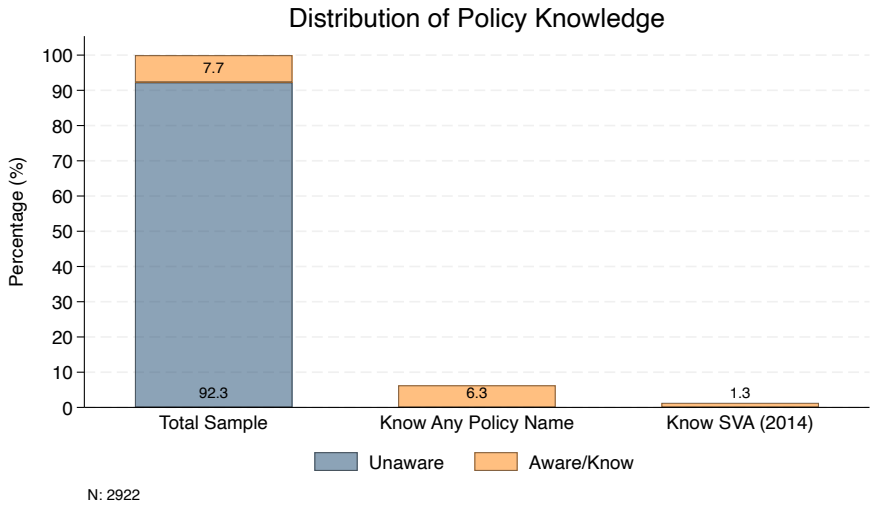
The welfare and policy implications differ substantially across types. Always-movers (43% of the sample) provide a natural seed population for zones. Never-movers (30%) are unlikely to

be reachable through zone redesign alone. Marginal vendors (27%) are those for whom policy interventions are operative, and we present main results separately for this group alongside full-sample estimates.

3.5 Information Experiment: Difference-in-Differences Identification

A central motivation for the information experiment is the strikingly low baseline policy awareness documented in Figure 3: only 7.7% of vendors were aware of any policy concerning street vending, and only 1.3% specifically knew about the Street Vendors Act of 2014. This limited awareness suggests vendors may be making location decisions without understanding the regulatory environment, potentially distorting their valuations of formalization.

Figure 3: Awareness of Policies Among Street Vendors



At the start of the survey, we randomly assigned vendors to treatment and control groups within each marketplace. After completing round 3 of the choice tasks, treatment group vendors received detailed information about the Street Vendors Act (2014) and concrete evidence of enforcement in Chandigarh, where approximately 3,000 non-compliant vendors were displaced in late 2024 (the full treatment text is reproduced in Appendix C). The information was delivered orally by enumerators to accommodate varying literacy levels. Control group vendors received no information and proceeded directly to round 4. All vendors then completed two further choice tasks (rounds 4–5) in the same format as previous rounds. Balance tests confirm that treatment and control groups are comparable on observable characteristics prior to information provision (Table 3).

To identify how enforcement information shifts the perceived value of the formal zone, we extend the indirect utility function to a difference-in-differences (DiD) specification. Rather than interacting treatment with each individual attribute, which would test whether information changes vendors' trade-offs over rent, distance, or capacity, we allow treatment to shift only the intercept (baseline zone valuation), constraining attribute slopes to be common across treatment and control. This specification embodies the conceptually correct null: if the treatment conveys credibility about whether the zone will function as advertised, it should raise the overall value of the zone without changing the relative weights vendors place on its design attributes. The

Table 3: Balance Table: Control vs Treatment Group

Variable	(1) Control Group	(2) Treatment Group	(3) Difference
Age	38.39	38.88	0.49
Education	6.08	6.08	-0.00
Male	0.88	0.88	0.00
Backward Caste	0.88	0.86	-0.02
Scheduled Caste/Tribe	0.09	0.10	0.01
Cooked Food/Drinks	0.42	0.43	0.01
On Pedestrian Walkways	0.10	0.10	0.00
Have Stalls/Carts	0.85	0.86	0.01
Have employees	0.30	0.33	0.02
Yesterday's Sales (INR)	2,927.72	3,039.17	111.45
Weekly Sales (INR)	18,493.02	20,014.04	1,521.03*
Yesterday's Profits (INR)	612.02	624.78	12.75
Weekly Profits (INR)	4,270.38	4,249.35	-21.03
Policy Awareness	0.08	0.07	-0.01
Risk Aversion	3.57	3.62	0.05
Observations	1,432	1,490	2,922

model is:

$$V_{ijt} = \underbrace{\alpha}_{\text{formal zone}} + \underbrace{\delta \cdot \text{treat}_i}_{\text{group difference}} + \underbrace{\mu \cdot \text{post}_t}_{\text{time trend}} + \underbrace{\lambda \cdot \text{treat}_i \cdot \text{post}_t}_{\text{treatment effect}} + \sum_k \underbrace{\beta_k x_{ijt}^k}_{\text{baseline effects}} + \underbrace{\gamma' z_i}_{\text{vendor characteristics}} \tag{5}$$

where $\text{post}_t \in \{0, 1\}$ indicates rounds 4–5 and $\text{treat}_i \in \{0, 1\}$ indicates treatment assignment. The coefficient of interest is λ: the differential change in the baseline zone valuation for treated vendors after information provision, with attribute slopes β_k held constant. δ captures any pre-existing difference in zone valuation between treatment and control groups (checked against balance); μ captures any time trend in zone valuation common to all vendors in the control group, absorbing learning effects, survey fatigue, or drift in response patterns unrelated to the treatment. The estimation sample for equation (5) includes all rounds 1–5 and is restricted to marginal vendors, for whom the treatment is operative. Standard errors remain clustered at the marketplace level.

4 Results

4.1 Vendor Heterogeneity by Mover Status

Figure 4 shows the distribution of vendor types: 43% are always-movers, 30% never-movers, and 27% marginal vendors. Figure 5 plots their spatial distribution across the 206 marketplaces; all three types are present across the city, confirming that the type distribution is not driven by market-level sorting on location characteristics.

Table 4 presents within-marketplace OLS regressions of economic outcomes, stated legal rights valuation, and cognitive ability on vendor type, with always-movers as the omitted category and marketplace fixed effects absorbed. Marginal vendors earn significantly more than always-movers within the same marketplace: the daily profit premium is INR 79 ($p < 0.01$), and the weekly profit premium is INR 699 ($p < 0.01$). Never-movers and always-movers are economically similar in terms of profits. Both marginal vendors and never-movers value legal rights

Figure 4: Share of Vendors by Mover Status

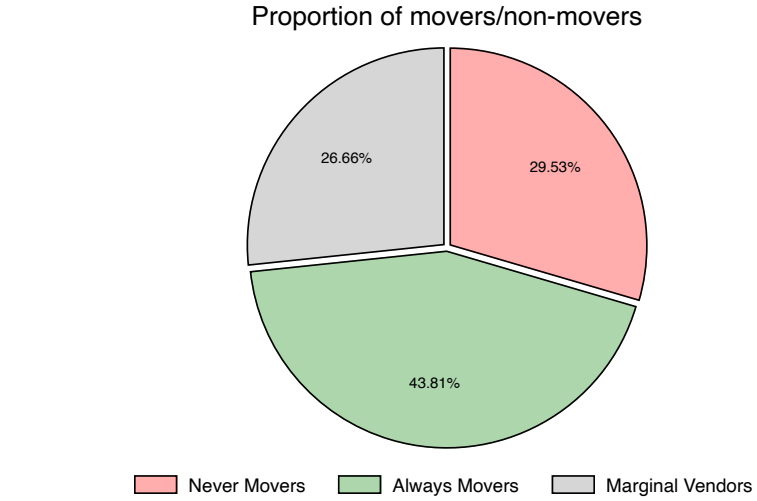
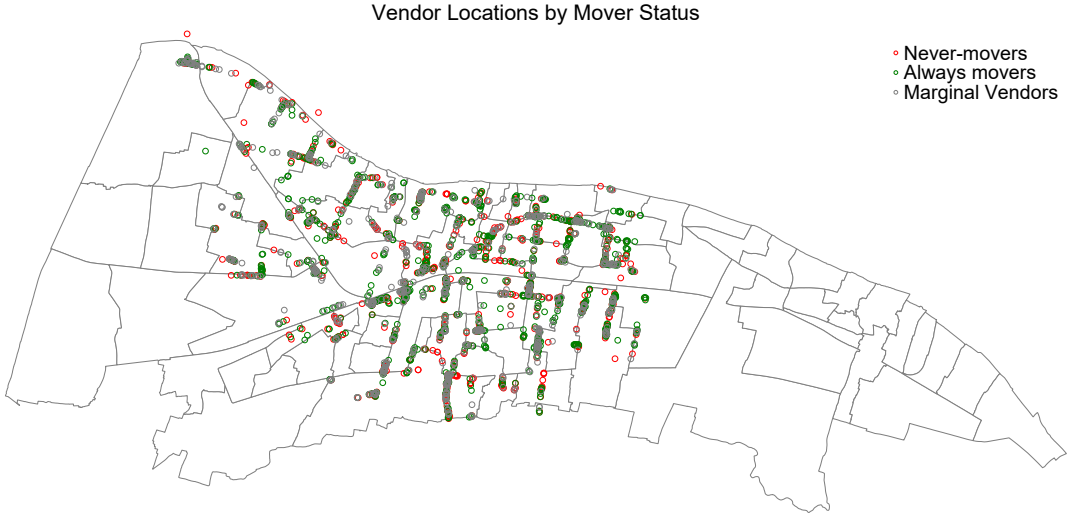


Figure 5: Location of Vendors by Mover Status



significantly less than always-movers, by 0.18 and 0.68 scale points respectively (on a 1–5 scale, $p < 0.01$ in both cases). Marginal vendors also score significantly higher on a standardised cognitive ability index, a composite of three survey-based indicators (math, pattern recognition, and word recall), by 0.08 standard deviations relative to always-movers ($p < 0.05$), while never-movers do not differ significantly from always-movers on this dimension. Marginal vendors are the most economically productive and cognitively capable group in the sample, yet they do not relocate. This sharpens the central puzzle: the barriers to relocation are structural, not a reflection of any capacity constraint on the part of vendors themselves. Approximately 4.2% of respondents failed the embedded rent attention check; robustness checks dropping these inattentive respondents leave all main results unchanged.

This pattern establishes an important asymmetry: always-movers are distinguished from the rest of the sample primarily by their *preferences over formal rights* rather than their economic circumstances or cognitive capacity. Marginal vendors, by contrast, are economically stronger and cognitively able but prefer to stay; their relocation decisions are therefore driven by the spatial and economic attributes of the zone rather than by ideology around formality.

Table 4: Differences between Mover Types

	Yesterday's Profit	Weekly Profit	Legal Rights	Cognitive Ability
Never-movers	-32.52	-214.9	-0.678***	0.00464
	(24.40)	(176.3)	(0.0567)	(0.0380)
Marginal vendors	78.76***	697.0***	-0.175***	0.0819**
	(28.60)	(203.6)	(0.0483)	(0.0323)
Control Mean	610.68	4126.80	2.90	2.09
Observations	2,922	2,922	2,922	2,922

Note: Legal rights importance measured on a 1–5 scale. Cognitive ability is a sum of scores to three questions: math, pattern recognition and word recall. Monetary values in INR.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

4.2 Willingness to Pay for Zone Attributes

Table 5 presents conditional logit coefficients and Table 6 presents implied WTP estimates for the full sample and marginal vendors separately. The results reveal a clear hierarchy of attribute importance.

Formal zone value. The intercept, capturing the value of formal legal rights and zone membership with all other attributes held at the status quo, is large and significant: WTP of INR 3,081 per month for marginal vendors (INR 7,327 for the full sample, which includes always-movers who highly value legal rights). Vendors are willing to pay substantial amounts for formalization in principle; the barriers lie elsewhere.

Spatial frictions: distance and rent. Distance from residence is the dominant spatial friction. For marginal vendors, WTP to reduce commuting distance by one kilometre is approximately INR 1,322, equivalent to roughly two days of average daily profit. The distance WTP of INR 1,322 per kilometre is recovered by dividing the distance coefficient (-0.429) by the rent coefficient (-0.325). Rent sensitivity is equally striking. These estimates confirm that spatial frictions and zone design failures are quantitatively large. Figure 6 shows the predicted relocation probability as a function of distance and rent separately for marginal vendors, with the steep negative gradients clearly visible.

Table 5: Estimation Results: Conditional Logit Model

	Full Sample		Marginal Vendors	
Monthly Rent (INR'000)	-0.136	**	-0.325	**
	(0.028)		(0.040)	
Vendor Capacity (10s)	0.017	**	-0.011	
	(0.007)		(0.007)	
Relocating Vendors (%)	0.009	**	0.002	*
	(0.001)		(0.001)	
Competitors (10s)	-0.069	*	-0.052	
	(0.029)		(0.060)	
Daily Customers (10s)	0.044	*	0.088	**
	(0.018)		(0.034)	
Distance from Residence (kms)	-0.178	**	-0.429	**
	(0.017)		(0.037)	
Intercept	-2.928	**	0.622	
	(0.387)		(0.416)	
Number of observations	17532		4674	

Note: SEs are clustered at marketplace level. Controls for Product Category, Importance to Legal Right and Years in Business.

Table 6: Willingness to Pay

	Full Sample		Marginal Vendors	
Vending Zone (Intercept)	7.327	**	3.081	**
	(1.502)		(0.381)	
Vendor Capacity (10s)	0.125	*	-0.033	
	(0.054)		(0.022)	
Relocating Vendors (%)	0.069	**	0.007	*
	(0.014)		(0.003)	
Competitors (10s)	-0.505	*	-0.159	
	(0.244)		(0.184)	
Daily Customers (10s)	0.321	*	0.271	*
	(0.149)		(0.109)	
Distance Residence (km)	-1.302	**	-1.322	**
	(0.247)		(0.162)	
Number of observations	17532		4674	

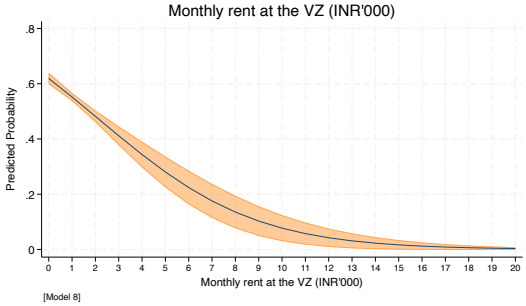
Note: Willingness to Pay (WTP) is measured in Thousands of INR per month.

Coordination effects: significant but not binding. The peer relocation share s enters the utility function with a positive and statistically significant coefficient for both the full sample and marginal vendors (Table 6). Coordination effects therefore exist: vendors are more likely to relocate when more of their peers do. However, the implied WTP for a 10 percentage point increase in s is only INR 70 for marginal vendors, less than 12% of a day's profit, and less than 6% of the WTP for a one-kilometre distance reduction. Figure 7 plots predicted relocation probability against s: the slope is nearly flat. Moving from zero to full peer coordination ($s = 0$ to $s = 100$) raises relocation probability by approximately the same amount as a 0.5 km reduction in distance. The data are therefore inconsistent with coordination failure as the binding constraint: zones are failing because they are spatially and financially mis-targeted, not because vendors are locked in a low-relocation equilibrium.

Figure 6: Predicted Probability Over the Range of Commuting Distance and Monthly Rent

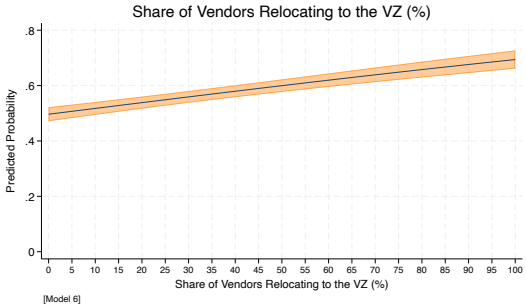


Distance from residence (Marginal Vendors)

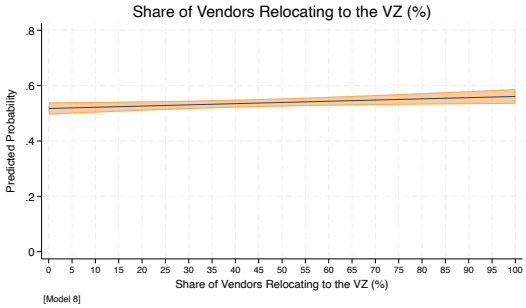


Monthly rent (Marginal Vendors)

Figure 7: Predicted Probability Over the Range of Share of Vendors Relocating



Full sample

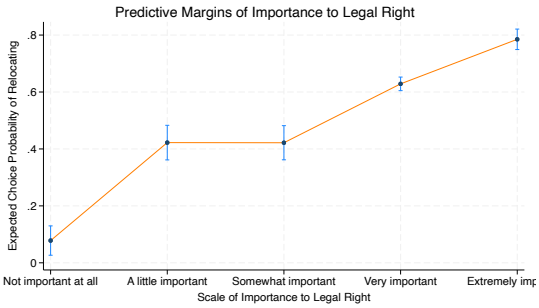


Marginal vendors only

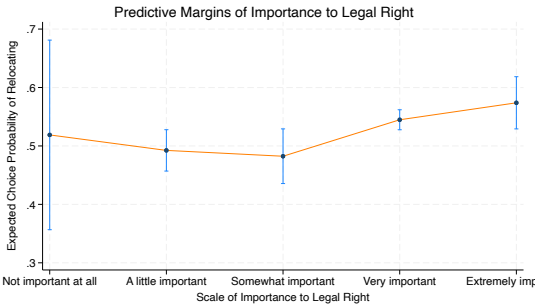
4.3 Legal Rights Valuation and the Role of Always-Movers

Figure 8 plots predicted relocation probability as a function of self-reported legal rights importance, separately for the full sample and marginal vendors. In the full sample, the relationship is strongly positive and significant: vendors who report that legal rights are extremely important have a relocation probability nearly 0.8, while those who report they are not important at all have a probability near 0.1. For marginal vendors, the relationship is flat and insignificant across the entire importance scale. This result explains the always-mover type: always-movers are vendors who place high intrinsic value on formal rights and would relocate under almost any zone design. Marginal vendors' choices are, by contrast, driven entirely by the economic and spatial attributes of the zone. Always-movers seed zones and establish the initial critical mass; zone design that reduces distance and rent is what converts marginal vendors into movers.

Figure 8: Predictive Margins of Importance Associated to Legal Rights



Full sample



Marginal vendors only

4.4 Information Frictions: A Credibility Problem

Table 7 presents conditional logit estimates of equation (5), restricted to marginal vendors. The Treat×Post coefficient is 0.306 ($p < 0.05$), indicating that treated vendors assign significantly higher baseline value to the formal zone after receiving enforcement information. Translating this into WTP using the rent coefficient as the numéraire, the information treatment raises the perceived value of the formal zone by approximately INR 1,087 per month, equivalent to roughly 1.8 days of average daily profit. For context, this is meaningfully positive but smaller than the value of closing a one-kilometre distance gap (INR 1,322).

The result is consistent with a *credibility problem* rather than an awareness problem. Vendors who receive evidence of enforcement elsewhere update their perceived probability that the formal zone will actually function as a legally protected space, making them more willing to relocate on average. Critically, this implies that information campaigns can modestly raise take-up, but only if they provide credible evidence of local enforcement. They cannot substitute for actual rent reductions or better zone siting.

5 Policy Implications and Next Steps

The results collectively point to a diagnosis that differs from the conventional coordination-failure framing of empty vending zones. Zones are not empty because vendors fail to coordinate; they are empty because zones are too far from vendors' residences, priced too high, and, as the zone capacity evidence makes clear, too small to accommodate the vendor populations they are intended to serve. The always-mover population (43% of the sample) would relocate under almost any reasonable zone design, but faces a structural constraint: under the Bihar state implementation of the Street Vendors Act, each zone slot measures at most 6 by 4 feet, substantially less than the space most vendors currently occupy to run their operations. Vendors who relocate would have to reduce their operational scale, a cost that our experiment holds constant by design and that is therefore not captured in the WTP estimates. Expanding zone capacity is therefore a precondition for translating stated willingness into actual take-up.

The policy-relevant margin beyond always-movers is marginal vendors, who are economically capable of paying rent but sensitive to zone location and pricing. Policy interventions should therefore prioritise reducing commuting distance, through better zone siting or residential-area targeting, and subsidising initial entry rents, rather than mass-coordination mechanisms. Information campaigns can modestly raise the perceived value of formal zones (by INR 1,087 per month, or about 1.8 days of profit), but only if they provide credible evidence of local enforcement; generic awareness campaigns will not shift the underlying rent and distance trade-offs.

Ongoing work translates the estimated preference parameters into a fixed-point equilibrium analysis across all 206 marketplaces and both of Patna's existing zone types. For each marketplace m and zone z, the equilibrium relocation rate solves $s^* = \Phi(V(s^*, x_{mz}))$, where $\Phi(\cdot)$ is the logistic CDF, x_{mz} is the vector of observed zone attributes from PMC records, and $V(\cdot)$ is evaluated at the estimated parameters. This analysis will identify which marketplaces have sufficient always-mover populations to seed a stable high-relocation equilibrium, and which zone design parameters, principally distance, rent, and capacity, would need to change to make currently unviable marketplaces viable, delivering a ranked implementation roadmap for PMC.

Table 7: Information Experiment Estimation Results: Conditional Logit Model

	Chose to Relocate	
Monthly Rent (INR'000)	-0.281	**
	(0.033)	
Vendor Capacity (10s)	-0.016	**
	(0.005)	
Relocating Vendors (%)	0.003	**
	(0.001)	
Competitors (10s)	-0.078	
	(0.065)	
Daily Customers (10s)	0.087	**
	(0.023)	
Distance from Residence (kms)	-0.426	**
	(0.031)	
Treatment Group	0.028	
	(0.063)	
Post Treatment	-0.076	
	(0.083)	
Treat x Post	0.306	*
	(0.125)	
Product Category		
Vegetables	0.096	
	(0.096)	
Fruits	0.043	
	(0.080)	
Legal Right Importance		
A little important	0.052	
	(0.457)	
Somewhat important	0.074	
	(0.471)	
Very important	0.443	
	(0.443)	
Extremely important	0.762	
	(0.454)	
Years in Business		
1 to 5 years	0.170	
	(0.136)	
5 to 10 years	0.157	
	(0.154)	
More than 10 years	0.194	
	(0.135)	
Intercept	0.254	
	(0.448)	
Number of observations	7790	

Note: Standard errors are clustered at the marketplace level.

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A Experimental Design Details

A.1 Scenario Construction

The full factorial design spans $5^5 \approx 3,125$ combinations of attribute levels (ignoring the continuous peer share dimension), expanding to approximately 19,000 once peer share is included. We applied two exclusion rules. First, we removed *dominated* scenarios: any alternative that was unambiguously better than the status quo on all five non-rent attributes simultaneously was dropped, as such scenarios provide no information on vendor trade-offs. Second, we restricted to scenarios in which at most three of the six attributes differ from the status quo, reducing cognitive load for respondents with low literacy. From the remaining valid pool, 150 scenarios were drawn using a fixed seed for reproducibility and organised into 25 blocks of 6 (1 practice + 5 analytical). Each respondent was randomly assigned to one block at the beginning of the survey.

Table A1 reports pairwise correlations between attribute levels in the design matrix. All correlations are below 0.2, confirming that the design supports independent estimation of attribute effects without multicollinearity concerns.

Table A1: Correlation Matrix of Experimental Design Attributes

	Market Rent	Market Capacity	Commuting Distance	Relocating Vendors	Competitors	Customers
Market Rent	1.00					
Market Capacity	-0.12	1.00				
Commuting Distance	-0.19	-0.08	1.00			
Relocating Vendors	0.08	-0.11	-0.15	1.00		
Competitors	0.11	-0.02	-0.11	-0.12	1.00	
Customers	-0.04	0.04	0.19	-0.12	0.05	1.00

Note: Correlations calculated using coded attribute levels (1-5) from the experimental design matrix.

A.2 Bias Mitigation

Hypothetical bias is mitigated by two design choices: personalising the status quo to each vendor's verified current conditions (Taylor & Cummings, 1999), and informing vendors at the outset that their responses would directly inform actual PMC policy decisions, increasing incentive compatibility.

Inattention bias is addressed by including a rent attention check in the instrument. Approximately 4.2% of respondents failed this check; robustness checks dropping inattentive respondents are reported alongside the main results and leave all estimates substantively unchanged. A WTP correction following Mas and Pallais (2017) is planned as an additional robustness check in the complete paper.

Survey fatigue is addressed by (a) the ordering of the information treatment, which ensures the DiD specification's time trend μ absorbs any drift in response patterns from fatigue, and (b) a risk aversion task implemented as an incentivised game between choice modules to maintain engagement.

B Sample Stated Preferences Vignette

Figure A1 reproduces a sample choice task as presented to respondents. Given the low literacy levels among vendors, each attribute was represented using visual aids alongside verbal descrip-

tions read aloud by the enumerator. The status quo column reflected each vendor's self-reported current conditions, elicited in the survey module immediately preceding the choice tasks.

Enumerator Script for Choice Tasks

The following script was read aloud by enumerators before each choice task was presented. The script was standardised across all enumerators and all respondents.

> *For the rest of this exercise, we want you to imagine that you are being offered a stall in a newly established marketplace and you need to choose whether you want to stay in the current marketplace or you want to move to this new market …*
>
> *…The new market offered does not differ from your current market except for the characteristics listed here. Imagine that the amount of the products that you can store, and transportation costs for products remain the same in the new marketplace …*
>
> *…In this exercise, we want you to imagine that each card represents a new scenario of the world. The only options available to you are the once shown on the card. We want you to tell us which option you prefer out of the two. There are no "right" or "wrong" answers- you should only choose the option that you like better (even if you may not like any of them).*

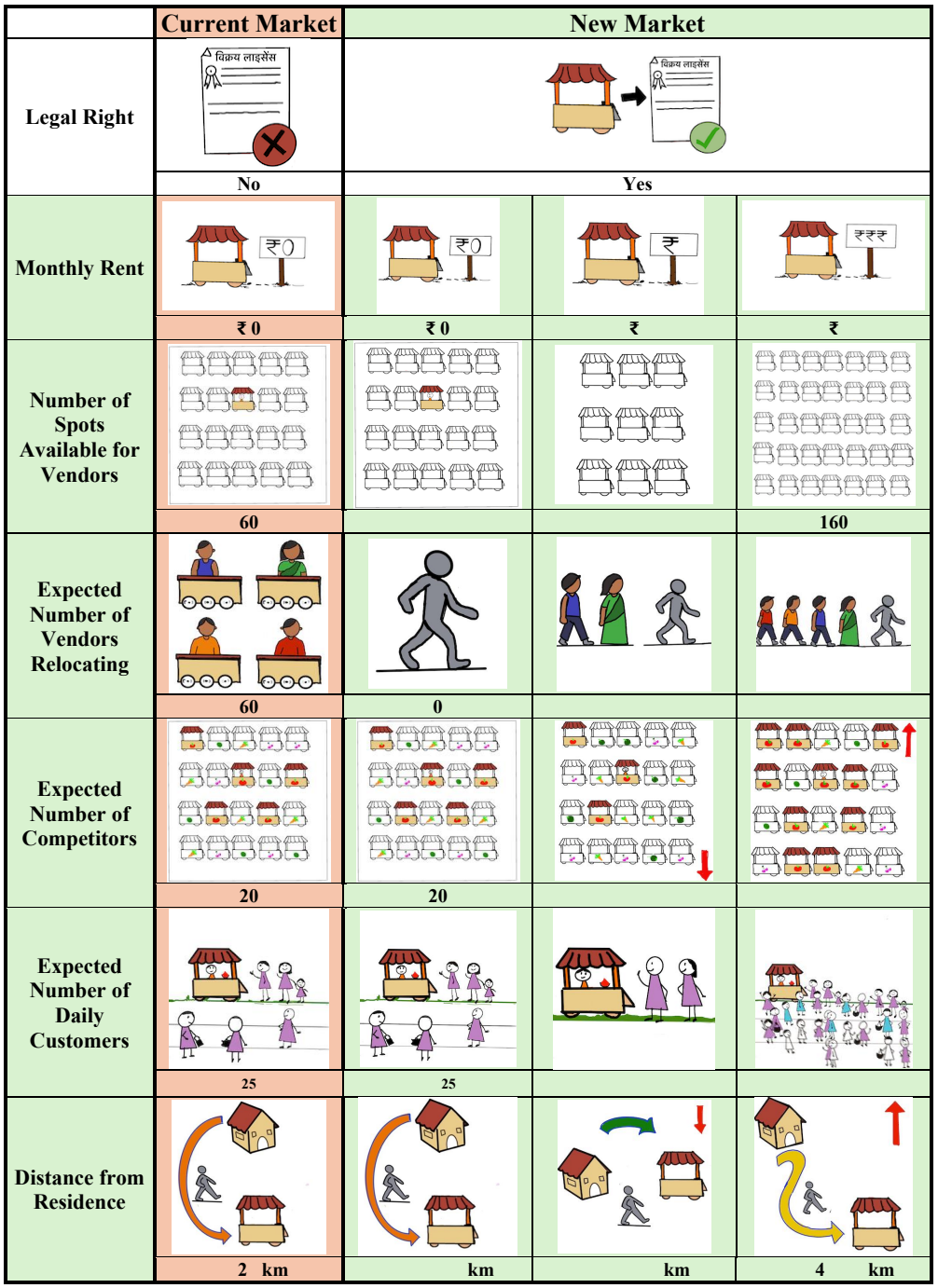
The six attributes presented in each choice task, and their possible values, are described in Table 2. Attribute values for the formal zone alternative were defined relative to each vendor's self-reported status quo, so that all vendors faced the same experimental variation in relative terms while absolute values were grounded in their actual situation.

C Information Treatment Text

Control group respondents received no information and proceeded directly to round 4. The following was read aloud by enumerators to treatment group vendors immediately after round 3:

> *Let me tell you about a policy that concerns businesses like yours. It is called the Street Vendors Act of 2014. Under this act businesses like yours are offered spaces in specified vending areas with formal stalls to sell products. This is a national level policy and after its complete implementation, street vendors will not be allowed to work in unauthorized vending areas and will face fines if found to do so. For example, in Chandigarh, the municipality has situated several vendors in new marketplaces. News in December 2024 reported that about 3,000 vendors who didn't abide by the policy are not being allowed to vend in their old location in Chandigarh. The vendors who choose to move to the new marketplace will not have the option to return to their old location once the policy has been fully implemented.*

Figure A1: Sample Stated Preferences Choice Task



Notes: The choice task presents two alternatives: the vendor's current informal location (left column) and a hypothetical formal vending zone (right column). Attribute values in the formal zone column vary across choice tasks according to the experimental design described in Section 3.2. Visual aids replace text-based comparisons to accommodate low-literacy respondents. The practice round, which precedes the five analytical rounds, used a similar format and is excluded from all estimation.