Caste and Urban Rental Housing Market: A Field Experiment from Delhi

Abstract

Using a call-back experiment conducted on India's one of the largest real estate and property search websites (www.olx.in) we studied owners' responses to lower caste and upper caste applicants. Our results are counter-intuitive as we find that upper caste applicants are discriminated against in the urban rental housing market of Delhi. While the probability of an owner responding to an upper-caste male applicant is 0.48, it is 0.61 for lower lower-caste male applicant. Similarly, the probability of an owner responding to an upper-caste female applicant is 0.48 and to a lower-caste female applicant is 0.53. We also find that owners are more likely to call back a male applicant than a female applicant in the lower caste group, indicating gender bias against female applicants in the lower caste group. We also observed heterogeneity by owner and property characteristics in the probability of response to different applicant types. However, our results may be skewed as a result of the small sample size.

Keywords: Caste Discrimination, Rental Housing Market, India

Introduction and Literature Review

The persistent disparity in educational, economic and health outcomes of different social groups defined along racial, ethnic, gender or religious lines has been a long-standing salient concern for public policy not only in India but across the world. Fields ranging from anthropology to sociology to criminal justice have consequently employed a variety of disciplinary perspectives in order to understand the forces that generate and sustain such gaps between different social groups (Dohan 2003; Hirsch 1983; Lamb 2005; Pager and Shepherd 2008)

Discrimination against marginalized or historically disadvantaged sections by individuals from more powerful groups is widely held to be a plausible source of at least some part of observed inter-group differences. It is the difficulty of clearly attributing some part of these observed differences in outcomes between groups to discrimination using observational data alone which has led economists to use experimental methods, including audit studies, to more clearly identify the role of discrimination to explain relatively worse outcomes – including employment, wages, access to credit, job performance, housing patterns, occupational choice etc - among members of marginalized/disadvantaged groups, racial or ethnic minorities, and women.

The discrimination may arise from two sources commonly presented in the literature*, first, is* "Taste-based" discrimination wherein one who discriminates holds prejudices that are already part of their utility function and in order to cater to these prejudices he is willing to sacrifice money, wages or profits. In the housing rental market, this corresponds to a case wherein landlords or real estate agents discriminate because of their personal preferences or do not accept individuals from another group, so as to avoid displeasing their other clients of the same group.

This type of discrimination is hard to counter because it originates from preferences rooted in individuals and reflects simply the dislike, anger and hostility towards a specific group. Getting rid of such discrimination involves a change in mindset which requires long-term work. *On the other hand*, discrimination due to "ethnic stereotypes'' occurs in the presence of a lack of correct information or standardized perception about a group that is generally held by people (Phelps, 1972; Aigner and Cain, 1977). Thus, origin or simply one's birth is taken as a proxy for his or her unknown characteristics. In these conditions, individuals may decide to discriminate against a person belonging to another social group in favour of an individual from their own social group because it "reassures" them. This type of discrimination therefore stems from a certain risk-aversion and one way to reduce it is to provide more correct information about the economic and social conditions of the social group discriminated against.

Housing is recognized as a basic human need and a universal human right. It not only gives them a sense of protection and security but also affects their health, family life, education, access to employment, and the availability of public services. Thus, from a socio-economic point of view, it is very important for individuals, whoever they are, to be treated equally in terms of their access to housing. However, for many decades, field experiments have demonstrated how the existence of discrimination in the housing market on the basis of ethnicity, religion, disability, sexual orientation, age, or gender, induces many adverse economic and social consequences for targeted groups, such as worsening residential segregation (Denton 1999; South and Crowder 1998), poorer access to education and employment (Yinger, 1995, Angrist and Lang, 2004, Hardman and Ioannides, 1999), lower rates of saving (Kain and Quigley 1972) that result in the persistence of measured inter-group inequality (Galster 1991; Yinger 1995) and an obvious decrease in welfare and well-being for individuals belonging to groups suffering discrimination. Thus, a growing body of literature has begun to focus on the existence, drivers, magnitude and consequences of such discrimination in rental housing markets. (Choi et al.2005 ; Galster 1991; Turner et al. 2002)

Not only in rural India but even across urban India, housing discrimination based on caste or religious identity is common (Thorat *et al.* 2015 use a variety of audit techniques to capture the differential treatment of Muslims and Scheduled Castes in the rental housing market of NCR). Often, this is a consequence of cultural preferences and sometimes a result of pure prejudices. Anecdotal evidence about neighbourhood segregation in urban India suggests that even modernization and urbanisation have not been able to make a dent in the basic legacy of Indian neighbourhood formation – i.e. the complete segregation of residential space. This is what has led to the huge ghettoisation of Indian muhallas which are mostly caste-segregated or religion-segregated as existing communities do not allow other communities to come in even temporarily. India Human Development Survey 2011-12 reveals that over 40% of people in India live in caste-segregated muhallas.

In such a society, discrimination may affect the process of allocating housing wherein individuals belonging to one group (or caste) are more likely to obtain rental housing than others i.e private landlord or a real estate agent might refuse to rent or sell property to an individual for reasons that are discriminatory.

Following Bertrand and Mullainathan (2004) where racial discrimination in the US labour market is studied using the signalling value of names, Banerjee et al. (2009) replicate it in the

context of caste in the Indian labour market. Thorat *et al.* (2015) and Saugato Datta and Vikram Pathania (2016) suggest discrimination in the urban rental housing market of India. We plan to extend the "call back" experiment to study caste discrimination in the Indian urban rental housing market. Since email correspondence is not common in India there are limitations to segregating the observed differences into 'taste-based and 'statistical' (i.e. based on stereotypes) discrimination by providing additional information about the applicant. We conduct a web-based audit of the market for rental housing using a sample of 100 house owners and their rental listings in the Delhi NCR. In order to ensure that the fictitious tenants are identical in all respects but the name (and castes they belong to) and the measured differences are not affected by the appearance, presentation, efforts and convincing skills of the fictitious tenants, we would avoid any face to face or telephonic conversation between the prospective landlords and fictitious tenants. Through this experiment, we aim to measure if landlords contact prospective tenants of different castes at different rates, how many times and in what order and draw inferences from their interest, effort and persistence in calling back tenancy applicants of different castes. Secondly, we try to see if the response rates are significantly different for male and female applicants (gender biases) and lastly, we test the trends in caste biases as we move upwards along class hierarchy which in our experiment is highlighted by the size and rental price of properties owned by different owners.

Experimental design

The Internet platform for the housing market:

Since Carpusor and Loges (2006) correspondence study in Los Angeles to detect discrimination against Arab/Muslim and African-Americans in the rental housing market, the email correspondence study has been explored to detect discrimination in developed countries. As email correspondence is not common to the urban rental housing market of India, we make use of the extensive coverage of online real estate and property search websites and their mobile applications to attempt a correspondence study on caste discrimination in the Indian urban rental housing market. One of the most popular and top-listed online websites and their mobile applications are used to conduct the study; olx.in. We have selected these companies after taking into account their monthly site views, total number of app downloads and number of rental listings in Delhi. All of these websites contain the housing market as an active segment where people can place ads to buy, sell or rent residential properties for free or at a minimal cost. Buyers and sellers can make accounts using a mobile number and email address which will be verified by the company application. We use search results listed by the owner to avoid any principal-agent problem. If interested, buyers will be contacted by the owner after providing their name, phone number and email address.

Identities of the fictitious applicants:

The key part of the design is to generate surnames that signal the caste identity of the fictitious applicants. Thorat et al (2015) using audit studies suggested that people belonging to lower caste face discrimination in access to the urban rental housing market in Delhi. Saugato Datta and Vikram Pathania (2016) using the internet platform suggested discrimination against Scheduled Castes and Muslims. We focus on discrimination against lower caste groups without segregating

it further into OBC, SC and ST. Thereby we also attempt to capture gender biases and limit the number of fictitious applicants to four - male upper caste, male lower caste, female upper caste, and female lower caste. So, we require names that are most likely to be identified by the house owners in Delhi as low caste and high caste groups. Banerjee et al. (2008) used a list of Scheduled Caste last names from the Election Records and from the admission data of students in reserved categories and tested their signalling value among residents in Delhi. Ajay and Sujoy Chakravarty (2020) when studying inter-caste stereotypes of dishonesty and productivity in Varanasi prepared a set of names that reflect high and social status. For high-status groups, Brahmin last names were used by design to avoid names that resemble both non-OBC and OBC communities. Leaving out the typical names used in academic studies to signal lower caste identity, authors used non-occupation-specific names like 'Kumar' and 'Prasad' and the caste salience for the set of names was verified using an Internet survey. We rely on a similar approach to generate the last names for our study. For the first names, common male and female North Indian names are used.

Google email accounts (most commonly used for email services in India) and phone numbers for each of the applicants are created for sending queries to the house owners. The email accounts are named using full names and one-digit or two-digit numbers are attached for some of them to sound genuine. Care has been taken to ensure that the phone numbers are not recorded in any publicly used mobile applications with any other name.

Application Procedure:

We have limited our studies to the Delhi NCR. Applicants respond to the rental advertisements listed by owners. The order of the applicants by which queries are sent is controlled so that four of the applicants are equally likely to apply first, second, third or fourth. And the time delay is kept between 15 minutes to one hour. The owner's details are tracked down to avoid contacting the same owner twice. The owner details were also used to control for owner characteristics such as gender, caste and religion. The property features were also noted down to control for house characteristics such as rent, number of bedrooms, and square feet.

Measuring responses from the owners:

The date and time of the callbacks and messages are recorded. There could be chances that not all calls could be from house owners. It is possible to track spam calls using some publicly available resources like truecaller.com. If there are unidentified numbers left, these could be traced back once the experiment ends.

Since callbacks are left unattended, we can also check if the owners make repeated calls to a particular applicant which reflects the house owner's interest in the applicant. Hence, the additional number of calls and other modes of contact following the query is recorded as an auxiliary measure of the houseowner's interest. The time taken by the house owner between sending the query and call-back is also noted for each of the applicants. This can be used as an additional measure of the house owner's interest.

Therefore, to capture the house owner's interest in a type of applicant, mean response rates (total number of responses to the applicant type divided by the total number of house owners contacted) and the fraction of house owners responding to each applicant type (number of house owners responded to the applicant type divided by the total number of house owners contacted) can be calculated.

Hypotheses

In our experiment, we aim to check for discrimination after analysing house owners' responses to fictitious tenants belonging to different castes. Along with it, we also try to reflect on the role of gender in the rental housing market as it has been observed in several papers that women face lesser discrimination in rental housing than their male counterparts of the same caste or ethnicity (Alexandre Flage (2018)). Lastly, we also test for the role of class in caste biases. We test the trends in caste biases as we move upwards along class hierarchy which in our experiment is highlighted by the size and rental price of properties owned by the various owners.

Hypothesis 1: House owners are equally likely to respond to applicant types of upper and lower castes when gender is controlled for.

We check whether there are differences in the fraction of house owners responding to different applicant types. The differences are checked for significance at conventional levels of significance. Adding controls such as different house characteristics, the coefficient of dummy variable for applicant types in the OLS regressions for the probability of response is also tested for significance.

Analyses using additional measures of the house owner's interest can also be conducted for further inferences. Then, differences in mean response rates between different applicant types can be checked for significance. Further, after adding controls for house characteristics, Poisson regression coefficients for applicant-type dummies (where the count of responses to an applicant is the dependent variable) can be tested for significance.

By comparing pairwise, the time taken for the house owner between sending the query and calling back can also be checked for significance. Pairwise comparison can also be done to infer who receives the first response considering observations where the house owners respond to both pairs (using the null hypothesis that house owners respond to the pair in the same order in which the types apply).

Hypothesis 2: House owners are equally likely to respond to male and female applicant types belonging to the same caste group.

We consider the female and male applicants of different castes separately and the differences in the fraction of house owners responding to female and male applicants belonging to a particular caste can be tested for significance. Regression analysis after adding controls for house characteristics is also conducted.

Analysis using mean response rates and Poisson regression coefficients can also be performed.

Hypothesis 3: There is no heterogeneity by size and rental price of the property in the probability of house owners' responding to each applicant type.

This could be analysed by regressing interactions of applicant types with the house characteristics such as 1BHK and rental price on the likelihood of response and the significance of interaction term coefficients is tested.

Descriptive Statistics:

Landlord and property characteristics

The house and owner characteristics of the sample are presented in Table 1. We applied to a total of 114 properties located in Delhi NCR, with an almost equal number of 1 BHK, 2 BHK, 3 BHK and 4 BHK apartments in the sample. The average rent per square feet and average rent are Rs.26.14 and Rs 23,765. We have also reported the owner characteristics that we could discern from names. There were about 30% of owners who had only mentioned their first names. Amongst the remaining 70% a majority of them (60%) had a seemingly upper caste surname, about 6% of the total had a seemingly lower caste surname and the remaining 2% had a Muslim name.

Table 1: Listing & Landlord Summary Statistics

	Delhi NCR
	House Characteristics
No. of Bedrooms	
1 BHK	0.25
2 BHK	0.25
3 BHK	0.24
4 BHK	0.24
Rent (Rs.)	23764.89
	(21095.29)
Rent/sq. ft	26.14
	(3.20)
	Owner Characteristics
Seemingly upper cast surname	0.60
	(0.49)
No Surname	0.30
	(0.46)
Seemingly lower cast	0.06

surname	(0.24)
Muslims	0.02
	(0.16)

Results

Result 1: **Landlords are more likely to respond to Lower-caste applicants**

The fraction of landlords responding to the 4 broad categories of fictitious tenants- Male upper caste(MUC), Female upper caste(FUC), Male Lower caste(MLC), Female Lower caste(FLC) and the differences are presented in Table 2. The probability of a landlord responding to the MUC is 0.48, while the probabilities for FUC, MLC and FLC are 0.48, 0.61, and 0.53 respectively.

Among male applicants, the difference between the probability of a landlord responding to an MUC and that of him responding to an MLC is found to be -0.13 (statistically significant at a 1 per cent level for the paired t-test) which indicates that from our sample a landlord is more likely to respond to a MLC applicant than a MUC applicant. However, among female applicants, the difference between the fraction of landlords responding to FUC and that of FLC is still negative but less pronounced and is not statistically significant. Thus, there seems to exist a counterintuitive bias against the upper caste applicants, which is statistically very significant in the case of male applicants.

Even after controlling for the property and owner characteristics in the regression counterpart mentioned (Table 3), the counterintuitive results persist and are statistically significant-
Table 3 shows that even if we were to control for the property characteristics(BHK), and the owner characteristics(the likely caste of the landlord), we still see significant bias against the male upper caste applicants. The landlords are 48% points more likely to call back MLC applicants than MUC applicants.

TABLE 2 : Fraction Landlords Responding

	Fraction Responding	Diff v/s MUC	Diff v/s FUC	Diff v/s MLC
MUC	0.48			
	(0.05)			
FUC	0.48	0		
	(0.05)	(0.05)		
MLC	0.61	-0.13***	-0.13***	
	(0.05)	(0.05)	(0.04)	
FLC	0.53	-0.04	-0.04	0.08**
	(0.05)	(0.05)	(0.05)	(0.04)

Responses include calls and texts

Table 3: **Probability of Response by House Owner**

	(1)	(2)	(3)
FUC	.12* (0.06)	0.30 (0.06)	0.02 (0.06)
MLC	.42*** (0.07)	0.46*** (0.07)	0.48*** (0.07)
FLC	.22*** (0.06)	0.31*** (0.06)	0.30*** (0.06)
Two bhk		-0.004 (0.07)	0.001 (0.07)
Three bhk		0.09 (0.07)	0.10 (0.07)
Four bhk		0.26** (0.08)	0.26*** (0.08)
Rent (Rs/sqft)		-0.002** (0.0007)	-0.001* (0.0007)
Owners with seemingly upper caste surname			-0.05 (0.16)
Owners with first name only			0.39 (0.16)
Constant	0.33***	0.26**	0.26 (0.17)
Observations	114	114	114
R-squared	0.56	0.63	0.64

OLS regression coefficients (linear probability model): the dependent variable is a dummy for any response from the owner. Standard errors in brackets ***p<0.01, **p<0.005, *p<0.1

Result 2: Landlords are more likely to respond to a male applicant among lower caste groups

The difference in probability of a landlord responding to MLC and that of FLC is 0.08 (statistically significant at a 5 per cent level of significance) can indicate a gender bias against female applicants among the lower caste group. (Table 2)

However, the corresponding difference among the upper caste applicant group is zero (no gender bias) and is insignificant. The regression results in Table 3 suggest females are more likely to be called back among the upper caste group. However, the coefficient becomes insignificant after controlling for property and owner characteristics.

Result 3: There is heterogeneity by owner and property characteristics in the probability of response to different applicant types.

With the limited statistical power owing to the small sample size, the interaction term coefficients may not be reliable. However, a few patterns that we see can be intriguing (Table 4). Landlords with seemingly upper caste sounding names are 55% points more likely to respond to male lower caste applicants (significant at 1 per cent level). The result is not observed with the landlords with no surname (negative and insignificant). Landlords offering 4bhks are 59% points less likely to respond to male lower caste applicants but are 59% points more likely to respond to female upper caste participants.

Table 4: Probability of Response: Interaction of Applicant Type with Landlord/Property Features

	Interacting Characteristics of Landlord/Property (Z)						
	Landlords with Seemingly Upper Caste Surnames	Landlords with First name only (No Surname)	1BHK	2BHK	3BHK	4BHK	Rent per sqft
Z	-.20** (.09)	0.23* (0.10)	-0.24* (.13)	-0.33 (0.10)	-0.33*** (.11)	.27*** (.09)	-0.002*** (0.0009)
FUC	.22** (.09)	0.07 (0.08)	0.15** (.078)	0.14 (.07)	.19** (.08)	-.07 (0.07)	0.26 (0.17)
FUC*Z	-.25* (.13)	0.10 (0.14)	0.12 (.16)	–0.33* (.10)	-.39** (.19)	.59*** (.16)	-0.008 (0.008)
MLC	.19**	0.57***	0.42***	0.34***	.34***	.58***	0.23

	(.10)	(0.09)	(.08)	(.07)	(.10)	(.08)	(0.16)
MLC*Z	.55***	-0.36	-0.13	0.38**	.23	-.59***	0.008
	(.14)	(0.15)	(.22)	(0.18)	(.16)	(.17)	(0.008)
FLC	.31***	0.16*	0.18**	0.20***	.24***	.35***	0.18
	(.09)	(0.08)	(.07)	(0.07)	(.08)	(.07)	(0.16)
FLC*Z	-.23*	0.09	0.42**	0.07*	.16	-.23	0.002
	(.13)	(0.13)	(.20)	(0.16)	(.18)	(.14)	(0.009)
Constant	.41***	0.25***	0.35***	0.40***	.32***	.18***	0.42***
	(.07)	(0.05)	(.05)	(0.04)	(.05)	(.05)	(0.05)
Observations	114	114	114	114	114	114	114
R-squared	0.63	0.60	0.59	0.61	0.58	0.67	0.60

Standard errors in brackets
***p<0.01, **p<0.05, * p<0.1
OLS regression at the applicant level (linear probability model)

Discussion and Conclusion

The results from our sample show that lower caste applicants are more likely to be called back than upper caste applicants which indicates no discrimination against lower caste groups in the urban rental housing market in Delhi. However, this result is quite counter-intuitive since caste discrimination is prevalent rampantly in urban India and caste biases play a major role in the social choices that people make.

Our results may be due to the small sample size. We contacted 114 owners given paucity of time but to get concrete results in an online callback experiment such as ours the sample size should be in thousands. With a small sample size, it is difficult to understand the underlying reasons for people's behaviour and the results of the experiments as well.

Another reason for our results can be that in the urban rental market, owners not only look for the credit worthiness of the applicants but also prefer applicants over whom they can exercise more power. The rental market involves clashes between owners and tenants due to various reasons and keeping those in mind, it may be that owners prefer lower caste applicants since they believe that they can exercise more power over them to ensure better compliance. With a tenant belonging to a lower caste, who is socially more vulnerable, owners can conveniently raise rents, remove the tenant, and trace the tenant in case of violation of contract more easily than if they

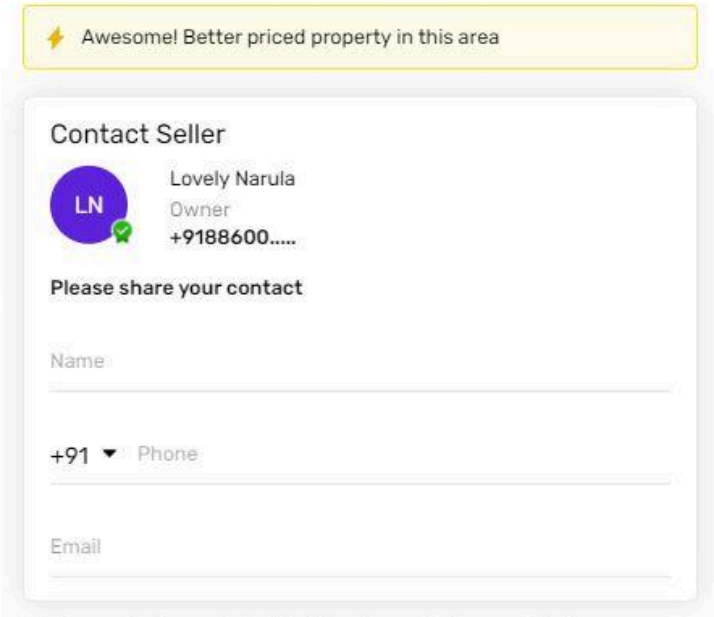
had an upper caste tenant who enjoys much more social, economic and political power than a lower caste individual.

Also, the rental housing market is different from that of a labour market where employability is linked to profitability which in turn depends on the merit of the candidates which is assumed to be more with an upper caste candidate than a lower caste candidate. There are various stereotypes that function in the labour market. In the rental market, owners are actively looking for tenants they can easily get while the profitability in the rental market is rent itself which is fixed. Often, it is easier to find lower caste tenants than upper caste tenants and given the vulnerability and pre-existing societal hesitation that lower caste individuals have, it is better for owners to consider them more than upper caste applicants. Owners care about their properties being rented out and them receiving rents and thereafter being in a position of power and exercising control over the tenants. Lower caste applicants make these easy for the owners.

The elementary analysis using the owner names in the data doesn't point to any intergroup conflict. 60% of the landlords in the sample have seemingly upper caste surnames while 30% of owners had only mentioned their first names 6% of the total had seemingly lower caste surnames and the remaining 2% had a Muslim name. Though the interaction terms are not reliable due to the small sample size, the regression results suggested a significant positive coefficient (suggesting landlords' preference for disempowered tenants). However, only further research and study using a larger sample size can test the validity of the counterintuitive results and their possible reasons.

Experimental instructions

Online Rental Application Form:



Screenshot of the form that comes when an applicant proceeds with a property listing.

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