The cost of gender on rent for single women in South Asia

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Sep 22, 2024

Abstract

We identify and quantify a novel gender gap in the housing market for singles in India. Using data from the country's two largest online property listing portals, covering more than 350 cities, we find that shared housing accommodation is listed for rent at a rate that is 6-8% higher for women than for men, after controlling for an extensive set of housing arrangements, amenities, and granular neighborhood fixed effects. Gaps persist for (gendered) accommodation that is offered within the same building, but vanishes for owners that have listings for both men and women. Variation between cities in this gender gap can be explained by historical gender norms: it is entirely explained by norms condemning premarital sex or by the male share of ancestral occupations (Ethnographic Atlas, 1999; Giuliano and Nunn, 2018).

Keywords: Housing. Gender gaps. Digital platforms. India.

*We are thankful to Ana Gorrini, Mariana Santi, Francisco Tuñon and Nicolás Zacarías for excellent research assistance, and to Remi Jedwab, Franziska Ohnsorge, Nishith Prakash and Jaehee Song for helpful comments and suggestions. We are grateful for support from the World Bank Development Economics Research Support Budget (RSB). Email: aimolnar@worldbank.org and gnagpal@worldbank.org.

1 Introduction

Rapid urbanization has led to an increase in the migration of young individuals seeking education and employment opportunities in cities. While historically, men have been the predominant migrants to urban areas, the proportion of women moving to cities has grown in recent years. Coupled with high housing costs, this has led to growth of shared housing markets divided along gender lines in many developing cities. In these markets, women not only face a "pink tax" on their wages (Mahajan and Ramaswami, 2017), transit safety and educational attainment (Borker, 2020), but may also encounter a similar gender-based disparity in housing costs.

In India, this shared housing comprises of largely single-sex adult dormitories, and the tenants are called "paying guests" (PG). This paper exploits a unique dataset on online gendered rental listings for PGs from the country's two largest property listing portals, covering more than 350 cities, to identify the presence and determinants of the gender gap in rents. We show that shared housing accommodation is listed for rent at a rate that is 6-8% higher for women than for men, after controlling for an extensive set of housing arrangements, amenities, and granular neighborhood fixed effects. Exploiting variation across cities, we show that this gap can be explained by the presence of misogynistic gender norms.

Cities in India are seeing rapid growth in their in-migrant populations due to education and job opportunities, leading to an increase in the provision of paying guest housing. The proportion of migrants in large metropolitan cities has increased from about 21% in 2001 to 45% in 2011.[1] Additionally, women now represent a larger share of this migration, increasing from 10-20% in 2001 to over 45% in 2011.[2] As more women move to cities with high housing costs, many opt for shared accommodations with other women. This type of housing has become a significant category on major property listing portals. Gender preference and segregation in housing is legal and widely practiced in developing countries, with over 65% of PG listings explicitly specifying a tenant gender preference.[3]

Using data from the largest realty platforms in India, we find that the women pay approximately 6-8% more for similar shared accommodations. We collect the universe

[1] In-migrants accounted for approximately 21% of the populations of Delhi, Mumbai and Bengaluru in 2001 (Census, 2001). This number has grown to 46%, 44% and 41% in Bengaluru, Mumbai, and Delhi respectively (Census of India, 2011).

[2] Women accounted for 11% and 12% of the migrants in Mumbai and Delhi respectively in 2001. This share increased to 44% and 48% respectively by 2011. In Bangalore, women accounted for 47% of migrants in 2011, up from 22% in 2001.

[3] In the US, the Federal Fair Housing Act bans gender discrimination in almost all housing arrangements. A rental listing may only express a gender preference if the dwelling is occupied by the owner.

of PG listings from multiple large realty platforms, including their gender preferences, rental prices and other attributes of the accommodations. We find that women pay roughly 8% more than men, even after controlling for an extensive set of housing arrangements, amenities, and granular neighborhood fixed effects.

After identifying the gender gap in rental rates for singles, we investigate three potential mechanisms that could explain this disparity. First, we consider that even within neighborhoods, there may be differences in access to transit, lighting, safety, etc. However, even on comparing male-only and female-only PG accommodations within the same building, we find a persistent gender gap. Second, we consider whether unobserved landlord characteristics and preferences might contribute to the rent differential. Yet, even when analyzing landlords who operate both male-only and female-only PGs, we find that women still pay approximately 7% more than men for comparable accommodations.

We find that the gender gap between cities can be largely explained by misogynistic gender norms. In a paternalistic society, women's identities are often tied to their marital status, and they are held to stricter standards of respectability. These social norms may result in higher rents for unattached female renters compared to men for equivalent accommodations, as landlords may be reluctant to rent to women due to reputational concerns. We find that the gender gap in rent is driven entirely by variation over space in whether ancestral ethnic groups had strict prohibitions against pre-marital sex, as well as where anthropological records show that men participated in a larger share of the labor tasks required for subsistence. Additionally, we show that the gender gap is more pronounced with smaller operators, who are likely more connected to local community norms and face greater reputational risks associated with renting to women.

This paper contributes to two broad strands of literature. First, there is a large literature focusing on discrimination in the housing market in the US and other developed countries, largely focusing on discrimination based on race (Ihlanfeldt and Mayock, 2009; Hanson and Hawley, 2011, 2014) and immigration status (Bosch *et al.*, 2010). Existing evidence in India shows that marginalized communities are less likely to be re-contacted in response to housing applications (Datta and Pathania, 2016). This paper expands this literature by focusing on another margin of discrimination in the housing market, gender. The only prior work in this area is Harten (2021), who documents that women in Shanghai pay about 10% more than men, but that the gap is explained by demand for better housing. We document persistent gender gaps in the rental market even for comparable housing units, which can be attributed to the presence of paternalistic societal norms.

Second, we contribute to the broader literature focusing on the "pink tax". Existing

literature has documented the presence of gender based differentials in employment, wages, access to credit, job performance, housing patterns and occupational choice (Altonji, 1999; Bertrand and Mullainathan, 2003; Blau and Ferber, 1987; Blau and Kahn, 2006). We identify a new source of gender disparity in the housing market. Not only do women receive lower wages on average, but they also face higher rental costs. Lastly in documenting the role of social norms as explaining the presence of these gender differentials in rent, we also contribute to a small but growing literature showing the importance of social norms in the choices made by women (Jayachandran, 2015).

The rest of the paper proceeds as follows. Section 2 describes the gendered paying guest housing market in India. Section 3 outlines the data sources, and section 4 discusses the empirical strategy and results. Section 5 discusses potential mechanisms for this gender gap and section 6 concludes.

Comments for discussant

1. We have PG data from real estate platforms for Bangladesh, Pakistan, and Sri Lanka, which is why "South Asia" is in the title. However, this data has very few structured property attributes, less granular spatial precision and less spatial variation in social norms, so we will likely only use it to corroborate the unconditional gap.

2. We have data from additional property portals (some are two-sided platforms, others are large, multi-city PG providers with a web presence), which corroborate the findings from the main platform.

3. We are unpacking some spatial factors within cities (e.g., proximity to universities, police, pricing along the land rent gradient).

2 "Paying Guest" housing in India and beyond

In-migrants comprised over 40% of the population in the largest Indian cities in 2011.[4] A surging urban population has resulted in around 60% of households residing in rented accommodations.[5] With the growing influx of in-migrants seeking educational and employment opportunities in metropolitan areas, the demand for affordable rental housing has increased. This heightened demand in the real estate market has led to the

[4]In-migrants account for 46% of the population in Bengaluru, 44% in Mumbai, and 41% in Delhi (Census of India, 2011).

[5]Approximately 59% of the households in Delhi and Bangalore rent their dwellings (Census of India, 2011).

emergence of an informal rental segment known as "paying guests", which primarily offers affordable, though largely gender-segregated, shared accommodations rented out by the bed.

In much of the South Asian subcontinent, rental accommodation largely takes three forms: single family rentals, shared apartments, and "paying guest" accommodation. The former two are similar to apartment rentals in developed countries wherein a family or group of individuals may come together to sign a lease with a landlord. However, students and working professional migrating to cities often do not know others to co-sign a lease with. The rental market for these budget-constrained students and professionals is catered to by landlords who take in "paying guests" and rent out accommodation by the bed or room.

Paying guest (PG) shared accommodations are commonly advertised on major real estate platforms and represent a significant and growing segment of the rental market in India. In a typical PG arrangement, a landlord rents out individual beds within a room, usually accommodating up to five tenants per room.[6] PG accommodations function as de facto hostels for students and working professionals, often with explicit preferences for one or the other group. The prevalence of PGs has risen alongside the growing influx of in-migrants to major cities, from 21% in 2001 to over 40% in 2011. Despite their significance, as evidenced by their dedicated category on major realty platforms, there is no formal data on the quantity, price and attributes of PG accommodation. Anecdotal evidence suggests that landlords often bypass formal registration of rental agreements to avoid paying the government's registration fee, making it difficult to quantify their prevalence.[7]

These shared accommodations, which are frequently gender-segregated, are prevalent not only in India but also in other regions of South and Southeast Asia, including Pakistan, Bangladesh, and China. Over 65% of advertisements for PG accommodations specify gender restrictions for tenants.[8] This gender segregation can be attributed to two primary factors: homophily and cultural norms. Firstly, women (men) often prefer to live with other women (men), a preference observed globally. In South Asia, there is an additional layer of cultural norms that discourage cohabitation with members of the opposite sex before marriage. Consequently, as young migrants move to urban areas, they tend to seek housing arrangements that align with these social expectations, thereby resulting in gender-segregated living spaces.

[6]Rooms are largely rented out on single or double occupancy basis (38% each). Triple (13%) and quadruple (5%) occupancy make up a smaller but notable share of the market.

[7]The rental agreement registration fee typically ranges from 0.25% to 2% of the rental value across major cities.

[8]Authors' own calculations based on data from multiple large realty platforms in India.



Double Occupancy PG



Triple Occupancy PG

Figure 1: Paying Guest Accommodations

The term "paying guest" originates in the practice of renting a spare room within a family home, and this still accounts for a fraction of PG supply. The practice now extends to landlords that operate one or a few PGs that operate as small hostels or boarding houses (with or without board), and more recently the market has seen an expansion in large corporate operators that own and manage PGs across multiple cities. The latter include companies such as Zolostays (launched in 2015), Stanza Living (2017) and HelloWorld (2019), which initially focused on students but have expanded to provide fully-furnished rentals to both students and professionals.

3 Data

To quantify the gender differential in rents for shared accommodation across cities in India, we compile listing advertisement data from the largest realty platforms in India from 2021-2024. We construct supplementary data on social norms using the Ethnographic Atlas following Giuliano and Nunn (2018), to assess the extent to which these gender differentials are correlated with the presence of patriarchal social norms.

3.1 Gendered shared accommodation advertisements and rental prices

We scrape data from major rental advertisement platforms in India from June 2021 to February 2024. This allows us to assemble a dataset of shared accommodation available for rent, including information on tenant gender preferences, and to assess whether rental charges differ based on gender.

While we scrape data for all cities from three major listing platforms in India (we term these platforms M, N and O), our main specification uses data from platform N, which offers the richest set of controls.[9] Over 64,500 PGs were advertised on portal N from June 2021 to February 2024, of which 65% listed an explicit gender preference for the tenant. Our main sample will comprise of 42,385 advertisements across 355 cities in India from June 2021 to February 2024, of which 48.6% were advertised only for women and 51.5% for men. Given the concentration of PG accommodations in major education and professional hubs, approximately 75% of our sample is located in Delhi NCR, Bangalore, Kolkata, Mumbai, Pune, Chennai, Hyderabad and Ahmedabad. Data in platform N contains listings from over 350 cities, of which over 75 cities have more than 30 PG listings. Table 1 outlines all platforms and providers of PGs from which we have obtained data.

Table 1: Summary of observations across all listing data sources

	Obs	Period	Cities	Uncond. Gender Gap (%)
Platforms				
M	60,986	Aug 2021 - May 2024	278	5.8%***
N	42,385	Aug 2021 - Feb 2024	360	4.6%***
O	63,786	Jan 2018 - Mar 2020	33	2.2%***
K	53,200	May 2023	23	7.2%***
W	3,604	May 2024	24	6.1%***
Providers				
H	82	Dec 2023	2	6.7%
S	543	Dec 2023	20	13.2%***
Z	417	May 2024	10	-8.2%

Landlords or their agents post advertisements on rental platforms, providing detailed information about the location and amenities of the shared accommodations.[10] Each advertisement includes basic details such price per individual bed, the number of tenants per room, geographic coordinates and sometimes a name for the building or housing society .[11] Additionally, advertisements often describe various features of the building and room, such as air conditioning, wi-fi, the presence of a balcony, or an attached bathroom. They also detail amenities available in the accommodation, which can be categorized broadly into appliances, meals included or available for pay, laundry

[9] Details on data from the other portals are [to be done] in Appendix A. We show that results from the smaller portals are consistent with our main results in Appendix **??** [to be done].

[10] 61% of the advertisements on Portal N are directly uploaded by landlords, with the remainder listed by dealers or agents.

[11] Housing societies are a common urban residential arrangement in India, and consist of a cooperatively managed residential complex

services, and access to outdoor spaces or a gym. Table 2 summarizes some of these amenities provided in each shared accommodation.[12]

Table 2: Attribute Averages for Female and Male PGs in portal N

	All sample	Female	Male	Diff. (f-m)
Price per bed	7812.78	8075.76	7562.64	513.13***
	(5526.10)	(5970.93)	(5054.33)	(9.26)
Number of people sharing room	2.09	2.07	2.11	-0.04***
	(1.04)	(1.00)	(1.08)	(-3.50)
Age of the building	2.47	2.56	2.39	0.16***
	(1.03)	(1.03)	(1.01)	(15.96)
Corner property: yes/no	0.13	0.14	0.12	0.02***
	(0.33)	(0.34)	(0.32)	(6.15)
Apartment Characteristics				
Area in sqft	1008.45	1013.34	1003.80	9.54
	(1070.01)	(1100.15)	(1040.53)	(0.89)
Floor number	4.10	4.22	3.99	0.23***
	(1.59)	(1.61)	(1.57)	(14.24)
Balcony	0.37	0.43	0.33	0.10***
	(0.48)	(0.49)	(0.47)	(20.76)
Attached Bathroom	0.59	0.60	0.58	0.02***
	(0.49)	(0.49)	(0.49)	(4.58)
Gets natural light	0.11	0.12	0.10	0.02***
	(0.31)	(0.32)	(0.30)	(5.16)
Has high ceilings	0.08	0.08	0.08	0.00
	(0.27)	(0.27)	(0.26)	(1.74)
Amenities				
TV	0.45	0.44	0.46	-0.02***
	(0.50)	(0.50)	(0.50)	(-4.72)
WiFi	0.44	0.43	0.45	-0.01**
	(0.50)	(0.50)	(0.50)	(-2.79)
AC	0.46	0.48	0.43	0.05***
	(0.50)	(0.50)	(0.50)	(10.65)
Food service	0.15	0.17	0.14	0.03***
	(0.36)	(0.37)	(0.34)	(7.97)

[12]Table **??** in Appendix **??** summarizes all variables reported in each advertisement for platform N.

Laundry service	0.14	0.15	0.13	0.01***
	(0.35)	(0.35)	(0.34)	(4.12)
Geyser	0.63	0.67	0.60	0.07***
	(0.48)	(0.47)	(0.49)	(14.04)
Microwave	0.20	0.23	0.17	0.06***
	(0.40)	(0.42)	(0.38)	(13.81)
Fridge	0.59	0.64	0.54	0.10***
	(0.49)	(0.48)	(0.50)	(20.68)
Washing Machine	0.36	0.35	0.38	-0.03***
	(0.48)	(0.48)	(0.48)	(-5.83)
Power backup	0.03	0.02	0.04	-0.02***
	(0.17)	(0.14)	(0.20)	(-12.90)
Elevator	0.25	0.23	0.27	-0.05***
	(0.43)	(0.42)	(0.45)	(-10.92)
Gymnasium	0.10	0.09	0.11	-0.02***
	(0.30)	(0.29)	(0.31)	(-5.26)
Park	0.26	0.28	0.24	0.04***
	(0.44)	(0.45)	(0.43)	(8.82)
Security Provision				
Security personnel	0.14	0.12	0.16	-0.03***
	(0.35)	(0.33)	(0.37)	(-9.66)
Security/fire alarm	0.19	0.16	0.21	-0.05***
	(0.39)	(0.37)	(0.41)	(-13.15)
Observations	40013	19506	20507	40013

Table 2 indicates that although individual amenities in accommodations for women may differ — such as a slightly higher provision of hot water, microwaves, and refrigerators — these are offset by other factors, such as living in older buildings or being less likely to have some other amenities. Furthermore, despite the common assumption that women might prioritize safety and prefer more secure housing, potentially leading landlords to invest more in security, Table 1 reveals that, on average, accommodations advertised for women do not offer additional security features or personnel.

To distinguish between rents paid in shared accommodations run as mom and pop operations and those run by large organizations, we obtain rental listings from the web presence of large, vertically-integrated PG providers. In data from platform N, each poster is assigned a unique ID allowing us to track the provision of PGs by one landlord.

Approximately 41% of the PGs in our sample are advertised by landlords with one or two PGs.

3.2 Social and cultural norms

Gender differentials in rents may be influenced by prevailing social and cultural norms. We measure social norms across cities in India following Giuliano and Nunn (2018), who matched ethnographic data on the social norms and behaviors of ancestral populations (codified in the *Ethnographic Atlas*; Murdock *et al.*, 1999) to a modern map of language distributions from *Ethnologue* (to do: add citation).

The primary source of ethnographic information used in our analysis is from the *Ethnographic Atlas*, which provides data on gendered social norms that may influence attitudes towards women and the costs associated with providing housing for them. The Atlas includes information on the pre-industrial characteristics of 1,265 ethnic groups, with 313 of these groups located in various parts of India. It covers a range of social norms across different categories, such as task specialization, inheritance, succession, and settlement patterns. For our study, we focus specifically on those norms that pertain to gender attitudes within these ethnic groups.

We construct three broad social norm measures using the Ethnographic Atlas: prohibition of pre-marital sex, the share of women in various tasks, and patrilineal descent/inheritance. Anecdotal evidence suggests that a significant "cost" associated with providing housing to single women in India is the perceived risk of behavior deemed inappropriate by societal standards, which could potentially harm the landlord's reputation. To address this, we categorize groups as strictly prohibiting pre-marital sex if they enforce early marriage for females, insist on virginity at marriage, or prohibit pre-marital sexual relations. The second measure examines women's societal position, property rights, and post-marital residence patterns, which we capture through indicators such as patrilineal descent, inheritance practices, and patrilineal residence. The third measure evaluates attitudes towards women's participation in the labor force by analyzing the proportion of tasks like metalworking, weaving, leatherworking, pottery, construction, hunting, gathering, and agriculture that were performed by women in ancestral populations. We then link each rental advertisement to the ancestral social norms of the prevalent ethnic group at each location.

4 Gender gaps

To quantify the gender gap in PG accommodation rents in India, we compare listing prices for male-only and female-only shared accommodations, while controlling for a comprehensive set of housing arrangements, amenities, and detailed neighborhood fixed effects. Our primary specification uses data from platform N, which includes information on PG accommodations across more than 350 cities in India. Formally, we estimate the gender differential in rents for PG rentals using the following specification:

$$Y_{ijt} = \beta_1 G_i + \beta_2 \mathbf{X}_i + \gamma_t + \delta_j + \varepsilon_{ijt} \tag{1}$$

where each observation i is an advertisement for a PG in city (or neighborhood) j made in month-year t. Our sample consists of those PGs which explicitly state a preference for the tenant gender (we set G_i=1 for female PGs). The gender differential in rents between male-only and female-only listings is captured by β_1 which is our coefficient of interest. $\mathbf{X}_i$ is a set of controls which includes characteristics of the accommodation: number of beds per room, in-room or shared bathroom age of the building, floor number, furnishing status and indicators for the cardinal direction an apartment faces. We also control for amenities present within the apartment (like appliances, kitchen, laundry, food service), security provision and building-level amenities (like gymnasiums and swimming pools). We allow for geographic and temporal fixed effects, γ_t and δ_j respectively, across different specifications. Geographic fixed effects are included at the city or neighborhood level. Our sample should be viewed as cross sectional: we include time effects at the month-year level to control for nationwide seasonality and rent inflation at the time each PG was listed on the platform.[13]

Table 3 presents β_1, our coefficient of interest, with progressively added controls and fixed effects from columns 1 to 6. Our preferred estimate is found in column 6, using data from portal N. This specification, which includes the full set of controls, month-year of posting, and neighborhood fixed effects, indicates that female-only PG accommodations charge approximately 8% more in monthly rent compared to male-only PGs. Portal N provides the most comprehensive data on observable characteristics of the PGs, and thus we use this data in subsequent analyses. Results from portal M are consistent with those from portal N, showing that female-only PGs charge about 6.3% more in rent than male-only PG accommodations.

[13]Our sample from Platform N contains listings from 355 cities and 4929 neighborhoods, which we construct by reverse-geocoding on a popular maps API. Further description of the construction of city and neighborhood boundaries is in Appendix B.

Table 3: Main Specification: Gender differential in rents

	Log (Listing Price)					
	(1)	(2)	(3)	(4)	(5)	(6)
Portal N						
Advertised for only-females	0.044***	0.049***	0.048***	0.057***	0.084***	0.080***
	(0.006)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)
N	42382	42374	42374	42303	42201	40770
Avg Listing Price (Male-only, INR)	7566	7566	7566	7565	7569	7616
Portal M						
Advertised for only-females	0.063***	0.059***	0.032***		0.069***	0.063***
	(0.004)	(0.004)	(0.004)		(0.003)	(0.003)
N	60969	58229	58229		58169	57353
Avg Listing Price (Male-only, INR)	8041	8145	8145		8148	8169
Time FE	X	X	X	X	X	X
Basic Features		X	X	X	X	X
Controls			X	X	X	X
Extended Controls				X_{onlyN}	X_{onlyN}	X_{onlyN}
City FE					X	X
Neighbourhood FE						X

Notes: The table reports results from OLS regressions. The dependent variable in columns 1 through 6 is logarithm of the rent price. All regressions include time fixed effects. Basic features control includes number of tenants sharing a room, area of the apartment in square feet and an indicator for whether the accommodations are furnished for platform N. For platform M, they include the number of tenants sharing a room and area of the apartment. Controls include the common amenities between platform N and platform M: TV, WiFi, AC, microwave, fridge, washing machine, geyser, power backup, bathroom attached, balcony, parking and food service. Extended controls are only included in regressions for platform N, and are the presence of stove, light, bed, fan, wardrobe, curtains, study table, dinning table, modular kitchen, chimney, sofa, swimming pool, club house, vastu compliance, park, garden terrace, security, and gym. It also includes attributes such as: ad verified, photo count, age, facing, floor number and whether it is a corner property. The sample for platform N includes 361 different cities neighborhood fixed effects were defined using neighborhood tags and the sample includes 4,024 different neighbourhoods. The sample for platform M includes 278 different cities, and neighborhood fixed effects include 3,882 different neighbourhoods. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

4.1 Robustness and Heterogeneity

In this section, we assess whether gender-based rent differentials depend on characteristics of neighborhoods, landlords and the population that the PGs cater to. Even within the same neighborhood, there may be variations in amenities, safety, and transit access, which necessitates comparing male-only and female-only PGs within the same building. Second, there may be selection in the types of landlords who operate male-only versus female-only PGs. Third, different PGs may cater to distinct target audiences with varying financial capacities. Lastly, the size and scale of landlords can affect the costs associated with operating male-only and female-only PGs.

Although our main specification compares male-only and female-only PGs within the same neighborhood, there may still be differences in amenities and safety across various locations within that neighborhood. For example, if women are willing to pay

more than men for street lighting they may bid up rent at locations with good lighting, and PGs may select into supplying female accommodation at such locations. A rent gap for such a location is also a "pink tax," as women pay additional rent to mitigate street harassment and other gender-based violence. Alternatively, other location attributes may be valued by both genders (at the same, or at different rates) and be correlated with gendered supply without constituting a "pink tax." Additionally, unreported characteristics of buildings might be more valued by women, potentially leading to higher rent for female-only accommodations. We control for building unobservables in Table 4, Col. 1, where we restrict our sample to PGs with building identifiers and properties where we observe at least one male and one female PG within a building. We find that female-only PGs ask for 5.7% more rent, after controlling for building unobservables, which is 71% of the effect size we find on a comparable specification on the full sample. We presume that building unobservables also control for most location unobservables, although large housing societies in India may have multiple entrance gates, with somewhat different street approaches.

Table 4: Gender differential in rents within-building and within-owner

	Log (Listing Price)		
	Within-Building	Within-Owner	Within-Building and Within-Owner
Advertised for only-females	0.057***	0.068***	0.017
	(0.012)	(0.006)	(0.012)
N	8740	28876	6446
Avg Listing Price (Male-only, in INR)	9486.720	7894.815	9827.617
Time FE	X	X	X
Basic Features	X	X	X
Controls	X	X	X
Extended Controls	X	X	X
Building FE	X		X
Owner FE		X	X
City FE		X	
Neighborhood FE		X	

Notes: The table shows the coefficient β_1 from Equation 1. Basic features control includes number of tenants sharing a room,area of the apartment in square feet and an indicator for whether the place is furnished. Controls include TV, WiFi, AC, microwave, fridge, washing machine, geyser, power backup, bathroom attached, balcony, parking, food service, presence of stove, light, bed, fan, wardrobe, curtains, study table, dinning table, modular kitchen, chimney, sofa, swimming pool, club house, vastu compliance, park, garden terrace, security, and gym. It also includes attributes such as: ad verified, photo count, age, facing, floor number and whether it is a corner property. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Next, we address the potential issue of selection bias among landlords who choose to operate PGs catering to different genders. Specifically, landlords managing male-only PGs might have different preferences or operational practices compared to those running female-only PGs, which could contribute to the gender gap in rents. First,

we find that women pay 6.8% more than men for comparable accommodations even within the set of landlords that supply both male-only and female-only PGs. This result shows that the observed rent differential is not solely attributable to the direct selection of landlords with varying degrees of gender animus into the supply available to each gender, but reflects a more pervasive trend in rental pricing across genders that may arise due to animus within landlord (even among those offering to both genders), statistical discrimination or, potentially, gendered demand for unobserved PG attributes. We then find that the gender gap vanishes (Col. 3) within the smaller sample of 6,446 PG listings offered by the subset of landlords that supply to both genders within the same building. Our finding within this subpopulation of landlords suggests that landlord preferences do play a role in determining the overall gap.

Note that gendered demand for unobserved PG attributes may still entail an effect from gender norms restricting supply. Despite increasing economic opportunities for women, cultural anxieties about delayed marriage and women living independently persist, making it harder for working single women to find rental apartments. The inability of working women to find a rental apartment, even when financially capable, may delay their exit from the PG market and result in a higher demand in the female PG segment. Working women at an equivalent career stage as men may be constrained in progressing out of PG accommodation and into apartment rentals, and may chose to pay for PG quality attributes that are unobservable in listings data. To explore this, we examine variations in landlord preferences, distinguishing between those who prefer tenants to be students versus professionals. If working women indeed stay longer in PGs, we would expect a larger gender rent gap among landlords who state a preference for working professionals. However, Table 5 shows that this is not the case, and the gender gap in rents is actually higher in PGs which prefer students over working professionals. This suggests that the gender gap in rents cannot be solely explained by difficulties in exiting the PG market and securing rental apartments.

Landlord with varying operational scopes may incur different costs associated with providing housing to each gender. Small landlords, who are more closely tied to their local communities, may perceive a higher risk behavior deemed inappropriate by societal standards. If this reputational cost is priced into the rent, it could result in smaller landlords charging higher rents to female tenants. In contrast, larger companies running multiple PGs across several cities might not face the same risks: such suppliers should be expected to arbitrage a rent gap that does not correspond to a business cost, and their management may hold more progressive norms than the average supplier. Table 6 confirms this hypothesis, as landlords managing fewer than five PGs charge women an average of 10% more than men. However, there is still a

Table 5: Gender differential in rents by tenant preference

	Log (Listing Price)
	(1)
Advertised for only-females X Students preferred	0.091***
	(0.026)
N	10837
Avg Listing Price (Male-only, in INR)	8098.666
Time FE	X
Basic Features	X
Controls	X
Extended Controls	X
City FE	X
Neighborhood FE	X

Notes: The table shows the coefficient β_1 from Equation 1. All regressions include month-year, neighborhood and city fixed effects. Basic features control includes number of tenants sharing a room,area of the apartment in square feet and an indicator for whether the place is furnished. Controls include TV, WiFi, AC, microwave, fridge, washing machine, geyser, power backup, bathroom attached, balcony, parking, food service, presence of stove, light, bed, fan, wardrobe, curtains, study table, dinning table, modular kitchen, chimney, sofa, swimming pool, club house, vastu compliance, park, garden terrace, security, and gym. It also includes attributes such as: ad verified, photo count, age, facing, floor number and whether it is a corner property. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

statistically significant 4.5% gender gap in the segment of larger, more professionalized PG suppliers. This result could be consistent with statistical discrimination or with gender differences in demand for unobserved quality.

Table 6: Gender differential in rents by size of operation

	Log (Listing Price)	
	Small Operator(<=5)	Large Operator(>100)
Advertised for only-females	0.105***	0.045***
	(0.008)	(0.006)
N	15435	12608
Avg Listing Price (Male-only, in INR)	6624.828	8493.490
Time FE	X	X
Basic Features	X	X
Controls	X	X
Extended Controls	X	X
City FE	X	X
Neighborhood FE	X	X

Notes: The table shows the coefficient β_1 from Equation 1. All regressions include month-year, neighborhood and city fixed effects. Basic features control includes number of tenants sharing a room,area of the apartment in square feet and an indicator for whether the place is furnished. Controls include TV, WiFi, AC, microwave, fridge, washing machine, geyser, power backup, bathroom attached, balcony, parking, food service, presence of stove, light, bed, fan, wardrobe, curtains, study table, dinning table, modular kitchen, chimney, sofa, swimming pool, club house, vastu compliance, park, garden terrace, security, and gym. It also includes attributes such as: ad verified, photo count, age, facing, floor number and whether it is a corner property. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

5 Role of social norms

As demonstrated in section 4.1, smaller, locally-run paying guest (PG) operations might charge higher rents to women. This might be a result of smaller landlords often being more closely connected to the social norms of their community. In areas where prevailing social norms may be misogynistic and disapproving of women living independently away from their parents' home, landlords may require additional compensation to be induced to supply to women.

To understand how social norms influence gender-based rent differentials, we use measures derived from the Ethnographic Atlas, following the methodology of Giuliano and Nunn (2018). Anecdotal evidence suggests that landlords may be concerned about potential damage to their reputation due to perceived inappropriate behavior associated with housing single women. The social attitude toward renting to unmarried women was succinctly expressed in a BBC interview by Suruchi Sharma, an educated female manager in digital marketing living in Mumbai: *"...There have been many occasions when I have tried to rent an apartment in a good locality and been refused. People don't like to rent apartments to single, professional women. They are afraid that someone like me will behave immorally - have loud parties, have men to stay overnight, be a bad influence on the surrounding families..."* To evaluate the impact of these social norms on PG rent differentials, we categorize communities based on their stance towards pre-marital sex. Specifically, communities that enforce early marriage, mandate virginity at marriage, or prohibit pre-

marital sexual relations are classified as having strict prohibitions against such behavior.

Table 7 displays regression results where we include an interaction term between the social norm and gender preference in the PG, G_i, in equation (1). Column 2 indicates that the entire gender rent gap disappears when accounting for the interaction with strict prohibitions against pre-marital sex. This suggests that the presence of such gender norms can fully account for the observed gender differential in PG rents. Consequently, mom-and-pop landlord operations that are rooted in the norms of their local communities may indeed face reputational costs from providing housing to single women.

Table 7: Social Norms: ancestral characteristics

	Log (Listing Price)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A							
Advertised	0.084***	0.082***	0.084***	0.084***	0.114***	0.085***	0.085***
for only-females	(0.004)	(0.005)	(0.004)	(0.004)	(0.006)	(0.004)	(0.004)
Panel B							
Advertised	0.084***	0.019	0.117***	0.108***	0.123***	0.110***	0.004
for only-females	(0.004)	(0.024)	(0.007)	(0.011)	(0.008)	(0.006)	(0.011)
Female		0.065***					
x Strictly no premarital sex		(0.024)					
Female			-0.058***				
x Patrilineal descent			(0.009)				
Female				-0.027**			
x Patrilineal residence after marriage				(0.012)			
Female					-0.015		
x Patrilineal succession					(0.016)		
Female						-0.375***	
x Fem Share of tasks						(0.054)	
Female							0.111***
x Male Share of tasks							(0.015)
N	42201	33633	42201	42201	20899	40985	40985
Avg Listing Price (Male-only, in INR)	7568.73	7820.13	7568.73	7568.73	6675.31	7647.85	7647.85
Time Effects	X	X	X	X	X	X	X
Basic Features	X	X	X	X	X	X	X
Controls	X	X	X	X	X	X	X
Extended Controls	X	X	X	X	X	X	X
City Fixed Effects	X	X	X	X	X	X	X

Notes: The table reports results from OLS regressions. The dependent variable in columns 1 through 6 is logarithm of the rent price. All regressions include time fixed effects and city fixed effects. Each regression shows the coefficient for dummy Female by itself and also the interaction with each social norm from Giuliano and Nunn (2018). Social norms include premarital sex strictly prohibited, patrilineal descent, patrilineal inheritance, patrilineal transfer of residence at marriage, succession to office of local head, female share of tasks, male share of tasks and equal share of tasks. Tasks in the last two rows include metalworking, weaving, leatherworking, pottery, construction, hunting, gathering, and agriculture that were performed by ancestral populations. A task is considered to be performed by women (men) if they are either solely or predominantly responsible for it. Robust standard errors in parentheses*

Additionally, attitudes towards women's participation in the labor force may also affect rent differentials by gender. To assess these attitudes, we measure the proportion of tasks traditionally performed by women, such as metalworking, weaving, leather-working, pottery, construction, hunting, gathering, and agriculture. A task is considered to be performed by women if they are either solely or predominantly responsible for it. Column 9 shows that the gender rent gap is fully explained by regions where men are more responsible for these tasks and occupy higher positions in the labor force. This may reflect broader misogynistic social norms, leading to higher rents for single women compared to men.

To be done. Discussion of contemporary indicators for social norms:

- The gender gap is half the size in states that reformed gendered inheritance laws ahead of national legislation passed in 2005 (Hindu Succession (Amendment) Act, 2005.)
- Gap is lower in districts with higher female literacy, lower patrilocality.
- Not significant: "Matrilineal" states, as per Jayachandran and Pande (2017).

Table 8: Social Norms: contemporary indicators

	Log (Listing Price)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Advertised for only-females	0.057***	0.103***	0.057***	0.060***	0.085***	0.100***	0.089***	0.080***	0.094***
	(0.005)	(0.007)	(0.005)	(0.006)	(0.006)	(0.010)	(0.007)	(0.005)	(0.006)
x Early adopters (Hindu Succession Act)		-0.054***							
		(0.009)							
x Matrilineal states (JP, 2017)			0.039						
			(0.024)						
x Sex Ratio (Census, 2011)				-0.005					
				(0.006)					
x Patrilocality (Census, 2011)					0.057***				
					(0.007)				
x Fem literacy rate (Census, 2011)						-0.036***			
						(0.008)			
x Want more sons than daughters (DHS, 2019)							0.040***		
							(0.009)		
x % of women currently employed (DHS, 2019)								-0.047***	
								(0.005)	
x % women who can go alone outside village (DHS, 2019)									-0.044***
									(0.004)
N	42303	42303	42303	42303	42303	42303	42035	42035	42035
Avg Listing Price (Male-only, in INR)	7564.939	7564.939	7564.939	7564.939	7564.939	7564.939	7574.776	7574.776	7574.776

The table reports results from OLS regressions. The dependent variable in columns 1 through 6 is logarithm of average rent price. All regressions include time fixed effects and city fixed effects. All regressions include controls for characteristics (features, amenities, attributes). Each regression shows the coefficient for dummy Female by itself and also the interaction with each social norm. Social norms include sex ratio, total fertility rate, total marital fertility rate, patrilocality, son preference, female employment, and female literacy rate. Robust standard errors in parentheses* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

6 Conclusion

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Appendix A Data sources

Property portals

Appendix B City and Neighborhood Boundaries

Socioeconomic data

Social norms

Data from India from the DHS Program for years 1998-99 (Phase IV), 2015-16 (Phase VII), 2019-21 (Phase VII) from the individual women's recode.

Ancestral characteristics. Data on ancestral characteristics by linguistic group from Giuliano and Nunn (2018) , who match anthropological data from the Ethnographic Atlas (Murdock *et al.*, 1999) to maps of the geographical distribution of language groups from Ethnologue .

Appendix C Data appendix (for online publication)

Property portals

We standardize city names across portals (e.g., Bengaluru and Bangalore become Bengaluru). We check consistency between listed cities and coordinates provided by the platform..

Socioeconomic data

Social norms

Ancestral characteristics

Spatial data on the characteristics of ancestral populations is obtained from from Giuliano and Nunn (2018), who match anthropological data from the Ethnographic Atlas (Murdock *et al.*, 1999) to linguistic data from Ethnologue . We use or construct the following variables, based on their values in the original Ethnographic Atlas data.

Premarital sex. Categorical variable, defined from *Norms of premarital sexual behavior of girls [EA078].* Takes on 6 categories: "early marriage of females", "insistence on virginity", "prohibited but weakly censured", "allowed (censured only if pregnancy)", "trial, marriage, promiscuous relation prohibited" and "freely permitted".

Premarital Sex Strictly Prohibited. Binary variable, defined as 1 when [EA078] equals "early marriage of females", "insistence on virginity" or "prohibited but weakly censured."

Kinship descent. Categorical variable, defined from *Descent: major type [EA043]* which takes on 7 categories: "patrilineal", "duolateral", "matrilineal", "quasi-lineages", "ambilineal", "bilateral" and "mixed". Our constructed variable is 0 if "Mixed/Other", 1 if "Patrilocal" and 2 if "Matrilocal".

Inheritance. Categorical variable, defined from *Inheritance rule for real property (land) [EA074]* which takes on 7 categories "absence of individual property rights", "matrilineal (sister's sons)", "other matrilineal heirs", "children, with daughters recieving less", "children, equally for both sexes" "other patrilineal heirs" and "patrilineal (sons)". Our variable is 0 if "Equal or No Prop. Rights", 1 if "Patrilineal" and 2 if "Matrilineal".

Residence after marriage. Categorical variable, defined from *Transfer of residence at marriage: prevailing pattern [EA011]* which takes on 4 categories: "Wife to husband's group", "Couple to either group or neolocal", "Husband to wife's group" and "Nonestablishment of a common household". Our constructed variable is 0 if "Mixed/Other", 1 if "Patrilocal" and 2 if "Matrilocal."

Succession of local head. Categorical variable, defined from *Political succession [EA072]* which takes on 8 categories: "patrilineal heir", "matrilineal heir", "appointment by higher authority," "senority or age," "influence, wealth or social status," "election or other formal consensus," "informal consensus" and "absence of any such office." Our constructed variable is 0 if "Consensus/Other," 1 if "Patrilineal" and 2 if "Matrilineal."

Female share of traditional tasks. Continuous variable, defined from *Sex differences: metal working [EA044], Sex differences: weaving [EA045], Sex differences: leather working [EA046], Sex differences: pottery making [EA047], Sex differences: boat building [EA048], Sex differences: house construction [EA049], Sex differences: gathering [EA050], Sex differences: hunting [EA051], Sex Differences: fishing [EA052], Sex differences: animal husbandry [EA053] and Sex differences: agriculture [EA054].* Ratio, where the numerator counts tasks above for the values "female appreciably more" or "females only." Denominator counts all tasks except for "activity present" (where gender is not defined in the data) or "absent or unimportant activity.")

Male share of traditional tasks. Continuous variable. It is equal to Female share of traditional tasks except that the numerator adds 1 for each variable in the list which take values "males only" or "males appreciably more".

DHS 1998-99

Data from India DHS 1998-99 covers ever-married women aged 15-49 and has state-wide coverage. The survey includes 90,303 women surveyed from 26 states and 440 unique state-districts. Each variable was computed at state level and district level as well.

Decision on what to cook. Continuous variable, defined from *Who decides what to cook [S511A]*. We create a binary auxiliary variable that is 1 if respondent is part of the decision (alone, jointly with husband or jointly with others), 0 if she is not part of the decision at all. Then calculate the percentage of ever-married women involved in this decision at district and state level.

Decision on own health care. Continuous variable, defined from *Who decides on obtaining health care [S511B]*. We create a binary auxiliary variable that is 1 if respondent is part of the decision (alone, jointly with husband or jointly with others), 0 if she is not part of the decision at all. Then calculate the percentage of ever-married women involved in this decision at district and state level.

Decision on purchasing jewellery. Continuous variable, defined from *Who decides to purchase jewelry [S511C]*. We create a binary auxiliary variable that is 1 if respondent is part of the decision (alone, jointly with husband or jointly with others), 0 if she is not part of the decision at all. Then calculate the percentage of ever-married women involved in this decision at district and state level.

Decision on staying with her parents or siblings. Continuous variable, defined from *Who decides about respondent staying with family [S511D].* We create a binary auxiliary variable that is 1 if respondent is part of the decision (alone, jointly with husband or jointly with others), 0 if she is not part of the decision at all. Then calculate the percentage of ever-married women involved in this decision at district and state level.

Not involved in decisions. Continuous variable. We calculate the percentage of ever-married women not involved in any of the 4 decisions listed above at district and state level.

Access to money. Continuous variable, defined from *Allowed to have money set aside [S513]* which is 1 if yes, 0 if no. Then we construct the percentage of ever-married women allowed to have money set aside at district and state level.

Women Empowerment Index - Gupta & Yesudian (2006). Categorical variable, defined from *[S511A-S511D]* and *[S513].* It is 1 for women who participate in only one decision, 2 for women who participate in 2 to 3 decisions and 3 for women who participate in 4 to 5 decisions. We construct the media and the median at district and state level.

Permission market. Continuous variable constructed from *Permission needed to go to market [S512A].* We create a binary auxiliary variable that is 1 if the woman is allowed to go alone, 0 if she cannot go or has to go with someone else. Then we calculate the percentage of ever-married women who do not need permission to go to the market at district and state level.

Permission relatives or friends. Continuous variable constructed from *Permission needed*

to visit relatives or friends [S512B]. We create a binary auxiliary variable that is 1 if the woman is allowed to go alone, 0 if she cannot go or has to go with someone else. Then we calculate the percentage of ever-married women who do not need permission to visit friends or relatives at district and state level.

Domestic violence justified if husband suspects wife is unfaithful. Continuous variable constructed *Husband may hit wife if she is unfaithful [S514A]*. We create a binary auxiliary variable that is 1 if respondent answers "yes" or "don't know", 0 if "no". Then we calculate the percentage of ever-married women who justify a husband beating his wife for this reason at district and state level.

Domestic violence justified if natal family does not give money or other items. Continuous variable constructed *Husband may hit wife if her family does not give money [S514B]*. We create a binary auxiliary variable that is 1 if respondent answers "yes" or "don't know", 0 if "no". Then we calculate the percentage of ever-married women who justify a husband beating his wife for this reason at district and state level.

Domestic violence justified if wife shows disrespect for in-laws. Continuous variable constructed *Husband may hit wife if she shows disrespect [S514C]*. We create a binary auxiliary variable that is 1 if respondent answers "yes" or "don't know", 0 if "no". Then we calculate the percentage of ever-married women who justify a husband beating his wife for this reason at district and state level.

Domestic violence justified if wife goes out without telling husband. Continuous variable constructed *Husband may hit wife if she goes out without telling him [S514D]*. We create a binary auxiliary variable that is 1 if respondent answers "yes" or "don't know", 0 if "no". Then we calculate the percentage of ever-married women who justify a husband beating his wife for this reason at district and state level.

Domestic violence justified if wife neglects house or children. Continuous variable constructed *Husband may hit wife if she neglects house or children [S514E].* We create a binary auxiliary variable that is 1 if respondent answers "yes" or "don't know", 0 if "no". Then we calculate the percentage of ever-married women who justify a husband beating his wife for this reason at district and state level.

Domestic violence justified if wife does not cook food properly. Continuous variable constructed *Husband may hit wife if she does not cook properly [S514F].* We create a binary auxiliary variable that is 1 if respondent answers "yes" or "don't know", 0 if "no". Then we calculate the percentage of ever-married women who justify a husband beating his wife for this reason at district and state level.

Domestic violence justifies for at least one reason. Continuous variable constructed from the five variables listed above. Percentage of women who justify a husband beating his wife for at least one of the reasons.

Mean and median age at first marriage. Continuous variable constructed from *Age at first marriage [V511].* It is mean and median age at first marriage for ever-married women aged 25 to 49 years.

Percentage of currently employed women. Continuous variable constructed from *Current type of employment [V718].* We create a binary auxiliary variable which is 1 if respondent has any type of job (paid or unpaid) and 0 if respondent does not work. Then we generate the percentage of currently employed women at district and state level.

Percentage of women who have a paid job. Continuous variable constructed from *Current type of employment [V718].* We create a binary auxiliary variable which is 1 if respondent is paid employee or self employed and 0 if respondent does not work or has an unpaid job. Then we generate the percentage of currently employed women at district and state level.

Percentage of women with primary education completed or above. Continuous variable constructed from *Educational attainment [V149].* We create a binary auxiliary variable that is 1 if the respondent has "complete primary or above".