

# Mobility and Tenure Choice in Urban India

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## Abstract

Across countries, renting has been chosen by the young, the single and, more generally, the mobile, over ownership. In this paper, we use district-level data to draw inferences about the determinants of mobility and tenure choice throughout India, and whether these determinants are stable across time. Comparing regression results between 2001 and 2011, we see that the relationship between migration and tenure choice is not stable. Although there is no association between migration and renting homes in 2001, we find that migrants in 2011 were 11 percent less likely to be renters. This negative relationship between renting and migration is driven by women migrating for marriage – who account for almost 50 percent of all migrants. Our results suggest that women who move at marriage have a 36 percent lower chance of renting. Migrant men, on the other hand, are more likely to move for economic reasons and have a 27 percent higher probability of renting homes. We also find that the determinants of renting do not forecast 2011 from 2001 estimates very well, indicating demographic shifts and changes in tastes and preferences in this time period.

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**Keywords:** Migration, Housing tenure choice, India

# 1 Introduction

The story of migration is the story of aspiration. Molloy et. al. (2011) [12] open their well-cited paper on US migration with examples: the Okies, suffering from the dust bowl, moving to California; African-Americans in the rural south migrating for manufacturing jobs in the cities of the United States north; etc.

But migration (and for this paper, we are discussing internal migration) is not just an American Story: all over the world, migrants have moved from country to city, and from economically troubled cities to economically vibrant ones. Beginning with the 1980s, the economic powerhouse of London has drawn people – especially young people – from all over the UK. Honshu, with the economic centers of Tokyo, Osaka, and Nagoya, have drawn people from the rest of Japan. China has urbanized rapidly, as hundreds of millions have quickly transformed it from an overwhelmingly rural country to a majority urban one, presumably in large part because the economic opportunities in Chinese cities are so much greater than in the countryside.

The migration story has not always worked out so well, however. Latin America and Africa are also urbanizing rapidly: Brazil, Peru, Libya, Gabon are now more than 75 percent urban, and Lagos, Kinshasa, etc. are among the fastest-growing cities in the world. And yet it is not clear that in these instances migration has produced large benefits, as living conditions in peri-urban areas have many of the deficiencies of rural areas: absences of electricity, sanitation, and treated water. As Henderson (2003 [7], 2010 [8]) has shown, while advances in economic development are almost always accompanied by urbanization, the converse is not necessarily true. The implications of migration — particularly rural to urban — vary by country, and are therefore worth studying on a country by country basis.

This paper examines the things we know – and don't know – about migration for the world's second-largest country: India. In studying India, we will begin by using the template that Molloy et. al. (2011) [12] used to investigate migration in the US: we will discuss the data choices involved in studying migration, and the strengths and weaknesses underlying these choices, present some basic facts about migration in India, discuss the robustness of these facts, and look at differences in migration characteristics across different types of people.

We will then go one step further, and investigate the interaction of migration and tenure choice (i.e., the choice between owning and renting) in India. In the United States, there has long been a strong association between the propensity to migrate and tenure choice – those who have identified themselves as sticky with respect to location have a tendency toward home-owning, while those who have been footloose have had a greater tendency to rent.

One manifestation of this is the relationship in the US between marriage and tenure: using a simple linear probability model of homeownership in the US, one finds that, after a long list of controls, married couples are 22 percent more likely to be owners than single people.

One fact about India is that the rental sector of the housing market has been rapidly shrinking over the past 50 years (Tandel et. al., 2016 [15]). As we think about mobility in India, we may consider the impact that the shrinking rental sector has had on the opportunities for Indians to migrate. We model the impact of migration on tenure choice in India and test whether the relationship between the two characteristics has remained stable across time.

A number of findings surprise us. The first is that Indians do not migrate very much, both locally and across states. The second is that the variables that we would expect to predict migration do not seem to do so, until we run separate regressions by sex. Finally, the relationship between migration and tenure choice in India is much weaker than we expected, based on literature exploring the relationship in other countries.

This paper is organized as follows: Section 2 summarizes the relevant literature, section 3 provides a discussion of the available data, section 4 presents some stylized facts on migration in India, section 5 has a discussion of tenure choice (theory and the Indian context), section 6 presents some regression results, and section 7 ends the paper with concluding remarks.

## 2 Literature on Mobility

Roback’s (1982) [17] paper on mobility is perhaps the most influential. The well-known Rosen-Roback model argues that mobility equilibrates wages, housing costs and urban amenities across space and that when one city has relatively high wages, *certeris paribus*, people will migrate to that city until either its rents rise enough or wages fall enough to restore equilibrium. The model allows for frictions, so that people may have idiosyncratic attachments to cities that inhibit moves.

Molloy et. al. (2011) [12] discuss the puzzle of declining migration in the US. They show that migration is declining across all demographic, wealth, and education categories, and cannot be explained by cycles in the housing market. Rather, they find that the decline is secular, and cannot find a convincing reason for why it is happening. In a companion paper, Molloy et. al. (2017) [13], show that “declining migration is related to a concurrent secular decline in job changing.” As a result, they turn to the puzzle of why people are changing jobs less frequently. They cannot find a satisfactory explanation; not even the rise of dual-income households can explain the decline. Saks and Wozniak (2011) [19] investigate the cyclical properties of worker reallocation. Remarkably, long-distance labor moves seem pro-cyclical,

suggesting that they are more about long-run reallocation rather than short-run adjustment to market conditions.

Lucas (1997) [11] reviews the evidence on migration, especially in developing countries, and finds that an efficiency wage story as in the Rosen-Roback model is supported by little in the way of empirical evidence. It does cross-country comparisons that imply that social forces, rather than wage differentials, are the key determinants of migration. Bhattacharyya (1985) [1] constructed a model of family migration, and shows how the migration decision is heavily influenced by whether migration from rural to urban areas is a family or individual decision. Societies for which migration is an individual decision tend to be more mobile. Bhattacharyya tests this hypothesis and finds that family decisions better explain migration flows in India.

Rosenzweig and Stark (1989) [18] observed that the main cause for migration in India is marriage, in particular by women, who form the majority of the migrants. Thus Rosenzweig and Stark state that skill or wage differences across India may not properly account for labor flows in India. They show that the migration of women being married off to distant households is a method for enabling consumption smoothing in times of income shocks.

Along with literature on how social forces affect migration in India, several research papers show how policies by the government act as a friction to labor mobility. We document some of the relevant ones here. Kone et. al. (2018) [10] use gravity models with district-to-district migration data from the 2001 Census of India to show that state borders appear to act as significant impediments to internal mobility. The analysis finds that “average migration between neighboring districts in the same state is at least 50 percent larger than neighboring districts on different sides of a state border, even after accounting for linguistic differences. Although the impact of state borders differs by education, age, and reason for migration, it is always large and significant.” The authors argue that people lose in-kind transfers when they move from one state to another and that this inhibits mobility across state lines.

Imbert and Papp (2019) [9] study the effect of India’s rural public works program, the National Rural Employment Guarantee Scheme (NREGS), on rural-to-urban migration and urban labor markets. Rural places that implemented the program saw lower levels of seasonal out-migration to urban areas. Places that failed to implement the program saw increased migration, not necessarily to urban places, but also to places that did implement the scheme. Urban places near rural districts that implemented the scheme saw higher wage increases, because of the relative dearth of migration received from rural areas.

Bhavnani and Lacina (2017) [2] discuss the political economy of migration in India. While governments should rearrange resources based on changes in settlement patterns, the

authors find that in India such rearrangements are a political, rather than technical, exercise. In particular, they find that when monsoons (as exogenous events) produce migration, the reallocation of resources toward the recipients of migration is the product of whether the party of the local government is the same as that of the federal government.

## 3 Data Choices

We have two data sets for the study of migration in India: the Indian Census in 2001 and 2011 (Census tables, 1991-2011 [3]), and the National Sample Survey (NSS, 2012 [14]) data on housing conditions.

### 3.1 Census Data

The Indian Census documents the number of individuals that moved (1) within a district, (2) across districts within a state, and (3) across states, by gender. In 2011, India had 28 states and 7 union territories (UTs)<sup>1</sup>; to put that in context, the average Indian state is 45,180 square miles<sup>2</sup>, which is not terribly different from the US, where the average state is 70,725 square miles (of course, the average Indian state has a much higher population than the average US state, but in comparing one country to the other, it is useful to consider distances). Within those 28 states and 7 UTs there are 640 districts, which are more comparable to US counties than Metropolitan Areas: the districts may have within them both urban and rural areas, and do not necessarily comprise an economic unit. Similarly, economic units may spill over more than one district.

With respect to migration, the Indian Census also documents the number of individuals that have ever moved in their lifetime, and the length of time since their most recent move. It does not ask whether people have moved multiple times over the course of their lives. It does ask the longest distance they have moved — within district, across districts within states, and across states — and the direction of movement — rural to urban, urban to rural, rural to rural, and urban to urban.

The census has three fundamental problems with respect to measuring migration. First, it is not clear how people who are temporary migrants answer census questions. Many people in India have seasonal jobs, which lead them to move from one place to another for several months over the course of a year while retaining ties to their home towns. The National

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<sup>1</sup>Union territories are administrative units that come under the federal government's rule. The UTs are smaller with an average area of 605 square miles. In 2014, the state of Telangana was carved out of Andhra Pradesh. As of 2018, there were 29 states and 7 union territories in India.

<sup>2</sup>Not including the UTs.

Sample Survey (NSS) employment migration data from 2007-2008 indicate that individuals are twice as likely to migrate seasonally than permanently. It is not clear to us how the Census enumerates the seasonal and permanent migration status of individuals.

Second, the Census only enumerates individuals at their present address. So, we only know the total number of in-migrants in a district (by rural or urban areas) that includes both people who have moved-in from outside the district and those that have moved within the district boundaries. For out-of-state in-migrants, the Census documents the state of origin. However, the lack of information on the district of origin of migrants restricts our ability to analyze the decision-making process that affects migration and tenure choice<sup>3</sup>.

And finally, the definition of urban in India is problematic. A number of scholars note that there are parts of India that would, by the standards of other countries, be deemed as urban, but are counted as rural in India (Tandel et. al., 2019 [16]). To put this in context, consider a comparison of Uttar Pradesh and California. Uttar Pradesh is about 94,000 square miles; California is 164,000 square miles. Uttar Pradesh has a population of about 200 million; California's is 40 million. This means that average density in Uttar Pradesh is nearly nine times higher than in California; Uttar Pradesh is defined as being 22 percent urban, while California is defined as 91 percent urban.

One could find a few reasons for this discrepancy: for instance, much of California is mountain and desert, and so much of its land area is not relevant in thinking about urbanity. But if 90 percent of California's land area is removed from consideration, and all of Uttar Pradesh's was counted (and in light of the flood plain of the Ganges, this is almost certainly not correct), California would, with the same density, be counted as four times more urban than Uttar Pradesh. This does not seem plausible.

### 3.2 National Sample Survey Data

As a check on the reliability of the Indian Census data, we also analyze household-level datasets from surveys conducted by the National Sample Survey Organization (NSSO) of India. NSSO conducts annual household surveys over nationally representative samples stratified by regions across the country. The larger thick rounds typically survey samples of 90,000-120,000 households. Each individual survey is designed to gather information on different economic indicators — consumer expenditure, employment, investment, livestock holding, education, migration, and housing.

The most extensive out-migration survey data can be found in the 64th round of NSS employment and unemployment survey conducted between July 2007- June 2008. We use

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<sup>3</sup>Here after, we refer to in-migration as migration unless stated otherwise.

this data to analyze seasonal and permanent out-migration patterns. But this data is limited in its information on household tenure choice. So we turn to the NSS housing conditions data instead.

The 69th round of the NSS housing conditions survey was conducted between July-December, 2012 on 95,548 households. The sample is stratified by NSS regions (roughly twice the size of a district in India) and is representative of the entire country. Surveyed households were asked whether they moved into their present place of residence within the previous 365 days. Although limited to one year of in-migration information at the household level, we can still use this information to compare with the Census in-migration data for individuals who migrated within 365 days of enumeration.

The survey has information on whether a household owned or rented the dwelling in which they resided. In addition, it provided details on a range of amenities like access to potable water, bathrooms, electricity, waste disposal, kitchen, and street lights. Other details include age and gender of the household head, highest education level of men and women members, religion, social group (scheduled castes, scheduled tribes, others), possession of land holdings, monthly expenditure, and the number of married couples living in the household. After accounting for missing values the data consists of 33,376 urban households.

## 4 Stylized Facts on Migration

We begin with a set of stylized facts about migration in India. From the census data we see that apart from the decade of 1981-91, internal migration has been on the rise in India (table 1(a) and figure 1). Internal migrants as a share of the total population increased from 31 percent in 1961 to 37 percent in 2011. We also observe some striking statistics. First, a tiny fraction of those living in India in 2011 were foreign-born – 5.5 million out of 1.2 billion people (Appendix table A.1). Second, interstate migration is uncommon – only 54 million Indians have moved across state lines at any time during their lives. To put this in context, roughly 42 percent of American adults live in a state that is different from the one in which they were born. The Chinese 2010 Census puts the number of Chinese who live in someplace other than their “registered location” to be 221 million (Chan, 2012 [4]), or about 20 percent of the Chinese population.

The very small number of lifetime movers counted in the Census prompted us to compare the migration data from the Census with that of the NSS. The NSS data show migration of 1.87 percent of all Indians in a year<sup>4</sup>; a comparison of the with the census number of

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<sup>4</sup>This number is also greater than the 1.3 percent of households permanently migrating to their present location in the last one year, as indicated by the NSS employment and migration survey data from 2007-2008.



0.9 percent suggests that the census might under-count migration. Nevertheless, even if we were to double the census estimate of cross-state migration, it would be very small compared with other large countries. We should note that the average size of an Indian state is 45,000 square miles. The average US mainland state is 65,000 square miles in area, while the average Chinese province is 120,000 square miles. The average Indian does not need to move greater distances than the counterpart in the US or China in order to change states.

Beyond the fact that few Indians move, it is surprising how few have migrated from rural to urban areas (Appendix Table A.2). A common narrative for emerging countries is that the mechanization of agriculture reduces demand for rural labor, and therefore pushes people toward cities; at the same time, cities develop agglomeration economies that induce people to move to them. Yet, in India, of the roughly 450 million people who have ever migrated (according to the census), only 78 million have migrated from a rural area to an urban area, or roughly five percent of the country. However, in terms of annual growth rates, rural to urban migration since 1961 has always been greater than rural to rural migration (see Table 1(b)).

Consistent with Rosenzweig and Stark (1989) [18], we find that the principal source of migration in India is not economic, but social (see Table 2). The largest contribution of migration in India is by women moving to get married. Nearly half of those who answered to the Indian census that they migrated during their life, gave marriage as the principal reason for doing so. To say this is a different story from Rosen-Roback is an understatement.

## 5 Tenure Choice

### 5.1 Theory

There is a substantial literature on tenure choice – i.e., the choice between owning and renting a home – including a recent paper by Das et. al. (2018) [5] on tenure choice in India. While these papers contain a standard set of variables, discussed below, ours is the first paper to our knowledge to tie migration patterns to tenure choice.

The economics literature looks at tenure choice as a financial decision: households will choose the less expensive tenure option, adjusting for risk. The most commonly used framework is the user cost model:

$$uc_0 = V_0(r + \tau + d + \pi) + \epsilon$$

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Another 2.13 percent of households migrated temporarily to their present location.

where  $uc_0$  is the user cost,  $V_0$  is the value of the house,  $r$  is the cost of capital,  $\tau$  is the tax rate,  $d$  is the depreciation rate,  $\pi$  is the expected appreciation, and  $\epsilon$  is the idiosyncratic cost of owning.

In an equilibrium setting, the flow cost of owning should be the same for the marginal owner-renter. This probably explains why different tax treatments between owners and renters have, in the literature, been the only strong financial predictor of owning — when there are tax preferences for owning, those who benefit most of those preferences will outbid those who benefit least, and so will influence the choice in an identifiable manner (although recent work on the US mortgage interest deduction shows that the elimination of that tax preference would have little impact on overall tenure choice in the United States). Work of others, including Green (1996) [6] and Das et. al. (2018) [5] implies that the idiosyncratic term is more important in determining tenure choice than measured differences in the flow costs of owning and renting (although another issue in measuring user cost is measuring expected appreciation).

The idiosyncratic cost of owning is in large part driven by expectations of length of tenure. Buying and selling houses is expensive, and so the longer the expected tenure, the lower is the expected cost of owning. Certain attributes of households are consistent with the expected length of tenure. Married couples, for example, stay put longer than singles. As people get older, they are less prone to move.

Another indicator of mobility may be past mobility. People who have migrated have demonstrated a lack of attachment to their community relative to non-migrants. It is here where we add to the literature. Previous papers on tenure choice have not investigated whether recent migrants are more or less likely to be owners.

## 5.2 The Evolution of Tenure in India

India is similar to the majority of the world in that it does not have a large institutionalized rental sector. In the United States, large corporations own and manage large buildings. In most parts of the world, the rental stock is largely controlled by individuals who own a small number of apartments and rent them out. Outside the United States, it is rare for corporations or individuals to own entire large buildings that are rented to others.

Nevertheless, it is interesting to note that the rental market in urban India has been in substantial decline over the past 50 years. In 1970, more than 50 percent of Indians in urban areas chose rental housing; now that number is 27 percent. This may be the result of tenant protection laws in India — laws that make it unappealing to be a landlord (see Tandel et. al. 2016 [15]). Indeed, it is striking that India has both very expensive housing (relative to

income) and high vacancies. Owners in India may prefer to keep units vacant rather than be saddled with tenants who are difficult to evict, even in the presence of non-payment of rent.

The small share of Indians who are renters may have implications for mobility. If rental housing is not readily available, mobility may be inhibited. Figure 2 shows that there appears to be a relationship between tenure and mobility. States with higher levels of renters also see greater out-migration from that state.

## 6 Results

### 6.1 Migration and Rental Housing

We now turn to the influence that migration has had on tenure choice in India. We use the 2001 and 2011 Indian census data. The unit of observation is at the district level in urban regions, that is, each observation represents a district's urban regions. There are 593 districts in 2001 and 640 districts in 2011. Of these, 583 districts in 2001 have urban areas (10 are completely rural districts) and 637 (with 3 rural districts) have urban areas in 2011.

Table 3 provides the association between the proportion of all internal migrants and the proportion of renting households. In 2001, tenure choice seems to be independent of migration. In 2011, migrants were about 11 percent less likely to be renters, but this result was significant at only the 90 percent confidence level. Interestingly, though, marital status had little impact on tenure, with the exception of divorce. Divorced people were more likely to be renters, but it is worth noting that the share of those divorced in India is less than one percent.

Decomposing migrants by gender (table 4), we see that migrant men are more likely to be renters, while migrant women are more likely to be living in owner-occupied homes. As column 4 suggests, migrant men are about 27 percent more likely to choose rental housing whereas their women counterparts are 36 percent less likely; both these coefficients are significant at the 99 percent level. It seems that the negative relationship between renting and migration in table 3 comes from migrating women. This is consistent with the reason for migration reported by gender: men are more likely to move for economic reasons, while women are more likely to move for marriage (see table 2). Mobile men are footloose, and thus might prefer renting, while mobile women are settling down, and thus might prefer owning. In 2011, the association between the proportion of married couples and those choosing to rent becomes positive and significant when we decompose regressions by migrant gender (see table 4 column 4).

Next, when we decompose migrants by the duration of stay in their current residence (Table 5) We find different results depending on data source: the Census and the NSS. The duration of stay at the place of enumeration seems not to have an influence on tenure choice when we look at the Census data. But with the NSS data, which only asks whether people have migrated recently, we get a significant association between migration and a household's probability to rent homes. The Linear Probability Model (LPM) regression with NSS data indicates that households that migrated into their present location within the last 365 days, were 35 percent more likely to rent. There are two important differences to note, here. First, the LPM regressions with the NSS data is at the household level. Second, the vector of controls includes a wide range of living conditions that were not controlled for in the regressions with the Census data.

We also run the same regressions by decomposing the total number of migrants by the reason for migration (Table 6). This data is provided at the district-level only for 2011. The results suggest that migrants who move due to economic reasons (work and business) are highly likely to rent. Migrants who move with their households or due to marriage are more likely to own homes. Tellingly, the regressions that interact gender and reason for migration imply that migrant men and women choose housing tenure very similarly when they migrate in order to marry. For men, work has a positive relation to the rental decision but for women, the positive relation is not significant with state dummies. In columns 2 and 4, proportion of married persons continue to have a positive relationship with rental choice.

Table 7 looks at the effect of urban-urban and rural-urban in-migrants on tenure decisions. The results suggest that in 2001 there was no association between tenure choice and rural-urban and urban-urban migrants. In 2011, rural-urban migrants' preferences remained unchanged but urban-urban migrants were less likely to rent. This may be because when migrants move across cities, they become less footloose. The gender decomposition shown in table 8 provides a clearer picture of these results. It seems that the association between reduced renting and urban-urban migrants in 2011 comes from migrating women. The proportion of migrant men from urban areas has no correlation with renting while those from rural areas seem to have higher preferences for choosing rental housing.

In Tables 9 and 10 we look at the effect of decomposition of migrants by the distance of migration (intra-district, inter-district, and inter-state) and gender. The estimates without the gender decomposition indicate that, in 2011, migrants moving within the same district have negative preferences for renting, but moving farther away seems to erode this effect. With gender decomposition, in 2011, we see that this negative preference for renting comes from migrating women. Men who migrate within the same district tend to rent. The proclivity of migrant men, moving shorter distances, to rent might suggest that these migrants

may be less permanent than those that move long distances to other districts and states.

## 6.2 Prediction of Rental Housing in 2011 from 2001 Estimates

Using the Census datasets and the regression model with migrants decomposed by gender and duration of stay at present residence (and all other controls used in the previous regressions) in 2001, we predict the rental housing choice of migrants in 2011. For this prediction exercise, we use the Generalized Linear Model (GLM) estimation with a logit link function to derive the coefficient estimates from 2001 regressions. The plot of actual versus predicted rental proportion for 2011 is shown in figure 3(a).

Although there are quite a few outlier districts where we underpredict the number of people renting homes, the overall model seems to overpredict the share of individuals who rent. We plot the differences in actual and residual values on a district-level map of India in figure 4(a). We see that most of the outlier districts where we underpredict the share of renting households by a big margin are in Arunachal Pradesh. This anomaly in Arunachal Pradesh could be a data issue or other idiosyncratic factors, specific to Arunachal Pradesh, not captured by the regression model.

To look at how the model behaves without these outliers, we next drop the 16 districts from Arunachal Pradesh from the regression and estimate the same coefficients in 2001, to predict the share of renting households in 2011. The plot of actual versus predicted values can be seen in figure 3(b). Besides the outliers being removed, we can see that even though the model prediction has significantly improved, we still overpredict the share of renting households by some margin. The mean of this error is about 6 percent, which is quite large, considering that the share of renting households in urban India is about 23-26 percent. The implication, here, is that the tenure choice preferences of households in India are changing, but not owing to measured demographic characteristics.

## 7 Conclusion

This paper connects two older literatures— mobility and tenure choice — together in a new context: India. In the process of doing so, it finds that Indians are not mobile relative to people in other countries and that the motivation for mobility is not usually purely economic — in fact, women moving to get married is the most common cause of mobility in the world’s second-largest country by population.

Among other things, the answers to questions from the Indian census about motivation for mobility are consistent with past literature from Malloy et. al. (2011) [12], as well as

others, that show that differences in wages and house prices explain only a small amount of the variation in mobility and that even when gaps in wages and house prices between one area and another are large, relatively few people will move in response. India may be an extreme case because differences in language, caste, and religion almost surely inhibit moves. For example, while Uttar Pradesh is poor and Tamil Nadu is relatively rich, migration from Uttar Pradesh to Tamil Nadu is quite small, likely because Hindi speaking workers from the north cannot understand Tamil speaking supervisors in the south. Along with these very substantial inhibitors of mobility, Kone et. al. (2018) [10] show that state policy in India ties people to their home states. The in-kind benefits that poor Indians receive are tied to state residency.

The impact of marriage on mobility also explains why regressions based on observing Indian tenure choice produce different results from other countries when men and women are lumped together. Most often, marriage alone is a strong predictor of tenure choice. Single people, who may be more footloose and less interested in do-it-yourself property management, tend to be renters, while married couples tend to be owners. But in cross-sectional regressions that include men and women as observations, there is no apparent correlation between marriage and tenure.

This outcome changes, however, when we run separate regressions for men and women. Single men, who move for economic reasons, are more likely to be renters when they arrive in a new place, while single women, who move to become married, are more likely to be owners. The coefficients of the two genders cancel each other when they are combined.

Finally, the relationship between measured demographic characteristics and tenure choice in India is unstable. Using a cross-section from one decade in order to predict outcomes in the next is not in our context reliable, and serves as a warning about the limits of using cross-sectional empirical models to forecast, particularly in unstable economies. It is very much the same sort of problem Molloy et. al. (2011) [12] find in their work on U.S. migration. Coefficient stability tests are essential to understanding the limits of our knowledge about migration and tenure choice.

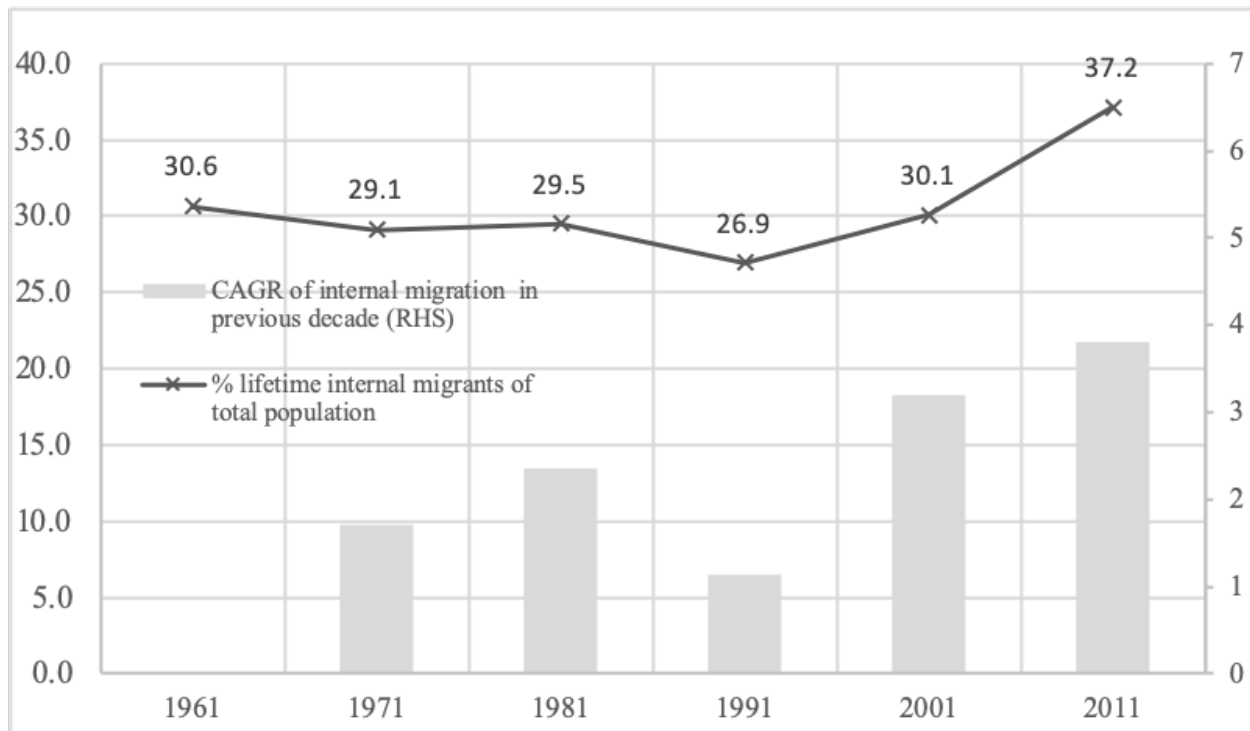
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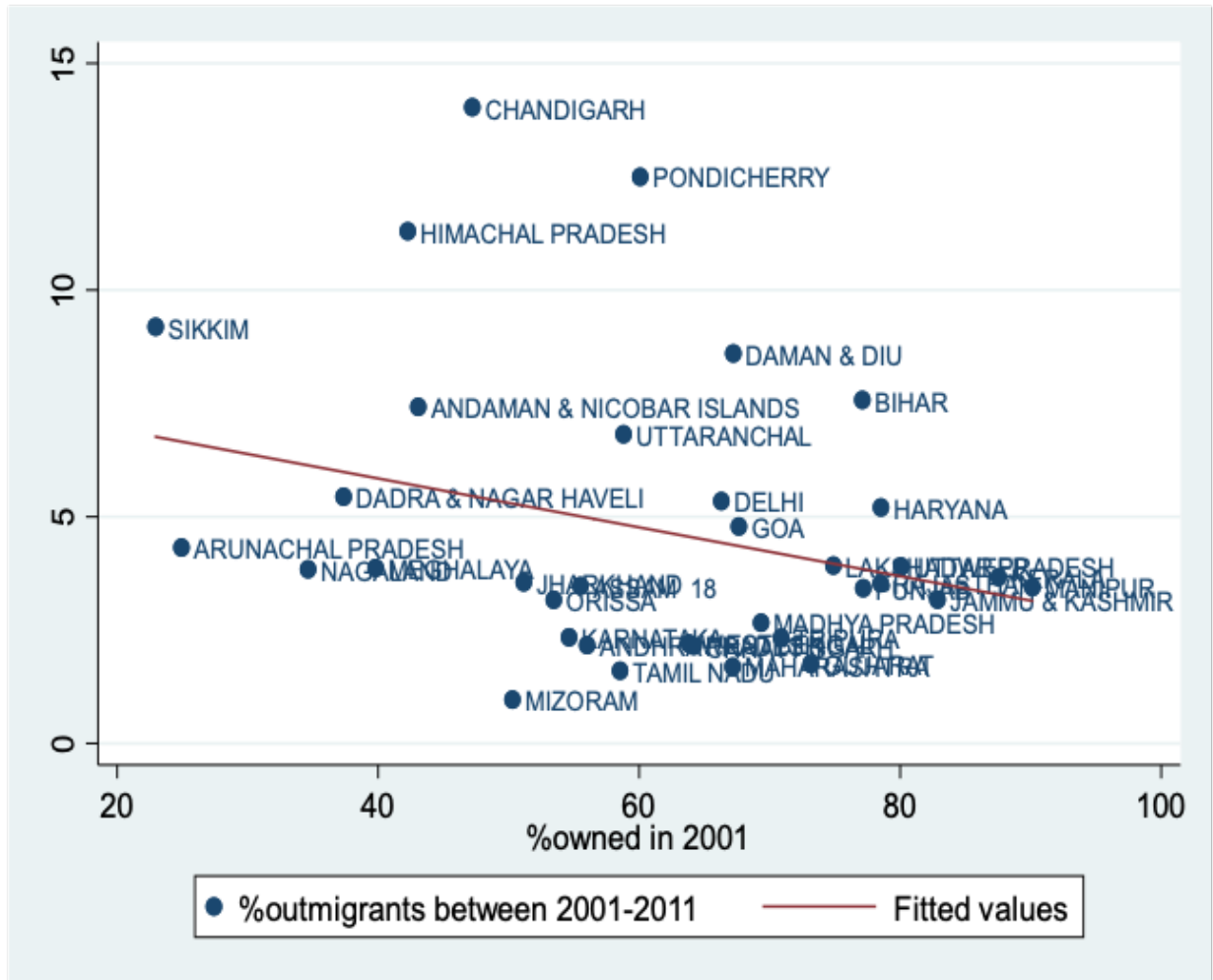
Figure 1: Internal migration in India



Source: Author's calculations.

Note: Lifetime migration rates and compounded annual growth rate (CAGR) are calculated using data from Census of India.

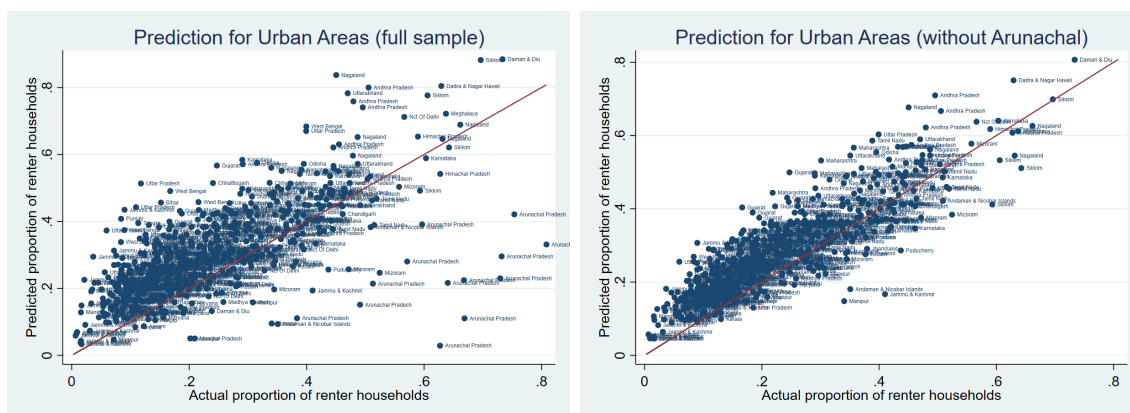
Figure 2: Relationship between %home-ownership (urban) in state of origin and interstate out-migrants from urban parts



Source: Author's calculations.

Note: % urban interstate out-migrants are calculated using 2001 district urban population as denominator. The correlation is -0.29.

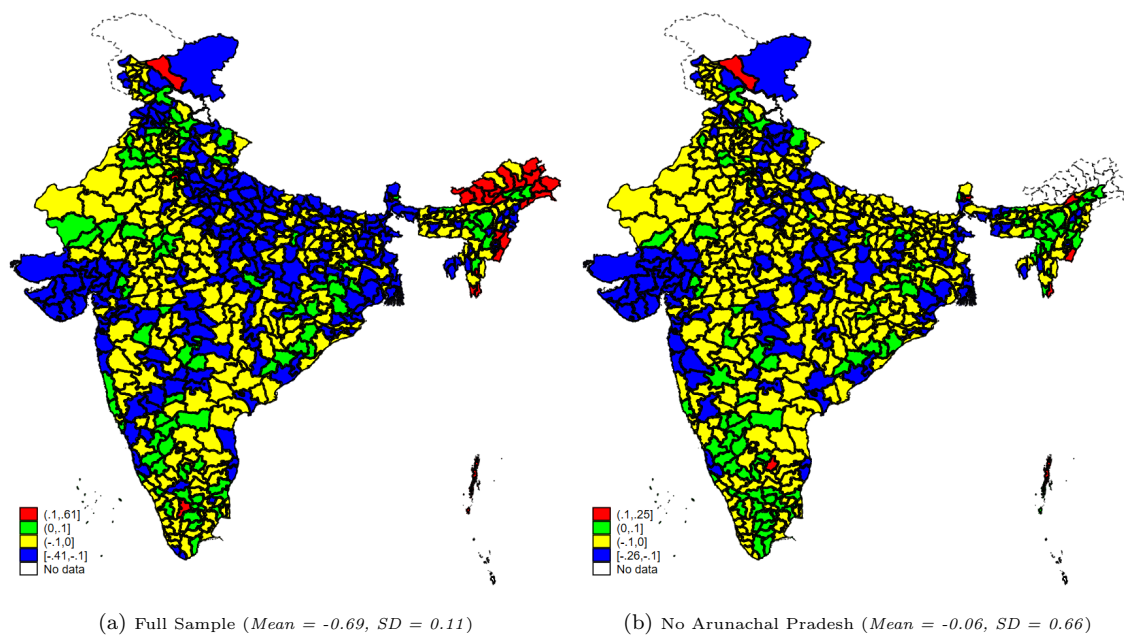
Figure 3: Actual vs Predicted Proportion of Households Renting Homes



Source: Author's calculations.

Note: Scatter plot reflects predicted vs actual proportion of households renting in 2011. For the prediction of the 2011 rental choice rate, 2001 regression estimates from a GLM estimation with a logit link function and a binomial family of distributions, are used. The regression model specification has rental housing rate as the dependent variable, regressed on migration decomposed by gender and time of stay at present location as the independent variables (along with the same controls used for OLS regressions in table 5). The left and the right panels indicate the plots with and without the state of Arunachal Pradesh respectively. Full Sample includes 637 districts and without Arunachal Pradesh the district count is 621. Other missing districts include Lahul & Spiti, and Kinnaur (Himachal Pradesh), and Nicobars (Andaman).

Figure 4: Mapping Residuals from Prediction of Proportion of Households Renting Homes



*Source:* Author's calculations.

*Note:* Map reflects the district level plots of differences in predicted vs actual proportion of households renting in 2011. For the prediction of the 2011 rental choice rate, 2001 regression estimates from a GLM estimation with a logit link function and a binomial family of distributions, are used. The regression model specification has rental housing rate as the dependent variable, regressed on migration decomposed by gender and time of stay at present location as the independent variables (along with the same controls used for OLS models in table 5). The left and the right panels indicate the plots with and without the state of Arunachal Pradesh respectively. Full Sample includes 637 districts and without Arunachal Pradesh the district count is 621. Other missing districts include Lahul & Spiti, and Kinnaur (Himachal Pradesh), and Nicobars (Andaman).

Table 1: **Growth of Migration in India**

(a) Panel A: Percent Compounded Annual Growth Rate (CAGR) of Migration in India

Lifetime migration	1961-71	1971-81	1981-91	1991-01	2001-11
Inter-State	2.64	2.25	1.26	4.43	2.80
Intra-State	1.60	2.38	1.13	3.02	3.96
Intra-District	1.41	1.94	0.99	3.27	3.67
Inter-District	2.19	3.61	1.44	2.40	4.70
<b>Total Internal Migration</b>	<b>1.72</b>	<b>2.36</b>	<b>1.14</b>	<b>3.20</b>	<b>3.82</b>
Total Population in India	2.24	2.23	2.07	2.06	1.64

(b) Panel B: Urban/Rural Annual Growth Rate of Lifetime Migrants

Flow of migrants	1961-71	1971-81	1981-91	1991-01	2001-11
Rural-Rural	1.02	1.80	1.02	1.70	2.21
Rural-Urban	1.63	3.75	1.78	2.62	4.23
Urban-Rural	6.90	2.76	0.90	-0.36	7.57
Urban-Urban	4.31	3.99	0.80	3.30	7.89
Total	1.72	2.36	1.14	3.20	3.82

(c) Panel C: Urban/Rural Annual Growth Rate of Inter-State Lifetime Migrants

Flow of migrants	1961-71	1971-81	1981-91	1991-01	2001-11
Rural-Rural	1.27	1.31	0.88	3.90	0.87
Rural-Urban	0.69	3.61	1.55	5.84	2.49
Urban-Rural	8.46	1.49	1.09	0.15	4.13
Urban-Urban	4.56	2.53	1.45	2.50	4.60
Total	2.64	2.25	1.26	4.43	2.80

*Source:* Author's calculations on Census (2011).

*Note:* Values rounded off to two decimal places.

Table 2: **Percent and Growth Rates of Migration by Reasons**

Year	Employment		Business		Education		Family Moved		Marriage		Others		Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
1991	7.52	1.31	1.91	0.40	1.36	0.60	7.16	7.79	1.12	56.14	8.00	6.71	100
2001	8.35	1.17	0.75	0.14	0.76	0.31	5.53	7.72	0.70	49.56	13.22	11.79	100
2011	7.67	1.40	0.58	0.20	0.72	0.48	6.38	7.85	1.18	45.46	15.34	12.72	100
CAGR													
1991-01	4.28	2.08	-5.97	-6.94	-2.65	-3.24	0.56	3.10	-1.55	1.92	8.52	9.18	3.20
2001-11	2.94	5.71	1.21	7.43	3.34	8.22	5.32	3.99	9.41	2.92	5.37	4.61	3.82

*Source:* Author's calculations on Census (2011).

*Note:* "Others" for the year 2011 includes migrants who moved after birth. Values rounded off to two decimal places.

Table 3: Urban Migrant's Decision to Rent Homes

Covariate	2001		2011	
	Proportion of households renting homes			
	(1)	(2)	(3)	(4)
Proportion of total internal migrants	-0.051 (0.062)	-0.021 (0.061)	-0.155** (0.062)	-0.107* (0.059)
Proportion of currently married persons	-1.046*** (0.305)	-0.387 (0.344)	-0.333 (0.300)	0.358 (0.325)
Proportion of widowed persons	1.656 (1.558)	0.755 (1.523)	0.673 (1.246)	1.266 (1.198)
Proportion of separated/divorced persons	7.596** (3.056)	8.591* (4.437)	5.248*** (1.928)	10.470*** (2.419)
Constant	-1.392 (0.900)	-1.815** (0.861)	0.600 (0.952)	-0.494 (0.919)
State dummies		Yes		Yes
Controls	Yes	Yes	Yes	Yes
N	583	583	637	637
Adj. R-sq.	0.791	0.833	0.846	0.901

*Source:* Author's calculations.

*Note:* Results are from OLS regression with the proportion of households renting homes as dependent variable. The suppressed category for marital status variables is never married. Controls include proportion of scheduled castes and tribes, proportion of people by religion (Muslims, Christians, Sikhs, Buddhists, Jains, others and unstated), by age groups (5-year cohorts), by education (informal literate, primary school, middle school, secondary school, high school, non-tech/tech diploma, graduates), workforce participation, share of women, the number of shops, offices, educational institutes, and hospitals per person, the number of good, livable, and dilapidated buildings per person, mean household size, and access to banking services. The suppressed categories for share of women, religion, age group, and education are the share of men, Hindus, people aged 0-4, and illiterates respectively. All regressions are for urban areas only with population weights at the district level. Missing districts in 2001 include Upper Siang (Arunachal Pradesh), Senapati, Tamenglong, Ukhru and Churachandpur (Manipur), Lawngtlai (Mizoram), and The Dangs (Gujarat). Lahul & Spiti, and Kinnaur (Himachal Pradesh), and Nicobars (Andaman) are missing both in 2001 and 2011. Values rounded off to three decimal places. White-Huber-Sandwich robust standard errors in parentheses.  
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4: **Renting Homes by Urban Migrant Men and Women**

Covariate	2001		2011	
	Proportion of households renting homes			
	(1)	(2)	(3)	(4)
Proportion of total internal migrants				
<i>Men</i>	0.026 (0.119)	0.120 (0.121)	0.251*** (0.085)	0.268*** (0.070)
<i>Women</i>	-0.067 (0.088)	-0.119 (0.095)	-0.378*** (0.080)	-0.355*** (0.065)
Proportion of currently married persons	-1.030*** (0.313)	-0.299 (0.363)	-0.073 (0.310)	0.725** (0.320)
Proportion of widowed persons	1.706 (1.615)	0.984 (1.601)	1.063 (1.253)	1.680 (1.179)
Proportion of separated/divorced persons	7.378** (3.071)	8.016* (4.463)	4.020* (2.093)	8.796*** (2.463)
Constant	-1.383 (0.905)	-1.695* (0.872)	0.631 (0.978)	-0.408 (0.919)
State dummies		Yes		Yes
Controls	Yes	Yes	Yes	Yes
N	583	583	637	637
Adj. R-sq.	0.791	0.834	0.853	0.907

*Source:* Author's calculations.

*Note:* Results are from OLS regression with the proportion of households renting homes as dependent variable. Suppressed category for marital status variables is never married. Controls include proportion of scheduled castes and tribes, proportion of people by religion (Muslims, Christians, Sikhs, Buddhists, Jains, others and unstated), by age groups (5-year cohorts), by education (informal literate, primary school, middle school, secondary school, high school, non-tech/tech diploma, graduates), workforce participation, share of women, the number of shops, offices, educational institutes, and hospitals per person, the number of good, livable, and dilapidated buildings per person, mean household size, and access to banking services. The suppressed categories for share of women, religion, age group, and education are the share of men, Hindus, people aged 0-4, and illiterates respectively. All regressions are for urban areas only with population weights at the district level. Missing districts in 2001 include Upper Siang (Arunachal Pradesh), Senapati, Tamenglong, Ukhru and Churachandpur (Manipur), Lawngtlai (Mizoram), and The Dangs (Gujarat). Lahul & Spiti, and Kinnaur (Himachal Pradesh), and Nicobars (Andaman) are missing both in 2001 and 2011. Values rounded off to three decimal places. White-Huber-Sandwich robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



Table 5: **Renting Homes by Urban Migrants' Duration of Stay at Present Location**

Covariate	Census Data					NSS Data
	2001		2011			2012
	Proportion of households renting homes					Rental dummy
	(1)	(2)	(3)	(4)	(5)	(6)
Proportion of total internal migrants						
<i>Moved-in less than 1 year ago</i>	-0.561 (1.021)	-0.052 (1.116)	-0.346 (1.066)	-0.099 (0.947)	-0.013 (0.631)	0.346*** (0.031)
<i>Moved between 1-4 years ago</i>	0.797 (0.551)	1.429** (0.560)	0.530 (0.537)	0.253 (0.538)		
<i>Moved between 5-9 years ago</i>	-0.217 (0.961)	-1.191 (1.018)	-0.096 (0.650)	0.524 (0.554)		
<i>Moved between 10-19 years ago</i>	-0.577 (0.527)	0.178 (0.539)	-0.783 (0.517)	-0.922** (0.404)		
<i>Moved more than 20 years ago</i>	0.112 (0.415)	-0.479 (0.362)	-0.032 (0.354)	-0.001 (0.270)		
<i>Time of move-in unstated</i>	-0.184 (0.124)	-0.274** (0.127)	-0.334** (0.163)	-0.290** (0.131)		
Proportion of currently married persons	-1.056*** (0.305)	-0.260 (0.356)	-0.195 (0.294)	0.536 (0.325)	0.267 (0.331)	
Proportion of widowed persons	0.879 (1.512)	-1.020 (1.355)	0.097 (1.098)	0.858 (1.116)	1.467 (1.150)	
Proportion of separated/divorced persons	8.164*** (3.063)	9.022** (4.416)	6.156*** (1.990)	10.780*** (2.511)	11.060*** (2.444)	
Constant	-1.525* (0.898)	-2.396*** (0.812)	-0.135 (1.014)	-1.156 (0.931)	-0.773 (0.966)	-0.603*** (0.202)
Unit of Observation	District	District	District	District	District	Households
District dummies						Yes
State dummies		Yes		Yes	Yes	Yes
Month dummies						Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
N	583	583	637	637	637	33,376
Adj. R-sq.	0.792	0.842	0.848	0.904	0.899	0.322

*Source:* Author's calculations.

*Note:* Results for OLS regressions with proportion of households renting homes as dependent variable in columns (1)-(5). Controls for (1)-(5) include proportion of scheduled castes, tribes, religion (Muslims, Christians, Sikhs, Buddhists, Jains, others, unstated), age groups (5 year cohorts), education (informal literate, primary school, middle school, secondary school, high school, diploma, graduates, unclassified), workforce participation, female population, no. of shops, offices, educational institutes, hospitals, condition of buildings, mean household size, access to banking services. Suppressed categories for marital status variables, share of female population, religion, age group, and education are the share of never-married, male population, Hindus, people aged 0-4, and illiterates respectively. Missing districts in 2001 Census include Upper Siang (Arunachal Pradesh), Senapati, Tamenglong, Ukhrul and Churachandpur (Manipur), Lawngtlai (Mizoram), and The Dangs (Gujarat). Lahul & Spiti and Kinnaur (Himachal Pradesh), and Nicobars (Andaman) are missing both in 2001 and 2011 Census. LPM regression of rental dummy on household variables in column (6). Controls for NSS regressions include the gender and age of household head, change in household members, slum dwellers, highest education level, occupation, religion, caste, land possessed, log of monthly household expenditure, no. of rooms, plinth level, no. of floors, log of floor area, access to electricity, drinking water, bathrooms, use of house (residential, commercial), condition of house, ventilation, kitchen, material of floor, roof, and wall, maximum distance to workplace, drainage, disposal of waste water, waste collection, presence of animal shed/poultry farm, flood exposure in last 5 years, access to motorable road, streetlights, and whether household lives in a house/apartment. All regressions are for urban areas only with population weights at the district level. Values rounded off to three decimal places. White-Huber-Sandwich robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 6: Renting Homes by Urban Migrant Men and Women Decomposed by Reasons for Migration

		2011			
Covariate		Proportion of households renting homes			
Reason for migration	Gender	(1)	(2)	(3)	(4)
Work	All	1.644*** (0.254)	1.550*** (0.211)		
	Men			0.624*** (0.183)	0.633*** (0.150)
	Women			1.689** (0.660)	0.700 (0.578)
Business	All	1.369* (0.829)	2.022** (0.964)		
	Men			0.812* (0.469)	0.380 (0.541)
	Women			-2.509 (2.734)	3.607 (2.554)
Education	All	0.767 (0.558)	-0.048 (0.503)		
	Men			-1.381* (0.745)	-1.005 (0.660)
	Women			2.312*** (0.813)	1.315* (0.676)
Marriage	All	-0.858*** (0.185)	-0.781*** (0.138)		
	Men			-1.623** (0.677)	-1.806*** (0.549)
	Women			-0.393*** (0.0831)	-0.374*** (0.0641)
Moved after birth	All	-0.050 (0.196)	-0.297* (0.176)		
	Men			0.187 (0.953)	2.022** (0.878)
	Women			-0.223 (1.395)	-3.450** (1.353)
Moved with household	All	-0.664*** (0.157)	-0.448*** (0.130)		
	Men			-1.236*** (0.354)	-1.402*** (0.345)
	Women			0.308 (0.315)	0.710** (0.304)
Other Reasons	All	-0.134 (0.155)	-0.137 (0.122)		
	Men			0.936*** (0.308)	1.088*** (0.256)
	Women			-1.050*** (0.371)	-1.214*** (0.317)
State dummies			Yes	Yes	
Controls		Yes	Yes	Yes	Yes
N		583	583	637	637
Adj. R-sq.		0.791	0.833	0.846	0.901

Source: Author's calculations.

Note: Results are from OLS regression with the proportion of households renting homes as dependent variable. Controls include proportion of scheduled castes and tribes, people by religion (Muslims, Christians, Sikhs, Buddhists, Jains), age groups (5-year cohorts), education (informal literate, primary school, middle school, secondary school, high school, non-tech/tech diploma, graduates), marital status, workforce participation, share of women, no. of shops, offices, educational institutes, hospitals, good, livable, and dilapidated buildings, per person, mean household size, and access to banking services. Suppressed categories for share of married people, women, religion, age group, and education are the share of never-married, men, Hindus, people aged 0-4, and illiterates respectively. All regressions are for urban areas only with population weights at the district level. Missing districts in 2001 include Upper Siang (Arunachal Pradesh), Senapati, Tamenglong, Ukhrul and Churachandpur (Manipur), Lawngtlai (Mizoram), and The Dangs (Gujarat). Lahul & Spiti, and Kinnaur (Himachal Pradesh), and Nicobars (Andaman) are missing in 2001 and 2011. Values rounded off to three decimal places. White-Huber-Sandwich robust standard errors in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 7: Renting Homes by Urban Migrants from Rural and Urban Areas

Covariate	2001		2011	
	(1)	(2)	(3)	(4)
Proportion of total internal migrants				
<i>From urban areas</i>	-0.062 (0.119)	-0.028 (0.126)	-0.181** (0.083)	-0.172** (0.074)
<i>From rural areas</i>	0.001 (0.095)	0.043 (0.099)	-0.086 (0.082)	0.067 (0.081)
Proportion of currently married persons	-1.057*** (0.313)	-0.405 (0.353)	-0.430 (0.306)	0.275 (0.320)
Proportion of widowed persons	1.818 (1.473)	0.793 (1.547)	0.755 (1.229)	1.322 (1.211)
Proportion of separated/divorced persons	7.364** (3.169)	8.588* (4.473)	5.031*** (1.910)	10.210*** (2.438)
Constant	-1.397 (0.903)	-1.790** (0.882)	0.713 (0.974)	-0.768 (0.920)
State dummies		Yes		Yes
Controls	Yes	Yes	Yes	Yes
N	583	583	637	637
Adj. R-sq.	0.791	0.833	0.845	0.903

Source: Author's calculations.

Note: Results are from OLS regression with the proportion of households renting homes as dependent variable. The suppressed category for marital status variables is never married. Controls include proportion of scheduled castes and tribes, proportion of people by religion (Muslims, Christians, Sikhs, Buddhists, Jains, others and unstated), by age groups (5-year cohorts), by education (informal literate, primary school, middle school, secondary school, high school, non-tech/tech diploma, graduates), workforce participation, share of women, the number of shops, offices, educational institutes, and hospitals per person, the number of good, livable, and dilapidated buildings per person, mean household size, and access to banking services. The suppressed categories for share of women, religion, age group, and education are the share of men, Hindus, people aged 0-4, and illiterates respectively. All regressions are for urban areas only with population weights at the district level. Missing districts in 2001 include Upper Siang (Arunachal Pradesh), Senapati, Tamenglong, Ukhru and Churachandpur (Manipur), Lawngtlai (Mizoram), and The Dangs (Gujarat). Lahul & Spiti, and Kinnaur (Himachal Pradesh), and Nicobars (Andaman) are missing both in 2001 and 2011. Values rounded off to three decimal places. White-Huber-Sandwich robust standard errors in parentheses.

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 8: **Renting Homes by Urban Migrant Men and Women from Rural and Urban Areas**

Covariate	2001		2011	
	Proportion of households renting homes			
	(1)	(2)	(3)	(4)
Proportion of total internal migrants				
From Urban Areas				
<i>Men</i>	0.079 (0.274)	0.066 (0.288)	0.251 (0.188)	0.166 (0.158)
<i>Women</i>	-0.117 (0.180)	-0.076 (0.188)	-0.385*** (0.145)	-0.311*** (0.116)
From Rural Areas				
<i>Men</i>	0.086 (0.159)	0.257* (0.147)	0.294** (0.134)	0.403*** (0.0864)
<i>Women</i>	-0.064 (0.110)	-0.163 (0.108)	-0.355*** (0.115)	-0.301*** (0.085)
Proportion of currently married persons	-1.023*** (0.323)	-0.260 (0.363)	-0.144 (0.317)	0.661** (0.318)
Proportion of widowed persons	1.893 (1.579)	0.949 (1.649)	1.175 (1.268)	1.745 (1.219)
Proportion of separated/divorced persons	6.984** (3.160)	7.876* (4.480)	3.809* (2.068)	8.473*** (2.461)
Constant	-1.404 (0.917)	-1.688* (0.893)	0.659 (0.993)	-0.781 (0.929)
State dummies		Yes		Yes
Controls	Yes	Yes	Yes	Yes
N	583	583	637	637
Adj. R-sq.	0.790	0.834	0.852	0.908

*Source:* Author's calculations.

*Note:* Results are from OLS regression with the proportion of households renting homes as dependent variable. The suppressed category for marital status variables is never married. Controls include proportion of scheduled castes and tribes, proportion of people by religion (Muslims, Christians, Sikhs, Buddhists, Jains, others and unstated), by age groups (5-year cohorts), by education (informal literate, primary school, middle school, secondary school, high school, non-tech/tech diploma, graduates), workforce participation, share of women, the number of shops, offices, educational institutes, and hospitals per person, the number of good, livable, and dilapidated buildings per person, mean household size, and access to banking services. The suppressed categories for share of women, religion, age group, and education are the share of men, Hindus, people aged 0-4, and illiterates respectively. All regressions are for urban areas only with population weights at the district level. Missing districts in 2001 include Upper Siang (Arunachal Pradesh), Senapati, Tamenglong, Ukhrul and Churachandpur (Manipur), Lawngtlai (Mizoram), and The Dangs (Gujarat). Lahul & Spiti, and Kinnaur (Himachal Pradesh), and Nicobars (Andaman) are missing both in 2001 and 2011. Values rounded off to three decimal places. White-Huber-Sandwich robust standard errors in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 9: **Renting Homes by Urban Migrants' Distance Migrated**

Covariate	2001		2011	
	Proportion of households renting homes			
	(1)	(2)	(3)	(4)
Proportion of total internal migrants				
<i>Intra-district migrant (same state)</i>	-0.057 (0.076)	-0.032 (0.073)	-0.238*** (0.074)	-0.180*** (0.068)
<i>Inter-district migrant (same state)</i>	-0.029 (0.079)	-0.003 (0.080)	-0.050 (0.070)	-0.008 (0.062)
<i>Inter-state migrant</i>	-0.099 (0.090)	-0.067 (0.133)	-0.054 (0.083)	-0.028 (0.078)
Proportion of currently married persons	-1.040*** (0.306)	-0.398 (0.340)	-0.317 (0.282)	0.351 (0.308)
Proportion of widowed persons	1.733 (1.603)	0.647 (1.477)	0.886 (1.233)	1.599 (1.189)
Proportion of separated/divorced persons	7.614** (3.088)	8.715* (4.440)	4.457** (1.880)	8.912*** (2.413)
Constant	-1.177 (0.961)	-1.846** (0.858)	-0.109 (0.986)	-0.858 (0.929)
State dummies		Yes		Yes
Controls	Yes	Yes	Yes	Yes
N	583	583	637	637
Adj. R-sq.	0.791	0.833	0.850	0.904

*Source:* Author's calculations.

*Note:* Results are from OLS regression with the proportion of households renting homes as dependent variable. The suppressed category for marital status variables is never married. Controls include proportion of scheduled castes and tribes, proportion of people by religion (Muslims, Christians, Sikhs, Buddhists, Jains, others and unstated), by age groups (5-year cohorts), by education (informal literate, primary school, middle school, secondary school, high school, non-tech/tech diploma, graduates), workforce participation, share of women, the number of shops, offices, educational institutes, and hospitals per person, the number of good, livable, and dilapidated buildings per person, mean household size, and access to banking services. The suppressed categories for share of women, religion, age group, and education are the share of men, Hindus, people aged 0-4, and illiterates respectively. All regressions are for urban areas only with population weights at the district level. Missing districts in 2001 include Upper Siang (Arunachal Pradesh), Senapati, Tamenglong, Ukhru and Churachandpur (Manipur), Lawngtlai (Mizoram), and The Dangs (Gujarat). Lahul & Spiti, and Kinnaur (Himachal Pradesh), and Nicobars (Andaman) are missing both in 2001 and 2011. Values rounded off to three decimal places. White-Huber-Sandwich robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 10: Renting Homes by Urban Migrants' Distance Migrated for Men and Women

Covariate	2001		2011	
	Proportion of households renting homes			
	(1)	(2)	(3)	(4)
Proportion of total internal migrants				
Intra-district migrant (same state)				
<i>Men</i>	0.042 (0.163)	0.074 (0.154)	0.403*** (0.116)	0.396*** (0.094)
<i>Women</i>	-0.085 (0.119)	-0.088 (0.114)	-0.603*** (0.114)	-0.535*** (0.088)
Inter-district migrant (same state)				
<i>Men</i>	0.001 (0.187)	0.155 (0.220)	0.117 (0.153)	0.066 (0.132)
<i>Women</i>	-0.036 (0.126)	-0.133 (0.145)	-0.195* (0.116)	-0.123 (0.095)
Inter-state migrant				
<i>Men</i>	0.003 (0.166)	0.127 (0.179)	-0.020 (0.162)	0.151 (0.135)
<i>Women</i>	-0.097 (0.136)	-0.175 (0.148)	-0.083 (0.132)	-0.195* (0.107)
Proportion of currently married persons	-1.027*** (0.319)	-0.315 (0.358)	-0.091 (0.297)	0.656** (0.310)
Proportion of widowed persons	1.773 (1.675)	0.879 (1.544)	1.012 (1.266)	1.725 (1.186)
Proportion of separated/divorced persons	7.322** (3.113)	8.293* (4.433)	2.842 (1.988)	6.757*** (2.340)
Constant	-1.171 (0.981)	-1.727** (0.870)	-0.542 (1.043)	-0.924 (0.911)
State dummies		Yes		Yes
Controls	Yes	Yes	Yes	Yes
N	583	583	637	637
Adj. R-sq.	0.790	0.833	0.859	0.910

Source: Author's calculations.

Note: Results are from OLS regression with the proportion of households renting homes as dependent variable. The suppressed category for marital status variables is never married. Controls include proportion of scheduled castes and tribes, proportion of people by religion (Muslims, Christians, Sikhs, Buddhists, Jains, others and unstated), by age groups (5-year cohorts), by education (informal literate, primary school, middle school, secondary school, high school, non-tech/tech diploma, graduates), workforce participation, share of women, the number of shops, offices, educational institutes, and hospitals per person, the number of good, livable, and dilapidated buildings per person, mean household size, and access to banking services. The suppressed categories for share of women, religion, age group, and education are the share of men, Hindus, people aged 0-4, and illiterates respectively. All regressions are for urban areas only with population weights at the district level. Missing districts in 2001 include Upper Siang (Arunachal Pradesh), Senapati, Tamenglong, Ukhrul and Churachandpur (Manipur), Lawngtlai (Mizoram), and The Dangs (Gujarat). Lahul & Spiti, and Kinnaur (Himachal Pradesh), and Nicobars (Andaman) are missing both in 2001 and 2011. Values rounded off to three decimal places. White-Huber-Sandwich robust standard errors in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

## Appendix: Tables

Table A.1: **Total Number of Migrants in India (in millions)**

Lifetime migration	1961	1971	1981	1991	2001	2011
Inter-State	14.5	18.9	23.5	26.7	41.2	54.3
Intra-State	120.1	140.8	178.1	199.2	268.2	395.7
Intra-District	91.3	105.0	127.2	140.4	193.6	277.5
Inter-District	28.8	35.8	51.0	58.8	74.6	118.1
<b>Total Internal Migration</b>	<b>134.6</b>	<b>159.6</b>	<b>201.6</b>	<b>225.9</b>	<b>309.4</b>	<b>449.9</b>
Migrants from outside India	9.2	7.5	6.1	5.9	5.2	5.5
Unclassifiable	0.4	0.6	0.0	0.3	0.0	0.4
Total migration	144.2	167.8	207.7	232.1	314.5	455.8
Total Population in India	439.2	548.2	683.3	838.6	1,028.6	1,210.9

Table A.2: **Urban/Rural Flow of Lifetime Migrants (in millions)**

Flow of migrants	1961	1971	1981	1991	2001	2011
Rural-Rural	99.1	109.7	131.1	145.0	171.7	213.8
Rural-Urban	19.7	23.1	33.4	39.9	51.7	78.2
Urban-Rural	4.8	9.4	12.3	13.5	13.0	27.0
Urban-Urban	10.8	16.5	24.4	26.4	36.6	78.1
Last Place Unclassifiable	0.2	1.0	0.4	1.0	36.4	52.9
<b>Total</b>	<b>134.6</b>	<b>159.6</b>	<b>201.6</b>	<b>225.9</b>	<b>309.4</b>	<b>449.9</b>

Table A.3: **Urban/Rural Flow of Interstate lifetime Migrants (in millions)**

Flow of migrants	1961	1971	1981	1991	2001	2011
Rural-Rural	5.3	6.1	6.9	7.5	11.0	12.0
Rural-Urban	4.9	5.2	7.5	8.7	15.3	19.6
Urban-Rural	0.7	1.5	1.7	1.9	1.9	2.9
Urban-Urban	3.6	5.6	7.2	8.4	10.7	16.8
Last Place Unclassifiable	0.0	0.5	0.2	0.2	2.2	2.9
<b>Total</b>	<b>14.5</b>	<b>18.9</b>	<b>23.5</b>	<b>26.7</b>	<b>41.2</b>	<b>54.3</b>

Table A.4: **Number of Migrants by Reason (in millions)**

Year	Employment		Business		Education		Family Moved		Marriage		Others	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1991	16.99	2.95	4.31	0.89	3.07	1.35	16.17	17.60	2.52	126.81	18.06	15.16
2001	25.83	3.62	2.33	0.44	2.35	0.97	17.10	23.87	2.16	153.34	40.91	36.46
2011	34.51	6.32	2.63	0.89	3.26	2.14	28.72	35.32	5.31	204.54	69.03	57.24

*Source:* Author's calculations on Census (2011).

*Note:* "Others" for the year 2011 includes migrants who moved after birth. Values rounded off to two decimal places.



Table A.5: Renting Homes by Urban Migrants' Duration of Stay at Present Location for Men and Women

Covariate	2001		2011	
	Proportion of households renting homes			
	(1)	(2)	(3)	(4)
Proportion of total internal migrants				
Moved-in less than 1 year ago				
<i>Men</i>	-1.023 (1.356)	-0.945 (1.210)	-1.880* (1.042)	-1.012 (1.228)
<i>Women</i>	0.862 (1.772)	1.776 (1.659)	0.962 (1.495)	0.755 (1.386)
Moved-in 1-4 years ago				
<i>Men</i>	1.191* (0.707)	1.421** (0.714)	0.701 (0.710)	1.322** (0.626)
<i>Women</i>	-0.104 (0.793)	0.265 (0.814)	0.403 (0.894)	-0.723 (0.783)
Moved-in 5-9 years ago				
<i>Men</i>	-3.267** (1.383)	-2.104* (1.275)	0.138 (1.425)	0.237 (1.200)
<i>Women</i>	2.744* (1.523)	0.747 (1.400)	-0.066 (1.394)	0.230 (1.199)
Moved-in 10-19 years ago				
<i>Men</i>	2.671** (1.051)	2.284** (0.911)	-1.749** (0.858)	-0.626 (0.778)
<i>Women</i>	-3.433*** (1.084)	-2.401** (1.013)	0.393 (0.833)	-0.522 (0.783)
Moved-in more than 20 years ago				
<i>Men</i>	-0.479 (0.368)	-0.541* (0.325)	1.282*** (0.312)	0.659*** (0.237)
<i>Women</i>	0.949** (0.463)	0.577 (0.465)	-1.289*** (0.382)	-0.491 (0.323)
Moved-in time unknown				
<i>Men</i>	-0.871* (0.525)	-0.363 (0.453)	1.555*** (0.537)	1.194*** (0.448)
<i>Women</i>	0.689 (0.548)	0.029 (0.480)	-2.027*** (0.610)	-1.610*** (0.520)
Proportion of currently married persons	-0.939*** (0.310)	-0.015 (0.373)	0.118 (0.297)	0.949*** (0.306)
Proportion of widowed persons	1.250 (1.385)	-0.477 (1.351)	0.004 (1.098)	1.058 (1.096)
Proportion of separated/divorced persons	8.485*** (3.167)	9.377** (4.380)	4.976** (2.097)	8.349*** (2.523)
Constant	-1.703* (0.889)	-2.183** (0.882)	-0.386 (1.068)	-1.082 (0.927)
State dummies		Yes		Yes
Controls	Yes	Yes	Yes	Yes
N	583	583	637	637
Adj. R-sq.	0.799	0.846	0.865	0.913

Source: Author's calculations.

Note: Results are from OLS regression with the proportion of households renting homes as dependent variable. The suppressed category for marital status variables is never married. Controls include proportion of scheduled castes and tribes, proportion of people by religion (Muslims, Christians, Sikhs, Buddhists, Jains, others and unstated), by age groups (5-year cohorts), by education (informal literate, primary school, middle school, secondary school, high school, non-tech/tech diploma, graduates), workforce participation, share of women, the number of shops, offices, educational institutes, and hospitals per person, the number of good, livable, and dilapidated buildings per person, mean household size, and access to banking services. The suppressed categories for share of women, religion, age group, and education are the share of men, Hindus, people aged 0-4, and illiterates respectively. All regressions are for urban areas only with population weights at the district level. Missing districts in 2001 include Upper Siang (Arunachal Pradesh), Senapati, Tamenglong, Ukhrul and Churachandpur (Manipur), Lawngtlai (Mizoram), and The Dangs (Gujarat). Lahul & Spiti, and Kinnaur (Himachal Pradesh), and Nicobars (Andaman) are missing both in 2001 and 2011. Values rounded off to three decimal places. White-Huber-Sandwich robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

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