Poverty and Migration: Evidence of Distress Migration in India

Seema Sangita
TERI University, India

Paper prepared for the IARIW-ICIER Conference

New Delhi, India, November 23-25, 2017

Session 4: Migration

Time: Friday, November 24, 2017 [Morning]

Poverty and Migration: Evidence of Distress Migration in India

*Seema Sangita**

Preliminary Draft

Abstract

This paper sets out to investigate the interlinkages between rural to urban migration in India and income and ownership of assets. I find that the inverted U hypothesis regarding the relationship between wealth and migration holds, but only to some extent. I find evidence to support the existence of income and asset barriers to migration. At low incomes and wealth, households may not be able to undertake the cost of migration and hence are left behind leading to the phenomenon of geographical poverty traps. However, this theory breaks down at very low levels of income. I find that there is a relatively higher probability of outward migration of the lowest decile of income, especially in the rural areas, which is a symptom of *distress migration* in India. I also try to identify the role played by a range of other factors including local amenities and social background, which may affect the migration. Amenities like access to telephone and banks enables migration while social backwardness acts as a hindrance to mobility.

Key Words: India, Migration, Income and Asset Constraints; Distress Migration

JEL Codes: O15; R23; C01; I 3

***** Assistant Professor, Department of Policy Studies, TERI University, New Delhi.
seemasangita@gmail.com; seema.sangita@teriuniversity.ac.in
Mobile Phone number: +91-9910468181; Fax +91 11 2612287
This paper has benefitted from feedback by Ishita Chaterjee, Nandan Nawn, participants of TERI University Lunch and Learn Seminar and the Department of Economics, UC-Davis, Alumni Seminar

1. Introduction

Theoretical and empirical literature has supported the idea of an inverted U hypothesis of relationship between income and migration (Figure 1, from C to E). (For example: McKenzie and Rapoport (2007)). Costs can act as a barrier to migration for the low income and low asset groups of individuals. Hence, poverty, which is what migration process is posited to overcome, can inhibit migration. This may lead to formation of geographical poverty traps. Yet, there are myriad images of migration by individuals in abject conditions – refugees – created by political and/or economic circumstances in their place of origin. For instance, lakhs of people in India migrate to cities when they are affected by droughts and other natural calamities.[1] Political crises in the Middle East has created large number of migrants to Europe.[2] These migrants are unlikely to have a level of income with which they can bear the cost of migration and hence they defy the logic of the inverted U hypothesis. (Figure 1, point A). In this paper, I extend this theoretical framework to include situations of extremely low incomes and demonstrate evidence of *distress migration*, that is, higher flows migration at extremely low levels of income.

The interlinkages between migration and income run deep in the literature. The traditional theories of migration, like the Harris-Todaro (1970), were based on the difference in the incomes between the rural and urban sector. The subsequent generations of models, such as Stark and Bloom (1985), explored migration from the perspective of agents who attempt to maximize their income, but face the constraints of costs of migration. Hence, a low income agent may not be able to migrate. At higher levels of income, there is a possibility of undertaking the cost of migration. But, at very high levels of income, the opportunity cost of migration may be too high and the agent may forfeit the option of migration out of choice. The idea of income as a prerequisite for migration may be extended to wealth – including financial capital, social capital and human capital – which may facilitate migration by improving the possibility of accessing employment opportunities in urban areas. On the flipside, incomplete credit markets; lack of access to education opportunities and being a member of minority groups are a few examples of factors may deprive an agent of financial, human and social capital. All these factors may increase the cost involved in the process

[1] https://scroll.in/article/807258/displaced-by-drought-the-many-tales-of-migrants-looking-for-water-and-work-in-big-cities

[2] http://www.unhcr.org/news/press/2017/2/58b458654/refugees-migrants-face-heightened-risks-trying-reach-europe-unhcr-report.html

of engineering a shift from one location to another. Various amenities, including public goods and services may act as enablers of migration by reducing the cost of migration. For instance, when roadways, railways and other transportation infrastructure or telephone networks are created, the cost of traveling would reduce.

The stakes of successful migration of a member of the household is high due the multiplier effect of migration on income. Remittances may help in the alleviation of poverty, and also be invested in order to generate financial, human and/or social capital which could facilitate migration for more members of the household. The remote rural locations of India have limited opportunities of generating income. Lack of income and assets may imply inability to invest in migration and consequent entrapment in the low income spaces. This could lead to increasing income inequalities and formation of geographical poverty traps.

However, there is a dark side to migration, which may be termed as *distress migration*. This is migration that may not take place out of choice but instead out of compulsion. It is possible that a family has transitioned into poverty and has no opportunities of livelihood in the current location. Hence there would be no choice but to emigrate, often in highly risky circumstances. It is possible that this switch to conditions of deprivation occurs slowly with increasing inequalities, erosion of real income, etc. or suddenly as a result of natural or man-made calamities. While at first glance, this appears to be a way of escape from the geographical poverty traps, there is always a possibility of unsuccessful migration, where the individual may not reach the destination or may not be able to obtain subsistence wages in the destination location.

The level of urbanization in India has increased from 27.81% to 31.16% over the decade of 2001 to 2011.[3] In comparison, 56% and 86% of China and Brazil's population, respectively, was urban in 2015.[4] Thus, even as India is one of the countries with large Diaspora in the world, the process of internal migration appears to be highly stunted compared to other nations with similar level of development. This is in tandem with the limited growth and employment opportunities in the industrial sector making the pull factor of migration rather weak. The services sector in the Indian

[3] From Census 2011. http://censusindia.gov.in/2011-prov-results/paper2/data_files/india/Rural_Urban_2011.pdf
[4] World Bank Database

economy is skewed in favour of the skill intensive firms, thereby limiting the prospects of mass migration of unskilled workers from rural to urban areas. Hence, large section of the population is dependent on agriculture and other traditional occupations for livelihood, which are vulnerable to fluctuations in the markets, weather, policies, etc. Any economic crisis in the rural areas, tends to lead to a surge in distress migration. In the context of a limited scope of migration between rural and urban areas, migrants may fall into two categories - those moving out to urban areas for improvement in their standard of living and those who migrate for survival. It is important to understand the drivers of internal migration in India in the context of these two categories.

In this paper, I make an attempt to explore evidence of the narrative of a distress migration in India. I develop a migration choice model for internal migration scenario where one or few individuals of a household have migrated outwards. I identify various factors that may influence the decision to migrate and focus on the income and asset class as a determinant of migration decision. Additional factors that may influence migration are categorized into demographic, geographic and infrastructural factors and are controlled for. I estimate this model using a logit regression model to quantify the possible impact of these factors on migration choice and find that there I find some evidence of distress migration by the lowest two income decile group, especially among the rural households. Further, individuals who belong to the lowest asset classes as well as third decile of income group have a significantly lower probability of successful outward migration indicating geographic poverty trap. I also find that social backwardness, which is defined as being a part of a religious minority group or the scheduled caste /scheduled tribes also constraints migration. I find mixed evidence for the role of amenities and other factors that may influence the decision to migrate.

The next section presents a review of the literature. Section 3 and 4 present the theoretical model and the data description respectively. In section 5, I present the results and conclude in section 6.

2. Literature review

Migration is touted to be an effective strategy to attain geographical equality. However, migration tends to have an inverted U shaped relationship with income and wealth. (Figure 1) At low levels of income/assets, the potential migrants may not be able to afford the fixed cost of migration.

McKenzie and Rapoport (2007) develop a theoretical model and undertake an empirical study of migration from Mexico to US to demonstrate the inverted U hypothesis, Then, they go on to suggest that presence of networks could lower the cost of migration for future migrants. Dustman and Okatenko (2014) demonstrate that wealth constraints can affect migration at the low end of the wealth distribution, where, migration faces binding constraints. However, as one progresses up the wealth distribution, there is an increasing tendency to migrate. Beyond a threshold, however, there is lower gains from migration and an increasing wealth may result in decrease in migration. Dustman and Okatenko (2014) also show that sub-Saharan Africa and Asia are on the initial upward phase of the inverted U where increasing wealth is likely to result in increasing migration.[5] Chernina et al (2013) find evidence of liquidity constraint of migration in Russia, which was eased out then the Stolypin land titling reforms were undertaken. Hence, there is a sharp increase in internal migration right after this reform. Beauchemin and Schoumaker (2005) find that increasing development in the sending region increases outward migration in Burkina Faso. Angelucci (2015) shows that increase in income of Mexicans due to a government anti-poverty program increased migration to the United States.

In contrast, Abramitzky (2010) shows that lack of wealth may not be a constraint for migration, in the context of Norwegian migration in the second half of 19th century. This highlights that there could be a range of different wealth elasticities of migration in of the initial part of the inverted U curve. At very low levels of wealth, there may not be a movement up the curve, resulting in a poverty trap.

Bird et al (2010) explains geographical or spatial poverty traps as locations which have "low potential" and are politically "less favoured" and hence overtime have accumulated low levels of endowment. And these location and geography specific reasons, to a large extent, can explain the occurrence of poverty in this region. Jalan and Ravallion (2002) find evidence of geographic poverty traps in China. The geographical poverty traps may be exacerbated by labour immobility. Economically worse off population has a greater tendency of being immobile as they may not be able to overcome the barriers of migration and hence, are unable to relocate to regions of better economic prosperity. Hence geographical poverty traps and barriers to migration can have

[5] India is not included in the sample of this study

cumulative impact over time, leading to worsening regional disparities and income inequalities in a country.

Given such circumstances, relatively few people might successfully migrate to more prosperous areas. From a microeconomic perspective, low income is the main motivation for migration. However, there are several costs of migration including transportation cost, the fixed cost of setting up an establishment in new location, potential risk of not finding a job, etc. Some of these costs may be alleviated by presence of networks and other amenities, such as easier access to transportation and communication facilities. Migrants invest by absorbing the costs of migration with the expectation that there would be a higher expected future income. However, like any investment, investment in migration requires capital. Physical capital is required to bear the fixed cost of migration. Human capital is required to minimize the risk of unemployment. People who are poor may not have access to these forms of capital. Further, in this case, the access to credit markets is extremely unlikely for an individual who may not have assets which act as a collateral. In the case of migration specifically, without a collateral the lender has no suitable method to monitor the borrower. The *New Economics of Labor Migration* models changed the vantage point of the analysis of migration, which was perceived as a form of human capital investment. Migration in the absence of wage-gap (or no migration in the presence of wage-gap) were decisions based on a range of other factors like risk and uncertainty, relative deprivation, asymmetric information, liquidity constraints and other market failures. Some examples of this literature are Stark (1991), Stark and Levhari (1982) Stark and Taylor (1989, 1991). In terms of linkages between poverty and migration, these papers focused on the concept of relative deprivation as opposed to absolute deprivation, that is, the migrants' perception of deprivation on the basis of their income relative to the income of the reference group of the surrounding society, which could be at the level of family or village, etc.

The idea of the costs of migration was developed further by Hatton and Williamson (2011) and Mayda (2010) among others. These papers focused on bilateral international migration and hence cost involved distance between the countries, a proxy for travel costs. Also various characteristics of home and foreign countries were included to account for barriers to migration, home preference etc. Belot and Hatton (2008) and Hatton and Williamson (2011) consider poverty constraints as a

key determinant of emigration. Those sections of the population that live below the poverty line or at subsistence levels will find it nearly impossible to gather the collateral that might be required to undertake the costs of migration. These people are also more likely to face credit constraints for undertaking migration. Access to credit can be an enabler of migration. Using a randomized control experiments of access to microcredit opportunities, Cai (2015) shows that financing facilitates migration. However, Dao et al (2016) find that credit constraints play a limited role in explaining the phenomenon of increasing migration as incomes rose. They study the mobility transition in the context of international migration and find that changing levels of attainment of education is a larger driver of migration compared to incomes.

All of the literature described above pertains to the notion of a non-linear relationship between migration and income/wealth. In the context of development and migration the focus is on the left hand edge of the inverted U curve, where zero levels of migration takes place. In this zone the low income groups, with insufficient wealth to invest in migration and credit constraints are stuck in a geographical poverty trap. None of this literature addresses the possibility of distress migration. Migration at absolutely low level of income, where survival is under a question mark, may actually be much higher than cases where household earn subsistence level of income. *So it is possible that the inverted U curve has an upward rising tail on the left edge*. One objective of this paper is to make an empirical assessment of the placement of India on this relationship between income and migration.

The narrative of barriers to migration in India entails several macroeconomic and microeconomic factors. The expected path of development would entail a process of industrialization and the consequent structural transformation would lead to a dual economy with a significant urban-rural wage difference as posited by Harris and Todaro (1970). This would give rise to mass migration from the rural to urban areas. Subsequent increase in productivity of the agriculture was expected to raise rural wages to a point that eventually there would be a parity in the wages, as a result of which there may be a diminishing volumes of migration. Zelinsky (1971). India has followed an atypical path of development, which has been termed as a stunted structural transformation by Binswanger-Mkhize (2013). There has been a rapid rise of service sector. Growth, in both services and manufacturing sector, has favoured the skilled labour. Kochhar et al (2006). Further, there is

nearly no improvement in the productivity of the agriculture sector. Hence, even though rural population rises and rural wages remain low, there is limited migration to urban areas.

There are relatively fewer studies on migration choice modelling in India. Shah and Kumar (2011) focused on the various attributes that influence decision of short term migration in India and evaluate whether there is any evidence of migration being used as a tool to escape poverty and if the initial characteristics of the migrants play a role here. They use a macro dataset that covers 1500 villages across the country and find that there is a greater likelihood of seasonal migration from villages with larger number of households, located in backward districts, in more remote areas, with poorer educational infrastructure, and lower proportion of land under irrigation. They also investigate more details in the case of 6 districts of Madhya Pradesh and find that the proportion of migrating households that are landless is relatively higher than those with land, however, marginal farmers with less than 2.5 acres of land holdings had the highest incidence of migration. Also greater migration is reported among farmers without irrigation and among SC and ST households.

Deshingkar (2010) contests the idea that there is a poverty constraint of migration, leaning in favour of the possibility of distress migration. The study, based in Madhya Pradesh and Andhra Pradesh, demonstrates that migration tends to be greater in remote rural areas and among the chronically poor. She also finds that circular migration was preferred over permanent migration. On the whole migration benefited large number of households, and not just those with right networks, assets and education. However, neither of these two papers in India identify the propensity to migrate among different classes of income and assets. Very few papers have addressed the issues of distress migration in extremely deprived location in India. One example is Samantaray (2016). However, most studies on migration in India have taken place in specific districts or states and it is possible that the results arrived at within the context of a location cannot be easily scaled up.

In spite of the fact that India is a large nation with a long history and complex patterns of internal and international migration, there are limited studies of the interlinkages between income/wealth and migration here. More specifically, it appears that there is no nationwide studies of migration

in India that tries to attempt to identify the linkages between wealth and migration over a sample size large enough to identify the non-linearity in the relationship between migration and wealth/income. I examine the existence of income constraints of migration and distress migration by building a migration choice model and estimating it using data from a nationally representative household survey. A nuanced strategy is developed to identify the effect of belonging to a certain income or asset class on migration decisions. Data constraints limits this study to a cross-sectional analysis. Nevertheless, this paper adds to the body of evidence on the relationship between income/wealth and migration. I find strong evidence of distress migration at the lowest two deciles of income and some possibility of income and asset constraints of migration after that.

3. Theoretical Background

This paper is based on the theoretical framework of McKenzie and Rapoport (2007) and Dustman and Okatenko (2014), which proposes that there is an inverted U shaped relationship between income and migration. This relationship stems out of the assumption that there are fixed costs of migration and the households placed at lower levels of income are unable to bear this cost and at higher levels of income, the opportunity cost of leaving the place of origin is high. At very low level of incomes the migrants would face a scenario where wealth of the household is inadequate to cover fixed cost of migration (say *c*) – and hence, no migration takes place. This is the zone from B to C in Figure 1. At a higher level of income, there is a positive relationship between wealth/income. The probability of migration increases with wealth, until D, as represented in Figure 1. At much higher levels of income, one expects that the probability of migration would decrease with increase in income/wealth as the opportunity cost of migration would be higher than the gains. In Dustman and Okatenko (2014), given the context of an international migration, the absence of amenities at the country of origin encourages migration to countries where amenities may be present.

In this paper, there are two departures from these studies. First, a minor modification in my paper is with respect to the role played by amenities. In this analysis, amenities are as a facilitator of migration. Absence of amenities like transportation, communication, education, banking, etc. would make the migration process more challenging, that is, increase the cost of migration.

Secondly, the main proposition of this paper is that at absolutely low levels of income, there is likely to be a positive probability of outward migration. In most migration models, including McKenzie and Rapoport (2007) the agents are credit constrained and hence cannot take a decision to migrate when they cannot afford the fixed cost of migration. In this paper, I introduce a scenario where migrants, at absolutely low levels of income, may still choose to migrate, albeit using low cost or unsafe method of migration. Hence, there are two kinds of migrants: those who can afford the fixed cost of migration would be able to opt for a "safe passage" and have assured destination wages and those who choose "unsafe passage". This risky method of migration might have two outcomes – the migrant reaches the destination and earns the destination wage with a probability p or the earnings of the migrant is zero with a probability 1-p. In the latter case, he may either not reach the destination or may reach but does not find a job there. The expected returns from migration would depend on the value of p, the wage at origin (w_o) and the wage at destination ($\overline{w_d}$). It is assumed that the wage in destination is fixed.

Thus,

$$w_0 \geq p(\overline{w_d}) => Stay\ back\ at\ origin \quad 1(a)$$

$$w_o \leq p(\overline{w_d}) => Migrate, in\ spite\ of\ the\ risk \quad 1(b)$$

If the wage at origin (w_o) is high enough to assure subsistence a migrant may not choose the risky circumstances. A situation with higher risk, for example, extreme drought and high temperatures with a risk of heat strokes, implies a lower chance of actually reaching the destination and procuring a job, that is, low p. Thus, the expected returns from migration would also be lower. The final decision of whether to migrate or not, depends on the whether the expected returns from migration is higher than the existing circumstances at the point of origin. In normal situations, the potential migrant may prefer to stay in the village, rather than take the risk of migration. However, in the case of where an individual is facing and adverse income prospects, perhaps due to droughts, political conflicts, etc., there may be positive migration in spite of low levels of p. This is termed as distress migration.

Combining the theoretical framework of McKenzie and Rapoport (2007) and the idea of distress migration presented above we have a complete description of figure 1:

$$w_o \leq p(\overline{w_d}) \leq \overline{w_d} - c\ \&\ w_o \leq c => A\ to\ B \quad 2(a)$$

$$p(\overline{w_d}) \leq w_o \leq c \Rightarrow B \text{ to } C \quad 2(b)$$

$$p(\overline{w_d}) \leq w_o \;\&\; c \leq w_o \leq \overline{w_d} - c \Rightarrow C \text{ to } E \quad 2(c)$$

$$w_o \geq \overline{w_d} - c \Rightarrow E \text{ onwards} \quad 2(d)$$

The inequality $p(w_d) \leq w_d - c$ in 2(a) is based on the assumption that the safe passage option would always provide higher net wages (wages at destination less cost of migration) compared to the expected wages in the unsafe option. In both 2(a) and 2(b), the wages at origin is insufficient to pay for the fixed cost of migration (c). In equation 2(b) the wages are not high enough to pay for the fixed cost of migration, however, the individual is earning high enough to forgo the risk of an unsafe passage and there is no migration. In equation 2(d), the wages at origin are higher than that at destination implying that a migrant would choose to stay back. The equation 2(c) reflects the situation where there is some positive migration, as the wages in destination is high enough that individual is able to pay for the fixed cost of migration. Detailed analysis within this zone is carried out by McKenzie and Rapoport (2007). Finally, equation 2(a) indicates a situation where the migrant faces a wages at origin that is low enough to warrant the choice of an unsafe passage. A summary of these scenarios are presented in the Figure 2.

The various factors that drive outward migration can be estimated using a Logit Model. Each household i is located in a district j. Characteristics of a household, such as income, wealth, social status would affect migration decisions. The provision of amenities, such as transportation or education takes place at a district level. The propensity to migrate would increase with wealth and with a decrease in cost of migration.

$$Logit\left(M_{ij}\right) = \alpha + \beta_1 Y_{ij} + \beta_2 C_{ij} + \beta_3 C_j + \epsilon \quad (5)$$

Where Y_{ij} consists household wealth/income. C_{ij} consists of the household level characteristics that affect the cost of migration such as belonging to a social minority group and C_j consists of a vector of district level characteristics, such as access to transportation or education, which can exacerbate or reduce the cost of migration.

It is expected that the outward migration would be higher at the lowest level of income. Then it would decline in a phase when incomes are high enough to discourage the risk of unsafe passage, but still not adequate to cover the fixed cost of safe migration. This would be followed by a phase where increase in the probability of migration as the income/wealth rises. Finally, one expects to observe a phase of declining migration even as the wealth rises.

4. Data Description

Context of the NSSO Survey

This study is based on the 64th round of survey carried out by NSSO, designed to gather information about employment, unemployment and migration. Hence, this dataset is the outcome of a survey of nationally representative households districts, carried out in 2007-08. The concept of migration in this survey refers to a situation where one or a few members of the household have moved away for a relatively long term, where the duration of migration has been longer than a year. In other words, the decision to migrate automatically entails the decision to accept the social and personal cost of a broken household. The entire sample consists of 1,21,806 households, out of which 52,834 households report that at least one former member of household has migrated outwards, resulting in a broken household. Hence, this paper attempts to understand the rationale behind the decision of the households where some members have decided to leave behind their families and move out. (See Table 1)

Another limitation is lack of information regarding the choice of destination of the migrant. Hence, I only model the characteristics of the household and the features of the location of origin of the migrants. The characteristics of the household includes income, assets, religion and caste. The income of the household is defined as the household consumption expenditure for one month. The assets of the household is essentially the quantity of land owned by the households. Hinduism is the major religion, consisting more than 75% of the sample. The rest of the religions including Islam, Christianity, Sikhism, Jainism, Buddhism, Zoroastrianism, are clubbed under the category of "religious minority". Further, other minority groups of scheduled caste (SC) and scheduled tribes (ST) consists of 17% and 14% of the sample respectively. Finally, it is observed that nearly two-thirds of the households are located in the rural areas. (See Table 1)

I also incorporate features of the location of the origin of the migrant, using the Government of India, District Census Handbooks 2011. At the time of the Census 2011, there were 640 districts. However, a few districts have been excluded from the NSSO sample survey. Further, there have been a few boundary changes over the time of the 2006-07 NSSO sample survey and the Census 2011. The different district level information that I use in the analysis consists of population density of the district; literacy rate of the district; the area of barren land (as a share of total district); the net irrigated area (as a share of total district); percentage of population with access to telephone; percentage of population with access to transportation including roadways, waterways, railways etc.; and the percentage of population with access to banking facilities.

Impact of Income/Wealth levels on migration decisions

The premise of this study is that migration decisions are deeply entwined with the income and asset levels. In order to study this, I make use of information on the monthly household consumption expenditure.[6] This is a proxy indicator of the income levels, assessed by the NSSO. One expects a non-linear relationship between income levels and migration. At the lowest level of income, there may be higher amounts of migration due to distress. At lower levels of income, as the income increases there may be a greater propensity to migrate, however, at higher levels of income, there may be a lower propensity to migrate. At sufficiently higher levels of income, there may not be a requirement for the migrant to undertake the cost of separation from the family and migrate out.

Exploring this non-linear relationship between income/wealth and migration is the main goal of this paper. This analysis is carried out using two strategies. First, I divide the income levels, proxied by the monthly household consumption expenditure into deciles and assess the probability of outward migration of individuals belonging to each of these groups of income. Table 2 presents the details of these deciles. Note that the mean of the entire sample lies in the seventh decile, indicating a significant income inequality in the sample.

[6] The definition of the variables are provided in Appendix A1

Second, the NSSO survey provides information on the ownership of land in a discrete variables, which are shown in Table 3. This information is converted into eleven indicator variables that ranges from the individual being landless to a category of land ownership of more than 8 hectares[7]. Again, there is evidence of high degree of inequality in the data as higher percentage of the population are landless or marginal landowners. I will examine the key hypotheses of distress migration as well as income/wealth constraint of migration.

Other factors that influence decision to migrate

In this model, I control for various factors that can influence the decision to migrate in this scenario can be categorized into demographic, geographic and infrastructural characteristics. Some of these are measured at a household level and some at a district level.

The demographic variables include the population density and literacy level of the population at district level as well as social indicators at a household level, that is, being a part of religious minority, scheduled caste or scheduled tribe communities. Population Density of the district of origin of the migrant could have two kinds of effects on migration. It is possible to theorize that areas with higher population density would have an excess supply of labour and hence a downward pressure on wages. This would lead to a migration to other locations with relatively low population density where the relative demand for labour and consequently, the wage rates might be higher. The economies of agglomeration literature has a different narrative. Places with higher population density are locations which are likely to have concentration of economic activities and hence wages are likely to be higher. Thus, there is a lower likelihood of outward migration from a location with higher population density. A critical pull factor of migration is skills and education levels. A migrant with a relatively higher level of education is likely to face lower risks of remaining unemployed in the destination city. However, given the limited information of household level educational attainments, I use the district level literacy data. A district with higher literacy level is more likely to have educated outward migrants. This study also looks at the share of SC and ST population in the district. In Indian context, the SC and ST populations are considered to be more backward and hence are also likely to face greater barriers to migration. These barriers may be

[7] Note that code 9 is missing in the data. Generally, in surveys code 9 is used to indicate missing information and hence it is skipped.

social in nature as well as an outcome of potentially lower average income and wealth levels of individuals in these groups.

Geographic features of the point of origin may play a role in the decision of outmigration. In this context we focus on the quality of land in a particular district. This supplements the information about landownership of households. More specifically, the share of barren land and the share of irrigated land at a district level in included in this model. The location of the household in a rural or urban area is another geographic factor of interest. Further, this factor is explored in depth by estimating our model separately for rural and urban households.

Finally, access to certain amenities might facilitate the migration process. Given that we are focused on a scenario where one or more members of the family has undertaken outward migration, access to transportation and telephones may help in undertaking the journey, networking and subsequently, maintaining contact with the family. Access to banks at the point of origin of the migrant may help in obtaining credit to pay for fixed cost of migration as well as send remittances back to the family.

This paper uses a micro dataset where there is a binary dependent variable that involved the choice of the household to have one or more members of household migrating outwards. Hence a cross-section logistic regression model as described in equation (5) is being used for estimation.

5. Results

Income constraints of Migration

Table 4 presents the results of the logistic regression aimed at assessing the effect of income class on migration. I find evidence to support the hypothesis that there may be income constraints of migration or geographical poverty traps.

The column 1 includes the income deciles as independent variables. I find evidence to support the hypothesis that there may be income constraints of migration or geographical poverty traps. The coefficients of the 5 lower deciles of income are negative and significant, indicating that households in these income categories have a lower likelihood out-ward migration. In contrast, the

households in the highest 3 deciles of income have a positive and significant coefficient. However, on a closer look, it can be observed that the coefficient of the second lowest decile, albeit negative, has a smaller magnitude than that of the third lowest decile.[8] In order to examine this further, we add controls to our model. The cols 2, 3, 4 and 5 show the results after inclusion of demographic variables, geographic variables, infrastructural variables and all the variables respectively. It may be noticed that the coefficients of the different deciles of incomes follow identical pattern: the coefficients of the lowest deciles are negative, but that of the second decile has a smaller magnitude compared to the third decile. Also the coefficients of the higher income deciles have positive and significant coefficients.

Figure 3 depicts the predictive margins with respect to col 5 of table 4. The outcome, resembling a J curve, is qualitatively identical regardless of the choice of controls and hence the model which includes all the variables is presented here. This curve declines for the initial two deciles. The probability of successful outward migration at the lowest decile is 42.7%, substantially higher than the third decile of income, which has a predictive margin of 36.60%. Thus, we see a slightly higher probability of migration in the lowest two deciles compared to the third one, indicating a possibility of distress migration. However, as we move from the third decile of income to higher ones, the probability of outward migration improves. The predictive margin at the highest decile is 56.42%. Interestingly, the probability of outmigration of the lowest decile of income is higher than those of second to sixth deciles. *Thus, the fact that the probability of outmigration is higher in the case of lowest two deciles compared to the third decile lends credence to the hypothesis of distress migration.*

While the theory suggests an inverted U shaped relationship of income and migration, what we observe here is only the left hand side tail end of the inverted U. That is, in this sample, the incomes are not high enough to reach the point D of figure 1.

Being educated is likely to enhance the opportunities of employment after migration and this is reflected in the positive and significant coefficient of the share of literate population in the district. Further, population density of the district of origin is negative and significant, indicating that a

[8] The lowest decile drops out of the regression.

higher degree of local agglomeration may provide some access to employment and discourage out migration. However, the coefficient is nearly equal to zero. Hence the magnitude of impact of population density on the decision of a household to migrate is questionable. Belonging to a minority community – religious minorities, Scheduled Castes and Scheduled Tribes reduces the probability that a member of the household would successfully out-migrate.

Among the geographic drivers of migration, presence of household in the rural areas has a significant effect on outward migration. It was expected that the presence of greater proportion of barren land in the district would force the household to move out in quest of employment opportunities. And similarly, presence of irrigation facilities would enable successful agricultural activities that support local employment opportunities and minimize migration. However, I find that barren area has no significant impact on the probability of outmigration while presence of irrigated area has a positive influence on the same. This, in fact, supports the thesis of geographic poverty traps. Areas with better irrigation facilities are more likely to have households with a higher incomes and assets and hence are able to afford the costs of migration, in contrast to areas with higher shares of barren land.

Access to amenities like telephone and bank improves the probability that a member of the household would migrate outwards. However, the most surprising result is a negative coefficient on the access to transportation facilities. One would have expected that better access to transportation would reduce the monetary and time cost of migration to some extent and encourage migration.

As mentioned above, presence of the household in a rural area increased the probability of outward migration. It is possible that the factors that influence migration are different in rural and remote areas vis-à-vis urban areas. This leads to the question of whether the phenomenon of geographic poverty traps as well as distress migration is equally possible in rural and urban areas. This issue is examined by estimating the model separately for the rural and the urban sample, and the results are presented in table 5. The col 2 indicates that there is no evidence of geographic poverty traps in the case of urban sample, as the co-efficients are not negative and significant for the lower deciles of income. However there is remarkably greater mobility among the higher income deciles.

In contrast, the regression results based on the rural sample are similar to that of the entire sample, showing possibility of geographic poverty traps. We also find a similar outcome when we compare the predictive margins of the income deciles of Table 5, cols 1 and 2, depicted in Fig 5. The probability of outward migration of the lowest decile of income groups in rural areas is a little less than 50% compared to nearly 30% in the case of urban areas. Further, only the eight, night and tenth deciles of income have a greater probability of outward migration than the lowest decile. It can be concluded that there is greater likelihood of low income based distress migration in rural areas.

Wealth Constraints of Migration

A similar exercise has been carried out with respect to ownership of land in order to assess if lack of wealth or assets is a barrier to migration. The coefficients of the logit model are reported in table 6. There is a consistent increase in the magnitude of the coefficients of the different categories of land as the size of land increases. This result holds for all the five specifications. The first one excludes all controls, except the monthly household income calculated on the basis of consumption expenditure of the respondents. The next three models include demographic variables, geographic variables, infrastructural variables, while the last one includes all the controls. Figure 4 depicts the marginal effects of ownership of land on probability of outmigration (corresponding to Table 6 Column 5) across all the land categories. The graph is upward sloping and, like the case of income constraints, seems to reflect only the left end of inverted U relationship. In terms of predictive margins, I find that landless workers (less than .005 hectares) have lowest probability of migrating outwards with a probability of slightly over 0.31. This can be compared to 0.4 in the case of landowners of land ranging from 0.005 to 0.01 hectares and 0.47 in the case where the size of land ranges from 1 to 2 hectares. This indicates that the small landowners may not have enough assets to overcome the credit constraints of migration. In case of the largest categories of land of 6 to 8 hectares and more than 8 hectares I find the probability of outward migration is as high as 68%. In this case the assets in form of land holdings are large enough to offset the costs of migrating. Unfortunately, less than 1% of the sample owns land of this size. This highlights the extent to which opportunities for migration is restricted. The two other specifications of the model shown in columns 2 and 3 present the same story.

Table 8 and Figure 6 show the effect of landownership on outward migration separately for rural and urban household. The coefficients of the different sizes of lands is increasing consistently, similar to the outcome reported in table 6. However, note that the reliability of the predictive margins declines in the case of urban households as the size of the land increases. It is unusual for urban households to own large tract of land and hence the number of observations in the sample decreases drastically for land areas greater than 2 hectares.

I also find that income, proxied by monthly household consumption expenditure, would improve the probability of outward migration by a member of the household. The chances of migration deteriorates if the household belongs to a scheduled tribe community, but not in the case of religious minority, while the results are ambiguous in the case of scheduled caste. The effect of the other factors are mostly identical to the case of income constraints of migration.

The results here do not show any evidence of distress migration. The small landowners have a lower probability of outward migration. However, we need to keep in mind the highly skewed distribution of assets in the sample, that is, nearly half the sample (45%) consists of landless workers or marginal land owners. In this situation, it appears that lack of ownership of assets is not sufficient to cause a distress migration. Rather, it is lack of income that leads to distress migration.

6. Conclusion

This paper extends the theory of inverted U relationship between income/wealth and migration to incorporate situations of distress migration or high levels of migration at abysmally low levels of income.

Migration could potentially be a method by which families may be able to increase their incomes. However, in order to undertake migration, there is a need for bearing the cost of migration, which can also be perceived as an investment that could lead to higher earnings in the future. If households that are able to undertake this investment and some family members migrate outwards, then their incomes can potentially improve. A more macro perspective on wealth/income and migration posits that as incomes increase there would be an increase in migration, but only till a

certain point. After that one would expect an inflection leading to a downward sloping curve where improving incomes leads to decrease in migration. However, the household that are unable to bear the cost of migration may not be able to move up this inverted U curve to start with. They may remain trapped in a zone of immobility or in geographic poverty traps.

Using a nationally representative household survey from India, I show that the inverted U curve hypothesis regarding the relationship of wealth and income may not hold true at extremely low levels of income. Here, the income and wealth constraints of migration prevents safe passage to the destination. However, the incomes are low enough to cause distress migration, where migrant may opt for unsafe passage to the destination. *The distress migration is exacerbated by lower incomes rather than assets in the case of India and also, this phenomenon is more severe in rural areas.*

This paper demonstrates that, apart from distress migration, the lower income and asset groups have a lower probability of outward migration. Social factors like being a part of minority religion, scheduled caste or scheduled tribe communities reduces the chances of successful migration. Amenities such as banking and telephone facilitate migration. District level irrigation facilities have a positive impact on migration as well, possibly due to increasing agricultural incomes in the district.

This result could have rather strong implications for inequality of income and regional disparities. In this situation is not clear where there are any income gains for the distress migrants. Apart from that, there seems to be an indication of relative immobility of the lower income groups and lower asset classes. The higher income groups are able to invest in migration and subsequently reap the benefits of migration in the form of remittances. This may also support investment into the process of migration for other members in the household and experience a rise in income levels. On the whole, the patterns of changes in income and inequality in the country depends on the final outcome of distress migrants.

References

Abramitzky, R., Boustan, L. P. and Eriksson, K. (2013). Have the poor always been less likely to migrate? Evidence from inheritance practices during the age of mass migration. *Journal of Development Economics*, 102, 2-14.

Angelucci, M. (2015). Migration and Financial Constraints: Evidence from Mexico. *Review of Economics and Statistics*, 97(1), 224-228.

Beauchemin, C. and Schoumaker, B. (2005). Migration to Cities in Burkina Faso: Does the Level of Development in Sending Areas Matter? *World Development*, 33(7), 1129–1152.

Belot, M.V.K. and Hatton, T.J. (2012). Immigration Selection in the OECD. *The Scandinavian Journal of Economics,* 114 (4), 1105-1128.

Binswanger-Mkhize, H. P. (2013). The Stunted Structural Transformation of the Indian Economy Agriculture, Manufacturing and the Rural Non-Farm Sector. *Review of Rural Affairs, EPW supplement,* xlviii (26 & 27), 5-12.

Bird, K., Higgins, K. and Harris, D. (2010). Spatial poverty traps: An overview. *ODI Working Paper 321 & CPRC Working Paper 161*. Online. Retrieved from: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/5514.pdf

Cai, S. (2015) Migration, Liquidity Constraints, and Income Generation: Evidence from Randomized Credit Access in China. Online. Retrieved from: https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=NEUDC2015&paper_id=498

Chernina, E., Castañeda Dower, P. and Markevich, A., (2013). Property Rights, Land Liquidity and Internal Migration. Online. Retrieved from: https://ssrn.com/abstract=1730730

Dao, D. H., Docquier, F., Parsons, C. and Peri, G. (2016). Migration and Development: Dissecting the Anatomy of the Mobility Transition. *IZA DP No. 10272*. Online. Retrieved from: http://ftp.iza.org/dp10272.pdf

Deshingkar, P. (2010). Migration, Remote Rural Areas and Chronic Poverty in India, *ODI Working Paper 323 & CPRC Working Paper 163*. Online. Retrieved from: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/5510.pdf

Dustman, C. and Okatenko, A. (2014). Out-migration, wealth constraints, and the quality of local amenities. *Journal of Development Economics,* 110. 52–63.

Harris and Todaro (1970). Migration, unemployment and development: A two sector analysis. *American Economic Review,* 60, 126-142.

Hatton, T.J. and Williamson, J.G. (2011). Are Third World Emigration Forces Abating? *World Development*, 39(1), 20-32.

Jalan, J. and Ravallion, M. (2002). Geographic Poverty Traps? A Micro Model of Consumption Growth in Rural China. *Journal of Applied Econometrics* 17(4), 329-346.

Kochhar, K., Kumar, U., Rajan, R., Subramanian, A., and Tokatlidis, I. (2006). India's Pattern of Development: What Happened, What Follows? *IMF Working Paper WP/06/22* Online. Retrieved from: https://www.imf.org/external/pubs/ft/wp/2006/wp0622.pdf

Kraay, A. and McKenzie, D. (2014). Do Poverty Traps Exist? Assessing the Evidence. *Journal of Economic Perspectives*, 28(3), 127-48.

Mayda, A. M. (2010). International Migration: A Panel Data Analysis of the Determinants of Bilateral Flows. *Journal of Population Economy*, 23(4), 1249-1274.

McKenzie, D., and Rapoport, H., (2007) Network Effects and the Dynamics of Migration and Inequality: Theory and Evidence from Mexico. *Journal of Development Economics*, 84(1), 1-24.

Samantaray, L. L., (2016) A Study On The Issues Of Distress Migration Of Kbk Districts Of Odisha And The Role Of Reverse Migration (Urban-Rural) In Augmenting Various Measures Taken By The Government For It's Solution. *IOSR Journal Of Humanities And Social Science*, Volume 21, Issue 5, Ver. 5, PP 41-47

Shah, A. and Kumar, A. (2011). Migration and Poverty in India: A Multi-patterned and Complex Reality, *CPRC-IIPA Working Paper No. 45*. Online. Retrieved from: http://www.chronicpoverty.org/uploads/publication_files2/CPRC%20IIPA%20%20Working%20Paper%2045.pdf

Stark, O. and Bloom, D. E. (1985). The New Economics of Labor Migration. *American Economic Review Papers and Proceedings,* 75(2), 173–178.

Stark, O. and Levhari, D (1982). On Migration and Risk in LDCs. *Economic Development and Cultural Change,* 31(1),191–196.

Stark, O. (1991). *The Migration of Labor*. Oxford: Basil Blackwell.

Stark, O. and Taylor, J.E. (1989). Relative Deprivation and International Migration. *Demography*, 26, 1-14

Stark, O. and Taylor, J.E. (1991). Migration Incentives, Migration Types: The Role of Relative Deprivation. *Econ Journal*, 101, 1163-1178.

Zelinsky, W. (1971). The Hypothesis of the Mobility Transition. *Geographical Review* 61 (2), 219-249.

Tables and Figures

Table 1: NSSO Data set

Total Number of Households in the Sample	1,21,806
Households with at least one migrant	43.38%
Religious minority (Non-Hindu Population)	22.42%
Scheduled Caste	16.78%
Scheduled Tribes	14.11%
Households in Rural Areas	64.37%

Table 2: Income (Monthly Consumption Expenditure) Distribution among the NSSO households

Income Groups	**Mean**	**Standard Deviation**	**Min**	**Max**
Entire Sample	4094.814	3233	54	195828
Deciles (Incgroup)				
1	1129.742	292.6497	54	1524
2	1782.56	142.7185	1525	2017
3	2224.872	118.611	2018	2429
4	2635.001	120.3003	2430	2847
5	3072.561	130.6669	2848	3305
6	3572.857	160.3786	3306	3861
7	4189.077	199.6582	3862	4552
8	5023.755	292.737	4553	5577
9	6378.982	525.2041	5578	7431
10	10942.6	5466.055	7432	195828

Table 3: Land Distribution in the NSSO Households

Land Area (in Hectares)	**Percentage of Households**	**Code in Regression Model**
Less than 0.005	22.67	1
0.005 to 0.01	22.88	2
0.02 to 0.2	17.1	3
0.21 to 0.4	10.28	4
0.41 to 1	13.17	5
1.01 to 2	8.56	6
2.01 to 3	2.71	7
3.01 to 4	1.12	8
4.01 to 6	0.75	9
6.01 to 8	0.32	10
Greater than 8	0.45	11

Table 4: Income constraints of Migration (Logit Model)

Dep Var: Outmigrant HH	1	2	3	4	5
Literate Population (Share)		0.442			0.571
		(0.233)*			(0.285)**
Population Density		-0.000			-0.000
		(0.000)***			(0.000)***
Religious Minority Dummy		-0.067			-0.091
		(0.038)*			(0.038)**
Scheduled Caste Dummy		-0.072			-0.140
		(0.022)***			(0.021)***
Scheduled Tribe Dummy		-0.289			-0.296
		(0.051)***			(0.051)***
Rural Household Dummy			0.550		0.526
			(0.048)***		(0.031)***
Barren Area (Share)			-1.161		-0.295
			(0.661)*		(0.617)
Irrigated Area (Share)			0.160		0.444
			(0.117)		(0.114)***
Access to Telephone (%)				0.008	0.008
				(0.002)***	(0.002)***
Access to Transport (%)				-0.005	-0.005
				(0.002)***	(0.001)***
Access to Bank (%)				0.004	0.003
				(0.002)*	(0.002)**
2bn.incgroup	-0.167	-0.166	-0.181	-0.170	-0.183
	(0.033)***	(0.032)***	(0.033)***	(0.032)***	(0.032)***
3.incgroup	-0.243	-0.249	-0.250	-0.245	-0.263
	(0.034)***	(0.034)***	(0.034)***	(0.034)***	(0.033)***
4.incgroup	-0.174	-0.183	-0.166	-0.177	-0.187
	(0.040)***	(0.039)***	(0.040)***	(0.039)***	(0.038)***
5.incgroup	-0.103	-0.117	-0.068	-0.111	-0.104
	(0.039)***	(0.038)***	(0.039)*	(0.039)***	(0.038)***
6.incgroup	-0.052	-0.062	-0.003	-0.060	-0.040
	(0.042)	(0.041)	(0.043)	(0.042)	(0.042)
7.incgroup	-0.022	-0.034	0.074	-0.030	0.030
	(0.043)	(0.041)	(0.044)*	(0.043)	(0.042)
8.incgroup	0.093	0.088	0.244	0.084	0.201
	(0.047)**	(0.043)**	(0.046)***	(0.046)*	(0.044)***
9.incgroup	0.172	0.179	0.389	0.162	0.352
	(0.054)***	(0.047)***	(0.051)***	(0.053)***	(0.048)***
10.incgroup	0.297	0.343	0.577	0.283	0.570
	(0.069)***	(0.052)***	(0.059)***	(0.064)***	(0.054)***
_cons	-0.248	-0.338	-0.680	-0.670	-1.376
	(0.035)***	(0.145)**	(0.070)***	(0.164)***	(0.198)***
N	121,806	121,690	115,025	121,806	114,909

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Standard Errors (Clustered at District level) in brackets

Dropped: 1.incgroup

Table 5: Wealth constraints of Migration (Logit Model)

	1	2	3	4	5
Monthly HH Exp're (Logs)	0.113	0.103	0.161	0.096	0.140
	(0.029)***	(0.023)***	(0.027)***	(0.027)***	(0.025)***
Literate Population (Share)		0.930			0.874
		(0.214)***			(0.279)***
Population Density		-0.000			-0.000
		(0.000)***			(0.000)***
Religious Minority Dummy		-0.026			-0.046
		(0.037)			(0.039)
Scheduled Caste Dummy		-0.008			-0.060
		(0.022)			(0.021)***
Scheduled Tribe Dummy		-0.423			-0.324
		(0.050)***			(0.051)***
Rural Household Dummy			0.187		0.186
			(0.035)***		(0.028)***
Barren Area (Share)			-0.785		0.088
			(0.571)		(0.570)
Irrigated Area (Share)			0.270		0.525
			(0.103)***		(0.106)***
Access to Telephone (%)				0.009	0.008
				(0.002)***	(0.002)***
Access to Transport (%)				-0.003	-0.004
				(0.001)**	(0.001)***
Access to Bank (%)				0.003	0.003
				(0.002)**	(0.002)*
2bn.landcode	0.450	0.440	0.413	0.460	0.397
	(0.048)***	(0.038)***	(0.048)***	(0.046)***	(0.034)***
3.landcode	0.740	0.727	0.699	0.739	0.670
	(0.059)***	(0.047)***	(0.056)***	(0.054)***	(0.043)***
4.landcode	0.718	0.753	0.670	0.745	0.677
	(0.063)***	(0.048)***	(0.057)***	(0.057)***	(0.046)***
5.landcode	0.829	0.868	0.774	0.861	0.777
	(0.061)***	(0.046)***	(0.055)***	(0.057)***	(0.044)***
6.landcode	0.932	0.974	0.887	0.961	0.889
	(0.064)***	(0.047)***	(0.056)***	(0.060)***	(0.046)***
7.landcode	1.090	1.114	1.022	1.113	1.000
	(0.074)***	(0.058)***	(0.068)***	(0.071)***	(0.058)***
8.landcode	1.162	1.199	1.093	1.187	1.079
	(0.091)***	(0.078)***	(0.089)***	(0.087)***	(0.082)***
9.landcode	1.241	1.233	1.152	1.252	1.106
	(0.095)***	(0.083)***	(0.092)***	(0.093)***	(0.085)***
10.landcode	1.663	1.636	1.587	1.668	1.531
	(0.142)***	(0.133)***	(0.140)***	(0.141)***	(0.136)***
11.landcode	1.737	1.687	1.639	1.729	1.566
	(0.122)***	(0.113)***	(0.119)***	(0.120)***	(0.113)***
_cons	-1.749	-2.123	-2.262	-2.285	-3.127
	(0.214)***	(0.224)***	(0.215)***	(0.270)***	(0.277)***
N	121,689	121,573	114,932	121,689	114,816

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Standard Errors (Clustered at District level) in brackets

Dropped: 1.landcode

Table 6: Income Constraints of Migration among Rural and Urban Households

	Rural	Urban
Literate Population (Share)	0.909	-0.176
	(0.293)***	(0.374)
Population Density	-0.000	-0.000
	(0.000)**	(0.000)***
Religious Minority Dummy	-0.166	0.015
	(0.046)***	(0.045)
Scheduled Caste Dummy	-0.144	-0.149
	(0.024)***	(0.041)***
Scheduled Tribe Dummy	-0.295	-0.263
	(0.052)***	(0.089)***
Barren Area (Share)	0.034	-1.047
	(0.743)	(0.884)
Irrigated Area (Share)	0.509	0.268
	(0.115)***	(0.154)*
Access to Telephone (%)	0.009	0.005
	(0.002)***	(0.003)**
Access to Transport (%)	-0.003	-0.010
	(0.001)*	(0.002)***
Access to Bank (%)	0.000	0.008
	(0.002)	(0.002)***
2bn.incgroup	-0.218	0.005
	(0.034)***	(0.076)
3.incgroup	-0.301	-0.082
	(0.035)***	(0.081)
4.incgroup	-0.255	0.110
	(0.042)***	(0.081)
5.incgroup	-0.181	0.190
	(0.041)***	(0.078)**
6.incgroup	-0.112	0.230
	(0.045)**	(0.080)***
7.incgroup	-0.064	0.318
	(0.043)	(0.080)***
8.incgroup	0.151	0.424
	(0.048)***	(0.077)***
9.incgroup	0.325	0.559
	(0.054)***	(0.083)***
10.incgroup	0.679	0.749
	(0.069)***	(0.085)***
_cons	-1.252	-0.573
	(0.220)***	(0.248)**
N	73,714	41,195

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Standard Errors (Clustered at District level) in brackets

Dropped: 1.incgroup

Table 7: Wealth Constraints of Migration among Rural and Urban Households

	Rural	Urban
Monthly HH Exp're (Logs)	0.029	0.295
	(0.028)	(0.031)***
Literate Population (Share)	1.331	0.011
	(0.289)***	(0.348)
Population Density	-0.000	-0.000
	(0.000)	(0.000)***
Religious Minority Dummy	-0.073	0.015
	(0.045)	(0.046)
Scheduled Caste Dummy	-0.038	-0.113
	(0.024)	(0.041)***
Scheduled Tribe Dummy	-0.314	-0.310
	(0.050)***	(0.093)***
Barren Area (Share)	0.318	-0.500
	(0.721)	(0.738)
Irrigated Area (Share)	0.620	0.337
	(0.106)***	(0.139)**
Access to Telephone (%)	0.010	0.004
	(0.002)***	(0.002)
Access to Transport (%)	-0.002	-0.007
	(0.001)	(0.002)***
Access to Bank (%)	0.001	0.006
	(0.002)	(0.002)***
2bn.landcode	0.310	0.432
	(0.043)***	(0.042)***
3.landcode	0.573	0.741
	(0.051)***	(0.053)***
4.landcode	0.630	0.736
	(0.052)***	(0.069)***
5.landcode	0.756	0.777
	(0.049)***	(0.086)***
6.landcode	0.879	0.865
	(0.052)***	(0.082)***
7.landcode	0.990	1.074
	(0.064)***	(0.135)***
8.landcode	1.102	0.978
	(0.091)***	(0.176)***
9.landcode	1.171	0.749
	(0.094)***	(0.192)***
10.landcode	1.570	1.438
	(0.147)***	(0.305)***

11.landcode	1.719	1.036
	(0.128)***	(0.224)***
_cons	-2.606	-3.262
	(0.304)***	(0.340)***
N	73,670	41,146

* $p<0.1$; ** $p<0.05$; *** $p<0.01$

Standard Errors (Clustered at District level) in brackets

Dropped: 1.landcode

Figure 1: The inverted U relationship between Income and Migration

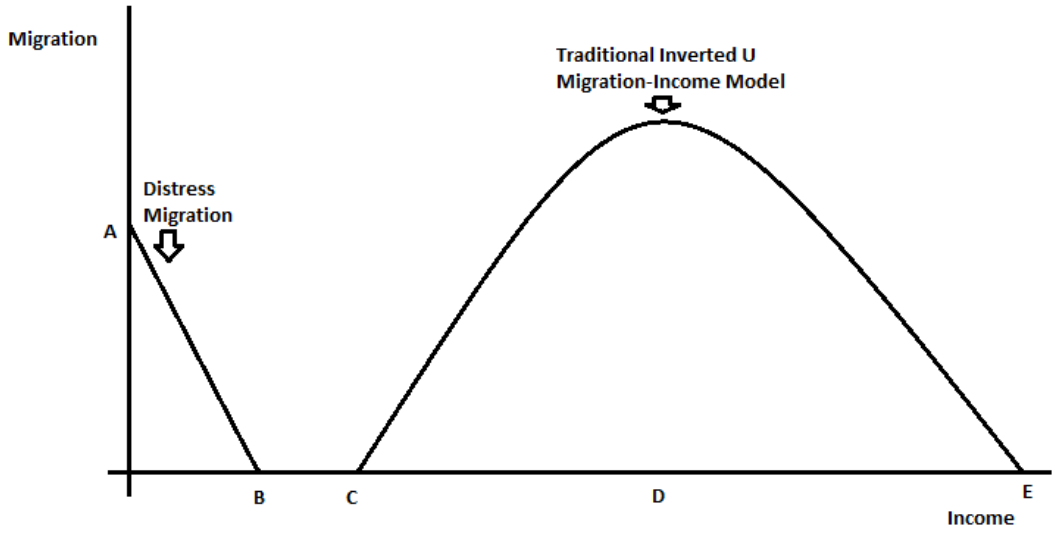


Figure 2: Summary of the Migration Scenarios

	Low Risk	High Risk
Migrate	➢ Zone C to E ➢ Income is high enough to pay for the cost of migration. ➢ Scope to improve income by migration. ➢ Equation 2c	➢ Zone A to B ➢ Income is too low to afford cost of migration. ➢ Migration to avoid less than subsistence income due to distress. ➢ Equation 2a
Not Migrate	➢ Zone: Right of E ➢ Income at origin is very high. ➢ No scope to improve income by migration. ➢ Equation 2d	➢ Zone: B to C ➢ Income is too low to afford the cost of migration. ➢ But income is high enough for subsistence, hence stay back. ➢ Equation 2b

Figure 3: Predictive Margins with respect to Income constraints of Migration (corresponding to Table 4, col 5)

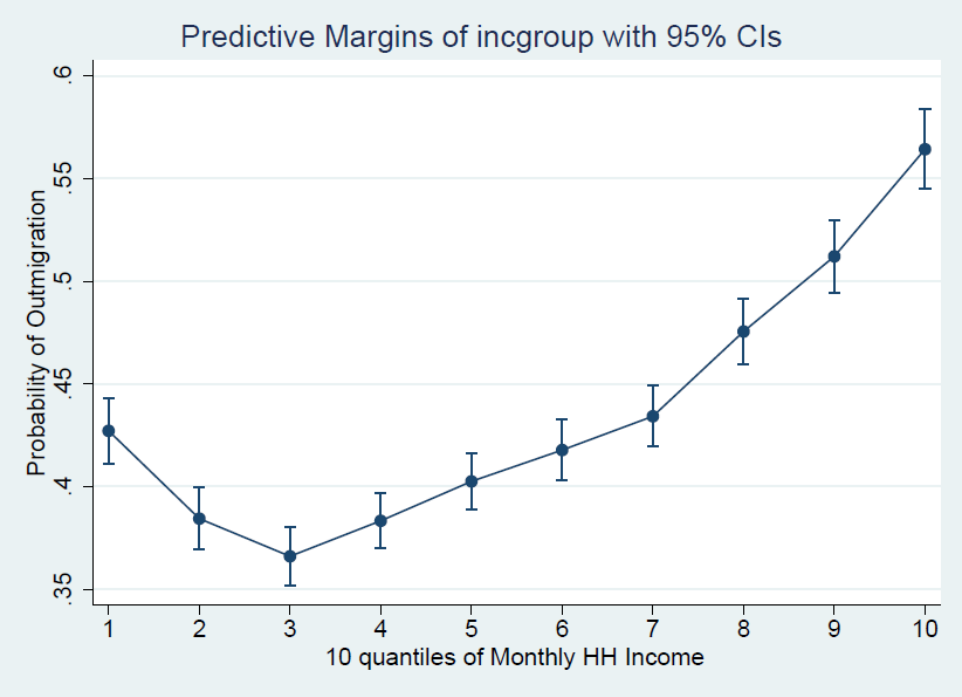


Figure 4: Predictive Margins with respect to Wealth constraints of Migration (corresponding to Table 6, col 5)

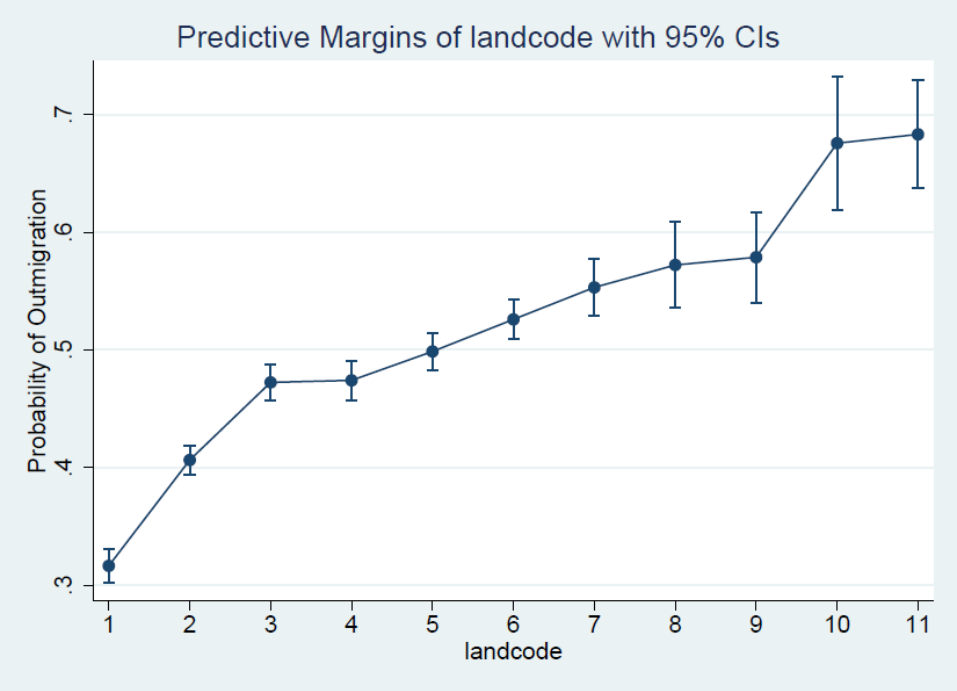
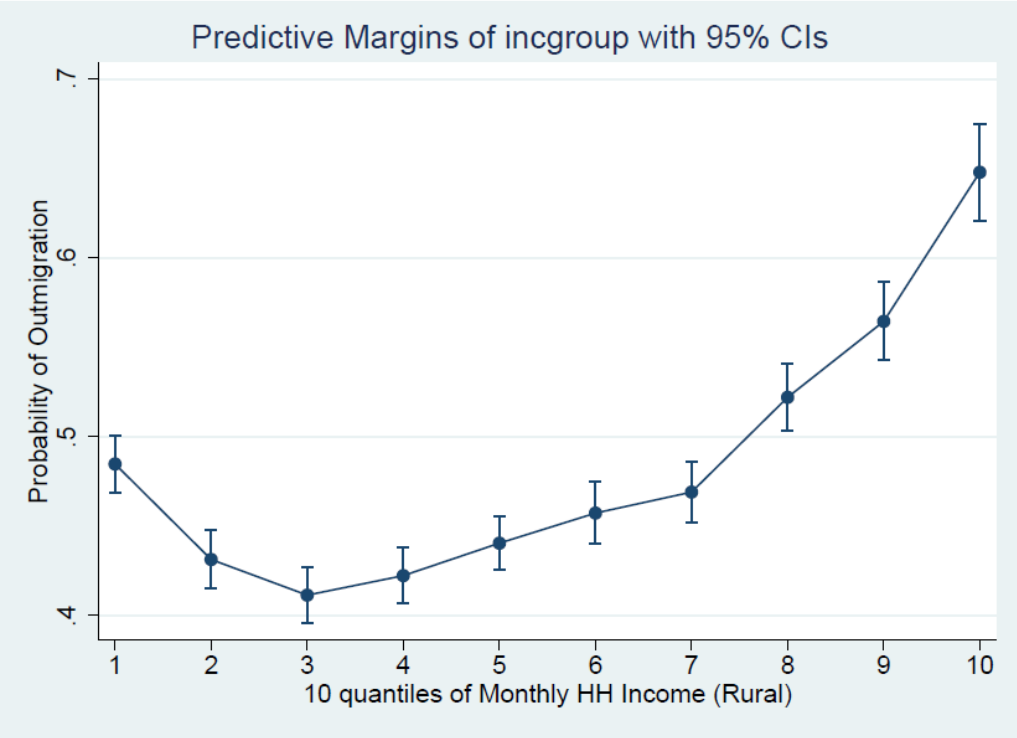


Figure 5: Predictive Margins with respect to Income constraints of Migration, Rural and Urban (corresponding to Table 5)



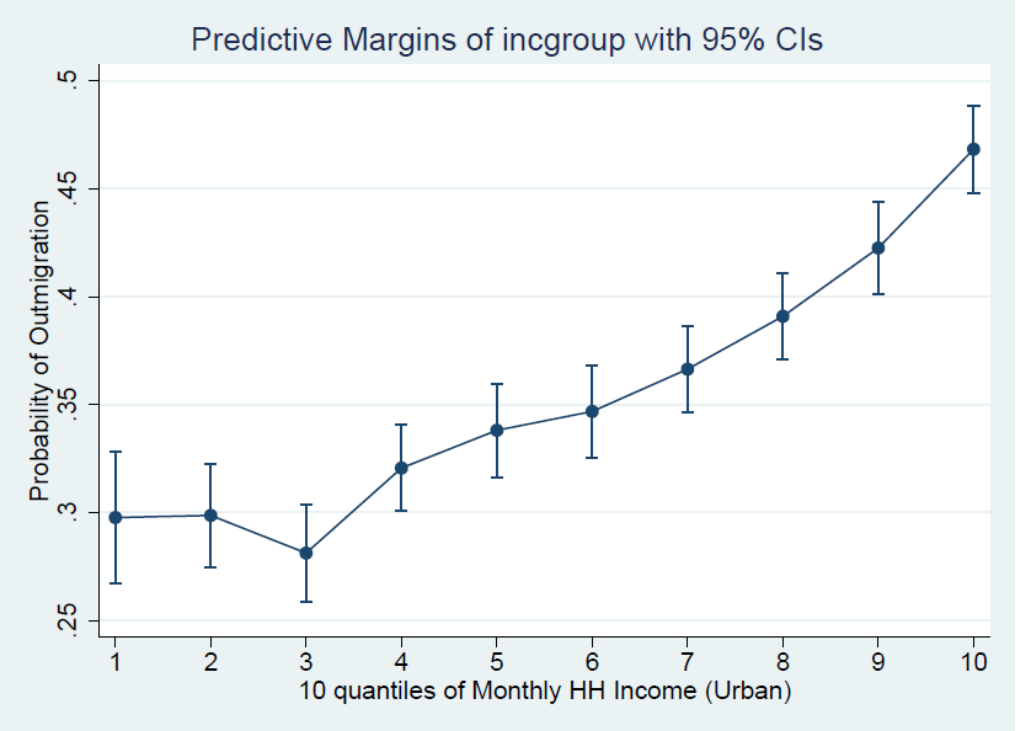


Figure 6: Predictive Margins with respect to Wealth constraints of Migration, Rural and Urban (corresponding to Table 7)