WP-2014-016

Urbanization and Spatial Patterns of Internal Migration in India

S Chandrasekhar, Ajay Sharma

Indira Gandhi Institute of Development Research, Mumbai
May 2014
http://www.igidr.ac.in/pdf/publication/WP-2014-016.pdf

Urbanization and Spatial Patterns of Internal Migration in India

S Chandrasekhar, Ajay Sharma
Indira Gandhi Institute of Development Research (IGIDR)
General Arun Kumar Vaidya Marg
Goregaon (E), Mumbai- 400065, INDIA
Email (corresponding author): chandra@igidr.ac.in

Abstract

With an urbanization level of 31.16 percent in 2011, India is the least urbanized country among the top 10 economies of the world. In addition, unlike other countries, the transition of workforce out of agriculture is incomplete. This coupled with jobless growth in recent years has contributed to an increase in certain migration streams. While rural-rural migration continues to be the largest in terms of magnitude, we also document an increase in two-way commuting across rural and urban areas. Further, there are a large number of short term migrants and an increase in return migration rate is also observed.

Keywords: Internal Migration Streams, Short Term Migration, Commuting, Return Migration, Regional Labour Mobility

JEL Code: R23, J61, O1

Acknowledgements:

Chandrasekhar is extremely grateful to Deborah Balk, Mark Montgomery for detailed comments on an earlier draft. We thank Deborah Balk for the map depicting night time lights. This paper is written as part of Strengthen and Harmonize Research and Action on Migration in the Indian Context, an initiative supported by Sir Dorabji Tata Trust and Allied Trusts.

Urbanization and Spatial Patterns of Internal Migration in India

1. Introduction

Over the period 2011-2050, the world's urban population is projected to increase from 3.6 billion to 6.3 billion. Much of this increase will be in the cities and towns of developing and less developed countries. Consequently, it is expected that half of Asia's and Africa's population will be living in urban areas[1] by 2020 and 2035 respectively. It is forecast that the world's urban population will increase by 1.4 billion over the period 2011 and 2030. Of this increase, the share of China will be 276 million while that of India will be 218 million. India will account for slightly over 15.5 percent of the increase in the world's urban population (United Nations 2012). This increase in urban population can be decomposed into three components: natural increase in urban areas, reclassification of rural areas as urban, and net migration from rural to urban areas. There will be marked differences in the importance of each of these components across Africa, Asia, and Latin America.

At the global level, the current evidence suggests that in many countries, the rate of natural increase in population still accounts for over half of urban growth (United Nations Population Division 2008a). Yet, as fertility continues to fall, migration is likely to account for an increasing share of urbanization around the world.

Both India and China center prominently in any conversation on population projections. In China, presently the world's largest country, migration (and administrative reclassification) is a larger factor in urban growth as compared to natural increase in population (United Nations 2008a). This paper focuses on the issues of urbanization and internal migration in the context of India, the country currently expected to be the world's largest by 2050 (United Nations 2009).

[1] If the broad outlines of an urban future are already apparent, the country-specific details needed for adequate planning are not. Population projections at the national level have proved to be more accurate than forecasts of the size of rural and urban population separately. Montgomery (2008) points out that the projection of urban population made by the United Nations has been on the higher side.

For more reasons than one, India presents itself as an interesting case for understanding the process of urbanization and migration. India is among the top five countries of the world in terms of gross domestic product. However, with 31.16 percent of its population living in cities and towns in 2011, India is the least urbanized country among the top 10 economies of the world. Some would argue that due to definitional issues India undercounts its urban population, an issue we return to later in this paper.

In a recent article reviewing India's economic growth, Kotwal, Ramaswami and Wadhwa (2011) point out that what makes India's experience distinctive is that "the share of agriculture in employment has not come down rapidly[2]. In fact, the absolute amount of labor in agriculture has risen continuously in India while it fell in all countries now developed during their comparable development phases" (p. 1195). An additional distinguishing aspect of India's growth story is that it is driven by the service sector. This is unlike the experience of countries in East and Southeast Asia which have a strong manufacturing base. It is important to highlight these aspects at the outset since urbanization is synonymous with non-agricultural activities.

The issue of composition of gross domestic product aside, India has experienced jobless growth, in particular, in rural areas. While India has sustained an annual growth rate of gross domestic product at over 5 percent in the last decade one does not observe an increase in number of jobs. Consider the period 2004-05 to 2009-10. A total of 23.3 million and 4.02 jobs were lost in agriculture and manufacturing respectively. These losses were offset by gain of 25.89 million jobs in non-manufacturing and 2.7 million jobs in services. Overall, only 1.74 million new jobs were created. The overall employment elasticity is estimated at 0.01 (Government of India 2011). In the last decade (between 1999-00 and 2009-10), there has been a slight decrease in unemployment rate in rural and urban areas (except in case of rural female). Also, the underemployment rate is higher in rural than in the urban areas. But this is only one part of the story. Unemployment rate in the rural and urban India do not truly reflect the labour market situation and job opportunities; another part of the story can be

[2] Over the period 1983-84 and 2004-05, the share of agriculture in value added as a percent of gross domestic product (GDP) decreased from 39 percent to 20 percent in 2004-05 while the share of agriculture in total employment declined from 68 percent to 58 percent.

better understood by the underemployment rates in rural and urban areas. In rural (urban) India, 10 (4.9) percent of male and 7 (4.5) percent of female workers were willing to do additional work/or sought additional work (NSSO 2011). A majority of these workers mentioned that their current job is not remunerative enough. Given this situation, it is plausible that there would probably be an increase in rural-urban migration. The size of the rural-urban migration will be determined by the type and extent of relationship of the rural area with the urban center in its vicinity.

It is envisaged that the establishment of a 3-tier structure for decentralized planning in urban areas under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), launched by the Government of India in 2005-2006, will result in strengthened rural-urban linkages. The Approach Paper to India's XIth Five Year Plan stated, "With 3,682 urban local bodies in the country spread across the 593 districts in the country, such linkages could allow urban economic engines – with their access to markets, infrastructure and credit —to become the flywheel of rural growth, resulting in a more inclusive form of growth in the country. It is critical to note that effective functioning of District Planning Committees cannot occur unless both rural and urban planning processes are well-defined." (Government of India 2007, p. 93). Despite these pronouncements, it proved to be a case of policy posturing and the XIth Five Year Plan neither ushered in a new era in urban planning nor did one see significant strengthening of rural-urban linkages.

Against this backdrop, a series of questions arise in the context of Indian experience. The first one pertains to India's urbanization trajectory. How accurate is the perception that India is more urbanized than suggested by official statistics? What is the size of India's peripheral urban areas? Are the larger Indian cities saturated? In addition, the following are some important questions in the context of internal migration. Which of the following is the dominant migrant stream: rural-rural, rural-urban, urban-rural, or urban-urban? How does the composition of migration streams change over the course of a country's development? In a decade of jobless growth, what type of migration is observed? Which are the sectors that absorb short term migrant workers? What does rural-urban migration imply for urbanization of poverty and unemployment patterns across rural and urban India?

This paper is structured as follows. In Section 2 we provide a brief description of the data sets used in this paper. A discussion on the rural urban distribution of population at the national and sub-national level is provided in Section 3. The focus of Sections 4 and 5 is on migration streams and emerging patterns in migration. In Section 6 we provide some evidence on outcomes related to migrants and households with migrants. Section 7 concludes.

2. Data

In this paper we use data from two different sources: Census of India 2001 and 2011, and the all-India household Survey of Employment and Unemployment and Migration Particulars periodically conducted by the National Sample Survey Organisation (NSSO), India. The Census of India is conducted at the beginning of every decade by the Office of the Registrar General and Census Commissioner, India[3]. Data from Census of India has detailed information on distribution of population across rural and urban areas at the sub-national level. Estimates of migration can be arrived at from census data. Although economic theories of migration are primarily about worker mobility, census data typically reflect mobility of the population and not necessarily of workers. Based on this data set it is not feasible to disentangle temporary, seasonal, and circular migration. Some of the limitations of Census data are obviated by data from NSSO's surveys. Data on migration is available from the surveys conducted by NSSO in 1983, 1987-88, 1999-00 and 2007-08. In the NSSO surveys, a migrant is an individual who changed his or her usual place of residence anytime preceding the survey. The survey also has information on the reason for migration. Due to definitional issues, data from Census of India on migration and estimates of migration from NSSO survey are not directly comparable. However, put together, these two sources help provide a composite picture in order to shed light on the above mentioned questions.

[3] Unless otherwise mentioned all Census data have been accessed from http://www.censusindia.gov.in/.

3. Rural-Urban Distribution of Population

In India, the definition of an urban center has remained unchanged since 1961 there by facilitating comparison of census data over time (for a brief discussion see Sivaramakrishnan, Kundu and Singh 2005, p. 7-8). For the purposes of Census operations, an area is classified as an urban unit[4] if the place is declared by the state government under a statute as a municipality, corporation, cantonment board, or notified town area committee etc. In addition, all other places which simultaneously satisfy or are expected to satisfy the following criteria are classified as urban: a minimum population of 5,000, at least 75 per cent of the male working population engaged in non-agricultural economic pursuits, and a density of population of at least 400 per square kilometer (1,000 per square mile). Any area that does not fit the definition of urban is considered rural. Given the criterion that a large part of the population be employed in non-agricultural economic pursuits, this definition presupposes that urbanization is a consequence of industrialization or growth in the services sector.

3.1 Size of Rural and Urban India

As per the census numbers, India's population stood at 1.21 billion in 2011. The share of India's population living in urban areas increased from 27.81 percent to 31.16 percent in the intercensal period 2001-2011[5].

Comparison over the two periods 1991-2001 and 2001-2011, indicates that the rate of growth of population of India has slowed down. Over the intercensal period 1991-2001, the population increased by 21.5 percent (18.1 percent in rural and 31.5 percent in urban). In the intercensal period 2001-11, India's population increased by 17.6 percent (12.2 percent in

[4] For further discussion see http://www.censusindia.gov.in/Metadata/Metada.htm#2b

[5] A question that naturally follows is: what is the projected level of urbanization, assuming that no changes in the rural-urban classification? Dyson and Visaria (2004) have projected that 35.6 percent of India's population will be living in urban areas by 2026 and 44.3 percent will be living in these areas by 2051. Their estimates are lower than those made by the United Nations, which indicate that 37.2 percent of India population will be living in urban areas by 2025 and 55.2 percent by 2050 (United Nations 2008b). The Technical Group on Population Projections constituted by the National Commission on Population forecast that 38.2 percent of India would be urban by 2026 (Office of the Registrar General and Census Commissioner, India 2006). The terms of reference given to the Group required it to "take into account factors like level and pattern of contraceptive use, proportion of married females, the impact of major diseases like AIDS, immigration, migration etc. while undertaking population projections". The Group provided population projections using the Components Method and utilized data from Census of India 2001 and Sample Registration System. In order to project the urban population, the Group used the method used by United Nations to forecast urban and rural population.

rural and 31.8 percent in urban). The decline in overall growth of population can be attributed to the decline in the growth rate of population in rural areas. In terms of absolute numbers the population increased from 1.029 billion to 1.21 billion. An interesting statistic is that, for the first time since India's independence in 1947, the absolute increase in urban population over the intercensal period 2001-11 is larger than the increase in rural areas.

The period 2001-11 saw an increase in number of villages from 638,588 to 640,867. The share of India's population living in villages with over 5000 population increased from 21.76 percent in 2001 to 23.54 percent in 2011 (Table 3). If an urban area were to be defined only by geographical units with population of at least 5,000 then 23.54 percent of rural population in the year 2011 could be thought of as urban.

Migration[6] and in particular, net rural-urban migration, was expected to pick up speed in the 1990s with the onset of economic reforms and acceleration in economic growth. However, as we argue later, this has not necessarily been the case. In some countries, notably China and Indonesia, migration and reclassification has accounted for 70 to 80 percent of urban growth in the recent decades (United Nations 2008a). In India, like in most developing countries, natural increase accounts for 60 percent of urban growth (Kundu 2007). Over the period 1961-2001, the contribution of net rural-urban migration to urban growth has not increased substantially. During 1961-71, 18.7 percent of the increase in urban population was attributable to net migration. During 1991-2001, the urban population increased by 67.7 million and net rural urban migration accounted for only 21 percent of this increase (Table 2). The exact contribution of net rural-urban migration to urban growth over the period 2001-11 is not yet available. Making some reasonable assumptions, Pradhan (2013) has calculated that 22.2 percent of urban population growth in the period 2001-11 can be attributed to migration.

There was also an increase in the number of statutory towns, census towns, and urban agglomerations (UA) (Table 3). The growth of census towns is because of reclassification of rural areas as urban. Pradhan (2013) has estimated that census towns account for almost 30

[6] The Census of India defines a non-migrant as one who spends his or her entire lifetime and dies in the same village/town in which he or she was born. A migrant is an individual who moves from one village or town to another village or town provided his or her movement is not of purely temporary nature.
For details on concepts related to migration see http://www.censusindia.gov.in/Metadata/Metada.htm#2b

percent of the urban growth in the last decade. He points out that census town are administered as rural areas and this is not beneficial for their growth. Since "these units are different from other rural areas by their economic characteristics and have the potential for future growth, proper governance arrangements would be crucial" (p.50).

3.2 Size of Peri-Urban Areas

The issue of administrative set up and governance is not only important in case of census towns but also in the case of peri-urban areas. Discussions on the extent to which India is urbanized invariably veers towards the sizable population living in the peri-urban zones since peri-urban areas are classified as rural (Dupont 2005, Oliveau 2005). In the recent past, there have been attempts at using night-time lights satellite imagery to understand the spatial extent of urban development. This obviates the need to rely entirely on Census classification of rural and urban areas. By using satellite images, covering the period 1992-2003, Chand Kiran et al. (2008) show that the city centers in Bangalore, Chennai, Hyderabad, Kolkata, Mumbai, and New Delhi were saturated with lights. Among these cities, they find that there is significant increase in the intensity of night-time lights in the peripheral areas of Bangalore and Hyderabad. This point becomes apparent from Figure 1 where the red and blue hues are detectable stable night time lights in the Delhi and surrounding region for the years 2011 and 1992 respectively. The overlay of lights with census representations of urbanization suggests that ex-urban areas and fast growing areas contiguous to the city may not be fully captured by the census data. As is evident from figure 1, the continuous out-growth of the urban agglomeration of Delhi is beyond the official boundary as suggested by data from Census of India. Hence, there is a clear need for an improved and geography based definition of urban areas to capture the phenomenon of urbanization, as well as size of peri-urban areas in India.

Haub and Sharma (2006) argue that a portion of the 16 percent of Indians living in places with a population of 5,000 to 19,999 is classified as rural rather than urban. Based on a different criterion of what constitutes an urban area, Uchida and Nelson (2010) estimate that India's urbanization level is in the range of 42.9 to 51.9 percent. Another estimate based on the built up area contiguous with the city boundary pegged India's level of urbanization at 37 percent for 2001, 10 percentage points above the official estimate (Denis and Kamala 2011).

Starting with the assumption that people do not travel inordinately long distance for work, Chandrasekhar (2011) suggests that the number of workers commuting from rural to urban areas daily is an estimate of workers living in the peri-urban areas. A total of 31.99 million individuals, accounting for 4.3 percent of India's rural population, live in households where one or more worker commutes from rural to urban areas. Also, a total of 15.44 million individuals accounting for 5.5 percent of India's urban population live in a household where at least one member commutes from urban to rural area for work. These are lower bound estimates of the total population living in peri-urban India since there are households living in peri-urban (rural) areas who do not have any member commuting to urban areas for work.

There is increasing currency for the view that it is time to define a transitional category and assign an agency responsibility for improving the level and quality of civic services in peri-urban areas[7]. The city development plan[8] for Asansol, in the State of West Bengal, clearly states, "most peri-urban slums areas are not legally part of the cities they encircle and thus not commonly viewed as the responsibilities of municipal officials. Many of these areas are totally lacking in infrastructure for water supply, sanitation and solid waste disposal" (Asansol Durgapur Development Authority 2006, p. 159). The city planners in Raipur, in the state of Chhattisgarh, and Vijayawada, in the state of Andhra Pradesh, have recognized the problems of peri-urban dwellers.

3.3 Sub-National Picture on Urbanization

In Figure 2 we have provided a map of India showing the varying levels of urbansiation across the states of India. The states of Maharashtra, Uttar Pradesh and Tamil Nadu accounted for 13.5 percent, 11.8 percent, and 9.3 percent of India's urban population.

[7] While there are specific schemes aimed at improving the lives of slum dwellers, there are hardly any initiatives aimed at peri-urban areas. This is because it is not clear which agency of the government is responsible for the peri-urban dwellers. Even within urban areas the institutional arrangements – assignment of function and financial resources – need to be reworked. An eye opener is the institutional arrangements governing India's capital Delhi where the governance is carved up among different agencies or authorities. Since the multiple authorities have competing jurisdictions it has led to an inefficient system and governance has been a casualty (See Chapter 4, Delhi Human Development Report, Government of NCT of Delhi 2006).

[8] The city development plans have been prepared as per the requirements under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). In 2011, the mission covered a total of 65 cities including the mega cities, cities with over million population and thirty cities with less than one million population.

Of the 377 million individuals living in urban areas in 2011, 43 percent live in the cities or urban agglomerations with a population of over 1 million. The number of urban agglomerations or cities with a population of at least one million increased from 35 in 2001 to 53 in 2011. Uttar Pradesh and Kerala have 7 such cities each while Maharashtra has 6 such cities. Among the 53 UAs, the three largest UAs or mega cities with a population of more than 10 million are Greater Mumbai UA (18.4 million), Delhi UA (16.3 million) and Kolkata UA (14.1 million). These are followed by Chennai UA (8.7 million) and Bangalore UA (8.5 million). The growth in population in the cities with over 10 million population has slowed down in the period 2001-11. While the population of Greater Mumbai UA, grew at 30.47 percent in 1991-2001, it grew only at 12.05 percent in the period 2001-2011. The population growth of urban agglomeration of Delhi declined from 52.24 percent to 26.69 percent while in case of Kolkata UA it declined from 19.60 percent to 6.87 percent. In addition to these three UAs, there are other UAs too which have witnessed a decline in the population growth and the reduction cannot be solely attributed to a decline in the fertility rate (See Kundu 2011). One explanation for the decline in the population growth rate could be higher cost of living in these cities and reduction in job opportunities and these two factors can hinder migration into these cities[9].

4. Migration Streams

Based on estimates available from NSSO's survey conducted in 2007-08, 26.1 percent of rural and 35.4 percent of urban residents can be classified as migrants. There has been a marginal increase in migration rates (as reflected by proportion of migrants in the population) in rural and urban India between 1999-2000 and 2007-08 (Table 4). However, this increase in migration rate is only driven by increased female migration in both rural and

[9] In The State of World Population Report, 2011, Amitabh Kundu, argues that, "...some of India's major cities are experiencing 'degenerative peripheralization'—where the people are driven out by the high cost of living and the scarcity of jobs that pay a decent wage to live in ad hoc settlements on the periphery of metropolitan areas. In those peripheral settlements, people have lost the advantages of both urban and rural life. Big cities are losing the poor because they can't afford to live there. Earlier, people would pick up something like 1,000 rupees [about $22] and come to Delhi and look for a job for a month. Now with 1,000 rupees you can't stay for a week. We are sanitizing our cities. Sanitization means making the environment clean, …clearing the slums, pushing out the low-income colonies. And in the process, cities' miss out on any opportunity to transform the urban poor into drivers of growth and development and instead perceive illiterate, unskilled workers only as liabilities to health, hygiene and law and order" (p78-79).

urban areas, guided by non-economic factors i.e. marriage[10]. The male migration rate has decreased in rural areas (6.9 to 5.4 percent) whereas urban areas have shown a miniscule increase (25.7 to 25.9 percent). We find that there is a decrease in migration to urban areas if we take 1987-88 as the reference year. If one were to examine the reason for migration an alternate picture emerges. Among rural male migrants, the proportion reporting employment as a reason for migration decreased from 47.7 percent in 1993-94, to 30.3 percent in 1999-00 and further to 28.6 in 2007-08. One reason could be that employment opportunities in Indian agricultural sector are limited and moves to another rural location in search of new or improved employment is increasingly unprofitable. The proportion of urban migrants reporting that they had moved for reasons of employment opportunities increased from 41.5 percent in 1993-94, to 51.9 percent in 1999-00 and further to 55.7 percent in 2007-08.

Despite the purported importance of rural-urban migration, in reality, intra-rural and intra-urban migration streams are sometimes more important and sizable than rural-urban migration in many developing countries (United Nations 2008a). This is true in case of India too.

Based on Census data, an examination of the migration streams in 1991-2001 reveals the importance of each migration stream: 57 percent of the moves are rural-rural, 22 percent rural-urban, 6 percent urban-rural and 15 percent urban-urban (Office of the Registrar General and Census Commissioner, India 2005). The pattern evident from the census numbers is also borne out by data from NSSO surveys. Based on NSSO's survey data from 2007-08, we find that the share of the four migration streams are as follows: rural-rural (62 percent), rural-urban (19 percent), urban-rural (6 percent) and urban-urban (13 percent). This distribution is the same when we examine data from NSSO's survey conducted in 1999-00 (NSSO 2001, 2010).

[10] Compared with men, women are less likely to be enumerated at their place of birth, this can be attributed to moves following marriage. Comparing the 49th round (1993-94) and 64th round (2007-08) survey data of NSSO reveals that among rural female migrants, the proportion reporting marriage as a reason for migration increased from 61.6 percent to 91.2 percent. Among migrant women in urban areas, the proportion reporting marriage as the reason increased from 31.7 percent to 60.8 percent (Table 7).

Migration is predominantly an intra-state phenomenon in India. Indeed, whether considering the intercensal period 1981-1991 or 1991-2001, over 60 percent of migration is intra-district, and around 25 percent takes place across districts of the same state. Thus, over 85 percent of internal migration has been intra-state in nature. The NSSO data too reveals that migration is predominantly movement of workers within the same state rather than across state boundaries. Comparison at two points in time 1999-00 and 2007-08, reveals that among rural-urban migrants the share of inter-state migrants increased from 19.6 percent to 25.2 percent (Table 5). This is the one important change that is evident from the data.

The NSSO data allow us to examine the nature of migration streams in an alternative way since it provides a disaggregation of the four migration streams based on all migrants[11] in the survey. The predominant component (75.3 percent) of rural-rural migration is intra-district (Table 5). The bulk of migration in each of the four streams is intra-state. Only 4.6 percent of rural-rural migration is inter-state. In contrast, 20 percent of the rural-urban, urban-rural and urban-urban migration is inter-state. Turning to the issue of inter-state migration, the Census 2001 numbers reveal that the three states with the largest number of emigrants are Uttar Pradesh, Bihar and Rajasthan. The NSSO data complement the Census 2001 data by allowing us to infer net migration rates for the major states. Based on the NSSO's survey conducted in 2007-08 we find that among the larger states with a high proportion of migrants from other states are Delhi, Haryana, Punjab, Uttaranchal (Table 6).

Alternatively, we also compute the net migration rate per 1000 of population. Among the major states the net migration rate is negative in Bihar (-56), Jammu and Kashmir (-12), Jharkhand (-18), Kerala (-44), Odisha (-13), Tamil Nadu (-14), and Uttar Pradesh (-31). In these states out-migration exceeds in-migration. Since Bihar, Jharkhand, Odisha and Uttar Pradesh have a concentration of India's poor it is not surprising that they have a net migration which is negative. Among the major states, the net migration rate is positive in Delhi (242), Gujarat (16), Haryana (35), Maharashtra (41), Punjab (13), Uttarakhand (38), and

[11] The NSSO treats a member of the sample household as a migrant "if he or she had stayed continuously for at least six months or more in a place (village/town) other than the village/town where he/she was enumerated. The village/town where the person had stayed continuously for at least six months or more prior to moving to the place of enumeration (village/town) was referred to as the "last usual place of residence" of that migrated person. Shifting of residence within village or /town was not considered as an event of migration" (NSSO 2001 p.14).

West Bengal (13). The states with positive net migration rate are also more urbanized. Kerala and Tamil Nadu are also urbanized but surprisingly they have negative net migration.

An intuitive way to graphically represent the inter-state migration flows for India is using a network graph. In the graph the thickness of the edges reflects the number of individuals migrating from one state to other state. Further, the edges that are curved clockwise indicate the outflows while the edges curve anticlockwise indicate the inflow of migrants to that state. As we can see from the graph, Uttar Pradesh acts as the lead feeder state along with Bihar (i.e. highest outflow of migrants from the state). The major flows represented by the thick linkages (arrows) are from Uttar Pradesh to Delhi and Maharashtra; and from Bihar to Delhi, West Bengal, and Uttar Pradesh. There are two way flows between the states of Maharashtra and Gujarat; Madhya Pradesh and Uttar Pradesh i.e. people are migrating from and to both states. Among the southern states, individuals migrate from Tamil Nadu to Karnataka. Other important flows are from Uttar Pradesh to Punjab, Haryana and Uttaranchal, and Andhra Pradesh to Karnataka.

Finally, comparing Census data for the periods 1981-91 with 1991-2001, we find that there was a 37 percent increase in intra-district migrants, a 26 percent increase in intra-state migrants and a 54 percent increase in inter-state migrants. Of course the percentage increase in inter-state migrants is on account of the low base. It is but inevitable that there will be a reduction in home bias, i.e. the decision to migrate within the same district or the same state. This is also apparent from the NSSO data where we observe that the share of inter-state migrants by duration since the individual migrated. In case of intra district migration, we find that rural-rural and rural-urban migration has decreased, whereas there is slight increase in urban-rural and urban-migration migration (Table 7).

Coming to the migration flows at intrastate level, we find that there is not much difference in the migration flows between the durations 0-3 and 4-6 years, except in case of urban-urban migration (increase from 20.7 to 22.27 percent). Interestingly, there is increase in all four migration streams (i.e. rural-rural, rural-urban, urban-rural and urban-urban) at the inter-state level. These numbers indicate that there has been a shift away from intra district flows, suggesting a reduction in home bias. A possible explanation can be reduced transportation

costs, better connectivity across states as well as increased divergence across states in terms of economic growth and job disparities.

5. Emerging Patterns of Migration

At the outset we pointed out that India was experiencing jobless growth. In this scenario, three types of mobility will become more pronounced[12]: short term migration, commuting and return migration.

5.1 Short Term Migration

The loss of jobs in agriculture has resulted in the phenomenon of short term migration. A short term migrant is an individual 'who had stayed away from the village/town for a period of 1 month or more but less than 6 months during the last 365 days for employment or in search of employment are termed as short-term migrant'. The Report of the Working Group on Employment, Planning and Policy for the Twelfth Five Year Plan (2012-17) proffered an explanation for the phenomenon of short term migration along the following lines:- "… workers do migrate from rural to urban but only for temporary periods. In the lean season of the labour market of rural areas they migrate temporarily to urban areas to engage in construction activities or pulling rickshaws, without ever severing their link to the land in the rural home land. This is not the kind of labour force who are likely to be available to work in manufacturing or modern services, mainly on account of their lack of skills, and often even primary education. Their migration is a reflection of rural distress, driven by the fact that 84% of India's farmers are small and marginal farmers, tilling only less than 2.5 acres of land (p.87)".

A total of 12.5 million rural residents and 1 million urban residents can be classified as short term migrants. Table 8 presents the migration streams in the context of short term migrant workers. Among short term migrant workers residing in rural areas 37 percent move to urban areas of another state. Among short term migrant workers residing in urban areas

[12] One other important stream not related to employment that is becoming important is migration for education an issue addressed by Chandrasekhar and Sharma (2013).

31.4 percent move to urban areas within the state while 26.3 percent move to urban area of another state.

Agrawal and Chandrasekhar (2013) examine the transition of short term migrant workers across the four sectors - primary, secondary, construction and services. They find that while 35.9 percent of individuals working in primary sector move to construction sector when working as short term migrants, 14.4 percent move from primary to the secondary sector. While over 50 percent of individuals working in primary sector move out in the short run, they do not observe such large movement out from manufacturing or construction. The reason short term migrants move from agriculture to construction sector is because of the boom in the construction sector and availability of temporary and non-contractual jobs in this sector.

5.2 The Phenomenon of Commuting

Mohanan (2008) and Sharma and Chandrasekhar (2013) have documented the large numbers of individuals engaged in non-agricultural work commuting between rural and urban areas in India. A commuting worker is one whose place of work (rural, urban, no fixed place) differs from his or her usual place of residence (rural, urban). In 2009-10, it is estimated that there are 8.05 million rural-urban commuters, 4.37 million urban-rural commuters and 12.2 million no fixed place workers in India. In contrast in 1993-94, there were only 5.3 million rural-urban commuters and 1.04 million urban-rural commuters. This phenomenon is driven by redistribution of jobs across rural and urban areas. Rural-urban commuting increased by a factor of 1.5 while urban-rural commuting increased by a factor of 4.2 times. Mohanan (2008) writes, ' … movement of rural workers to urban areas is somewhat reinforced by the daily picture of overcrowded trains and buses bringing people to the cities and towns from the surrounding areas, sometimes called the floating population' (p. 61). Sharma and Chandrasekhar (2013) find that a change in the spatial distribution of activities[13] explains the

[13] Ghani et al. (2012) find that there has been a shift in the location of formal manufacturing sector from urban to rural area, the informal sector has moved from rural to urban area. The share of manufacturing sector in urban employment reduced from 69 percent to 57 percent between 1989 and 2005 while the share of unorganized sector has risen from 25 to 37 percent in the same period. Chakravarty and Lall (2007) show that a churn in the ranking of districts in terms of industrial investment was due to decline of new investments in the

increase in two-way rural and urban commuting. They find that rural, urban unemployment rates, and wage differentials to be important determinants of commuting. Further, regions with large peri-urban population are likely to have more commuting workers. Due to lack of survey data with information on commuting and migration, we are not able to address the interplay between these two phenomena.

Commuting by workers is not India specific but is widely observed in other developing countries. In the context of Nepal, Fafchamps and Shilpi (2003), show that migration and commuting, act as two strategies for diversification of workplace and this leads to an increase in the income or consumption of households. In North-West Tanzania, individuals commute to work from rural to urban areas rather than migrate because of higher cost of living in cities (Baker 2007). In south-eastern Nigeria efficient and subsidized transport systems has encouraged commuting by workers to the urban centers of Aba and Port Harcourt (Bah et al. 2007). They also document the growth of industries in the peri-urban regions of Aba and Port Harcourt. Based on a field study in Indonesia, it is documented that large number of commuters from villages within the 60 kilometers periphery of industrialized cities; whereas beyond 60 kilometers commuting is replaced by migration as a livelihood strategy[14].

5.3 Return Migration

Return migrants are those who report their present place of enumeration as their usual place of residence any time in the past. Comparison of data for the years 1993-94 and 2007-08 indicates clearly an increase in rates of return migration. The return migration rate is calculated as the ratio of the total number of return migrants to total number of migrants. Note that given the way the question is asked the return migrant is also a migrant. Overall,

---

metropolitan districts (i.e. cities that are districts). Further, the share of urban districts (i.e. districts with at least 50 percent urban population) in new investments also declined.

[14] Ram points out that India should expect an increase in number of commuting workers: "Even though people on marginal or even middle class incomes have been pushed out of Mumbai city, they still want to work there. He said there are commuters coming into the city from numerous outlying areas, including Pune, 163 kilometres to the southeast of Mumbai, where population growth has also been rapid. Pune is now connected to Mumbai by a six-lane motorway that cuts travel time for those with cars or money for intercity buses" (p.69 UNFPA 2011).

in rural India, the return migration rate has almost doubled from 6.5 percent in 1993-94 to 12 percent in 2007-08. Similarly in urban India the return migration rate increased from 5.4 percent to 10.9 percent (Table 9).

Table 10 presents the migration streams in the context of return migrants. Among return migrant workers residing in rural areas nearly 62 percent moved from rural areas of the same district they currently reside in while in urban areas there is no one stream that accounts for bulk of the movement.

In terms of absolute numbers, the phenomenon of return migration is sizable. In the rural and urban areas, there are a total of 23.2 million and 10.2 million return migrants. There is a valid perception that return migration is on the rise. Recent media reports suggest that over 50,000 workers in Surat, Gujarat working in the textile and diamond industry have returned to their homes in Ganjam, Orissa on account of a variety of reasons including dispute over wages. The fact that employment related reasons is an important driver of return migration is also evident from the NSSO data. Of course there is anecdotal evidence to suggest that discrimination at the destination may force migrants to return to their origin place. The large size of return migration calls for a careful analysis of this phenomenon in order to get a clearer picture.

6. Livelihoods of Migrant Workers: Knowledge Gaps

While we have a fair understanding of broad trends and spatial patterns in urbanization and migration, we do not have a good understanding of how migration affects well-being of individuals at the source and destination. This is primarily because of absence of data on sources of income. There is need to collect such data in order to understand how the sources of income of rural and urban households in India have changed over time. We need to be able to quantify the importance of remittances by migrants and economic contributions of migrant workers. However, in the absence of longitudinal data, we do not fully understand the extent to which migration contributes to improved outcomes. In the discussion that follows, we draw upon NSSOs cross sectional data, in order to provide some limited evidence on outcomes related to migrants and households with migrants.

6.1 Educational Attainment of Migrants

One important factor that will determine the ability of migrants to engage in productive work is his or her educational attainment. At the same time, in the context of balanced regional development in India, the issue of human capital flows across the country becomes important. Which are the states that gain by attracting more educated migrants? We can glean insights by examining the distribution of educational attainment of inter-state migrants across Indian states (Table 11). We present the distribution of migrants aged 15-32 years across states for every level of education. We focus on this age group since this cohort should have benefitted from large investments by the government in education and they would migrate to where jobs are available. Delhi, Gujarat and Maharashtra attract migrants with varied educational attainment. In contrast, Karnataka which is a large knowledge hub attracts a sizable proportion of migrants who have completed higher secondary and diploma or graduate and above. However, the states of Punjab and Haryana attract those who have not completed primary school since these migrants are primarily engaged in agricultural activities as labourers.

6.2 Migrants Rates across Consumption Classes

While there is no denying the possibility that migration to urban areas is one of the pathways through which rural households diversify their incomes, the empirical evidence on the strength of this pathway is limited[15].

At the aggregate level, it needs to be recognized that India is witness to the phenomenon of urbanization of poverty, i.e. a reduction in the head count ratio of poverty in rural and urban areas, a reduction in total number of poor living in rural areas and an increase in the number of urban poor. The total number of urban poor increased from 71 million in 1983 to 81

[15] The proportion of rural farm households relying primarily on transfers from their migrant members is low (Davis et al. 2007). Decomposing the reduction in rural poverty suggests that over the period 1993-2002, only 19 percent of the reduction in worldwide rural poverty can be attributed to migration related factors while 81 percent of the reduction could be ascribed to improved rural livelihoods (World Bank 2007). The above mentioned studies suggest that migration is not the most important pathway to reducing rural poverty and rural anti-poverty programs have an important role to play.

million in 2004-05 while the number of rural poor declined from 252 million to 221 million in the same period (Government of India 2002, 2007). A very conservative estimate suggests that the total number of urban poor could increase to 113.60 million by 2020 (Mathur 2009). If urban poverty is projected to increase then this should act as a dampener for rural-urban migration. The empirical studies comparing poverty among migrant and non-migrant households is limited by the fact that the nationally representative data is cross sectional and not a longitudinal data set. So in the absence of valid instruments the studies cannot empirical estimate any causal relationships. In their work, Kundu and Sarangi (2007) estimate the probability of being poor as a function of a host of factors including migration status. They find that across all city sizes, migrants are less likely to be poor than the local population, i.e., non-migrants. They also find that rural-urban migrants are more likely to be poor than urban-urban migrants, but both are less likely to be poor than non-migrants. They present this as evidence supporting migration as a pathway to improved livelihoods. Whether migrants are selectively different than non-migrants is not addressed by them and hence a limitation of their study.

In the absence of information on the pre-and post-migration situations of migrants, one is forced to glean insights based on the current consumption of households available as part of NSSO's 2007-08 survey. Bearing in mind this caveat, one can advance the following conjectures: The first conjecture is that there are differences in the rate of migration across monthly per capita expenditure (MPCE) deciles.[16]. The monthly per capita expenditure of a household is the monthly expenditure of the household divided by household size. Among both rural and urban males, the migration rate, i.e. the proportion of migrants in the population, systematically increases across MPCE deciles. The migration rate among rural males is 16.6 percent in the top MPCE decile while it is 46.2 percent in the urban areas in the corresponding decile (Table 12). The migration rate among women is higher than the migration rate among men in each MPCE class. Of course, one does not know which MPCE class a migrant belonged to before migrating. One could argue that it is unlikely that

[16] The MPCE classes reflect the corresponding population weighted 10 deciles.
Rural MPCE (Rs) Classes: 1: 27-360, 2: 360-423, 3: 423-475, 4: 475-525, 5: 525-578, 6: 578-639, 7: 639-717, 8: 717-833, 9: 833-1044, 10:1044 or more.
Urban MPCE (Rs) Classes: 1: 97-515, 2: 515-632, 3: 632-745, 4: 745-860,5: 860-1004, 6: 1004-1178, 7: 1178-1402, 8: 1402-1728, 9: 1728-2348, 10: 2348 or more.

individuals or households exhibit a high degree of upward mobility following migration, leading to the conjecture that the migration rate among the non-poor is higher. This brings us to the second conjecture which is that migrants are distributed across all MPCE classes. Similar to the migration rates which increase across MPCE classes, such a pattern is also visible in the distribution of migrants over MPCE classes. This either indicates that migration is higher among upper MPCE classes, or there is upward mobility following migration. The data does not allow us to identify which of these explanations is the correct one.

6.3 Labour Market Transitions of Migrant Worker

Unlike consumption data, information on the activity status (employed, unemployed, not in the labour force) of the migrant before and after migration is available. A tabulation of the change in activity status reveals three features of interest (Table 13). In both 1999-00 and 2007-08, we find that among male migrants living in rural areas post-migration, the unemployment rate is lower compared to the pre-migration unemployment rate. Second, the decline in unemployment is larger for urban migrants. In 2007-08 (1999-00), among male migrants living in urban areas, the post-migration unemployment rate was 1.55 (1.9) percent versus the pre-migration unemployment rate of 13.23 (9.9) percent. Third, the share of persons not in the workforce declines post-migration. We can arrive at two conclusions. First, among male migrants who were unemployed, large proportions find employment following migration. Second, there are relatively few individuals transitioning from being employed to being unemployed following migration.

7. Discussion

In the absence of individual and household level longitudinal data, we opted to interweave survey and census data to outline macro trends and spatial patterns in urbanization and migration. First, there is compelling evidence that India's level of urbanization is higher than suggested by official statistics. The level of urbanization is a function of the size of peripheral urban areas which are considered as rural in official data. Further, researchers

have generated alternative estimates by relaxing the official definition of what constitutes an urban area. Second, population growth in the mega cities has declined in the period 2001-11 as compared to 1991-2001. The reason for this decline needs to be explored using available data. Third, while intra state migration (in particular rural-rural) continues to be the dominant migrant stream, in the recent past the share of inter-state migrants has increased. Fourth, in a decade of jobless growth, we observe an increase in short term migration, return migration and two-way commuting by workers across rural and urban areas. One knowledge gap pointed out in the paper is the lack of understanding on how migration affects well-being of individuals at the source and destination.

Looking ahead, it is plausible that in the event of expansion in nonfarm employment opportunities and growth in the agro-processing industries, the fastest urban growth could occur in small cities and towns. Rural-urban migrants might gravitate towards such cities and towns. This indicates an urgent need to formulate policy aimed at helping small cities, towns and large rural centers become vibrant centers of growth. In this context, the concern raised by Kundu (2006) that "small cities/towns in most of the states are stuck in the quagmire of underdevelopment" needs to be addressed (p. 33). Improving living conditions in the small cities and town needs to be addressed by policy makers, and better understood by the research community, alike.

At a time when the Government of India is allocating $ 2.5 billion under the urban renewal mission, the investments are being undertaken without robust projection of city populations. The state of the art, such as it is, is evident in the work of Dey et. al. (2006), who undertook an appraisal of the city development plans of 10 Indian cities. Four of the cities' development plans did not even break out the components of population growth. They also found that insufficient attention had been paid to the method used to project population. As many as five cities either did not have projections or did not present any methodology for conducting projections. Despite the need for forecasts as an input into the planning process at the city level, forecasting exercises have been far from satisfactory. The absence of detailed data on city-ward migration adds to the complexity of the forecasting exercise.

At the national and state level, projections made by the Technical Group on Population Projections constituted by the National Commission on Population, are available for the period 2001-2026. The Group assumed that over the period 2001-2026 the inter-state net migration would be constant and at the level observed during the decade 1991-2001. This assumption is not necessarily realistic.

While the historical rate of growth of cities by size class is available from a long series of censuses, there are a host of factors that make forecasting city size a tricky exercise not only in India but elsewhere. First, given the dichotomous classification of an area as rural or urban, how does one take account of population growth in the peri-urban areas? Second, estimates of the rate of natural increase cannot be generated by city-size class using the Indian National Family Health Survey or other Demographic Health Surveys. Third, census data have seldom been analyzed at the lowest level of disaggregation, although there are good prospects for doing so. Fourth, there are limitations on how much can be gleaned about the migration process without recourse to detailed census micro-data.

However, there is a need to develop methods for estimating urban growth and migration simultaneously. A beginning could be made by utilizing the information available as part of Census of India to characterize origin-destination flows over 1981-1991, 1991-2001 and 2001-11. At the same time, there is a need to improve the models used for projecting city growth rates. At least in India, there exists enough data to undertake such an exercise. Information is available on decadal population from 1901-2001 for over 5100 towns and cities. Additionally, information is available on migrants by duration of residence for urban agglomeration and cities. One constraint is the availability of fertility rates, mortality rates for each city, but one could possibly use the estimate of urban fertility and mortality rates of the state to which the city belongs. Given that the geo-codes for the town and cities are available, it might be able to incorporate spatial dimensions into the model explicitly. Hence, the onus is on the demographers to utilize the available data sets and improve on the methods currently used for modeling rural-urban migration and forecasting city growth rates.

References

Agrawal Tushar and S Chandrasekhar (2013) Labour Market Outcomes of the Itinerant Worker in Rural India, Manuscript, Indira Gandhi Institute of Development Research, Mumbai, India

Asansol Durgapur Development Authority (2006): Asansol urban area: City development plan, Asansol Durgapur Development Authority, Asansol, India.

Bah, M. , Cisse, S., Diyamett, B., Diallo, G. and Lerise, F. (2007): Changing Rural –Urban Linkages in Mali, Nigeria and Tanzania, Chapter 3 in The Earthscan Reader in Rural Urban Linkages, edited by Tacoli, Cecilia, 56-67.

Baker, J. (2007): Survival and Accumulation Strategies at the Rural-Urban Interface in North-West Tanzania, Chapter 2 in The Earthscan Reader in Rural Urban Linkages, edited by Tacoli, Cecilia, 41-55.

Chakravorty, S., & Lall, S. V. (2007): Made in India: the economic geography and political economy of industrialization. New Delhi: Oxford University Press.

Chand Kiran, T.R., K.V.S. Badarinath, C. D. Elvidge, and B. Tuttle (2009): Spatial Characterization of Electric Power Consumption Patterns over India using DMSP-OLS Nighttime Satellite Data, International Journal of Remote Sensing, 30(3), 647-661 (15).

Chandrasekhar, S. (2011): Workers Commuting between the Rural and Urban: Estimates from NSSO Data. Economic and Political Weekly, 46(46), 22-25.

Chandrasekhar, S., & Sharma, A. (2013): Internal Migration Among Youth for Education and Employment, in State of the Urban Youth, India,

Davis B, P. Winters, G. Carletto, K. Covarrubias, E. Quinones, A. Zezza, K. Stamoulis, G. Bonomi, and S. DiGiuseppe (2007): Rural Income Generating Activities: A Cross Country Comparison, FAO ESA Working Paper, 07-16, 2007 and background paper to the World Bank's World Development Report 2008. Retrieved April 29, 2010 from http://www.fao.org/es/ESA/en/pubs_wp.htm

Denis, E. and Kamala M. (2011): Toward a Better Appraisal of Urbanisation in India, Cybergeo: European Journal of Geography, 569.

Dey P. D., U. P. Raghupathi, S. Thakur and S. Gupta (2006): Looking Back to Look Ahead. Background Paper on CDP Appraisals, WP 06-01, November 2006, National Institute of Urban Affairs, New Delhi, India.

Dupont, V. (ed.) (2005): Peri-urban dynamics: population, habitat and environment on the peripheries of large Indian metropolises, CSH Occasional Paper, No.14, Centre de Sciences Humaines, New Delhi.

Dyson, T., and P. Visaria (2004): Migration and Urbanization: Retrospect and Prospects, Chapter 6, in T. Dyson, R. Cassen and L. Visaria (eds.) Twenty-first century India : population, economy, human development, and the environment. Oxford, UK ; New York : Oxford University Press.

Fafchamps, Marcel and Shilpi, Forhad (2003): The spatial division of labour in Nepal, Journal of Development Studies, 39(6), 23-66.

Ghani, E., Goswami, A. G., & Kerr, W. R. (2012): Is India's manufacturing sector moving away from cities? (No. w17992). National Bureau of Economic Research.

Government of India (2002): National Human Development Report 2001, Planning Commission, Government of India, New Delhi.

Government of India (2007): Poverty Estimates for 2004-05, Press Information Bureau, Planning Commission, Government of India, New Delhi. Retrieved April 29, 2010 from www.planningcommission.gov.in/news/prmar07.pdf

Government of India (2011): Report of the Working Group on Employment, Planning & Policy for the Twelfth Five Year Plan (2012-2017), Planning Commission, New Delhi.

Government of NCT of Delhi (2006): Delhi Human Development Report 2006 Partnerships for Progress, Oxford University Press, New Delhi, India.

Haub, C. and Sharma, O. P. (2006): India's population reality: Reconciling change and tradition, Population Bulletin, 61(3), Population Reference Bureau, Washington, D. C.

Kotwal A. & Ramaswami B. & Wadhwa W. (2011): Economic Liberalization and Indian Economic Growth: What's the Evidence?, Journal of Economic Literature, 49(4),1152-99.

Kundu, A. (2006): Trends and Patterns of Urbanization and their Economic Implications, Chapter 2, India Infrastructure Report 2006.

Kundu, A. (2007): Migration and Urbanisation in India in the context of the Goal of poverty Alleviation, The International Conference on "Policy Perspectives on Growth, Economic Structures and Poverty Reduction", 7-9th June, 2007, Tsinghua University, Beijing, China. Retrieved April 29, 2010 from
http://www.ideaswebsite.org/ideasact/Jun07/Beijing_Conference_07/Amitabh_Kundu.pdf

Kundu, A. and N Sarangi (2007). "Migration, Employment Status and Poverty: An Analysis across Urban Centres", Economic and Political Weekly, vol. 42, no. 4, pp. 299-306.

Mathur, O. P. (2009): National urban reduction strategy, NIPFP, New Delhi, India.

Mohanan, P. C. (2008): Differentials in the Rural-Urban Movement of Workers, Journal of Income and Wealth, 30(1), 59-67.

Montgomery, M. R. (2008): The Urban Transformation of the Developing World, Science, Volume 319, 8 February, 2008, 761 – 764.

National Sample Survey Organisation (NSSO) (2001a): Migration in India 1999-2000, Report No. 470, Ministry of Statistics & Programme Implementation, Government of India.

National Sample Survey Organisation (2001b): Employment and Unemployment Situation in Cities and Towns of India 1999-2000, Report No. 461, Ministry of Statistics & Programme Implementation, Government of India.

National Sample Survey Organisation (2006): Employment and Unemployment Situation in India 2004-05, Report No. 515 (Part – I and II), Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

National Sample Survey Organisation (2010): Migration in India, Report No. 533, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

National Sample Survey Organisation (2011): Employment and Unemployment Situation in India 2004-05, Report No. 537, Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

Office of the Registrar General and Census Commissioner, India (2006) Population Projections for India and States 2001-2026, Report of the technical group on population projections constituted by the National Commission on Population, May 2006

Office of the Registrar, General and Census Commissioner, India (2005): Migration Tables.

Oliveau, S. (2005): Peri-urbanisation in Tamil Nadu: A quantitative approach, CHS Occasional Paper, No. 15, Centre de Sciences Humaines, New Delhi.

Kanhu Charan Pradhan (2013) Unacknowledged Urbanisation: New Census Towns of India, Economic & Political Weekly, Vol - XLVIII No. 36, September 07, 2013

Sharma A. and Chandrasekhar S. (2013): Growth of the Urban Shadow, Spatial Distribution of Economic Activities and Commuting by Workers in Rural and Urban India, Manuscript, Indira Gandhi Institute of Development Research, Mumbai, India

Sivaramakrishnan, K. C., A. Kundu and B. N. Singh (2005): Handbook of Urbanization in India, Oxford University Press.

Uchida H. and Nelson A. (2010): Agglomeration Index: A new measure of urban concentration, in Urbanization and Development, edited by J. Beall et al., OUP.

UNFPA (2011): The State of World Population 2011.

United Nations (2006): World Urbanization Prospects, The 2005 Revision. NY: United Nations Population Division.

United Nations (2008a): An overview of urbanization, internal migration, population distribution and development in the world, Expert Group Meeting on Urbanization, Internal Expert Migration, Population Distribution and Development, New York, 21–23 January, 2008. Retrieved April 29, 2010 from
http://www.un.org/esa/population/meetings/EGM_PopDist/Bravo.pdf

United Nations (2008b): World Urbanization Prospects: The 2007 Revision. NY: United Nations Population Division.

United Nations (2009): World Population Prospects: The 2008 Revision, NY: United Nations Population Division.

United Nations (2012): World urbanization Prospects: The 2011 revision, NY: United Nations Population Division.

World Bank (2007) World Development Report 2008: Agriculture for Development.

Table 1: Percentage of Villages and Population by Class of Villages in 2001 and 2011

		2001	2011
Less than 500	Village	36.9	32.95
	Population	7.16	5.74
500-999	Village	24.5	23.73
	Population	14.18	12.39
1000-1999	Village	21.9	23.29
	Population	24.69	23.7
2000-4999	Village	13.54	16.13
	Population	32.21	34.63
5000-9999	Village	2.49	3.12
	Population	13.21	14.86
10000 and above	Village	0.67	0.78
	Population	8.55	8.68
Total	Village	100	100
	Population	100	100

Source: http://www.censusindia.gov.in/2011census/A-3_Vill/Statements%201-2.pdf
Accessed January 29, 2014
Note: India's rural population in 2001 and 2011 stood at 743 million and 833 million respectively

Table 2: Disaggregation of Total Growth in Urban Population into Components

	1961-71	1971-81	1981-91	1991-01
Total increase (million)	30.18	49.9	57.7	67.7
Share of Components (%)				
Natural increase on base year population and on inter-censal migrants	64.6	51.3	61.3	59.4
Population of new towns less declassified towns	13.8	14.8	9.4	6.2
Net rural urban migration	18.7	19.6	21.7	21
Increase due to expansion in urban areas and merging of towns	2.9	14.2	7.6	13

Source: Kundu (2007)
The decomposition for growth in population for the period 2001-11 is not yet available.

Table 3: Number of UAs/Towns and Out Growths

	Census 2011	Census 2001
Statutory Towns[1]	4,041	3,799
Census Towns[2]	3,894	1,362
Urban Agglomerations[3]	475	384
Out Growths[4]	981	962

1. Statutory Town (ST): All Place with a municipality, corporation, cantonment board or notified town area committee etc.
2. Census Town (CT): Places that satisfy the following criteria are termed as Census Towns (CTs).
a)A minimum population if 5000 , b) At least 75 percent of the male main working population engaged in non-agricultural pursuits, c) A density of population of at least 400 per sq. km.
3. Urban Agglomerations (UAs): An urban agglomeration is a continuous urban spread constituting a town and its adjoining Out Growths (OGs), or two or more physically contiguous towns together with or without outgrowths of such towns. An Urban Agglomeration must consist of at least a statutory town and its total population (i.e. all the constituents put together) should not be less than 20,000 as per the 2001 Census
4. Out Growth (OG): Out Growth should be a viable unit such as a village part of a village contiguous to a statutory town and possess the urban features in terms of infrastructure and amenities such as pucca roads, electricity, taps, drainage system, education institutions, post offices, medical facilities, banks etc. Examples of OGs are Railways colonies, University campuses, Port areas, that may come up near a city or statutory towns outside its statutory limits but within the revenue limit of a village or villages contiguous to the town or city.
Source: http://censusindia.gov.in/2011-prov-results/paper2/data_files/India2/1.%20Data%20Highlight.pdf
Accessed January 29, 2014

Table 4: Migration rates from different NSSO rounds

	Category of persons		
Round (year)	Male	Female	Person
	Rural		
64th (2007-08)	5.4	47.7	26.1
55th (1999-2000)	6.9	42.6	24.4
49th (1993)	6.5	40.1	22.8
43rd (1987-88)	7.4	39.8	23.2
38th (1983)	7.2	35.1	20.9
	Urban		
64th (2007-08)	25.9	45.6	35.4
55th (1999-2000)	25.7	41.8	33.4
49th (1993)	23.9	38.2	30.7
43rd (1987-88)	26.8	39.6	32.9
38th (1983)	27.0	36.6	31.6

Source: NSSO (2010) Report on Migration in India

Table 5: Distribution of internal migrants by last usual place of residence for each component of rural-urban migration streams

Migration Streams	Intra district	Inter district	Intrastate (Intra district+ Inter district)	Interstate	All
55th round (1999-2000)					
Rural-to-rural	75.3	20.1	95.4	4.6	100
Rural-to-urban	43.8	36.5	80.3	19.6	100
Urban-to-rural	46.5	33.5	80.0	20.0	100
Urban-to-urban	36.6	43.5	80.1	19.9	100
64th round (2007-08)					
Rural-to-rural	72.4	23.2	95.6	4.4	100
Rural-to-urban	41.2	33.6	74.8	25.2	100
Urban-to-rural	48.8	33.8	82.6	17.5	100
Urban-to-urban	27.9	49.2	77.1	22.9	100

Source: NSSO (2010) Report on Migration in India

Table 6: Distribution of migration streams across States

State (current place of residence)	Last Usual Place of Residence						Total
	Intra state				Another State		
	Same District		Other District of the State				
	Rural	Urban	Rural	Urban	Rural	Urban	
Jammu & Kashmir	71.2	7.2	11.1	4.8	3.2	2.4	100
Himachal Pradesh	67.8	5.3	11.0	4.8	5.0	6.1	100
Punjab	35.2	7.5	23.4	11.7	15.3	6.9	100
Uttaranchal	45.1	6.7	12.3	5.2	16.6	14.1	100
Haryana	24.9	3.1	34.4	6.8	22.7	8.0	100
Delhi	0.6	3.7	0.9	16.2	58.4	20.3	100
Rajasthan	62.0	5.0	17.9	5.6	6.3	3.3	100
Uttar Pradesh	53.6	6.3	27.1	6.4	4.1	2.6	100
Bihar	64.6	3.9	24.1	3.9	2.2	1.3	100
North East states	49.2	8.2	16.3	9.8	12.4	4.1	100
Assam	66.5	3.7	22.3	4.6	2.4	0.6	100
West Bengal	59.2	8.2	17.0	7.8	5.4	2.4	100
Jharkhand	43.1	2.6	35.8	9.3	5.1	4.2	100
Orissa	70.9	3.4	15.4	5.6	2.4	2.5	100
Chattisgarh	60.9	3.7	16.9	5.6	9.3	3.7	100
Madhya Pradesh	55.7	6.9	21.4	8.3	4.9	2.8	100
Gujarat	52.4	8.1	18.8	7.9	10.3	2.6	100
All union territories	14.1	4.1	2.8	1.5	49.8	27.7	100
Maharashtra	41.9	7.0	21.3	13.8	11.1	4.8	100
Andhra Pradesh	64.2	6.3	17.3	8.1	2.6	1.6	100
Karnataka	49.2	5.8	20.2	10.6	7.5	6.7	100
Goa	32.9	10.4	9.1	4.4	18.2	24.9	100
Kerala	58.6	11.7	16.9	4.8	3.4	4.7	100
Tamil Nadu	45.1	9.9	24.1	14.5	2.6	3.7	100
Total	52.7	6.4	20.8	8.4	7.7	4.0	100

Source: Author's calculations using unit data from NSSO 2007-08

Table 7: Migration streams for different duration since migration

	Last Usual Place of Residence						
	Intra state				Inter state		Total
Duration (Years) since migrated	Intra district		Inter district				
	Rural	Urban	Rural	Urban	Rural	Urban	
	Current place of residence- Rural						
0-3	59.2	6.41	19.84	5.4	5.55	3.61	100
4-6	64.13	5.48	19.53	4.5	4.21	2.15	100
7-10	63.61	4.2	23.21	2.72	4.44	1.82	100
11-20	65.87	3.97	22.42	2.6	3.97	1.17	100
21-30	69.92	3.17	21.04	1.85	3.5	0.51	100
More than 30	71.86	2.5	20.62	1.22	3.31	0.49	100
Total	66.32	4.08	21.23	2.82	4.07	1.46	100
	Current place of residence- Urban						
0-3	22.58	11.45	17.61	22.27	14.84	11.25	100
4-6	25.41	11.75	18.54	20.7	14.72	8.89	100
7-10	22.01	11.12	19.94	21.25	16.06	9.61	100
11-20	23.71	11.41	20.6	19.69	15.86	8.73	100
21-30	26.14	10.65	22.39	16.71	15.28	8.83	100
More than 30	30.83	10.84	23.56	15.82	12.71	6.23	100
Total	24.59	11.26	20.1	19.81	15.06	9.19	100

Source: Author's calculations using unit data from NSSO 2007-08

Table 8: Distribution of short term migrants by destination during longest spell

	Current Place of Residence		
Destination during longest spell	Rural	Urban	Total
Same District Rural	10.0	13.9	10.3
Same District Urban	8.6	14.4	9.1
Other District of same State Rural	13.6	6.7	13.1
Other District of same State Urban	21.8	31.4	22.5
Other State Rural	8.9	7.4	8.8
Other State Urban	37.0	26.3	36.2
Total	100.0	100.0	100.0

Source: Author's calculation using NSSO 2007-08 data

Table 9: Return Migration Rate

Sector	1993-94			2007-08		
	Male	Female	Person	Male	Female	Person
Rural	19.6	4.3	6.5	23.7	10.6	12.0
Urban	6.1	4.9	5.4	11.7	10.4	10.9
Rural +Urban	12.2	4.4	6.2	16.1	10.6	11.6

Source: NSSO (2010) Report on Migration in India

Table 10: Distribution of return migrants by last place of residence

Type of movement	Current Place of Residence		
	Rural	Urban	Total
Same District-Rural	61.8	22.8	49.9
Same District-Urban	5.8	11.5	7.5
Other District of same State-Rural	16.7	14.6	16.0
Other District of same State-Urban	6.6	20.4	10.8
Other State-Rural	3.2	19.2	8.0
Other State-Urban	6.0	11.6	7.7
Total	100	100	100

Source: Author's calculations using unit data from NSSO 2007-08

Table 11: Share of migrant population by states and educational attainment in last 10 years (Age group 15-32 years)

Destination States	Education level						
	Illiterate	Below Primary	Primary / Middle	Secondary	Higher Secondary Diploma	Graduate and above	Total
Jammu & Kashmir	0.3	0	0.3	0.1	0.2	0.1	0.2
Himachal Pradesh	0.9	0.5	0.8	0.3	0.4	0.6	0.6
Punjab	7.8	10	5.6	4.2	3.9	3.9	5.7
Uttaranchal	3.6	2.3	2.7	2.8	2.3	2.4	2.8
Haryana	7	5.9	6	7.4	5.5	5.4	6.3
Delhi	14.1	10.8	17.1	19.4	14.8	15.8	16
Rajasthan	9.3	7.4	4.3	3	5.2	3	5.3
Uttar Pradesh	13	11.5	4.9	7.9	6.3	11.1	8.4
Bihar	2.7	3.1	1.1	1.6	1.1	1.1	1.6
NE States	0.4	0.8	0.7	0.3	0.3	0.4	0.5
Assam	0.2	0.2	0.3	0.3	0	0.1	0.2
West Bengal	6.1	3.6	3.8	3	0.8	3.9	3.8
Jharkhand	0.6	1.9	0.8	0.9	0.3	0.7	0.8
Orissa	1.1	2.4	1.2	1	1.5	1	1.2
Chattisgarh	1.5	1.3	1.8	0.7	1.5	0.6	1.4
Madhya Pradesh	4.4	5.4	3.1	2.1	2.4	2.4	3.2
Gujarat	5.2	9.9	11.5	7.9	4.9	4	7.8
UTs except Delhi	1.8	1.8	1.7	2.9	4.7	3.5	2.5
Maharashtra	12.6	11.8	19.5	19.5	16.9	14.7	16.6
Andhra Pradesh	2.8	3	2.7	3.4	3.3	3	3
Karnataka	3.1	2.7	5	5.7	14.9	14.1	6.9
Goa	0.2	1.4	0.5	0.9	1	1.5	0.8
Kerala	0.4	0.6	1.8	1.3	2.3	2	1.4
Tamil Nadu	1.1	1.6	3	3.3	5.3	4.6	3.1
Total	100	100	100	100	100	100	100

Source: Author's calculations using unit data from NSSO 2007-08

Table 12: Migration rates for different Monthly Per Capita Consumption Expenditure decile class and per 1000 distribution of migrants by decile classes during 2007-08

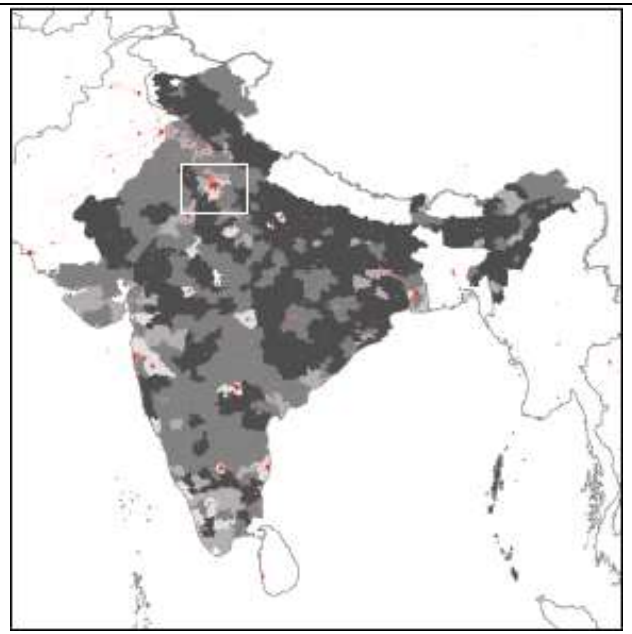
All India						
	Migration Rate			Per 1000 Distribution of Migrants		
Decile Class	Male	Female	Person	Male	Female	Person
Rural						
0-10	2.6	38.8	20.9	46	84	80
10-20	3.1	42.3	22.7	55	91	87
20-30	3.4	43.7	23.5	61	93	90
30-40	3.4	44.5	23.7	62	94	91
40-50	3.7	47.2	25	67	99	96
50-60	4.5	48.2	25.7	83	10	99
60-70	4.1	48.1	25.2	77	99	97
70-80	5.3	52.2	27.9	99	108	107
80-90	7	54	29.4	132	111	113
90-100	16.6	59.2	36.6	318	119	140
All Groups	5.4	47.7	26.1	1000	1000	1000
Urban						
0-10	9.6	35.7	22.9	35	83	65
10-20	14.2	41.4	27.7	54	93	78
20-30	16	41.2	28.4	60	93	80
30-40	17.5	42.9	29.8	67	94	84
40-50	23.8	45.5	34.2	92	100	97
50-60	26.7	47.8	36.8	104	104	104
60-70	30.1	47.8	38.5	118	103	109
70-80	34.7	50	41.9	136	108	118
80-90	37.3	50.1	43.2	148	106	122
90-100	46.2	55.5	50.5	186	116	143
All Groups	25.9	45.6	35.4	1000	1000	1000

Source: NSSO (2010) Report on Migration in India

Table 13: Distribution of Migrants by their Usual Principal Activity Status before and after Migration for different Categories of Migrants

	1999-2000				2007-08			
	Before migration		After Migration		Before migration		After Migration	
	Male	Female	Male	Female	Male	Female	Male	Female
	Rural							
Employed	52.2	19.4	66.4	34.6	50.87	20.2	62.51	32.7
Unemployed	3.7	0.2	1.9	0.3	3.95	0.49	1.45	0.35
Not in Labor Force	44.1	80.4	31.7	65.1	45.18	79.31	36.04	66.95
All	100	100	100	100	100	100	100	100
	Urban							
Employed	45.2	8.5	67.6	15.1	46.48	8.1	69.72	14.23
Unemployed	9.9	0.5	1.9	0.7	13.23	0.74	1.55	0.51
Not in Labor Force	44.9	91.1	30.5	84.2	40.29	91.16	28.73	85.26
All	100	100	100	100	100	100	100	100

Source: Author's calculation using NSSO 2007-08 data



The inset to the right indicated in the all India map shows Delhi and the surrounding areas. Red (2011) and blue (1992) hues are detectable stable night time lights.

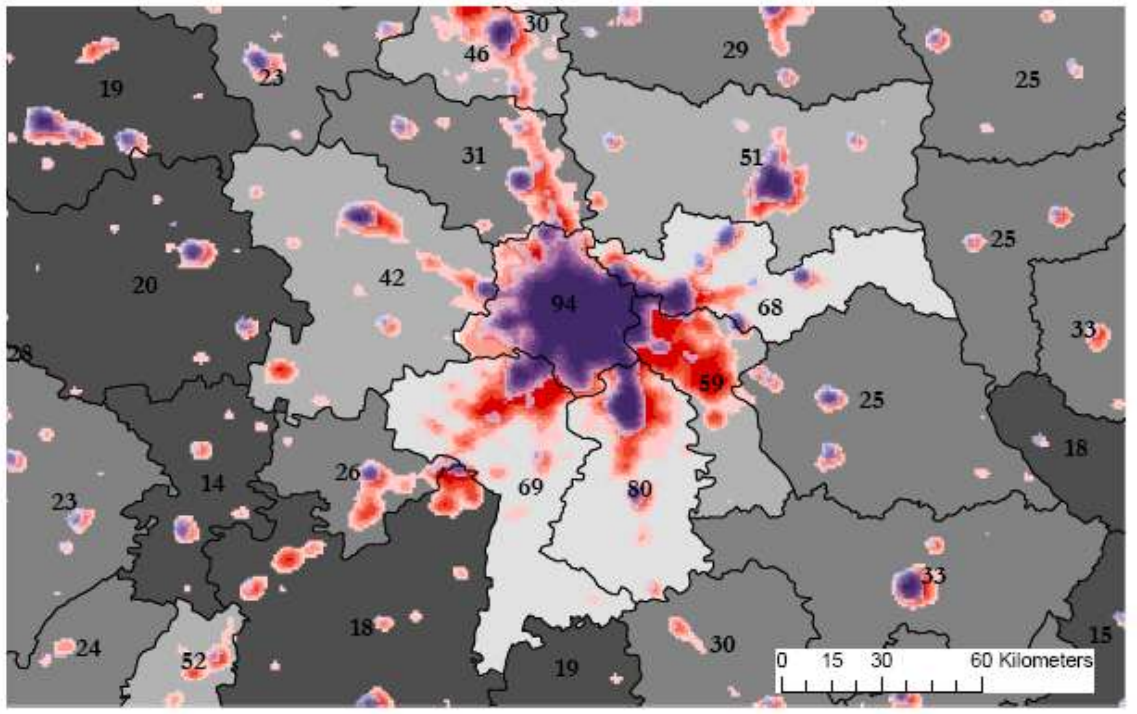


Figure 1: Comparative Measure of Urbanization
NB: Lights threshold at DN>20, in order to remove potentially erroneous single-cell lights (Small et al 2011)

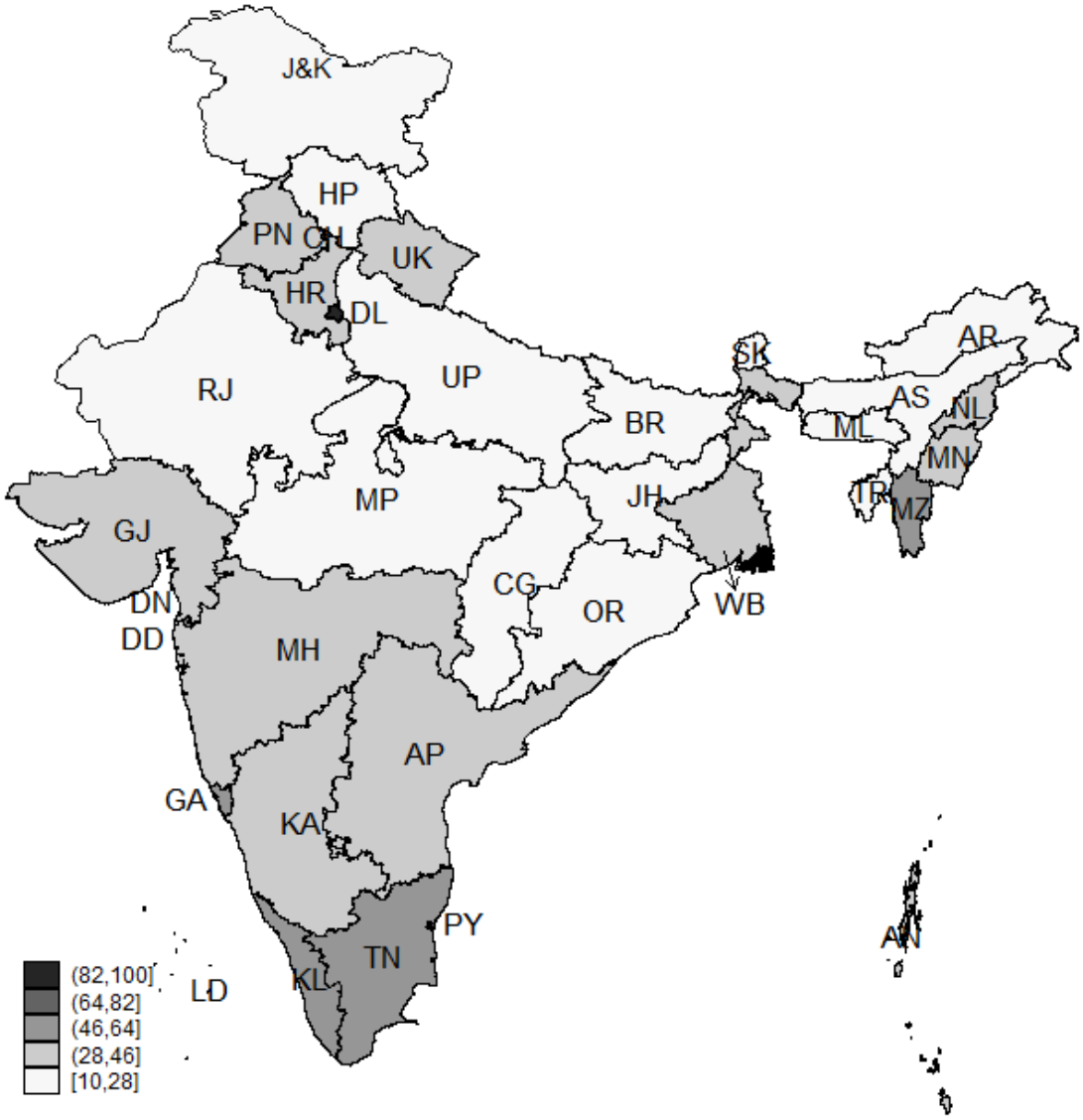


Figure 2: Level of Urbanization across States and Union Territories

Legend: Andaman and Nicobar Islands (AN), Andhra Pradesh (AP), Arunachal Pradesh (AR), Assam (AS), Bihar (BR), Chandigarh (CH), Chhattisgarh (CG), Dadra and Nagar Haveli (DN), Daman and Diu (DD), Delhi (DL), Goa (GA), Gujarat (GJ), Haryana (HR), Himachal Pradesh (HP), Jammu and Kashmir (JK), Jharkhand (JH), Karnataka (KA), Kerala (KL), Lakshadweep (LD), Madhya Pradesh (MP), Maharashtra (MH), Manipur (MN), Meghalaya (ML), Mizoram (MZ), Nagaland (NL), Odisha (OR), Puducherry (PY), Punjab (PB), Rajasthan (RJ), Sikkim (SK), Tamil Nadu (TN), Tripura (TR), Uttar Pradesh (UP), Uttarakhand (UK), West Bengal (WB)

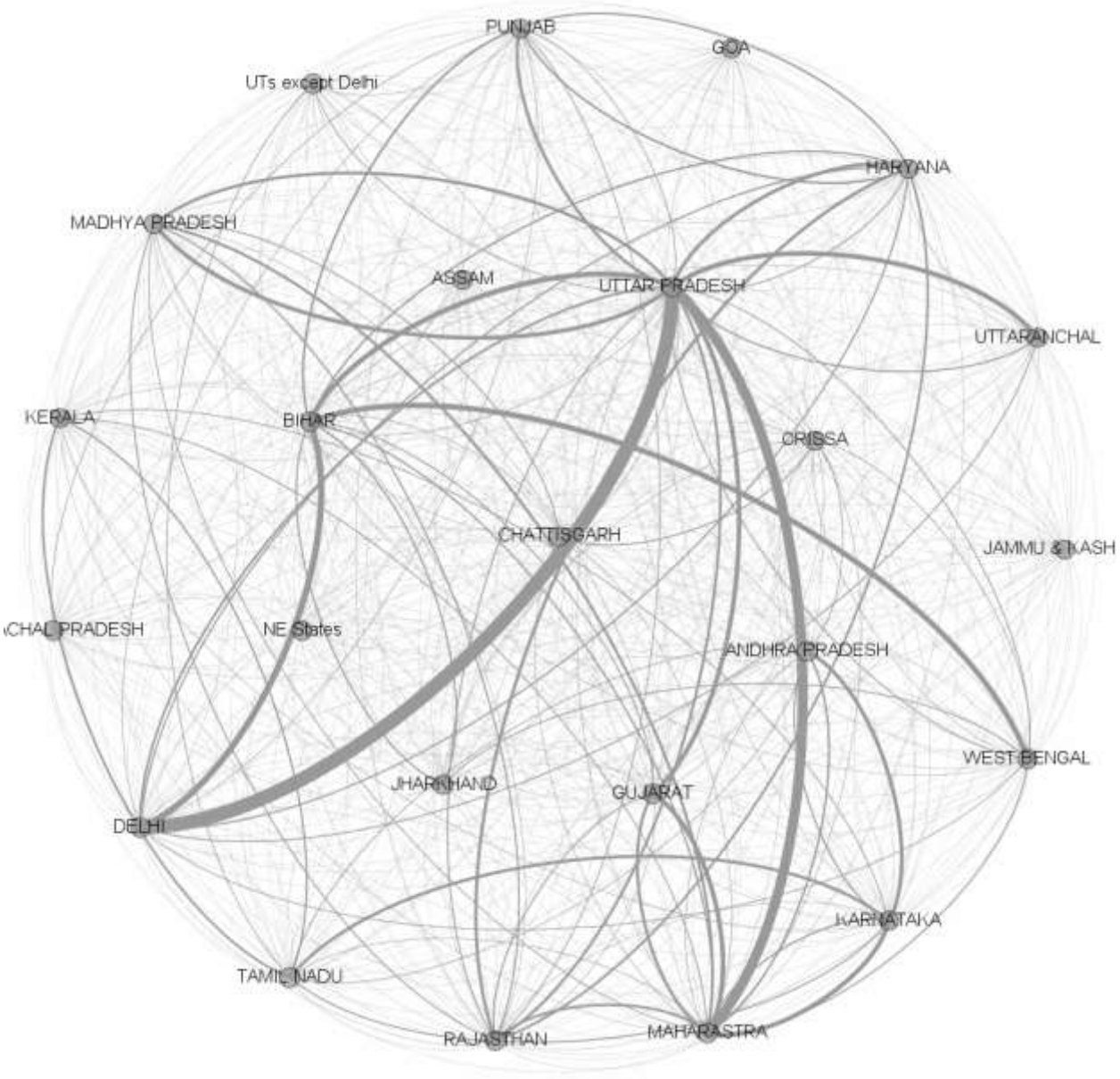


Figure 3: Migration flows across states in India
(Thickness of the linkages/edges shows the size of the migrant flows)