



The Review of Regional Studies

The Official Journal of the Southern Regional Science Association



Why is the Rural to Urban Migration Rate in India so Low? An Empirical Analysis*

Sabyasachi Tripathi

*Institute for Statistical Studies and Economics of Knowledge,
National Research University Higher School of Economics, RU and
Assistant Professor, Adamas University, Kolkata, ID*

Abstract: Little research has examined the relationship between rural to urban migration, urbanization, and economic growth in India. While urbanization is a key driver for economic growth in many countries, the rural to urban migration rate in India is low, potentially due to a lowering of the gap between urban-rural health, infrastructure, employment opportunities, and economic conditions. Using panel data models, I investigate the relevant determinants of rural to urban migration at the state level in India from 1991 to 2011. Panel data analysis suggests that higher per capita state income and a lower difference between urban to rural literacy rates encourage rural to urban migration. In this context, I suggest that urban job creation, improved urban infrastructure, and management of urban poverty and income inequality are essential to promoting rural to urban migration in India.

Keywords: urbanization, rural to urban migration, urban economic growth, India

JEL Codes: R12, O10, O15

1. INTRODUCTION

Developing countries such as India are going through a transformation from an agriculture-based rural economy to an industry- and services-led urban economy. Urbanization seems to be an inevitable part of the development process in many developed countries, where urbanization is defined as the share of the total population residing in urban areas. The basic idea of development through rural to urban in-migration (part of urbanization) is that rural resources become productively employed in urban areas, which results in overall economic growth and development for the developing country.

*Sabyasachi Tripathi is a Postdoctoral Research Fellow, at the National Research University Higher School of Economics, Moscow, Russia. He is also an Assistant Professor at Adamas University in Kolkata, India. E-mail: sabya.tripathi@gmail.com.

I am grateful to two anonymous referees and the editor of this Journal for their detailed and constructive comments, which significantly improved the quality of the paper. However, any remaining errors are my own.

In this study, I aim to understand the factors contributing to rural to urban migration at the state level in India and reasons for low rates of rural to urban migration within some states in India. In India, interstate migration is very low for various reasons, such as caste systems, traditional values, diversity of language and culture, and the predominance of agriculture (Bhagat, 2014). The incentives to migrate within states in India depend on the utility differential between rural and urban areas. In this paper I consider whether differences between urban and rural health conditions, availability of infrastructure, employment opportunities, level of education, and economic conditions are really hindering rural to urban migration or not. I use data from 1991, 2001, and 2011, by sourcing data from the Census of India and National Sample Surveys (NSS) conducted by the Government of India.

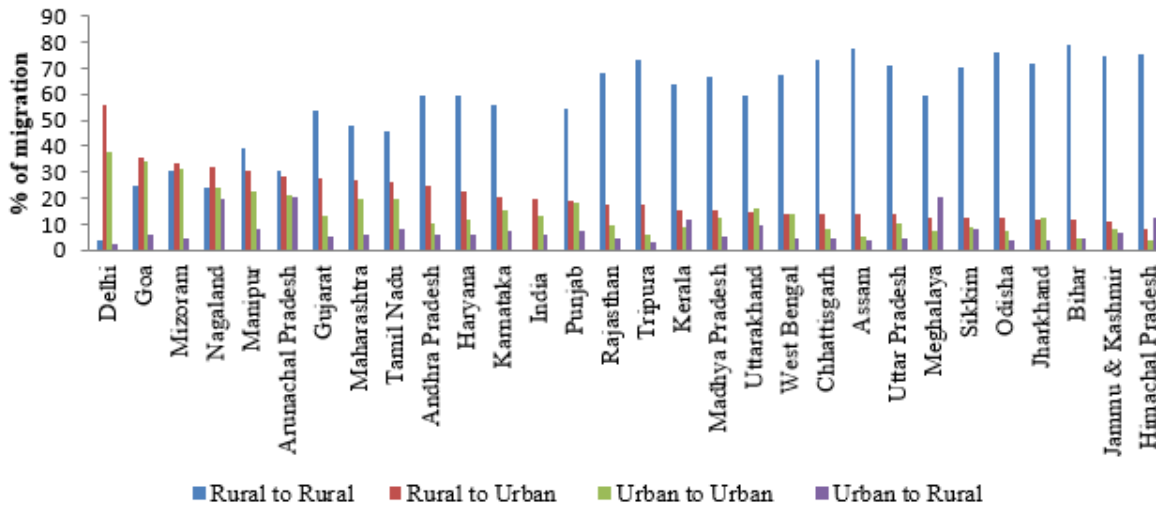
2. BACKGROUND

After India's independence from England, the rate of urbanization began to rise steadily. The urban population in India was 28.53 percent in 2001 and increased to 31.16 percent by 2011. Urbanization has helped the country achieve higher economic growth and is, therefore, considered by many to be the main engine of economic growth in India (Tripathi, 2013; Tripathi and Mahey, 2017). Currently, 31.16 percent of the urban population is contributing to about 63 percent of India's GDP (Government of India, 2011). In developed countries, the urban population is a much higher percent of the total population. For example, Sweden's urban population was 85.8 percent of the country's overall population, 75.3 percent in Germany, 63 percent in Ireland, 81 percent in Canada, 90.5 percent in New Zealand, 89.4 percent in the United States, 80.5 percent in Netherlands, and 82.6 percent in Australia as of 2015 (United Nations, 2014). This indicates that India's urbanization rate is much lower than that of developed countries.¹

In India, the urban population may increase due to the natural growth of population currently in urban areas, reclassification of rural areas into urban areas, changes in the boundaries of urban areas, and net rural to urban migration. Recent census data suggests that the natural growth of population contributed about 43.8 percent to the overall urbanization, whereas reclassification and boundary changes accounted for 35.6 percent, and rural to urban migration 20.6 percent from 2001 to 2011. Among the cities, the average rural to urban migrant population rate (over 10 years) in Mumbai was 17.3 percent, 13.8 percent in Delhi, 8.8 percent Kolkata, 4.9 percent in Chennai, and 4.9 percent in Hyderabad, which is quite higher than other million-plus population cities. Overall, these numbers suggest that the contribution of rural to urban migration to urbanization in India is very low.

In India, policies have always been targeted at "checking" rural to urban migration. Mahatma Gandhi once said that India lives in her villages. Policies in the recent past also encouraged living in rural areas versus migrating to urban areas. For instance, the Green Revolution in India from 1967–68 to 1977–78, which significantly increased agricultural production and agricultural employment, kept people in the rural areas. Currently, ongoing rural employment guarantee programs aim to retain labor in rural areas and prevent them

¹Though different countries use different definitions to measure urbanization, it can still be said that India's urbanization rate is much lower than other developed countries.

Figure 1: Migration Patterns within India's States

Source: National Sample Survey 64th Round, Report No. 533: Migration in India: 2007-08.

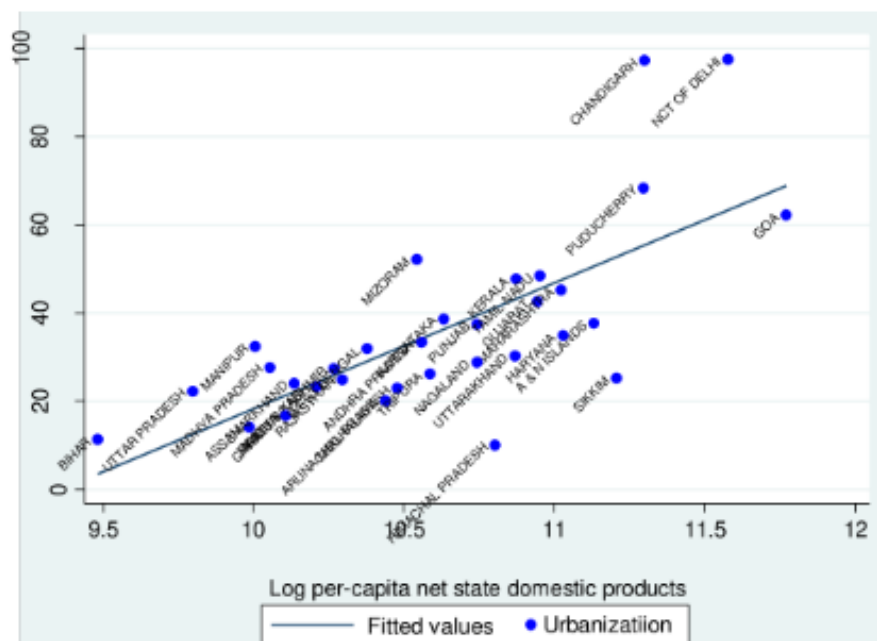
from migrating to urban areas, such as the one following the Mahatma Gandhi National Rural Employment Act (MGNREA), which launched in 2006.² Most recently, using static and dynamic panel data models, Tripathi (2018) found that agricultural activities have a negative effect on urbanization. Therefore, rural to urban migration in India has been discouraged over different time periods. As urban areas use resources more productively than rural areas, India needs to promote rural to urban migration for higher economic growth.

Census data also provide clues regarding potential reasons for rural to urban migration into cities and indicates the main reason for migration is employment opportunities. Migration to Mumbai, Delhi, Chennai, and Hyderabad also show the same pattern; employment opportunities in these cities dominate higher rural to urban migration. Marriage and consequent relocation of households are also cited as a cause for rural to urban migration.

The National Sample Survey (NSS) on “*Employment & Unemployment and Migration Particulars* in 2007-08” takes into account all mobility, including within and between states, and estimates the mobility of the Indian population to be about 29 percent during 2007–08. The migration of households was largely limited to within Indian states: 78 percent of the migrant households in rural areas and 72 percent of the migrant households in the urban areas showed their last usual place of residence to be within the same state. Figure 1 provides an outline of the state trends of rural to rural, rural to urban, urban to urban, and urban to rural migration. Rural to urban migration was the highest in Delhi at 56 percent and lowest in Himachal Pradesh, at 8 percent. Urban to urban migration was quite highest in Delhi at 38 percent, and particularly high in Goa, Mizoram, Nagaland, and Manipur. The figure shows that the rural to urban migration rate is lower than that of rural to rural migration in most of the states in India. On the other hand, developed or economically advanced Indian

²The Mahatma Gandhi National Rural Employment Guarantee Scheme aims to enhance the livelihood and security of people in rural areas by guaranteeing 100 days of wage employment in a financial year to a rural household whose adult members volunteer to do unskilled manual work.

Figure 2: Per Capita Income and Urbanization Levels in 2011 by States



Source: Author.

states, such as Delhi, Goa, and Manipur, have a higher level of rural to urban migration rate than less developed states, such as Punjab, Assam, and Bihar.

The relationship between urbanization and income levels across India's states is shown in Figure 2. In Figure 2, a simple regression equation is fitted to the levels of urbanization in 2011 and the logarithm of per capita income of the states in 2011–12 at constant 2004–05 prices. This figure clearly indicates that higher levels of per capita income are associated with higher levels of urbanization, and the relationship is statistically significant (at the 1 percent level) with an adjusted R^2 of 0.50. From this initial analysis, it is clear that rural to urban migration - a key component of urbanization - is essential for higher economic growth.

3. REVIEW OF THE LITERATURE

The previous literature can be classified mainly into two categories: theoretical and empirical. Empirical research could be sub-classified into two categories: the factors that promote rural to urban migration and the factors that are detrimental to such migration. The forces that promote rural to urban migration could be divided into pull factors (toward the urban area due to its job opportunities and expected income) and push factors (out of the rural area). Although rural to urban migration is a necessary component in the development process, is it empirically justified or not? In other words, does rural to urban migration actually promote development?

In the context of how rural to urban migration promotes economic development, Saracoğlu

and Roe (2004) use a Ramsey-type growth model to explain that migration of the labor force from rural to urban areas has been an important component of the urbanization process. Zhang (2013) assessed China's rural to urban migration and its impact on economic development. The author of the study found that migration toward cities made a great contribution to economic growth and was a dominant source of an increase in urbanization. In another micro-level study, Imoru and King (2017) found that rural to urban migration contributed to the economic development of migrants in the Tamale district of Ghana.

3.1. Theoretical Studies

Various economic theories establish that structural change is an inevitable component of economic growth. In the Lewis (1954) model, shifting labor from the primitive agriculture sector to manufacturing triggers growth by generating an investable surplus. In the process of structural change, both internal and external agglomeration economies are generated. The Todaro (1969) model explained rural to urban migration as a function of the income differential that is adjusted for the probability of finding a job. The Harris and Todaro (1970) model attempted to explain the phenomenon of accelerating rural to urban labor migration despite the existence of positive marginal products in agriculture and significant levels of urban unemployment.

3.2. Empirical Studies

3.2.1. *Trends and Patterns of Migration in India*

Discussing the general trends and patterns of migration, Mitra and Murayama (2009) found that the intrastate migration rate - the rate of migration within states in India - is much higher in magnitude than the interstate migration rate - the rate of migration between states - in India. Male and female migration rates are closely interconnected, irrespective of whether they migrate from rural areas within the states or to other states (Mitra and Murayama, 2009). The social and cultural diversity in India stands as a major hindrance to population mobility (Mitra and Murayama, 2009). Banerjee (1986) suggested that the underlying objective of migration is the maximization of a family rather than individual benefits. Bird and Deshingkar (2009) explored circular migration in India. Circular migration is when poor people from low productivity areas migrate for part of the year, often on a seasonal basis, to areas with more job opportunities and wages. They found that circular migration rates are high in remote rural areas, particularly among the chronically poor. Chauvin et al. (2017) argued that India's rural to urban migration is limited by strong place-based preferences, such as those related to cast-based social networks in India. Moscona (2017) found that the green revolution has had adverse effects associated with pulling labor and resources away from other, potentially more productive, sectors.

3.2.2. *Pull Factors Promoting Rural to Urban Migration*

In the case of the United States, Arzaghi and Rupasingha (2013) argued that migration from rural to urban areas improves an individual's economic choices and opportunities, because

migrants can look for opportunities in both the origin and destination locations. Iversen (2006) presents a dynamic theory of rural to urban migration that includes social networks, including the social cohesion of origin communities and their links to urban workplaces. According to McCatty (2004), who examined the need for rural to urban migration in developing countries, migration takes place in these countries due to job opportunities, education, medical facilities, high per capita income, transport facilities, and higher standards of living. Haurin' (1980) model evaluated the impact of a favorable climate (which is a site-specific factor) on the city population (along with the price of housing and price of factors) and found that a relative increase in the climate differential would induce migration toward the improved area. Urban areas, which are better endowed with location-specific attributes, attract more population and grow more when compared with areas with less favorable climate. A theoretical analysis by Issah et al. (2005) confirmed that the presence of infrastructure can be a significant factor in migration decisions.

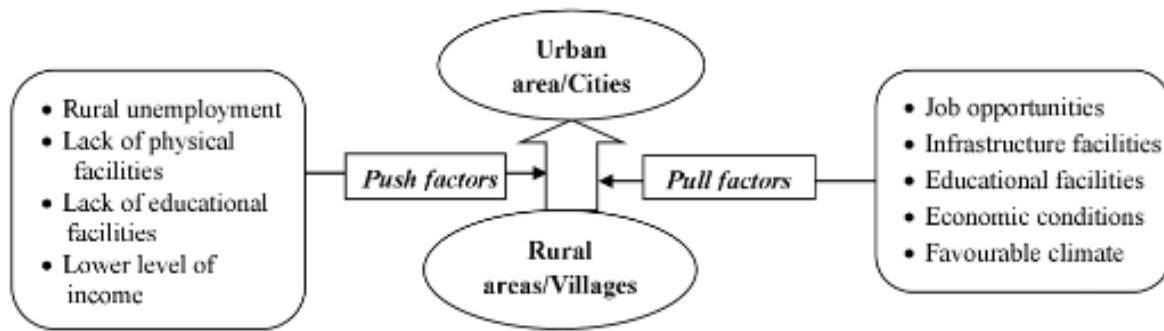
In the context of India, based on the primary survey and using the probit model, Sridhar et al. (2013) found that an increasing level of education of the migrants acts as the main pull factor for migration in Bengaluru. Shanthi (2006) examined the extent of employment-oriented migration of females in India and the interstate variations in its magnitude using National Sample Survey data in 1999–00 at the household-level. The author found that the “independent migration” of females is increasing in response to employment opportunities in export industries, electronic assembling, and garment units. Ghate (2009) highlighted the case of Oriya migrants to the cities in Gujarat. He argued that the job opportunities in Surat's power loom industry pooled many Oriya migrants from a few contiguous blocks in the Ganjam district in Orissa.

Banerjee (1984) used probabilistic migration models which assume that search for urban jobs is entirely an urban-based activity and that employment in free-entry activities is a transitional phase, during which migrants are actively searching for formal sector employment. Based on the sample survey, Banerjee found that the Delhi experience does not fit the migration process postulated in the probabilistic models. One-half of the surveyed migrants had moved to Delhi after lining up specific jobs. Mitra (2019) found that the migration rate in urban areas and the urbanization level are positively associated but moderate in magnitude. With an increase in the city size, the migration rate rises primarily due to better employment prospects in large cities from agglomeration effects.

3.2.3. Push Factors Promoting Rural to Urban Migration

While investigating the contribution of push factors in rural to urban migration, McCatty (2004), in the context of developing countries, found that political disputes, strikes, fighting with neighbors, lack of transportation, illiteracy, natural disaster, and bullying push rural people to urban areas.

In the context of India, Sridhar et al. (2013) found that the lower level of education of the migrants acts as a push factor for migration in Bengaluru. Agasty and Patra (2013) examined the determinants of rural to urban migration in the Indian state of Orissa and found that low income, high poverty, high unemployment, lack of rural job opportunities, and lack of farmland are the reasons for rural to urban migration. Deshingkar (2004) suggested that

Figure 3: Factors for Rural-Urban Migration in India

Source: Author.

individuals may be pushed to migrate because of debt, poor access to credit, declining access to common property resources, or commodity price crashes in India. Banerjee and Kanbur (1981) used a probabilistic migration model to examine internal migration in India and found that migration tends to rise at first but then falls as rural income rises.

3.2.4. Factors Detrimental to Rural to Urban Migration

Considering the factors that are detrimental to rural to urban migration in India, Akram (2015) found that an increase in per capita Net State Domestic Product tends to decrease the number of out-migrants from the rural areas of that state. However, an increase in the proportion of the population living below the poverty line, a higher proportion of Scheduled Castes in the population, and a higher illiteracy rate in the rural area of the state tend to decrease rural to urban labor migration from that state to other states. Bhagat (2014) argued that migrants with low education and skills, given the seasonal and temporary nature of their employment, are more vulnerable and subject to various kinds of exclusions in urban areas. Migration is treated more as an issue of governance rather than one of development in developing countries like India. Deshingkar (2004) argued that the Watershed Development (WSD) program, which has been introduced to reduce rural to urban migration in India, needs to be reexamined. Specifically, research has synthesized the available evidence to show that the relationship between migration and WSD is complex and depends on a variety of factors ranging from rural to urban wage differences, personal aspirations, and education levels. Therefore, more empirical research is urgently needed in this area. Most importantly, Jacob (2008) assessed the impact of NREGA on rural-urban migration in the Villupuram district of Tamil Nadu. He found that given the decent employment created by NREGA in their villages most people, both men and women, would not prefer to migrate. However, Ahuja et al. (2011) found that despite being a source of employment, MGNREGA has not been able to contain migration from the developed region because of higher market wage rates in destination states like Haryana.

Figure 3 explains all the push and pulls factors behind rural to urban migration which

has been discussed in the review of the literature. The literature review suggests that though there are several descriptive and micro-level studies, systematic statistical analyses to investigate factors that increase rural to urban migration at state levels are limited. Different time dimensions have not been taken into account on migration studies in India. This has led to an overall lower rate of urbanization in India. This study tries to fill this research gap. The research outcomes of this analysis will help policymakers to come up with appropriate measures to promote urbanization through higher rural to urban migration at the state level in India.

4. EMPIRICAL FRAMEWORK AND RESULTS OF THE ESTIMATION OF DETERMINANTS OF RURAL TO URBAN MIGRATION IN INDIA

The econometric model of state-level rural to urban migration takes the following form:

$$y_{it} = \beta_0 + \beta_1 X_{it} + \delta t + \eta_i + \epsilon_{it} \quad (1)$$

where y_{it} is the total number of migrants or percentage of migration from rural to urban areas and X_{it} is a set of explanatory variables. η_i is the unobserved time-invariant, state-specific effects; δt captures a common deterministic trend; ϵ_{it} is a random disturbance assumed to be normal, and identically distributed with $E(\epsilon_{it}) = 0$; $Var(\epsilon_{it}) = \sigma^2 > 0$.

The state-specific percentage of urban migration is defined as the total number of migrants from the rural areas to urban areas of a particular state with the duration of residency, of less than one year to more than 10 years, divided by the total urban population of that state. The Census of India provides rural to urban migration data from less than one year of residence to more than 10 years of residence. We consider all the categories years of residence. More specifically Census of India provides data for the following categories: (1) Duration of residence less than 1 year, (2) Duration of residence 1-4 years, (3) Duration of residence 5-9 years, and (4) Duration of residence 10 years and above. In this paper we consider all of these types of migration when defining a migrant. That is, a rural migrant to an urban area may fall into any of the four categories listed above.

On the other hand, the total number of migrants of a state is defined by the total number of migrants from the rural areas to urban areas of a particular state with the duration of residency of less than one year to more than 10 years. Independent variables are mainly considered based on the differences between rural and urban work opportunities, medical facilities, availability of infrastructure, economic conditions, and educational facilities. The consideration of independent variables is mainly based on the review of the literature and the availability of data. The description and source for the independent variables are listed in Appendix A1. The panel data estimations consider data from three Census periods, 1991, 2001, and 2011. We consider 28 states and 7 union territories of India for the analysis.³

Table 1 presents the descriptive statistics of the variables used in the panel data model. The standard deviations for the average monthly per capita consumption expenditure and

³I do not consider Telangana state as it separated from the state of Andhra Pradesh in 2014, which is beyond the estimation periods.

Table 1: Descriptive Statistics for Panel Data

Variable	Obs	Mean	Std Dev	Min	Max
Log of total number of rural to urban state migrants	101	12.68	2.22	7.65	16.42
Log of percentage of rural to urban migration rate	101	2.75	0.83	0.15	3.99
Differences between urban to rural infant mortality rate	98	-12.77	18.53	-55	58
Differences between urban to rural percentage of household having electricity	98	27.14	19.09	0	66.7
Differences between urban to rural percentage of household having safe drinking water	101	16.49	13.73	-11	49.8
Differences between urban to rural average monthly per capita consumption expenditure	85	546.13	418.09	-394.34	2090
Differences between urban to rural labor force participation rate	99	-70.67	65.64	-270	77
Differences between urban to rural poverty head count ratio	93	-7.83	10.71	-47.2	20.7
Differences between urban to rural level of inequality	88	0.07	0.05	-0.06	0.16
Differences between urban to rural literacy rate	99	17.43	9.28	0	41.44
Log of per capita net state domestic product	91	9.82	1.09	7.89	12.03
Log of rural agriculture worker	99	6.29	0.72	2.94	6.80

Source: Author

the labor force participation rate are very high compared to the other variables that are considered indicating that the variability among these two variables is high.

Table 2 presents the result of the determinants of state-level total rural to urban migration based on equation (1) using panel data methods. To improve the model fit, I ideally would use the logarithmic transformation of the dependent and independent variables. However, these variables measure the differences between urban and rural migrations and some of them have negative values, which means I cannot use a logarithmic transformation.⁴ Regression models 1 and 6 show the estimates of the full model, which includes all variables for the maximum number of available observations. Regression models 2–5 report the estimation of the parsimonious model. First, I conduct an F-test to determine whether the fixed effect model or the pooled model is better. The significance of F-test compels us to use the fixed effect model over pooled model. Next, I perform the Breusch-Pagan Lagrange multiplier (LM) test using STATA command *xttest0* to check whether to use a random effect panel data model or a simple OLS regression. The significant value of the χ^2 of the LM test validates the use of the random effect panel model. However, the significant value of χ^2 of the Hausman test validates the choice of the fixed effect model over the random effect model for the estimation. As the time points of data are very small, I did not find any problem of cross-sectional dependence/contemporaneous correlation and serial correlation in the estimation. However, I found there was heteroskedasticity present when I tested for it using the STATA command *xttest3*. To address this problem, I used Huber/White or sandwich estimators by using a ‘robust’ option to obtain heteroskedasticity-robust standard errors. The robust fixed-effect models perform well, explaining up to 74 percent of the sample variation in India’s state-level total rural to urban migration in regression 1. The statistically significant values of the F-statistics indicate the overall significant level of the

⁴Based on logarithmic transformations, I consider the Log-linear regression and Log-Log regression model interpretations.

Table 2: Determinants of Rural to Urban Migration at the State Level in India: Robust Fixed Effect Panel Model Estimation

Independent Variable	Dependent Variable				
	Log of total migrants from rural to urban				Log of percentage of rural to urban migration
	(1)	(2)	(3)	(4)	(5)
Differences between urban to rural infant mortality rate	-0.0272 (0.746)				0.0301** (0.011)
Differences between urban to rural percentage of household having electricity	0.531 (1.250)	0.025* (0.012)			0.803 (1.252)
Differences between urban to rural percentage of household having safe drinking water	0.751 (1.999)	0.043*** (0.013)			1.603 (1.938)
Differences between urban to rural labor force participation rate	0.0432 (0.273)		0.004* (0.002)		0.173 (0.287)
Differences between urban to rural average monthly per capita consumption expenditure	-1.487 (1.087)		0.096*** (0.032)		-1.514 (1.080)
Differences between urban to rural poverty head count ratio	0.015** (0.006)				1.734*** (0.617)
Differences between urban to rural level of inequality	-0.645 (2.743)		0.905 (3.701)	0.084** (0.035)	0.0543 (2.749)
Differences between urban to rural literacy rate	-3.769 (2.817)	-0.0401** (0.0185)			-2.802 (2.751)
Log of per capita net state domestic product	1.014** (0.453)	0.807*** (0.132)			0.841* (0.434)
Log of rural agriculture worker	0.417 (0.347)	0.152 (0.101)		-0.565* (0.297)	0.366 (0.348)
Constant	2.106 (6.215)	3.333 (2.047)	12.93*** (0.400)	16.18*** (1.868)	13.17*** (0.144)
Number of observations	69	84	82	84	98
R-squared	0.748	0.696	0.330	0.257	0.122
F statistics	39.02***	35.43***	9.27***	4.66**	7.15**
Number of groups	31	31	35	35	35

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

estimated regression models.

Regression models 1–5 use the log of the total number of rural to urban migrants at the state level as a dependent variable. Regression model 5 shows that lower differences between urban to rural infant mortality rates reduce total rural to urban migration. The result is statistically significant at a 5 percent level. A 1 percent reduction in the infant mortality rate reduces total rural to urban migration by 3 percent on an average. The infrastructure variables, i.e., the percentage of households having electricity and safe drinking water, also indicate that the lower the difference between urban and rural areas, the lower the rural to urban migration rate. For instance, a reduction of 1 percent urban to rural electricity connectedness reduces the total rural to urban migration rate by 2.5 percent in regression model 2. Employment opportunities, which are measured by the labor force participation rate, show that a 1 percent reduction in urban to rural area decreases total rural to urban migration by 0.4 percent in regression model 3. Average monthly per capita consumption expenditure, which represents the economic conditions, indicates that a reduction in the difference between urban to rural areas reduces total rural to urban migration in the state level of India.

Regression model 1 shows that a reduction in the urban to rural poverty headcount

ratio reduces the total rural to urban migration rate. The result is statistically significant at the 5 percent level. In particular, a 1 percent reduction in the urban to rural poverty ratio shrinks total rural to urban migration by 1.5 percent. A reduction in the extent of inequality between urban and rural areas also reduces total rural to urban migration in India. In contrast, the level of education, which is measured by the literacy rate, shows that the reduction in the difference between urban and rural areas increases the total rural to urban migration. This result indicates that rural to urban migration mainly occurs due to a higher level of educational attainment. The results support the findings of Sridhar et al. (2013) and Agasty and Patra (2013). A higher level of per capita net domestic product also encourages rural to urban migration. In particular, a 10 percent increase in per capita net state domestic product increases rural to urban migration by 8.1 percent in regression model 2. The result supports the findings of Arzaghi and Rupasingha (2013). Finally, a higher number of agriculture workers indicate that higher opportunities in agriculture reduce rural to urban migration. This result supports the impact of the green revolution and MGNREA in rising agriculture employment and production, reducing rural to urban migration (Moscona, 2017).

Finally, regression model 6 uses the log of the percentage of the rural to urban migration rate as a dependent variable. The coefficient estimates from this model suggest that a lower difference between the poverty rates of urban and rural areas reduce the rural to urban migration rate. However, a higher per capita net state domestic product encourages rural to urban migration. The results are consistent with earlier coefficients discussed in regression models 1–5.

5. DISCUSSION

The state-level analysis suggests that the improvement in health, infrastructure, employment, education, and economic conditions deter rural to urban migration. However, it is important to mention that a higher level of urbanization is required for a higher level of economic development. Therefore, it is necessary to relocate rural resources to urban areas for higher productivity and higher economic growth. The following discussion mainly traces how urban areas or cities can attract more resources from rural areas.

The majority of the households migrated for employment purposes. It is estimated that about 55 percent of the rural households and 67 percent of the urban households migrated for employment-related reasons only in 2007-08, based on information from the 64th round of the National Sample Survey. City-level employment has a powerful effect on rural to urban migration. The 2011-12 National Sample Survey calculated that only 56 percent of urban males and 16 percent of urban females were in the labor force. The unemployment rate for urban males was about 3 percent, and about 5 percent for urban females, which was higher than the rural unemployment rate of 2 percent for both males and females measured by the usual status. As per the information available on the official website of the Centre for Monitoring Indian Economy (CMIE), nearly 31 million unemployed Indians are looking for jobs. In February 2018, the urban unemployment rate increased to about 6.84 percent (Times News Network, 2018b). This picture indicates that India has failed to create enough urban jobs to attract people from rural to urban areas.

Indian cities and towns lack quality infrastructure and services. The Report on Indian Urban Infrastructure and Services (Government of India, 2011), which deals extensively with this phenomenon, has emphasized the importance of the delivery of urban public services such as drinking water, sewerage, solid waste management, roads, and street lights for the sustainable urban development in future in India (Tripathi, 2018). Only 64 percent of the urban population in India is covered by individual connections and stand posts.⁵ The duration of water supply in Indian cities ranges only from 1 to 6 hours per day. Government of India (2011) indicated that, out of the 5,161 cities and towns in India, 4,861 do not have even a partial sewage network and 18 percent of urban households do not have access to any form of toilets and people defecate in the open. Public transport accounts for only 22 percent of urban transport in India. Therefore, a lower level of urban infrastructure could not bring more people from rural areas.

Inequality measurements based on NSS consumption expenditure data shows that urban inequality in India is higher than rural inequality. Urban inequality increased by about 15 percent in the period from 1973–74 to 2011–12. On the other hand, as per the poverty headcount ratio measured by the Tendulkar methodology, it has declined from 25.7 percent (i.e., 807.6 lakh) in 2004–05 to 13.7 percent (i.e., 531.2 lakh) in 2011–12. However, there is a disagreement on how poverty and inequality are measured in India. Furthermore, India's large cities entail expensive living costs. For example, Mumbai ranks 55th among 209 cities when measuring the comparative costs of more than 200 items such as housing, transportation, and food and clothing (Times News Network, 2018a). Therefore, substantial reductions in poverty, inequality, and living cost have not been achieved by the Indian government to pull rural people to urban areas.

6. CONCLUSION AND POLICY IMPLICATIONS

This paper investigates the relevant determinants of rural to urban migration at the state level in India based in 1991, 2001, and 2011 Census and National Sample Survey data. Fixed effect panel data models are used for the analysis.

The descriptive analysis shows that India's urbanization rate is much lower than that of other developed countries. A natural increase in the urban population is one of the main sources of the increase in the urban population in India. Net rural to urban migration only accounted for about 21 percent of the change between 2001 and 2011. The city-level data shows that the main reasons for rural to urban migration is employment opportunities and marriage.

The state-level panel data analysis shows that economic conditions measured by per capita net state domestic product and the lower difference between urban and rural literacy rates increases rural to urban migration. However, a lower difference between urban and rural areas, i.e., improvement in health (measured by infant mortality rate), infrastructure (measured by electricity connection and drinking water), employment opportunities (measured by unemployment rate), and social services (measured by health expenditure) also increases rural to urban migration.

⁵The following discussion is mainly based on the information available from <http://financingcities.ifmr.co.in/blog/2013/01/31/summary-of-report-on-indian-urban-infrastructure-and-services-2011-part-i/> (accessed 12 June 2017).

sured by labor force participation rate and number of rural agriculture worker), and economic conditions (measured by poverty, inequality, per capita consumption expenditure) reduces rural to urban migration in India.

Considering the main question for this research, “Why is the rural to urban migration rate in India so low?” based on the analysis, I suggest that India has failed to create enough urban jobs, provide substantial infrastructure facilities to the urban dwellers, control the cost of living in the urban areas, and reduce urban poverty and inequality in order to promote rural to urban migration. I am of the view that rural to urban migration is a necessary part of the development process and does not necessarily have to result in an adverse impact on rural areas. Several rural policies such as NREGA have tried to check rural to urban migration, but even pull factors did not attract people from rural to urban areas.

It is quite obvious that a higher level of rural to urban migration is needed for economic development in India. In rural areas, the majority of the population depends upon agriculture, and the higher dependence on farming leads to disguised unemployment in rural areas. If the disguised unemployed population is relocated to urban areas, then the supply of labor and demand for consumer goods in urban areas would increase. This would, in turn, lead to more production, a higher level of economic activity, and higher per capita income. The number of job opportunities in the cities will also increase in this process. This increase promotes investments, which would, in turn, lead to further economic growth. So, the economic growth in India can be catalyzed through increased urbanization resulting from rural to urban migration.

Therefore, I suggest the following policies. First, India should increase job opportunities in urban areas to enable a higher rural to urban migration. Second, the level of urban poverty and urban inequality has to be addressed in order to encourage migration from rural to urban areas. Third, basic urban infrastructure facilities such as road, electricity, and educational institutions need to be increased to facilitate investment-friendly urbanization to promote rural to urban migration. Finally, migrants should be able to get higher paid jobs so that they can survive in big cities with higher living costs. However, how cities or towns can attract more residents from rural areas and consideration of other variables such as family income diversification, social networks, and caste affinities, and employment growth to explain rural to urban migration forms the topic of future research. Also, establishing a causal link between economic conditions and employment opportunities and rural to urban migration is left for further scrutiny.

REFERENCES

- Agasty, Mahendra P. and Rabi N. Patra. (2013) “Rural-urban Migration: Selectivity, Determinants and Destination,” *Indian Journal of Research*, 2(2), 84–86.
- Ahuja, Usha Rani, Dushayant Tyagi, Sonia Chauhan, and Khyali Ram Chaudhary. (2011) “Impact of MGNREGA on Rural Employment and Migration: A Study in Agriculturally-backward and Agriculturally-advanced Districts of Haryana,” *Agricultural Economics Research Review*, 24(Conference Number), 495–502.
- Akram, Mohammad. (2015) “An Analysis of Rural to Urban Labour Migration in India

- with Special Reference to Scheduled Castes and Scheduled Tribes," *International Journal of Interdisciplinary and Multidisciplinary Studies*, 2(10), 53–58.
- Arzaghi, Mohammad and Anil Rupasingha. (2013) "Migration as a Way to Diversify: Evidence from Rural to Urban Migration in the U.S," *Journal of Regional Science*, 53(4), 690–711.
- Banerjee, Biswajit. (1984) "Information Flow, Expectations and Job Search: Rural-to-urban Migration Process in India," *Journal of Development Economics*, 15(1–3), 239–257.
- Banerjee, Biswajit. (1986) *Rural to Urban Migration and the Urban Labour Market (A Case Study of Delhi)*. Himalaya Publishing House, Bombay, India.
- Banerjee, Biswajit and S. M. Kanbur. (1981) "On the Specification and Estimation of Macro Rural-urban Migration Functions: With an Application to Indian Data," *Oxford Bulletin of Economics and Statistics*, 43(1), 7.
- Bhagat, Ram B. (2014) Urban Migration Trends, Challenges and Opportunities in India. Available online in June 2018 at https://www.iom.int/sites/default/files/our_work/ICP/MPR/WMR-2015-Background-Paper-RBhagat.pdf.
- Bird, Kate and Priya Deshingkar. (2009) "Circular Migration in India," Policy Brief No.4.
- Chauvin, Juan Pablo, Edward Glaeser, Yueran Ma, and Kristina Tobio. (2017) "What is Different about Urbanization in Rich and Poor Countries? Cities in Brazil, China, India and the United States," *Journal of Urban Economics*, 98, 17–49.
- Deshingkar, Priya. (2004) "Improved Livelihoods in Improved Watersheds: Can Migration be Mitigated?," In *International Workshop on Watershed Management Challenges*. International Water Management Institute: pp. 3–4.
- Ghate, Prabhu. (2009) "Internal Migration: Oriyas in Gujarat," *The Economic Times*, 28.
- Government of India. (2011) High Powered Expert Committee Report on Urban Infrastructure and Services. Available online in August 2020 at www.niua.org/projects/hpec/finalreport-hpec.pdf.
- Harris, John R. and Michael P. Todaro. (1970) "Migration, Unemployment and Development: A Two-sector Analysis," *The American Economic Review*, 60(1), 126–142.
- Haurin, Donald R. (1980) "The Regional Distribution of Population, Migration, and Climate," *The Quarterly Journal of Economics*, 95(2), 293–308.
- Imoru, Abdul-Rahaman Ibn and Rudith Sylvana King. (2017) "The Contribution of Rural Urban Migration to Migrants' Economic Development in Tamale," *Research on Humanities and Social Sciences*, 7(24), 1–14.
- Issah, Ismail, Tariq Y. Khan, and Komei Sasaki. (2005) "Do Migrants React to Infrastructure Difference between Urban and Rural Areas? Development of an Extended Harris–Todaro Model," *Review of Urban Regional Development Studies*, 17(1), 68–88.
- Iversen, Vegard. (2006) "Segmentation, Network Multipliers and Spillovers: A Theory of Rural Urban Migration for a Traditional Economy," *Development Research Centre on Migration, Globalisation and Poverty, Working Paper T9*.
- Jacob, Naomi. (2008) "The Impact of NREGA on Rural-urban Migration: Field Survey of Villupuram District, Tamil Nadu," *Centre for Civil Society, New Delhi*.
- Lewis, William Arthur. (1954) "Economic Development with Unlimited Supplies of Labour," *The Manchester School of Economic and Social Studies*, 22, 139–191.
- McCatty, Machel. (2004) *The Process of Rural-Urban Migration in Developing Countries*. Carleton University, Ottawa, Ontario.

- Mitra, Arup. (2019) "Rural to Urban Migration and the Urban Labour Market: The Case of India," In *Cities of Dragons and Elephants: Urbanization and Urban Development in China and India*. Oxford University Press: pp. 175–218.
- Mitra, Arup and Mayumi Murayama. (2009) "Rural to Urban Migration: A District Level Analysis for India," *International Journal of Migration, Health and Social Care*, 5(2), 35–52.
- Moscona, Jacob. (2017) "The Impact of India's Green Revolution: An Empirical Investigation of Modern Agricultural Development," *Unpublished Manuscript*.
- Saracoğlu, Dürdane and Terry Roe. (2004), "Rural-urban Migration and Economic Growth in Developing Countries," In *2004 Annual Meetings of the Society for Economic Dynamics*. Meeting Paper 241, New York University, New York.
- Shanthi, K. (2006) *Female Labour Migration in India: Insights from NSSO Data*. Vol. 4. Madras School of Economics.
- Sridhar, Kala Seetharam, A. Venugopala Reddy, and Pavan Srinath. (2013) "Is it Push or Pull? Recent Evidence from Migration into Bangalore, India," *Journal of International Migration and Integration*, 14(2), 287–306.
- Times News Network. (2018a) Mumbai is India's Most Expensive City for Expatriates: Survey. Available online in August 2020 at <https://economictimes.indiatimes.com/news/economy/indicators/mumbai-most-expensive-indian-city-for-expats-19th-most-expensive-in-asia-survey/articleshow/76283205.cms?from=mdr>.
- Times News Network. (2018b) Unemployment Rate in India: Nearly 31 jillion Indians are Jobless. Available online in August 2020 at <https://timesofindia.indiatimes.com/home/education/news/unemployment-rate-in-india-nearly-31-million-indians-are-jobless/articleshow/63182015.cms>.
- Todaro, Michael P. (1969) "A Model of Labor Migration and Urban Unemployment in Less Developed Countries," *The American Economic Review*, 59(1), 138–148.
- Tripathi, Sabyasachi. (2013) "Do Large Agglomerations Lead to Economic Growth? Evidence from Urban India," *Review of Urban and Regional Development Studies*, 25(3), 176–200.
- Tripathi, Sabyasachi. (2018) "Does A Higher Level Of Infrastructure Increase Population In Large Agglomerations? Evidence from India," *Review of Urban and Regional Development Studies*, 30(2), 145–168.
- Tripathi, Sabyasachi and Kavita Mahey. (2017) "Urbanization and Economic Growth in Punjab (India): An Empirical Analysis," *Urban Research and Practice*, 10(4), 1–2.
- United Nations. (2014) World Urbanization Prospects: The 2014 Revision, Highlights, New York. Available online in June 2014 at <http://esa.un.org/unpd/wup/Highlights/WUP2014-Highlights.pdf>.
- Zhang, Yuzhe. (2013) China's Rural-urban Migration and Its Impact on Economic Development. Available online in August 2020 at <https://ruor.uottawa.ca/handle/10393/30619>.

APPENDIX: Variable Sources and Definitions Used in the State-Level Regression Model

State-wise infant mortality rate: (Number of infants deaths during the year/Number of live births during the year)*1000. *Source:* Census of India.

State-wise electricity connection: Proportion of households with access to electricity. *Source:* Census of India.

State wise Safe drinking water: Tap water, hand pump, and tube well were considered as safe sources of drinking water. *Source:* Census of India.

State-level monthly per capita consumption expenditure (MPCE): State-level MPCE for the years 1993-94, 2004-05, and 2011-12. *Source:* NSS unit level data on "Consumption Expenditure" on 1993-94, 2004-05, and 2011-12.

State-level poverty: State-level poverty estimates as suggested by Tendulkar Committee for the years 1993-94, 2004-05, and 2011-12. *Source:* NSS unit level data on "Consumption Expenditure" on 1993-94, 2004-05, and 2011-12.

State-level inequality: State-level estimation of Gini coefficient for the years 1993-94, 2004-05, and 2011-12. *Source:* NSS unit level data on "Consumption Expenditure" on 1993-94, 2004-05, and 2011-12.

State-wise literacy rate: 1991 Census onwards population aged seven years and above only be classified as either 'literate' or 'illiterate'. *Source:* Census of India.

State-level per capita net state domestic product (PCNSDP): PCNSDP at Factor Cost (Current Prices) for the years 1991, 2001, and 2011. *Source:* Central Statistical Organization, Government of India.

State-level labor force participation rate: Per 1,000 labor force participation rate for the years 1993-94, 1999-00, and 2011-12. *Source:* NSS unit level data on "Employment and Unemployment" on 1993-94, 1999-00, and 2011-12.

State-level rural agriculture worker: Usually, working rural persons in agriculture in principal and subsidiary status per 1,000. *Source:* NSS unit level data on "Employment and Unemployment" on 1993-94, 1999-00, and 2011-12.