Original Paper

Migration Pattern across the Indian States—Analysis of Census 2001 and 2011

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Abstract
The main objective of this paper is to study the interstate migration pattern in India. The data is collected for 13 states of India classified as low, middle and high-income states. The study is conducted based on census data 2001 and 2011, and the net migration rate is computed. The research demonstrates that there is a positive relation between inward migration and development. To support this argument, the data for per capita income, literacy rate of the population age 7 years and above, and the unemployment rate for years 2001 and 2011 are collected from various sources. This paper will also highlight the four phases of demographic transition in India. The data from the World Bank is collected to identify any changes in the birth rate per thousand, the death rate per thousand, and the life expectancy at birth from 1901-2011. The age dependency ratio for 2001 and 2011 is compared for poor and rich states. The expected future consequences of changes in the age dependency ratio are also analyzed in conclusion. The paper also discusses the limitations of migration and the policies that can slow down the migration phenomenon.

Keywords
migration, inward migration, outward migration, age dependency ratio, India

1. Introduction
India has experienced a remarkable economic growth rate of 6% to 7% since the beginning of the 21st century. Even though this faster economic growth rate has helped many people to escape from poverty, according to the World Bank-India’s Poverty profile of 2012, there are still 270 million poor people which is one in five Indians is poor (The World Bank, 2016). The fruit of significant economic growth of India is unevenly spread across states. The low-income states Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, and Uttar Pradesh are still struggling to catch up with the rest of
the country and over 60% of the poor people live in these 7 states (India States Brief, 2018). According to the World Bank data, in 2019, the total population of India was 1.37 billion which is about 18% of the World population. New Delhi, Mumbai, Kolkata, Bengaluru and Chennai are five major megacities of India, and the congestion of population problem of these cities is not hidden from anyone. Interstate migration is the main reason for the growing population of high-income states and major cities. According to the Census of India 2001, about 307 million people have been reported as migration by place of birth which is 29.9% of the total population. The number of migrants by place of last residence data shows that 13.8% (41 Million) have been interstate migrants, and 85% have been Intrastate migrants (Office of the Registrar General & Census Commissioner, India, n.d.). The main reasons for migration in India are employment opportunities, poverty, marriage, low living standards, and lack of facilities such as health care, education, etc.

In this paper, the main objective is to study interstate migration patterns across 13 states of India based on the 1991-2001 census, 2001-2011 census migration data, and demographics of India. The attention is drawn to less-developed low-Income states Bihar, Uttar Pradesh, Odisha, Madhya Pradesh, Rajasthan, and middle-and high-Income states West Bengal, Karnataka, Gujarat, Himachal Pradesh, Maharashtra, Haryana, Punjab and Delhi. The focus is to show that there is a positive correlation between development and migration rate. People move from states with low economic development to states which have experienced higher growth rates of urbanization and economic development. To elaborate on the interstate migration pattern, the emphasis is also drawn on per capita income, literacy rate of the population age 7 years and above, age dependency ratios, and the unemployment rate for years 2001 and 2011 of each state. The migration data on the 1991-2001 census and 2001-2011 census are compared to identify any changes in the migration pattern. This paper also underlines the four phases of population growth in India since 1901, using data on the birth rate per thousand, the death rate per thousand, and the life expectancy at birth.

2. Migration Pattern across India-2001

We will begin by defining what is migration, inward migration and outward migration. The term Migration is defined as the movement of people from one place to another (to a different region, state, or country). Inward migration is defined as the number of people who have migrated into a state from other states of the same country. Outward migration is defined as the number of people who have migrated out of the state to other states of the same country. To figure out states with inward migration, outward migration, and migration rate, data is collected from the Census of India 2001—Data Highlights for total Population (1991), in migrants from other states 2001, and out-migrants 2001. Data for the state-wise total population of 2001 is collected from the Reserve Bank of India—Handbook of Statistics on Indian states. Net in migrants 2001 and migration rate per 100 (1991-2001) is calculated. (Note 1)

A negative migration rate indicates that people have migrated out of the state to other states. A positive
migration rate indicates that people have moved into the state from other states. All the above-mentioned data is arranged in “Table 1” starting with outward migration states such as Bihar, Uttar Pradesh, Odisha, Madhya Pradesh, Rajasthan, and West Bengal and ending with states that experience inward migration such as Delhi, Punjab, Maharashtra, Gujarat, Haryana, Himachal Pradesh and Karnataka. According to the data on migration rate per 100 (1991-2001) (Table 1), Bihar has the highest outward migration rate of negative (-) 2.76, and Delhi has the highest inward migration rate of 18.20. Now the question is what drives this migration pattern? There can be numerous reasons for migration such as employment or unemployment, education, marriage, living standards, etc.

2.1 Per Capita Income (2000-2001) and Literacy Rate (2001)

We will first focus on the relation between migration rate and per capita income. “Table 2” shows the data for per capita income at current prices 2000-2001 (In Rupees).

![Migration Rate and Per Capita Income](image)

**Figure 1. Migration Rate and Per Capita Income**

It is clear from “Figure 1” that there is a positive correlation between per capita income (2000-2001) and the migration rate (1991-2001). The lower the per capita income, the higher the outward migration rate is. In other words, the higher the per capita income, the higher the inward migration rate is. People migrate out of low-income states Bihar, Uttar Pradesh, Odisha, Madhya Pradesh, and Rajasthan to middle and high-income states Delhi, Punjab, Haryana, Maharashtra, Himachal, Karnataka and Gujarat.
According to data from “Table 2”, Bihar has the lowest per capita income of Rs 6,396 and the highest outward migration rate. On the contrary, Delhi has the highest per capita income of Rs 41,436 and the highest inward migration rate. Surprisingly, no other state in India has per capita income closer to the per capita income of Delhi.

The second-highest per capita income state is Punjab with a per capita income of Rs 27,865 which is about 32% lower than the per capita income of Delhi. The majority of the population of Punjab and Haryana is employed in agriculture. Just like Punjab and Haryana, Bihar and Uttar Pradesh are primarily agricultural states. In addition to this, Bihar and Uttar Pradesh are also rich in mineral resources such as coal, copper, iron and silver. Despite the availability of all these sources, both states are extremely poor. A large population of Bihar migrates to Punjab and Haryana to work in the agriculture sector. According to “Table 2”, Haryana holds third position with a per capita income of Rs 24,138 followed by Maharashtra and Himachal Pradesh with a per capita income of Rs 22,992 and Rs 22,795 respectively.

There are numerous underlying reasons for such a gap between poor and wealthy states such as social, economic, and political factors embedded in structural and economic policies. We will elaborate more on the education aspect as an indicator of the development of any region, state and country. The higher the level of education achieved by the people, the better the social and economic conditions are of that place.

“Table 2” shows the data collected from the Reserve Bank of India—Handbook of Statistics on Indian States for literacy rate in population age 7 years and above for the year 2001. In 2001, only 47% of the people of Bihar and 56% of the population of Uttar Pradesh of age 7 years and above were educated. Comparing this to high-income states such as 70% of the population of Punjab, 77% of the population of Maharashtra, and 82% of the people of Delhi were educated. Bihar has the lowest literacy rate, and Delhi has the highest literacy rate. The reason for the people of Bihar being less educated is poverty and a poor education system. On the other hand, Delhi is the home of many wealthy people, and India’s most prestigious universities and colleges are in Delhi. The well-developed education system of high-income states makes people capable to get highly paid professional jobs and contributes to the high per capita income of the state.

“Figure 2” depicts that there is a positive correlation between the literacy rate in population age 7 years and above 2001 and the per capita income 2000-2001. We can say that this is a three-way relation. Per capita income is one of the factors that explain the migration rate, and the population literacy rate is a good indicator of the per capita income of that state. Therefore, states such as Bihar and Uttar Pradesh have a low literacy rate of the population age 7 years and above, low per capita income, and high outward migration. On the flip side, states such as Delhi, Punjab and Maharashtra have a high literacy rate of population 7 years and above, high per capita income and high inward migration.
2.2 Unemployment Rate (1999-2000) and Migration Rate (1991-2001)

In “Table 3” data collected from the Reserve Bank of India-Handbook of Statistics on Indian States for the rural and urban unemployment rate (1999-2000) per 1000 are classified. (Note 2) The urban unemployment rate is higher than the rural unemployment rate in all low, middle- and high-income states except Delhi. One of the reasons for high unemployment in urban areas is the migration of people from poor rural areas to urban areas in search of better employment opportunities, improved lifestyle, and availability of necessities such as water supply, electricity, health care, education, etc. West Bengal has the highest total unemployment rate but, surprisingly, only 0.01% of people migrate out of West Bengal. Bihar has the second-highest total unemployment rate which can also be one of the reasons for the high outward migration rate.

The majority of poor people who migrate to big cities such as Bengaluru (in Kolkata), Kolkata (West Bengal), Mumbai (Maharashtra), and Delhi have a hard time finding skilled jobs and end up working in an informal sector or small-scale family-owned enterprises. The high total unemployment in Delhi can also be explained by the high inward migration rate. Maharashtra, Himachal Pradesh and Odisha also experience high total unemployment. States like Punjab and Haryana have very low total unemployment as compared to states such as Delhi and Maharashtra, even though Punjab and Haryana also experience inward migration. From the below data and Figure 3, there is no clear relation that can be drawn between total unemployment and migration rate.
2.3 The Reasons of Migration Across India—2001

The data in “Table 4” shows the reasons for out-migration per 1000 which is collected from the Migration in India 2007-2008, NSS 64th Round. The reasons for migration are education, marriage, employment-related reasons, forced migration, movement of parent/earning partner, and others. Marriage and employment-related reasons seem to be the most common for out-migration. Delhi is the capital and the well-developed state of India. It has a better education system, health care, transport system, high standard of living, and employment opportunities. There are only 37 people in 1000 who move out of Delhi for employment-related reasons which is lowest as compared to other states. On the contrary, 565 people in 1000 move out of Bihar for employment-related reasons which is higher than any other state. Odisha ranks 2nd and Uttar Pradesh ranks 3rd having 447 and 318 people respectively move out for employment-related migration. For all the other states, migration out of state for employment-related reasons ranges from 11% to 30%.

The most popular reason for out-migration in Delhi is marriage which is 905 people out of 1000. Marriage related migration in Bihar is only 286 which is the lowest as compared to other states. Himachal Pradesh and Karnataka are very close in numbers for marriage-related migration which is 530 and 549 respectively. The range for marriage-related migration is very broad from 28% to 90%.

It is no surprise to know that there are only 4 in 1000 who move out of Delhi for education which is also the lowest in the country. We know from “Table 2” that Bihar has the lowest literacy rate in the
country. There are only 25 people who move out of Bihar for education. Education-related migration is highest in Himachal Pradesh having 74 people migrate out, followed by 63 people of Karnataka. All the other states range from 13% to about 50% for education-related migration. Uttar Pradesh ranks 1st on migration-related to the movement of parents or earning partners which are 112 people out of 1000. Conversely, Delhi ranks lowest as only 5 in 1000 move out on the movement of a parent or earning partner. 10% people of Bihar move out with parents or earning partners. Migration in this category range between 5% to 10% for most of the states. There are 9 out of 1000 people of Punjab, and 8 out of 1000 people of Karnataka fall under the forced migration category. It is shocking to know that the forced migration is highest in Punjab despite the state doing well in all aspects such as literacy rate, unemployment, and income. On average, there are about 20% of the people who migrate for other reasons as well.

3. Migration Pattern Across India—2011
Below in “Table 5”, data for the total population (2001 & 2011), in migrants from other states 2011, out-migrants 2011, net in-migrants 2011, migration rate per 100 (2001-2011) is organized. The data on the total population of 2001 and 2011 is collected from the Reserve Bank of India- Handbook of Statistics on Indian States. The data for in migrants from other states 2011 and out-migrants 2011 is sorted out from the D3: Migrants by place of the last residence, duration of residence and reasons for migration – 2011 collected from the Office of Registrar General & Census Commissioner, India. “Table 5” results indicate that Bihar, Uttar Pradesh, Odisha, Madhya Pradesh, Rajasthan, and West Bengal face outward migration, and states such as Punjab, Haryana, Delhi, Maharashtra, Himachal Pradesh, Gujarat and Karnataka experience inward migration. Bihar has the highest outward migration rate of -3.28. On the other hand, Delhi has the highest inward migration rate of 10.80, followed by Haryana, Gujarat, Maharashtra, Punjab, Karnataka and Himachal Pradesh.

3.1 Per Capita Income (2011-2012) and Literacy Rate (2011)
The data on per capita income 2011-2012 is collected from the Economic and Statistical Organization Government of Punjab—State-Wise data, and the Literacy rate population 7 years and above 2011 is collected from the Reserve Bank of India—Handbook of Statistics on Indian States (Table 6). There is a vast difference in the per capita income of Bihar and Delhi. Bihar has the lowest per capita income of Rs 21,750, and Delhi has the highest per capita income of Rs 185,361. Comparing Delhi and other states, the per capita income of Haryana is 57.2%, Maharashtra is 53.7%, Himachal Pradesh is 47.3% and Punjab is 46.1% of the per capita income of Delhi.

“Figure 4” represents the positive relation between migration rate per 100 (2001-2011) and per capita income 2011-2012. High-and middle-income states experience inward migration, and low-income states experience outward migration. Delhi has the highest inward migration rate which is consistent with the highest per capita income, and Bihar has the highest outward migration rate which is uniform with the lowest per capita income. Haryana has the 2nd highest per capita income, and 2nd highest
inward migration rate. Similarly, Uttar Pradesh has the 2nd lowest per capita income, and 2nd highest outward migration rate.

“Figure 5” shows the positive relationship between the per capita income (2011-2011) and the literacy rate of the population age 7 years and above 2011. The literacy rate of the population age 7 years and above is 61.8% in Bihar which is the lowest literacy rate in the country. On the flip side, Delhi has the highest literacy rate of 86.21%. The other states such as Himachal Pradesh has a literacy rate of 82.8%, Maharashtra has 82.3% which is quite close to the literacy rate of Delhi. 9 out of 13 states have a literacy rate above 72% which is quite impressive. According to data, states such as Uttar Pradesh, Rajasthan, Bihar, and Madhya Pradesh still lack adequate education infrastructure. The three-way relationship of migration rate 2001-2011, per capita income 2011-2012, and the literacy rate of population 7 years and above 2011 still holds.

![Figure 4. Per Capita Income and Migration Rate per 100 (2001-2011)](image-url)

Figure 4. Per Capita Income and Migration Rate per 100 (2001-2011)
3.2 Unemployment Rate (2009-2010) and Migration Rate (2001-2011)

In “Table 7”, data on rural and urban unemployment rate per 1000 (2009-2010), total unemployment rate per 1000 (2009-2010), and percentage of unemployment 2009-2010 is laid out. Bihar has the highest unemployment rate of 93 per thousand. Conversely, Gujarat has the lowest unemployment rate of 26 per thousand which is very impressive in comparison to many other states. In recent years, Gujarat has expanded the industrial and manufacturing sector which has created many employment opportunities in the state. The other high unemployment states are Punjab, Odisha and Himachal Pradesh with an unemployment rate of 74 per thousand, 72 per thousand, and 65 per thousand respectively.

“Figure 6” represents the total unemployment rate (2009-2010) versus the migration rate per 100 (2001-2011). The inward migration rate of Haryana is about three times less than the inward migration rate of Delhi, but both states have the same unemployment rate. The unemployment rate of Punjab is the highest out of all high-income states, even though the inward migration rate of Haryana, Delhi, Maharashtra and Gujarat is higher than Punjab. There is no clear relation between the migration rate per 100 (2001-2011) and the total unemployment rate 2009-2010.
4. Comparison of Migration Pattern across India—2001 and 2011

We can compare the data on migration rate per 100 for 1991-2001 and 2001-2011, per Capita Income 2001 and 2011, literacy rate of population 7 years and above 2001 and 2011, total unemployment rate 1999-2000 and 2009-2010, and identify any changes in the pattern. In both periods from 1991-2001 and 2001-2011, Bihar had the highest outward migration rate per 100, and Delhi had the highest inward migration rate per 100. The migration rate of Bihar was -2.76 in 1991-2001 which increased to -3.28 in the period 2001-2011. On the contrary, Delhi had a migration rate of 18.20 in the period 1991-2001, and it decreased to 10.80 in 2001-2011.

This is interesting to see that there is no change in the migration rate of Uttar Pradesh, it stayed -2.07, in both decades 1991-2001 and 2001-2011. There is a minor change in the migration rate of Rajasthan. It increased from -0.62 in 1991-2001 to -0.65 in 2001-2011. There is also an increase in the outward migration rate of states such as Odisha, Madhya Pradesh, West Bengal, and Karnataka. The other good point to note is that inward migration has increased in all the middle and high-income states from the period 1991-2001 to 2001-2011 except Maharashtra, Haryana, and Delhi which is quite strange as in period 1991-2001, these were the most popular among people to migrate in.

Per capita income of all the states has increased from the period 2000-2001 to the period 2011-2012. The fact that Bihar has the lowest per capita income, and Delhi has the highest per capita income in India holds in both periods. In 2001, the per capita income of Delhi was 85% higher than the per capita income of Bihar. It is shocking to see that this difference increased to 90% in 2011. Even in the period 2011-2012, the low-income states such as Odisha, Madhya Pradesh, Uttar Pradesh, and Rajasthan are...
still attempting to keep up with the rest of the country and have quite low per capita income as compared to the other states of India. The per capita income of Karnataka was Rs 17,464 in the period 2000-2001, and it increased to Rs 90,269 in the period 2011-2012. Karnataka moved up in rank from 7th position to 4th position. The economic progress of Karnataka has left behind Gujarat, Punjab, and Himachal Pradesh.

Punjab was ranked 2nd in per capita income 2000-2001, but in 2011-2012, it holds the 7th position. The other states such as Haryana, Maharashtra, Himachal Pradesh, Gujarat, and Karnataka have made more progress than Punjab. It is strange that even though the per capita income of Delhi, Maharashtra, and Haryana has increased, the inward migration rate of these states has decreased. This result indicates that only the high per capita income of any state is not sufficient to attract people from other states.

In “Table 8”, the total unemployment rate (per 1000) 1999-2000 and 2009-2010 is sorted. There is no doubt that people in all Indian states are more educated today than they were a decade ago. The literacy rate of the population 7 years and above in 2011 is higher than the literacy rate in 2001. Delhi holds the 1st rank in the literacy rate in both 2001 and 2011. Conversely, Bihar has the lowest literacy rate in both 2001 and 2011. “Table 8” also shows the data on the total unemployment rate between 1999-2000 and 2009-2010 and the growth rate of the population for the period 1991-2001 and 2001-2011. (Note 3) There can be more than one reason for the increase or decrease in the unemployment rate such as an increase or decrease in population size, job creation rate, the pattern of investment and programs to subsidize small businesses, etc. In this paper, the focus will be to figure out any relation between the unemployment rate and migration rate. Out of all the states, Delhi has done an incredible job in decreasing the unemployment rate. The Unemployment rate of Delhi in 1999-2000 (per 1000) was 80 per thousand, and it decreased to 43 per thousand in 2009-2010 which is a 46.25% decrease in unemployment. The growth rate of the population of Delhi also fell more than 50%. The decrease in the inward migration rate of Delhi from 18.20 (1991-2001) to 10.80 (2001-2011) can be one of the reasons for the decrease in unemployment. The unemployment rate and migration rate of Maharashtra follows a similar pattern.

West Bengal had the highest unemployment rate (per 1000) of 104 in 1999-2000 which fell to 59 in 2009-2010. It is a 43.27% decrease in the unemployment rate. Again, this can also be related to the increase in outward migration rate from -0.01 (1991-2001) to -0.36 (2001-2011) and a decrease in population growth rate. Similar conclusions can be summarized about states Odisha, Rajasthan, and Madya Pradesh. There is no change in the migration rate of Uttar Pradesh; however, the unemployment rate decreased by 6.12% which can be due to a decrease in population growth rate from 25.8 in 1991-2001 to 20.23 in 2001-2011. Despite the increase in the inward migration rate of Karnataka and Himachal Pradesh, the unemployment rate decreased by 20% and 16.67% respectively.

Now we will look at the states which have experienced an increase in the unemployment rate. There is a 64.44% increase in the unemployment rate of Punjab which is way higher than any other state. There is a 30% drop in the population growth rate of Punjab from the period 1991-2001 to the period
2001-2011. The inward migration rate of Punjab increased from 1.53 (1991-2001) to 1.99 (2001-2011) which is a 30.53% increase; however, the increase in the unemployment rate is more than double the increase in inward migration rate.

It is also surprising to see that even though more people migrated out of Bihar in the period 2001-2011 than 1991-2001, the unemployment rate of Bihar is almost the same in the period 1999-2000 and 2009-2010. The increase in unemployment of Bihar is certainly not related to the increase in population size. The growth rate of the population of Bihar was 28.6 from 1991-2001 which fell to 25.42 from 2001-2011. This shows that Bihar and Punjab are lacking development. The unemployment rate of Haryana and Gujarat is also higher in the period 2009-2010 than 1999-2001, but it is not as bad as the unemployment rate of Punjab. The growth rate of the population has decreased for all the states from the period 1991-2001 to the period 2001-2011. We can conclude that in states where we see a decrease or increase in the unemployment rate, factors other than migration rate and population size also play a vital role.

5. Interpretation of Demographics of Migration

The term “Demography” is defined as the study of population with connection to size, birth rate, death rate, population growth rate, and migration. The data collected from the Office of the Registrar General & Census Commissioner, India is arranged in “Table 9” which shows the total population in a decade, increase or decrease in population size, percentage change from 1901-2011. In “Table 10”, data collected from the Indian Economy since Independence indicates the birth rate per thousand and the death rate per thousand in India from 1901-1960 for every decade. In “Table 11” data collected from the World Bank for the period, 1960-2011 shows the birth rate per thousand, the death rate per thousand, life expectancy at birth and the annual percentage of population growth. The study of the population growth of India can be divided into four phases of transition.

The first phase is from 1901-1921. During this period, there was stagnant population growth. In 1901, the population of India was 238.3 million which increased to 251.3 million in 1921. The increase in population from 1901-1911 was 13.6 million which is a population growth rate of 5.75%. Then followed by a 772.1 thousand decrease in population from 1911-1921 which is a decline in population growth rate by -0.31%. In total, this is about a 12.9 million increase in population over 20 years which represents a growth rate of 5.44%. Therefore, the pace of population growth was slow up to 1921.

From 1901-1910, the birth rate per thousand was reported 49.2, and the death rate per thousand was reported 42.60. The birth rate was higher than the death rate from 1900 to 1910, and there is a minor difference in birth and death rate from 1911-1920. The Census report 1921 talks about the famines and diseases in India before 1921. The reason for the slow population growth during 1901-1921 is that India was hard hit by diseases such as influenza, malaria, cholera and plague, and famines. According to the Census report, in 1918, the death rate from influenza was so high that the natural population
growth of the past 7 years was wiped in a few months. There was a serious upsurge of plague in states Bombay and Punjab, and there were about 6.5 million deaths from the plague in India.

The second phase is 30 years from 1921-1951. There was a steady increase in population during this phase. In 1921, the population of India was 251.3 million, and it increased to 361 million by 1951. This is an overall increase of 109.7 million or 43.7% in the population size. There was an 11% increase in population from 1921-1931, followed by a 14.2% increase from 1931-1941 and a 13.31% increase from 1941-1951. The main reason for the increase in population was the fall in the death rate. The death rate per thousand was reported 48.60 in the period 1911-1920 which fell to 27.40 in 1941-1950. Control on nationwide spread diseases helped to decrease the death rate. There was also a minor decrease in the birth rate.

The third phase is from 1951-1981. There was a rapid increase in population in this period. From 1951-1961, the increase in population was 21.64 %, followed by an increase of 24.80% and 24.66% during 1961-1971 and 1971-1981 respectively. During 1951-1981, the birth rate continuously declined. The birth rate was at 40.9 per thousand in 1951 and reached 35.92 per thousand in 1981. However, the decrease in the death rate was incredible. The death rate was 22.8 per thousand in the period 1951-1961, and it fell to 13.03 per thousand in 1981. The smaller decrease in birth rate and a large decrease in death rate caused a rapid increase in the population of India.

The fourth phase is from 1981-2011. The population of India was 683.3 million in 1981, and it increased to 1.2 billion in 2011 which is an increase of 526.8 million. Even though there is a large increase in the population in the period from 1981-2011, the population growth is increasing at a decreasing rate. The change in population growth from 1981-1991 was 23.87%, and it decreased to 21.54% and 17.64% in periods 1991-2001 and 2001-2011 respectively. The birth rate has fallen significantly from 35.92 in 1981 to 20.50 in 2011. The death rate has also decreased from 13.03 in 1981 to 7.39 in 2011.

The general trend for the birth rate is a continuous decrease. It started very high with 49.2 births per thousand in the period 1901-1910, and it decreased to 20.50 births per thousand in 2011. The death rate increased in the period 1911-1920, and after 1920, there was a continuous decline in the death rate. The decline in the birth rate was smaller as compared to the death rate which has been the major reason for the population growth.

“Table 12” shows the data on the age dependency ratio which is collected from the World Bank for the period 1960-2011. The Age Dependency ratio, old, is defined as the ratio of people older than 64 to the working-age (15-64) population. The Age Dependency ratio, Young, is defined as the ratio of people younger than 15 to the working-age population.

In 1960, the life expectancy at birth was very low at 41.42 per thousand. There was a continuous increase in life expectancy which shows its consistency with the lower death rate. The life expectancy increased to 67.13 per thousand in 2011. An increase in life expectancy and a fall in death rate shows that people live longer which also increases the age dependency ratio, old. The age dependency ratio, old continues to
increase from 5.39% in 1960 to 8.03% in 2011. The age dependency ratio, young increased from 71.61% in 1960 to 75.61% in 1966. After 1966, there was a decrease in the age dependency ratio, young. It fell from 74.74% in 1968 to 47.18% in 2011. The overall age dependency ratio increased from 77% in 1960 to 81.52% in 1966. After 1966, it started to decrease, and in 2011, it reached 55.21%. The decrease in the age dependency ratio, younger was far more than the decrease in the age dependency ratio, old. So, the overall decrease in the age dependency ratio is because of a decrease in the age dependency ratio, young.

Figure 7. Birth Rate, Death Rate and Population Growth (1960-2011)
5.1 Age Dependency Ratios—2001 and 2011

In “Table 13” data on the percentage of the population in age groups dependency ratios for 2001 and 2011 is arranged which is collected from the Census of India—Population Projections for India and States 2001-2026. The groups are divided into three categories: younger population 0-14 years, working-age population 15-59 years, and older population 60+. According to the data in “Table 13”, Bihar has the highest younger population dependency ratio of 42.1%, and then followed by 41.1% in Uttar Pradesh. There is a minor difference in the younger dependency ratio of Himachal Pradesh and Punjab. Himachal Pradesh has the lowest younger population dependency ratio of 31.1%, and Punjab has a 31.4% younger dependency ratio.

For the age group 60+ population dependency ratio, Delhi ranks lowest at 5.1%, and Himachal Pradesh ranks highest with 8.8%. The percentage of the working-age population (15-59) is lowest in Bihar 52.4%, and highest in Delhi 62.5%. We can conclude that the poor states such as Bihar, Uttar Pradesh, Odisha, and Madhya Pradesh are in the earlier phase of transition whereas the rich states such as Delhi, Punjab, Maharashtra, and Haryana are in the later phase of demographic transition.

There is a weak correlation between the working-age population of 2001 and per capita income 2000-2001. Delhi has the highest working-age population of 62.5%, and the highest per capita income of Rs 41,436. On the contrary, Bihar has the lowest percentage of the working-age population 52.4%, and the lowest per capita income of Rs 6,396. States such as West Bengal, Karnataka, Gujrat, and Himachal Pradesh have a higher percentage of the working-age population than Haryana, but the per capita income (2001) of Haryana is higher than the per capita income of West Bengal, Karnataka, Gujrat, and Himachal Pradesh. Similarly, Madhya Pradesh has a per capita income higher than Odisha,
even though Odisha has a higher percentage of working-age population compared to Madhya Pradesh. Therefore, the correlation between per capita income and the working-age population is weak.

5.2 Comparison of Age Dependency Ratio—2001 and 2011

In 2011, the percentage of the younger population decreased, and the percentage of the 60+ age group increased in all states. The decrease in the percentage of the younger population is because of the falling birth rate, and an increase in the percentage of the older population is because of the falling death rate. According to data on the percentage of the population in age groups 2011, Uttar Pradesh has the highest younger population of 35%, and Delhi has the lowest younger population of 24.5%. The percentage of population 60+ is highest in Himachal Pradesh 10.3% and lowest in Delhi 6.5%. The percentage of the working-age population also increased in all states. Delhi has the highest working-age population of 69.1%, and Uttar Pradesh has the lowest working-age population of 57.9%

As in 2001, the percentage of the younger population of Bihar was about 9.6% higher than the percentage of the younger population of Delhi. On the other hand, the working-age population of Delhi was 10% higher than the working-age population of Bihar. One would estimate that over a decade, in 2011, the younger population of Bihar will enter the working-age group, and some percentage of the working-age population of Delhi will enter the 60+ age group. For that reason, the percentage of the working-age population in Bihar and Delhi will be roughly the same. However, data on the percentage of population dependency ratio 2011 tells a different story. The percentage of the working-age population of Delhi remains 10.2% higher than the working-age population of Bihar. This difference is related to the migration of people from low-income states to high-income states. The inward migration is more beneficial for those states where there is a large percentage of a younger and older population. The people from low-income states move to the middle- and high-income states and help to overcome the problem of labor force shortage.

It is expected that in the future, the percentage of the working-age population will shrink in all states as the percentage of population 0-14 is declining. On the other hand, the percentage of the 60+ age group will increase in all states because of the declining death rate. This may result in a shortage of labor. The problem of labor shortage may affect more the outward migration states. The high inward migration rate of rich states may be helpful or completely overcome the problem of decreasing the percentage of the labor force.

It is evident from the below “Figures 11 & 12” that there is a similar pattern for the percentage of population dependency ratios for the rich and poor states. The percentage of the population 0-14 has declined, working-age population and 60+ population percentages have increased from 2001 to 2011. So, the problem of the shrinking working-age population will be faced by both rich and poor states. The rich states may have an advantage of inward migration which will help in expanding the working-age population pool.
Figure 9. Delhi

Figure 10. Bihar
Figure 11. Poor 5 Average

<table>
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<th>2011</th>
<th>2001</th>
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<tr>
<td>0-14</td>
<td>32.2</td>
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<td>15-59</td>
<td>60.28</td>
<td>54.66</td>
</tr>
<tr>
<td>60+</td>
<td>7.54</td>
<td>6.32</td>
</tr>
</tbody>
</table>

Figure 12. Rich 4 Average

<table>
<thead>
<tr>
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<th>2011</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>26.15</td>
<td>33</td>
</tr>
<tr>
<td>15-59</td>
<td>65.675</td>
<td>59.775</td>
</tr>
<tr>
<td>60+</td>
<td>8.2</td>
<td>7.275</td>
</tr>
</tbody>
</table>
6. Conclusion

The inward and outward migration rate of states have changed from the period 1991-2001 to 2001-2011. However, the out-migration is still from low-income states to high-income states. There is a negative relationship between poverty and inward migration. Outward migration states are poor and lag in economic and social development. The expansion of high-income states is far higher than the growth of low-income states. This is verified by the literacy rate of the population age seven and above, unemployment rate, and per capita income data of low and high-income states for years 2001 and 2011. The difference in per capita income is growing over time. The saying that “the rich have become richer and the poor have become poorer” completely holds true for the Indian economy. The literacy rate of poor income states has increased over time, but still less than the high-income states.

It is evident from the data that the birth rate per thousand follows the decreasing trend from 1901-2011. The death rate per thousand has also fallen from 1921 to 2011. The percentage of the working-age population has increased in all states from 2001 to 2011. If the decrease in birth rate and falling death rate continued; in the future, this will result in a low percentage of the working-age population. This will increase the burden on the labor force. This issue may be more visible in states with high outward migration rate such as Bihar and Uttar Pradesh. The high-income states such as Delhi, Maharashtra, Haryana, etc. may be at advantage because of the movement of people from low to high-income states.

In recent years, the Indian government has focused on developing the industrial sector, big manufacturing plants, the information technology sector, and the transportation network. The Indian government’s current big projects are the Gujarat-Gorakhpur Gas Pipeline, Mumbai Trans Harbor Link, Delhi-Mumbai Trade Corridor (DMIC), Gujarat International Finance Tec-city, Diamond Quadrilateral Project connecting four megacities Mumbai, Delhi, Kolkata, and Chennai with a high-speed railway network, etc. There is no surprise to see that majority of projects are focused on the developed states like Maharashtra, Delhi, and Gujarat.

Conversely, the agriculture sector in India has started to suffer which is the major source of income in states like Punjab, Bihar, Haryana, Madhya Pradesh and Uttar Pradesh, etc. There is a limited water supply to farms and farm labor is costly. It is hard for small scale farmers to afford the expensive agriculture equipment, fertilizers and chemical sprays that are necessary for high crop yield. The Indian government has recently passed a bill to privatize the agriculture markets in the country’s largest wheat-producing states Punjab, Rajasthan and Haryana. According to this bill, farmers must take their crops to private (big Corporations) buyers. The government is shrinking the income of farmers by closing the doors of agriculture markets operated by state governments where farmers were able to sell at the market rate fixed by the central government. The private agriculture markets of Bihar, Uttar Pradesh and Madhya Pradesh are the leading examples where farmers must sell their crops at a rate lower than the market rate. Wheat in Punjab was bought by the state agriculture market at a market rate of Rs1925 per quintal (100 Kg) in 2020, whereas for the same crop, the private companies in Bihar
were paying about Rs 1200 per quintal. This new policy is going to hurt not only farmers of Punjab, Haryana and Bihar, also the labor that works in farms.

The development of states is the key for in and out-migration. The government’s focus on the development of big cities and ignorance towards the agriculture sector is attracting many people towards developed cities in search of higher paid jobs and improved living. Migration is a desirable incidence, but it does have negative consequences in some states. It is clear from the data that the urban unemployment rate is higher than the rural unemployment rate. The actual job creation rate in developed cities is lower than the in-migration rate. The reality is that many migrants end up working in informal sectors of low skilled, low—productivity, and self-employed such as street hawking, petty service jobs. The mass migration is giving rise to urban slums and shantytowns. Many people live in houses that are made of waste materials such as cardboard, plastic, old clothes, torn metal pieces, paper, mud, and wood. These houses have little or no access to clean drinking water, sanitation, electricity, etc., and people are exposed to many infectious diseases such as Diarrhea, Cholera, Measles, Typhoid, etc. The financial situation of these people is so critical that many poor children and women become victims of beggary, child labor, and prostitution.

The main reasons for migration are poverty and unemployment, and this issue needs to be addressed by policymakers. The younger people are usually the ones who migrate in search of employment and livelihood. The out-migration of the labor force is not a good sign for the progress of that state. The focus on development in states such as Bihar, Uttar Pradesh, Odisha, Rajasthan will lower the out-migration rate.

One of the key factors in policymaking is to understand what factors are responsible for the decision-making process of migration. Why people move out, and how mass migration of people affects economic and social development. Balanced development in all states is must to lower the migration rate. The government must have policies in place to provide equal health care, education and other basic facilities such as water supply, electricity, transportation, etc. in all states. The government should also equally support the agriculture sector and subsidize small-scale farmers. Expansion of the small scale and labor-intensive industries in low-income states will help to lower the unemployment rate and mass out-migration.

References


Appendix 1.

Data Sources Used in the Paper

1. The Office of the Registrar General & Census Commissioner, India

This website is a great source of information about the attributes of the population of India having the first census data collected in 1872. The Office of the Registrar General & Census Commissioner, India has various divisions such as social studies and data processing division, demography and language division, administration and personal division, etc. The data on migration is collected every 10 years and classified by place of the last residence, place of birth, duration of residence, reasons for migration, etc. The data is available in downloadable Excel files called D-Tables. There are also census data highlights available for some years which provide a summary of the census data. The other census source that was very helpful in this project is “Population projections for India and states 2001-2026”. This report is prepared by the National Commission on Population. In this report, the data on population dependency ratios, sex ratios, birth and death rate, fertility rate, mortality rate, life expectancy, etc. is available from 2001-2026 for all states.
2. The World Bank

The World Bank was formed by combining the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). The role of the World Bank is to help developing countries by providing financial assistance and policy advice to improve living standards, reduce poverty, and for the growth of the economy. This is one of my favorites sources to collect data. The World Bank has a broad range of data available on 189 countries and the time series for the data goes back to 1960. The databank allows to collect data on more than one country in the same table and Figure. The databank also allows to choose Figure style, layout, time series and databases. The students can download and save data and Figures by signing in. All these features make the World Bank stand out from the other sources.

3. The Reserve Bank of India

The Reserve Bank of India is the central bank of India established in 1935. One can find monthly, weekly and yearly publications, press releases, public debt statistics, databases on the Indian Economy, RBI papers, and state statistics and finances on this website. The most useful data for students is available under the section Handbook of statistics on the Indian States. This section summarizes data from 1990- present for all states of India for social and demographic indicators, state domestic product, agriculture and allied, industry, infrastructure, fiscal, and banking sector.

4. National Sample Survey Organization

The National Sample Survey Organization is also known as NSSO. NSSO comes under the Ministry of Statistics and Programme Implementation, Government of India. The NSSO conducts the survey every year in developing countries and collects data on employment, health, expenditure on education, consumption expenditure, drinking water, sanitation, housing conditions, migration and labor force, etc. The data and reports of annual surveys can be found in the Ministry of Statistics and Programme Implementation.

5. Department of Planning Government of Punjab

This website is owned by the Government of Punjab. The data on state plan summary and schemes, sector-wise expenditure, MC budget, comparison of Punjab finances with other states, etc. is available on this website. The comparison data is very useful to know how much Punjab has progressed as compared to other states.

6. Economic and Statistical Organization Government of Punjab

This website has statistics on a broad range of economic, environmental, and social issues. The reports on Human Development, agriculture sector, economic census, village directory of Punjab and National Strategic Statistical Plan are available for the public. The data on education, per capita income, GSDP, and growth rates of all Indian states can also be found under the State Wise data section of this website.

7. Indian Economy since Independence

Indian Economy since Independence, Nineteenth Edition is a book edited by Uma Kapila. This book talks in detail about the planning and market, fiscal and budgetary developments, demographic
constraints, transition and consequences, development and issues in the agriculture sector, Industry and Infrastructure, inflation, poverty, and Inequality in India.

Notes


% of Unemployment per 1000 (1999-2000) = \( \frac{\text{Total Unemployment (1999-2000)}}{1000} \) * 100