# Spatial and Temporal Pattern of Internal and Inter-state Migration in West Bengal, India

Moslem Hossain[1], Sanjit Sarkar[2]*, Mriganka Dolui[3] and Mayank Praksh[4]

**Abstract**

The movement of people is a fundamental aspect of human history and a powerful mechanism through which people are redistributed geographically. The objective of the present study is to analyze and understand the trends, patterns, streams, and reasons for internal migration and inter-state in-migration in West Bengal over the last two decades. The data from the last three Population Censuses of India, i.e., 1991, 2001, and 2011, have been used to provide a comprehensive overview of migration patterns over 20 years in West Bengal. The study employs various analytical methods, including bivariate and descriptive tabulations, to examine the characteristics of migrants in terms of age, sex, level of education, and duration of residence. The study also identifies the top five destination and origin states for migrants coming to and leaving West Bengal. To gain a better understanding of the spatial patterns of internal migration in West Bengal, the study uses Circular plots to visualize inter-district migration flows within the state. The migrant stock in West Bengal has substantially increased over time, with more migrants coming from other parts of the state. In terms of interstate migration, there are more out-migrants than in-migrants, which may be attributed to increased interstate marriages. A shift from rural-to-rural migration to rural-to-urban migration suggests a migration transition in the state. There has been a significant change in the migration streams of Kolkata and South 24 Parganas between 2001 and 2011, with Kolkata experiencing a large amount of out-migration in 2011. Furthermore, a significant inter-regional disparity exists within West Bengal, with the northern districts facing more significant challenges compared to the southern districts. Policy interventions promoting inclusive regional development in the state are essential to address these disparities, with a particular focus on the northern districts.

**Key words:** Migration; Migrant-Stock; Migration Streams; Depopulation; West Bengal.

## Introduction

The internal migration of any nation, characterized by its immense cultural and geographical diversity, is a phenomenon of profound significance that has shaped societal, economic, and demographic landscapes for centuries. The dynamic movement of people within the boundaries of the country has been a pivotal force driving urbanization, labour market dynamics, and regional development. Moreover, human migration, a global phenomenon, extensively studied for its impact on the economy, development, health, and beyond (Raghuraman and Chaturvedi, 2021), India's 1991 economic

* *Corresponding Author*

[1] *Doctoral Fellow, Department of Geography, Central University of Karnataka, Karnataka-585311, India. Email Id: moslemgeo@gmail.com*

[2] *Assistant Professor, Department of Geography, Central University of Karnataka, Karnataka-585311, India, Email Id: sanjitiips@gmail.com*

[3] *Doctoral Fellow, Department of Geography, Central University of Karnataka, Karnataka-585311, India, Email Id: mriganka.dolui@gmail.com*

[4] *Theme Leader- Monitoring and Evaluation Small Industries Development Bank of India. Email Id: mayankprakash12@gmail.com*

liberalization disrupted rural industries, promoting rural-to-urban mobility due to reduced rural opportunities (Kundu, 1997). With in India, spatial mobility reflects diverse geography, socio-economics, and culture (Sivaramakrishna et al., 2005; Kundu, 2019). Similar to other developing nations, India has experienced swift internal migration due to urbanization, socio-economic advancement, and environmental changes. By 2011, internal migrants numbered 453.6 million, constituting over 44 percent of India's population (Kundu, 2018). Despite its significant role in economics, politics, and public health (Bhagat, 2008), migration research receives relatively limited attention among Indian demographers, with a research shift towards reproductive health since the 1990s (Bhagat, 2010). Consequently, thorough examination of internal migration remains imperative for researchers, academics, and policymakers. At the national level, studies have identified the patterns and regional characteristics of internal migration in India, including migration to and from West Bengal, albeit with some gaps. Most of these research studies were based on sources like the Census of India or nationally representative surveys such as the National Sample Survey (NSS), India Human Development Survey (IHDS), and others (Rele, 1969; Piplai & Majumdar, 1969; Yang, 1979; Premi, 1980; Skeldon, 1986; Singh, 1986; Kundu, 1986; Singh, 1998; Kundu & Gupta, 1996; Lusome & Bhagat, 2006; Bhagat, 2010; Bhagat, 2016; Ansary, 2018; Agarwal, 2022). The NSS and IHDS data are often used to comprehend unique forms of spatial mobility, such as temporal and seasonal migration (Keshri & Bhagat, 2010; Keshri & Bhagat, 2012; Mazumdar et al., 2013; Mahapatro, 2014; Kundu, 2018), as well as various aspects of migration in India (Bhagat, 2008; Chandrasekhar & Sharma, 2015; Chandrasekhar & Sharma, 2014; Mahapatro, 2012; Srivastava, 2011; Bhagat & Keshri, 2020; Mahapatro, 2020). Furthermore, the India Human Development Survey (IHDS) data provides an additional opportunity to correlate various social and economic variables with internal migration (Munshi & Rosenzweig, 2016; Nayyar & Kim, 2018; Lei et al., 2020; Lei & Desai, 2021; Das & Singhal, 2022). According to the 2011 census, West Bengal is home to 29.5 million internal migrants, contributing to 38.1 percent of the state's total population. However, the exhaustive investigation of internal migration in West Bengal has been hindered by the delayed availability of the latest census data. Much of the migration research in West Bengal has focused on issues like migrants' remittances (Rajan & Sarkar, 2020; Reja & Das, 2021), livelihood well-being (Chakraborty et al., 2022; Debnath & Nayak, 2022), and labour market dynamics (Pramanik, 2021; Mistri, 2021). As far as our knowledge extends, there is a dearth of studies analysing the current scenario of inter-district and intra-district movement of people in West Bengal. Furthermore, West Bengal necessitates increased attention towards research on internal migration due to several compelling reasons that underscore the requirement for focused studies within the state. One of the primary reasons is the unique socio-economic and demographic dynamics of the state, which contribute to significant patterns of internal migration. West Bengal's distinctive socio-economic, historical, and cultural contexts, coupled with diverse migration patterns and dynamics, establish a compelling case for comprehensive research on internal migration. Such research is essential to inform policies, foster inclusive development, and address the specific

challenges and opportunities arising from internal migration within the state. Against this background, the present study aims to understand the trends, patterns, streams, and reasons of migration for internal migration and inter-state in-migration in West Bengal during the last two decades using Census data from 1991 to 2011.

## Data and Methods

### *Data*

The present study analysed data from the last three Population Censuses of India—1991, 2001, and 2011—to understand the levels and trends of internal and inter-state migration in West Bengal from 1991 to 2011. The Census of India provides a comprehensive enumeration of the entire population of the country, along with their demographic, social, and economic characteristics, at national, regional, and sub-regional administrative levels. In India, the Census is conducted every ten years by the Office of the Registrar General and Census Commissioner of India, under the supervision of the Ministry of Home Affairs (MoHA), Government of India. For these analyses, we utilized data from the D-Series or 'migration tables,' where information on migration for each enumerated individual is available, along with other demographic and socioeconomic characteristics, segmented by different socioeconomic and regional categories. As a result, the information within the D-Series has the potential to delve into the migration phenomenon across various levels of administrative units. In this study, we specifically employed migration data for West Bengal.

### *Defining 'migration' and indices*

Since 1971, the Census of India has identified migrants based on the following collected information: first, place of birth; second, place of the last residence; and third, duration of residence in the place of enumeration. Using these questions, the total population in an area may be classified into two groups: migrants and non-migrants. In this study, we defined migration based on the 'place of the last residence' (POLR) question. This question asks individuals about their previous place of residence at the time of enumeration, helping to identify internal migration patterns within the country. However, there are both advantages and disadvantages to using this method for defining migration. While using 'Place of Birth' simplifies the identification of native and non-native populations, it might lack specificity and relevance to recent migration trends. On the other hand, 'Place of the Last Residence' captures more recent migration patterns and is responsive to current dynamics, but it's susceptible to data inaccuracies and might not adequately account for temporary or circular migrations. In addition, tabulation of POLR data along with the duration of residence in the place of enumeration provides further opportunities for analyzing migration data across various migration intervals. According to POLR data, if a person's place of last residence differs from the place of enumeration, they are identified as a migrant. Internal migrants are those who reported their place of last residence within the administrative boundaries of the state but outside the place of enumeration. Migrants who stated their place of last residence as any state other than the state of enumeration (e.g., West Bengal) are classified as inter-state 'in-migrants'. Similarly, migrants who were enumerated in other states of India and mentioned West Bengal as their place of last residence are referred to as inter-state 'out-migrants' from West Bengal.

Inter-district and intra-district migrations represent two forms of internal migration: migration of people between districts within the state boundary and migration within the limits of a district, respectively. However, for the analysis of inter-district 'in-migration' and 'out-migration,' we have used place of birth data (D-11, Census 2001 & 2011) due to the limitations of place of last residence (POLS) data, which does not provide the names of destination districts (as published in 2011). As a result, POLS data can be used to calculate inter-district 'in-migrants', but it is difficult to calculate 'out-migrants' from the districts. Inter-state 'in-migration' and 'out-migration' rates are calculated as (Total 'in-migrants'/'out-migrants' of the 'i' region at time 't' / Total population of the 'i' region at time 't') * 1000 persons. The migrants' stock in the state is defined as the sum of internal migrants, inter-state in-migrants, and immigrants into the state. Gross migrants are the sum of in-migrants and out-migrants, whereas the difference between these two is called net migrants for an administrative unit. Migration streams are categorized into four types: rural-rural, rural-urban, urban-rural, and urban-urban, aiming to understand the migration dynamics for internal and inter-state in-migration. Migrants who migrated during the last 0-9 years are defined as intercensal migrants. The analysis for inter-state 'in-migration' and 'out-migration' is restricted to intercensal migrants only, as it provides insight into recent migration behaviours among people.

### *Analytical Approach*

The analytical approach of the study involves bivariate and descriptive tabulations, which are utilized to examine migration levels, trends, and patterns. The stock of migrants and migration patterns are categorized by age and sex, level of education, and duration of residence at the place of enumeration, providing a comprehensive understanding of migrant characteristics within the state. The major (top five) 'destination' and 'origin' states for migrants to and from West Bengal, respectively, were identified to address questions about where migrants are going to and coming from in relation to the state. An analysis at the district level was conducted to comprehend the spatial patterns of internal migration within West Bengal. Suitable cartograms, charts, and graphs were employed to effectively represent migration data. Circular plots were utilized to visualize inter-district migration flows within West Bengal.

## Results

### *Migrants' Stock and Demographic Profile*

A total of *3,34,48,472* individuals (*i.e.,* 3.34 crores) residing in West Bengal are classified as 'migrants' based on the information of the place of last residence in the Census, 2011 (Table 1). Among these, 2.91 crores are internal migrants of the state, and 43.9 lakhs are in-migrants into the state either from the other states in India, *i.e.*, inter-state (23.8 lakhs) or from other countries, *i.e.,* immigrants (20.1 lakhs). The migrants' stock in West Bengal has increased from 1.79 crores in 1991 to 3.34 crores, nearly doubled in 2011. The share of internal migrants to total migrant stock in the state showed an upsurge from 74 percent to 87 percent from 1991 to 2011. Contrary, the share of immigrants reduced from 15 percent to only six percent, a significant decrease during the same period. Equally, a declining share is also recorded for the inter-state in-migration. Possibly, it was the first time in 2011 that West Bengal reported more out-migrants than in-migrants (Table-5).

**Table 1** Distribution of migrants by different categories of migration in West Bengal, 1991-2011.

| Migration Categories | 1991 | | 2001 | | 2011 | |
|---|---|---|---|---|---|---|
| | Migrants ('000) | Percent | Migrants ('000) | Percent | Migrants ('000) | Percent |
| Internal Migrants | 13144 | 73.55 | 20056 | 79.91 | 29053 | 86.86 |
| Intra-dist. | 10240 | 57.3 | 15335 | 61.1 | 22836 | 68.27 |
| Inter-dist. | 2905 | 16.25 | 4720 | 18.81 | 6217 | 18.59 |
| Inter-State (in migrants) | 2005 | 11.22 | 2457 | 9.79 | 2381 | 7.12 |
| International (in migrants) | 2706 | 15.14 | 2585 | 10.30 | 2006 | 6.00 |
| Unclassified | 15 | 0.09 | - | - | 9 | 0.03 |
| Total Migrants' stock | 17871 | 100 | 25098 | 100 | 33448 | 100 |
| Total Population | 68078 | | 80176 | | 91276 | |

Note: **Total migrants' stock includes internal migration (intra-district and inter-district), inter-state in-migrants, international in-migrants, and "Unclassifiable" migrants.; * "Interstate in-migrants" refer to those who had migrated to West Bengal from other states/union territories. Source: Compiled from census, 1991, 2001, and 2011.

Out of total migrants' stock (3.34 crores) in West Bengal as in 2011, nearly 70 percent (2.3 crores) are female (Table 2). Three-fourths (78 percent) of the total migrants' stock have below the secondary level of education. In terms of the level of education, for those who have not completed at least secondary education, male migrants (68 percent) are in a better position than female migrants (82 percent)—only six percent of migrants have higher educational qualifications, *i.e.*, graduation and above. As shown in Fig 1, a larger proportion of total migrant stock is in the age group 20-40 years. Moreover, the female share is more than male migrants in this age group. The age distribution pattern for migrants in West Bengal is almost identical for the Census 2001 and 2011.

Table 3 depicts the distribution of migrants' stock by their migration duration in West Bengal. It shows that the share of intercensal migrants, *i.e.*, those who migrated during 0-9 years before the last census (2011), is about one-fourth (27 percent) of the total migrants' stock, with evidence of a gradual decrease from 31 percent in 1991, and 28 percent in 2001. Though, the share of migration during 0-1 year before the census shows an increasing trend since 1991.

**Table 2** Volume and percent distribution of migrant's stock of West Bengal by sex of the migrants and level of education, 2001 and 2011.

| Level of Education | 2001 | | | | | | 2011 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Persons | | Males | | Females | | Persons | | Males | | Females | |
| | Migrants ('000) | % | Migrants ('000) | % | Migrants ('000) | % | Migrants ('000) | % | Migrants ('000) | % | Migrants ('000) | % |
| Illiterate | 10489 | 41.79 | 1957 | 25.63 | 8532 | 48.86 | 11096 | 33.17 | 2484 | 24.25 | 8613 | 37.11 |
| Below matric | 10328 | 41.15 | 3402 | 44.56 | 6926 | 39.66 | 14937 | 44.66 | 4503 | 43.97 | 10434 | 44.96 |
| Below graduate | 2566 | 10.23 | 1283 | 16.8 | 1284 | 7.35 | 4267 | 12.76 | 1734 | 16.94 | 2533 | 10.91 |
| Technical diploma | 46 | 0.18 | 41 | 0.53 | 5 | 0.03 | 66 | 0.2 | 56 | 0.55 | 10 | 0.04 |
| Graduate and above | 1211 | 4.83 | 729 | 9.55 | 482 | 2.76 | 1970 | 5.89 | 1041 | 10.17 | 928 | 4 |
| Technical degree | 128 | 0.51 | 91 | 1.2 | 37 | 0.21 | 188 | 0.56 | 132 | 1.29 | 56 | 0.24 |
| Others | 329 | 1.31 | 132 | 1.73 | 197 | 1.13 | 925 | 2.76 | 291 | 2.84 | 634 | 2.73 |
| Total | 25098 | 100 | 7635 | 100 | 17463 | 100 | 33448 | 100 | 10241 | 100 | 23208 | 100 |

Note: Migrants' stock included internal migrants, inter-state in-migrants, immigrants into the state, and unclassified counts of migrants; Source: Compiled from census, 1991, 2001, and 2011.

**Figure 1** Distribution migrants by their age and sex groups in West Bengal, 2001, 2011.

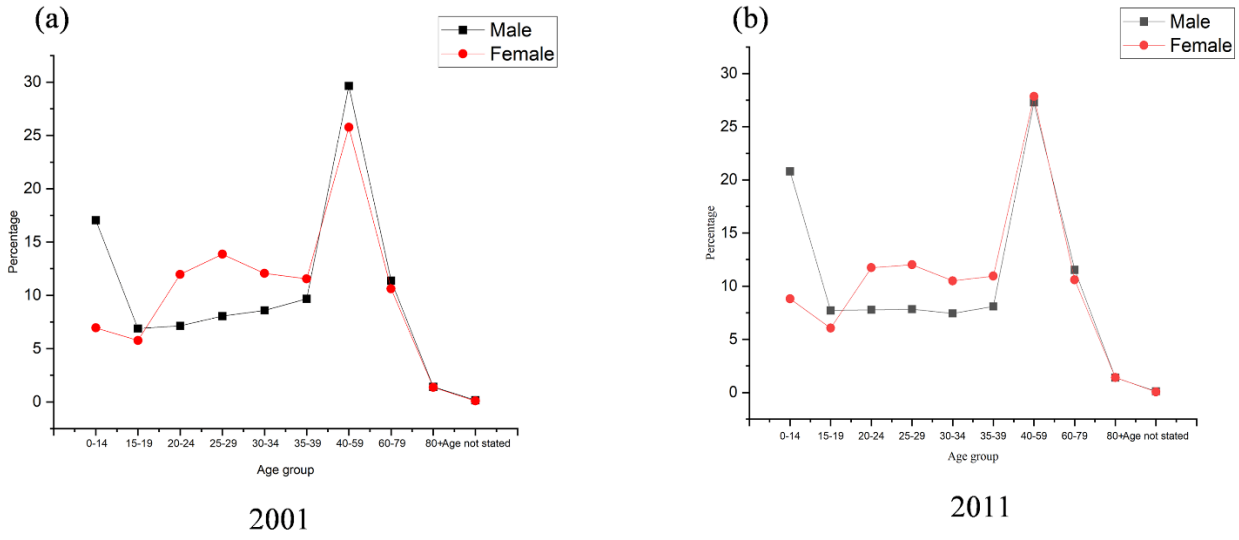



**Table 3** Volume and percent distribution of migrant's stock of West Bengal by their duration of migration, 1991-2011.

| Year | Duration of Migration (in years) | | | | | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <1 | | 1-4 | | 5-9 | | 10-20 | | 20+ | | | |
| | Volume ('000) | % | Volume ('000) | % | Volume ('000) | % | Volume ('000) | % | Volume ('000) | % | Volume ('000) | % |
| Person | | | | | | | | | | | | |
| 1991 | 323 | 1.8 | 2594 | 14.5 | 2672 | 14.9 | 4508 | 25.2 | 6653 | 37.2 | 17871 | 100 |
| 2001 | 491 | 2 | 3207 | 12.8 | 3277 | 13.1 | 5925 | 23.6 | 9174 | 36.6 | 25098 | 100 |
| 2011 | 899 | 2.7 | 3898 | 11.7 | 4136 | 12.4 | 7251 | 21.7 | 11921 | 35.6 | 33448 | 100 |
| Male | | | | | | | | | | | | |
| 1991 | 149 | 2.7 | 810.2 | 14.8 | 717 | 13.1 | 1229 | 22.4 | 2024 | 37 | 5476 | 100 |
| 2001 | 213 | 2.8 | 871 | 11.4 | 808 | 10.6 | 1441 | 18.9 | 2679 | 35.1 | 7635 | 100 |
| 2011 | 341 | 3.3 | 970.2 | 9.5 | 1007 | 9.8 | 1745 | 17 | 3188 | 31.1 | 10241 | 100 |
| Female | | | | | | | | | | | | |
| 1991 | 174 | 1.4 | 1783 | 14.4 | 1954 | 15.8 | 3279 | 26.5 | 4629 | 37.3 | 12395 | 100 |
| 2001 | 278 | 1.6 | 2336 | 13.4 | 2470 | 14.1 | 4484 | 25.7 | 6495 | 37.2 | 17463 | 100 |
| 2011 | 558 | 2.4 | 2927 | 12.6 | 3130 | 13.5 | 5506 | 23.7 | 8733 | 37.6 | 23208 | 100 |

Note: total migrants included the unclassified counts of migrants; Source: Compiled from census, 1991, 2001, and 2011. We have excluded the duration not stated migrants in this study.

***Interstate Migration: 'From' and 'To' to West Bengal***

The gross-migrants volume of the state is 47.9 lakhs, including 23.8 lakhs of in-migrants into the state and 24.1 lakhs out-migrants from the state in the 2011 census (Table 4). The state used to receive more migrants than dispatch until 2001. In 1991 and 2001, West Bengal reported a surplus of in-migrants of 86.5 thousand and 76.9 thousand, respectively, over out-migrants. However, the trend reversed in 2011, when there was more out-migration than in-migration, accounting net migration loss of twenty-five thousand.

Table 5 and Fig 2 describe an overview of intercensal out-migration from the state. These indicate that Maharashtra is the most preferred destination for the out-migrants from West Bengal. As per the 2001 census, nearly 18 percent of total intercensal out-migrants of the state preferred to choose Maharashtra as their place of the destination state. Other favored destination states were Jharkhand (15 percent), NCT Delhi (eight percent), Uttar Pradesh (seven percent), and Bihar (seven percent). Together, these five states accommodate nearly 55 percent of the total out-migrants from the state of West Bengal. Similarly, as shown in Table 6 and Fig 3, Bihar is the highest migrant sender state to West Bengal. As per the 2011 Census, it alone contributed 44 percent of total intercensal in-migrants into the state, followed by Jharkhand (20 percent), Uttar Pradesh (nine percent), Assam (six percent), and Odisha (six percent).

**Table 4** Inter-state migration pattern and migration-balance in West Bengal, 1991-2011.

| Year | Total Population (in 000) | In-Migration | | Out-Migration | | Migration-Balance ('000) | |
|---|---|---|---|---|---|---|---|
| | | Volume (in 000) | Rate per1000′ | Volume (in 000) | Rate per1000′ | Gross migrants | Net-migrants (+ / -) |
| 1991 | 68078 | 2005 | 30 | 1140 | 17 | 3145 | (+) 865 |
| 2001 | 80176 | 2457 | 31 | 1688 | 21 | 4145 | (+) 769 |
| 2011 | 91276 | 2381 | 26 | 2406 | 26 | 4787 | (-) 25 |

Note: Gross-migrants is the sum of in-migrants to the state and out-migrants from the state; Net-migrants is the difference between in-migrants to the state and out-migrants from the state. Source: Compiled from census, 1991, 2001, and 2011.

**Table 5** Top-five migrant's destination states for out-migrants (intercensal) from West Bengal, 2001-2011.

| State | 2001 | | | | State | 2011 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Rank | Out-migrants ('000) | Rate Per 1000 | % Contribution to total out-migrants of the state* | | Rank | Out-migrants ('000) | Rate Per 1000 | % Contribution to total out-migrants of the state* |
| Maharashtra | 1 | 129 | 16 | 17.69 | Maharashtra | 1 | 181 | 20 | 17.88 |
| Jharkhand | 2 | 101 | 13 | 13.77 | Jharkhand | 2 | 151 | 16 | 14.89 |
| NCT Delhi | 3 | 86 | 11 | 11.81 | NCT Delhi | 3 | 81 | 9 | 7.97 |
| Uttar Pradesh | 4 | 54 | 7 | 7.38 | Uttar Pradesh | 4 | 73 | 8 | 7.17 |
| Odisha | 5 | 45 | 6 | 6.15 | Bihar | 5 | 68 | 7 | 6.73 |

Note: Migrants who migrated within 0–9 years are considered "intercensal migrants; * Total intercensal out-migrants of West Bengal was 730226 in 2001 and 1011340 in 2011.

**Table 6** Top-five migrant's origin states for in-migrants (intercensal) to West Bengal, 2001-2011.

| State | 2001 | | | | State | 2011 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Rank | In-migrants ('000') | Rate Per 1000 | % Contribution to total in-migrants of the state | | Rank | In-migrants ('000') | Rate Per 1000 | % Contribution to total in-migrants of the state |
| Bihar | 1 | 299 | 37 | 41.2 | Bihar | 1 | 320 | 35 | 43.9 |
| Jharkhand | 2 | 155 | 19 | 21.4 | Jharkhand | 2 | 145 | 16 | 19.9 |
| Uttar Pradesh | 3 | 68 | 8 | 9.3 | Uttar Pradesh | 3 | 66 | 7 | 9.0 |
| Orissa | 4 | 50 | 6 | 6.9 | Assam | 4 | 46.2 | 5 | 6.3 |
| Assam | 5 | 48 | 6 | 6.7 | Odisha | 5 | 45.7 | 5 | 6.3 |

Note: Migrants who migrated within 0–9 years are considered "intercensal migrants; * Total intercensal in-migrants of West Bengal was 724524 in 2001 and 729702 in 2011; *Source*: Compiled from census, 2001, and 2011

**Figure 2** Volume of intercensal (0-9 years) out-migration from West Bengal to the destination states in India, 2001-2011.

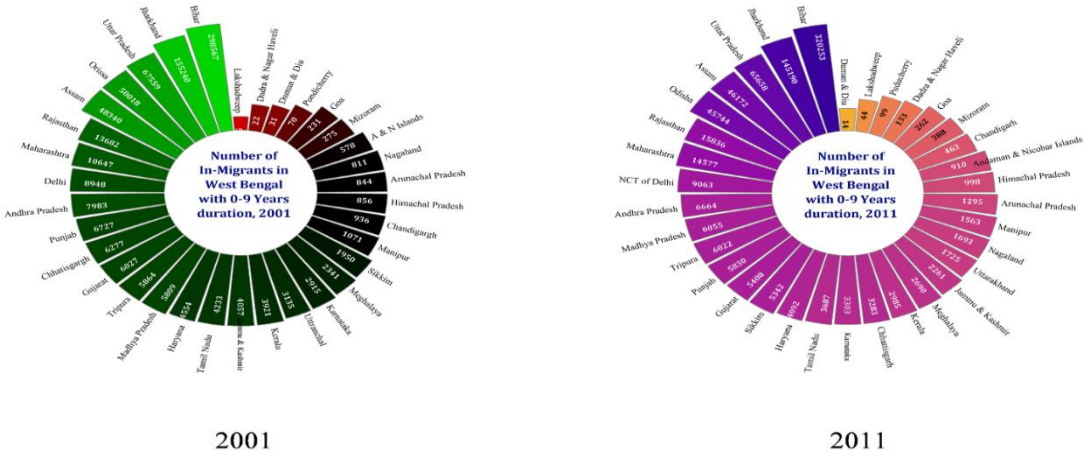



**Figure 3** Volume of intercensal (0-9 years) in-migration to West Bengal from origin states in India, 2001-2011.

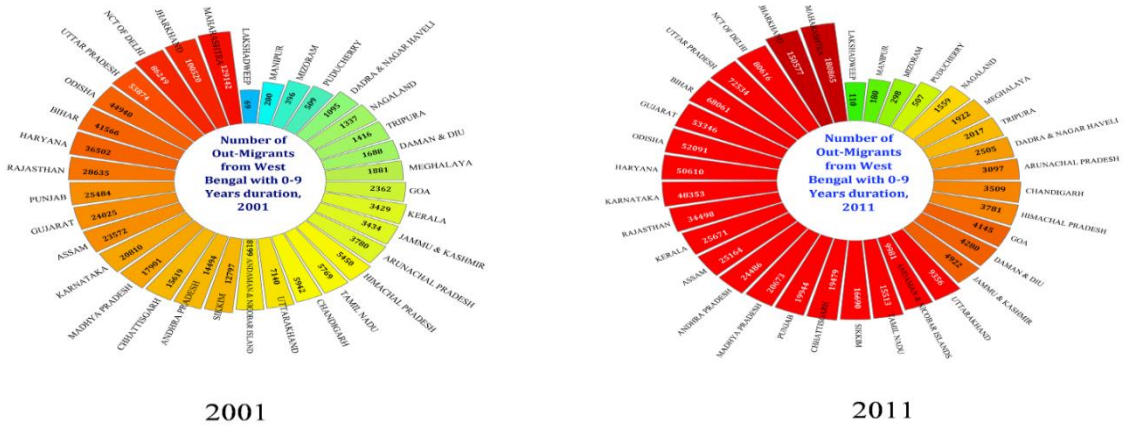



**Figure 4** Reasons of out-migration from West Bengal for (a) all out-migrants, (b) male out-migrants, and (c) female out-migrants for the year 2001 and 2011.

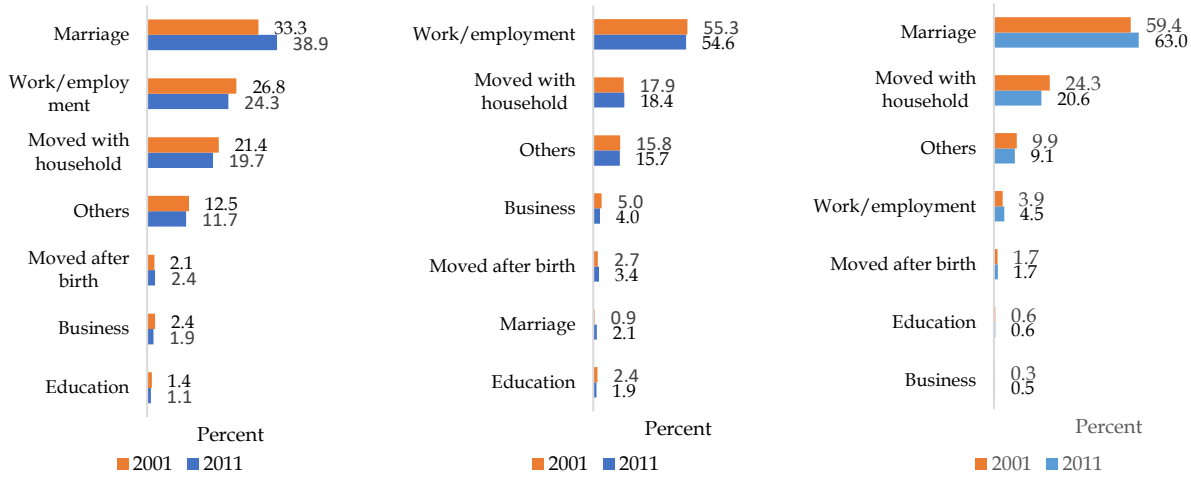


Fig 4 shows that marriage is the primary reason for out-migration from West Bengal; nearly 39 percent of total out-migration in the 2011 Census occurred due to marriage only. One-fourth (24 percent) of the out-migration reasons are due to work or employment. Although, the reason for migration differs mainly by gender. According to the 2011 census, more than half of male out-migrants (55 percent) have migrated from the state due to work or employment, whereas marriage (63 percent) is the dominant reason for interstate female out-migration. Less than five percent of the total female out-migration happened for employment purposes, and only two percent of total male out-migration occurred for marriage purposes. Interstate out-migration for education is also higher for males than females.

***Internal Migrants' stock: Intra and Inter Districts Pattern***

At the district level, there is a vast variation in the volume of migration stocks (Table 7). As in the 2011 Census, North 24 Parganas tops in the migrants' stock (48.8 lakhs) where every 488 persons per 1000 population of the district are migrant as classified by the place of last residence, followed by Bardhhaman (32.9 lakhs), and South 24 Parganas (29.3 lakhs). Regarding migrant stock volume, Dakshin Dinajpur ranks the last, with a migrant's stock of 5.8 lakhs, among all districts of West Bengal. Intra-district migration and inter-district in-migration rates increased between 2001 and 2011. In 2011, intra-district migration for the state was 250 per 1000 persons, higher than 191 per 1000 persons in 2001. The highest rate for intra-district migration was recorded in Bankura district, where every 300 persons per 1000 are migrated within the district boundary, followed by Hugli (298 / 1000 persons) and South 24 Parganas (282/ 1000 persons). On the contrary, Uttar Dinajpur reported the lowest intra-district migration, i.e., 186 per 1000 persons. In the case of inter-district in-migration rate, North 24 Parganas has reported the highest rate among all the districts of West Bengal (139 per 1000 persons), followed by Hugli (114 per 1000 persons), *i.e.*, migration to the respective districts from other districts of West Bengal. Lower rates of inter-state in-migration are observed in Maldah (23 per 1000 persons), Purulia (29 per 1000 persons), and Koch Behar (31 per 1000 persons). The relative pattern of migrant's stock, intra-district, and inter-district migration patterns in the 2001 Census was nearly identical to the 2011 Census.

Table 8 presents the inter-district migration trends and the pattern in West Bengal derived based on place of birth and enumeration data. It shows that inter-district in-migration rates range from 21 per 1000 persons in Maldah to 135 per 1000 persons in North 24 Parganas, as in 2011. The inter-district out-migration rates for the same year range from 32 per 1000 persons in Maldah to 276 per 1000 persons in Kolkata. Regarding net migration (Fig-5), North 24 Parganas is the largest migrant-gained district which reported 13.5 lakhs in-migrants against 3.6 lakhs out-migrants in 2011, and Kolkata emerged as the largest migrant-drained district that recorded 12.3 lakhs out-migrants in compared to 2.9 in-migrants. The inter-districts in-migration and out-migration flows have been presented in Fig 6 for better visualization.

**Table 7** District-wise migrants' stock, intra-district and inter-district pattern of migration in West Bengal, 2010 – 2011.

| District | 2001 | | | | | | 2011 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Migrants' Stock | | Intra-District Migration | | Inter-district In-migration | | Migrants' Stock | | Intra-District Migration | | Inter-district In-migration | |
| | Volume ('000) | Rate /1000 | Volume ('000) | Rate /1000 | Volume ('000) | Rate /1000 | Volume ('000) | Rate /1000 | Volume ('000) | Rate /1000 | Volume ('000) | Rate /1000 |
| Darjiling | 440 | 273 | 183 | 114 | 90 | 56 | 665 | 360 | 366 | 198 | 120 | 65 |
| Jalpaiguri | 1087 | 320 | 568 | 167 | 195 | 57 | 1417 | 366 | 859 | 222 | 255 | 66 |
| Koch Bihar | 754 | 304 | 475 | 192 | 69 | 28 | 955 | 339 | 710 | 252 | 88 | 31 |
| Uttar Dinajpur | 637 | 261 | 358 | 146 | 115 | 47 | 851 | 283 | 559 | 186 | 131 | 44 |
| Dakshin Dinajpur | 515 | 342 | 304 | 202 | 58 | 38 | 578 | 345 | 401 | 239 | 72 | 43 |
| Maldah | 875 | 266 | 667 | 203 | 76 | 23 | 1192 | 299 | 981 | 246 | 91 | 23 |
| Murshidabad | 1337 | 228 | 1088 | 185 | 171 | 29 | 2235 | 315 | 1933 | 272 | 233 | 33 |
| Birbhum | 879 | 292 | 654 | 217 | 159 | 53 | 1193 | 341 | 913 | 261 | 206 | 59 |
| Barddhaman | 2411 | 350 | 1355 | 196 | 537 | 78 | 3287 | 426 | 2135 | 277 | 668 | 86 |
| Nadia | 1725 | 375 | 905 | 197 | 277 | 60 | 2200 | 426 | 1429 | 277 | 378 | 73 |
| North 24Parganas | 3745 | 419 | 1662 | 186 | 1038 | 116 | 4885 | 488 | 2599 | 260 | 1393 | 139 |
| Hugli | 1990 | 395 | 1171 | 232 | 498 | 99 | 2579 | 467 | 1645 | 298 | 631 | 114 |
| Bankura | 1003 | 314 | 802 | 251 | 177 | 55 | 1334 | 371 | 1081 | 301 | 228 | 63 |
| Puruliya | 713 | 281 | 530 | 209 | 79 | 31 | 921 | 314 | 708 | 242 | 86 | 29 |
| Haora | 1359 | 318 | 807 | 189 | 296 | 69 | 1846 | 381 | 1261 | 260 | 354 | 73 |
| Kolkata | 1013 | 221 | Na | Na | 362 | 79 | 837 | 186 | Na | Na | 333 | 74 |
| South 24Parganas | 1864 | 270 | 1396 | 202 | 317 | 46 | 2938 | 360 | 2302 | 282 | 488 | 60 |
| Paschim Medinipur | 2750 | 286 | 2410 | 251 | 205 | 21 | 1933 | 327 | 1579 | 267 | 269 | 45 |
| Purba Medinipur | | | | | | | 1600 | 314 | 1375 | 270 | 192 | 38 |
| West Bengal | 25097 | 313 | 15335 | 191 | 4719 | 59 | 33446 | 366 | 22836 | 250 | 6216 | 68 |

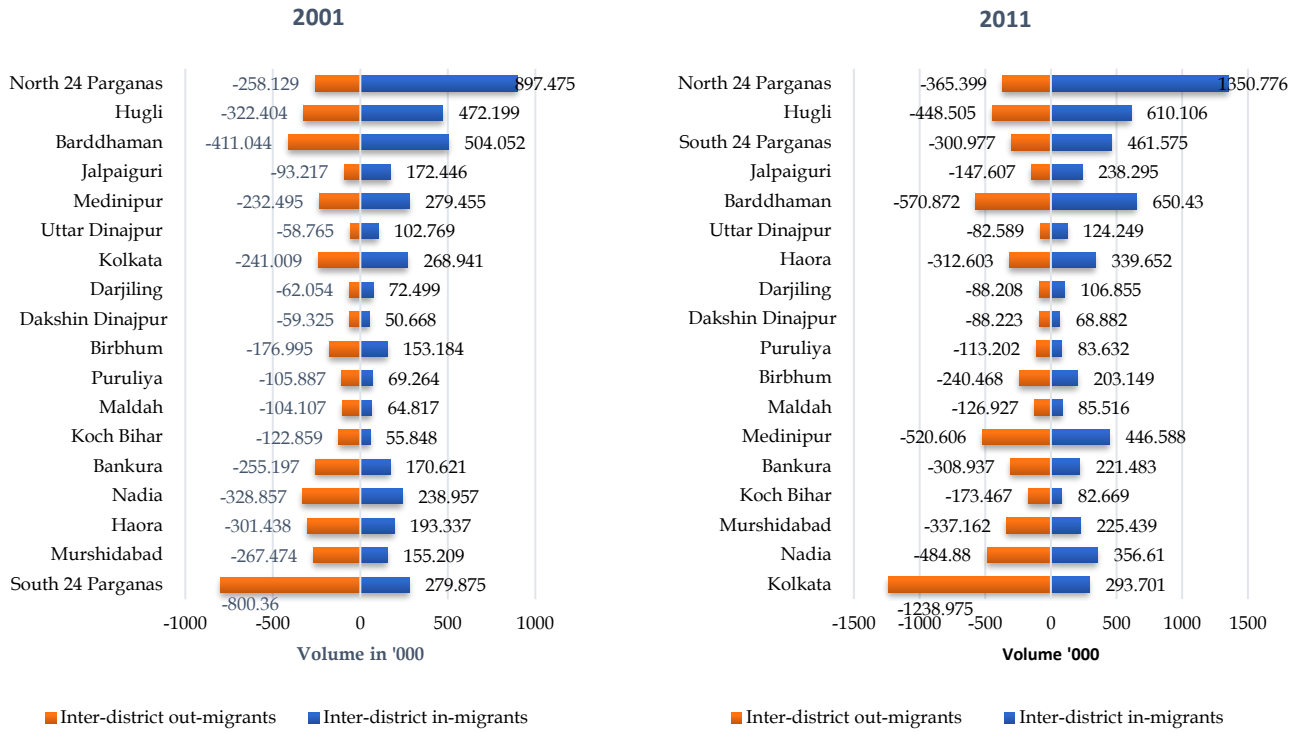
Note: Migrants' stock includes internal migration within district and all in-migration into the district; Intra-district migration includes migration within the district's boundary; Inter-district in-migration include migration from other districts of West Bengal to the reference district *i.e.,* those who reported their place of last residence as other districts of the state than the district of enumeration; Na- data not available. Inter-district out migration can't be calculated based on place of last residence data due to insufficient information in 2011 census. *Source*: Compiled from census, 2001, and 2011 using place of last residence and place of enumeration data

**Table 8** Inter-district migration trends and pattern in West Bengal: In-migration, out-migration and net-migration, 2001 – 2011.

| Districts | 2001 | | | | | | 2011 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inter-district migration within the state | | | | | | Inter-district migration within the state | | | | | |
| | In-migrants | | Out-migrants | | Net-Migrants | | In-migrants | | Out-migrants | | Net-Migrants | |
| | Volume '000 | Rate /1000 | Volume '000 | Rate /1000 | Volume '000 | Rate /1000 | Volume '000 | Rate /1000 | Volume '000 | Rate /1000 | Volume '000 | Rate /1000 |
| Darjiling | 72 | 45 | 62 | 39 | 10 | 6 | 107 | 58 | 88 | 48 | 19 | 10 |
| Jalpaiguri | 172 | 51 | 93 | 27 | 79 | 23 | 238 | 62 | 148 | 38 | 91 | 23 |
| Koch Bihar | 56 | 23 | 123 | 50 | -67 | -27 | 83 | 29 | 173 | 62 | -91 | -32 |
| Uttar Dinajpur | 103 | 42 | 59 | 24 | 44 | 18 | 124 | 41 | 83 | 27 | 42 | 14 |
| Dakshin Dinajpur | 51 | 34 | 59 | 39 | -9 | -6 | 69 | 41 | 88 | 53 | -19 | -12 |
| Maldah | 65 | 20 | 104 | 32 | -39 | -12 | 86 | 21 | 127 | 32 | -41 | -10 |
| Murshidabad | 155 | 26 | 267 | 46 | -112 | -19 | 225 | 32 | 337 | 47 | -112 | -16 |
| Birbhum | 153 | 51 | 177 | 59 | -24 | -8 | 203 | 58 | 240 | 69 | -37 | -11 |
| Barddhaman | 504 | 73 | 411 | 60 | 93 | 13 | 650 | 84 | 571 | 74 | 80 | 10 |
| Nadia | 239 | 52 | 329 | 71 | -90 | -20 | 357 | 69 | 485 | 94 | -128 | -25 |
| North 24 Parganas | 897 | 100 | 258 | 29 | 639 | 72 | 1351 | 135 | 365 | 37 | 985 | 98 |
| Hugli | 472 | 94 | 322 | 64 | 150 | 30 | 610 | 111 | 449 | 81 | 162 | 29 |
| Bankura | 171 | 53 | 255 | 80 | -85 | -26 | 221 | 62 | 309 | 86 | -87 | -24 |
| Puruliya | 69 | 27 | 106 | 42 | -37 | -14 | 84 | 29 | 113 | 39 | -30 | -10 |
| Haora | 193 | 45 | 301 | 71 | -108 | -25 | 340 | 70 | 313 | 64 | 27 | 6 |
| Kolkata | 269 | 59 | 241 | 53 | 28 | 6 | 294 | 65 | 1239 | 276 | -945 | -210 |
| South 24 Parganas | 280 | 41 | 800 | 116 | -520 | -75 | 462 | 57 | 301 | 37 | 161 | 20 |
| Medinipur | 279 | 29 | 232 | 24 | 47 | 5 | 447 | 41 | 521 | 47 | -74 | -7 |

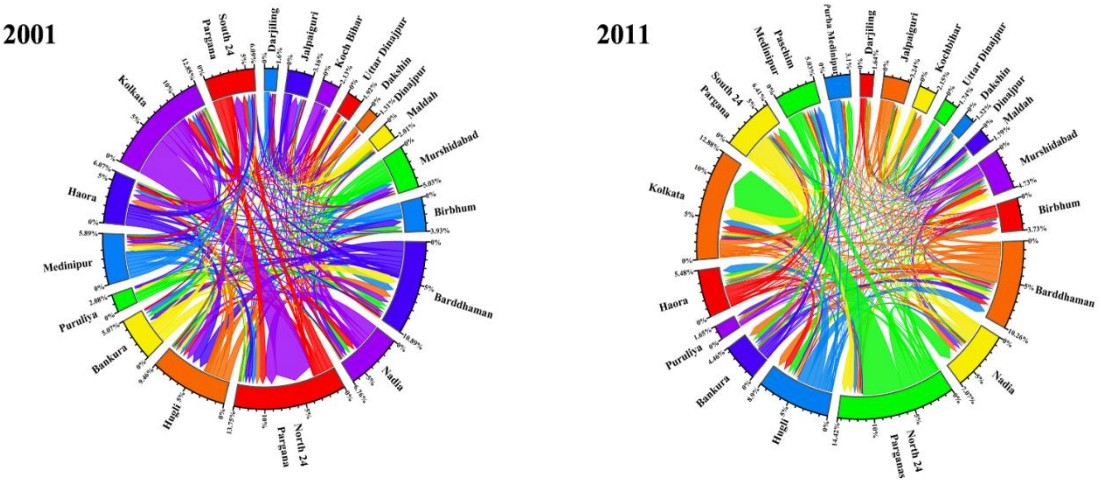
Source: Compiled from census, 2001, and 2011 using place of birth and place of enumeration data

**Figure 5** Inter-district migration trends and regional pattern in West Bengal, 2001-2011




Note: Inter-district 'in-migrants' and 'out-migrants' for this purpose are calculated based on place of birth and place of enumeration data.

**Figure 6** Inter-districts (in-migration and out-migration) migration matrix across all the districts of West Bengal, 2001-2011.




Note: Migrants are defined based on place of birth and place of enumeration data. Each district is assigned a colour (for example North Twenty-Four Pargana: Green) and flow arrows are assigned the same colour as the district of origin. Width of the arrows indicates the size of the migration flows. There is large gap at origin and less gap at destination. The volume of the flows is indicated by the percentage tick marks on the circumference of the plot. The circumference of the plot is assigned as 100 percentages.
Source: Authors' calculations based on Migration Table D-11, Persons born and enumerated in Districts of the State, 2001-2011.

***Migration Streams: Internal and Interstate Streams***

Table 9 shows the internal and interstate migration streams in West Bengal. It indicates that migration streams have been dynamic for both internal and interstate migration between 2001 and 2011. In internal migration, 60 percent of total migration is dominated by the rural-to-rural migration stream in the 2011 Census, followed by urban-to-urban (17 percent), rural-to-urban (15 percent), and urban-to-rural (eight percent) streams. The rural-to-rural migration stream decreased from 70 percent to 60 percent between 2001 and 2011, whereas other internal migration streams showed an increasing trend in the same period. In interstate migration, nearly 46 percent of total interstate in-migration is shared by the rural-to-urban stream, followed by urban-to-urban (28 percent), rural-to-rural (22 percent), and urban-to-rural (four percent). Over the period between 2001 and 2011, decreased trends have been recorded for rural-to-urban and rural-to-rural streams as well.

**Discussions**

The study aims to analyse a spatial overview of migration patterns in West Bengal, covering aspects of internal and interstate migration, migration streams, and reasons for migration. Migration as a form of spatial mobility between two defined geographical areas has several social, demographic, and economic impacts on the place of origin and destination. The analyses reveal that migrant stock in the state doubled from 1.8 crores in 1991 to 3.3 crores in 2011, with an increased share of internal migration to total migrants' stock (86 percent as of 2011). This increasing internal migration can play an essential role in redistributing the population across the districts and rural-urban in the state. In this context, the trends of migration streams can be explained to understand the relationship between internal migration and population redistribution. The state is passing through the mobility transition when rural-to-rural migration is declining and rural-to-urban migration is rising, a state of urbanizing and developing society, as indicated by Zelinsky (1971). In addition, the increasing trend of urban-to-urban migration suggests the process of conurbation where people move between cities, perhaps from small urban centers to large urban centers (Rees, 2001). Thus, the larger urban centers receive migrants not only from the rural areas but also from the small urban centers of the state that imposes enormous challenges on urban housing and infrastructure.

From a demographic perspective, nearly half of migrant stock belongs to the working age group, *i.e.*, between 15 to 39 years. A similar result was reported in a study based on primary data in West Bengal by Nayak and Debnath (2021).

**Table 9** Migration streams for internal, and inter-state in-migration in West Bengal, 2001-2011.

| Migration Streams | Percent share | | | |
|---|---|---|---|---|
| | Internal Migration | | Inter-state In-Migration | |
| | 2001 | 2011 | 2001 | 2011 |
| Rural-Rural | 70.3 | 59.9 | 24.7 | 22.2 |
| Rural-Urban | 12.7 | 14.7 | 50.3 | 46.1 |
| Urban-Rural | 4.8 | 7.8 | 3.8 | 4.0 |
| Urban-Urban | 12.2 | 17.5 | 21.2 | 27.6 |
| Total | 100 | 100 | 100 | 100 |

Source: Compiled from census, 1991, 2001, and 2011

Moreover, the out-migration of the young working group from the state has significant demographic implications, causing a demographic imbalance, brain drain due to the departure of skilled individuals, an increased dependency ratio, and disruptions in family, community, and labour dynamics. However, there is economic significance in their migration, as indicated by a recent study by Rajan and Sarkar (2020) in West Bengal, which found that households receiving remittances from migrants are more inclined to allocate a larger portion of their spending towards investments in human capital, specifically in areas such as health and education. Furthermore, young migrants have the potential to contribute to the economic development of the state if they possess the required skills and education. A matter of concern is that three-fourths of total migrants in West Bengal (Table 2) have lower literacy levels, e.g., lower than secondary education. Studies have shown that skilled and educated migrants receive better employment opportunities and higher wages than unskilled and less-educated migrants (Shen and Liu, 2016). Esteban and Fuente (2014) have stated that skilled migrant labours maintain a higher level of income and social status than unskilled. In the case of inter-state migration, a reversed trend is observed where out-migration from the state surplus the in-migration into the state. Such reversal is recorded due to a decrease in the volume of in-migration into the state from 2001 to 2011, a decrease of 76 thousand, and an enormous increase in the volume of out-migration from the state during the same period. Out-migrants increased from 16.9 lakhs in 2001 to 24.1 lakhs in 2011, an upsurge of nearly 7.2 lakhs. A recent study (Mistri, 2021) has cited the rising level of unemployment and economic stagnation in the state as crucial factors for the mass out-migration from West Bengal. However, our study finds alternative reasons to explain such huge interstate out-migration in contraction. As revealed in Fig 4, the proportion of out-migrants for employment has reduced between 2001 and 2011, indicating that the unemployment criteria may not be a decisive push factor for out-migration from the state. Instead, it may be attributed to the increased proportion of interstate marriage, which increased from 33 percent in 2001 to 39 percent in 2011. Similarly, Kundu and Saraswati (2012) also stressed that poverty-induced migration had become a less important component of migration over time. In fact, several employment generation and skill development programs launched by the Government of India and the state, *e.g.,* the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Prime Minister's Employment Generation Programme (PMEGP), *etc.,* across rural and urban areas have created employment opportunity as a result interstate labour out-migration from the state has reduced from 27 percent in 2001 to 24 percent in 2011. Nonetheless, there are sufficient literature those documented that there is no significant impact of these employment generation schemes on the decision of rural out-migration (Das, 2015; Dodd *et al*., 2018)

The present study shows that the movement of people within and across the districts has increased significantly from 2001 to 2011. The volume, nature, and streams of internal migration are driven by a complex set of geographical, social, and economic drivers. Further, these migrants are significant because they remain within the state boundary and become the state's

responsibility. Much of the literatures show that migrants come from poor and vulnerable backgrounds (Keshri & Bhagat, 2012; Sengupta, 2013), distressed from the place of origin (Mistri, 2021), living in slums and unhygienic conditions in the city (Greif and Dodaa, 2011), engaged in crime and illegal activities (Beattie *et al*., 2019), often denied basic infrastructure and amenities, and are prone to adverse health wellbeing (Chau *et al*., 2012; Choudhari, 2020; Sarkar, 2021). Hence, it requires policy attention by the urban and city planners to provide better services to the migrants in the city. The inter-district migration of West Bengal not only re-distributes the population but gives some insights into inter-regional disparity and economic imbalances within the state that determine migration streams between districts. However, inter-district population mobility is found to be limited within the neighboring districts only. Districts of South Bengal are more affected by the inter-district migration process than the districts of North Bengal. In inter-district migration of West Bengal as defined by the place of birth data (Fig-5), North 24 Parganas, Hugli, and South 24 Parganas recorded higher net in-migration; and Kolkata, Nadia, and Murshidabad recorded higher net out-migration, as in 2011. Among districts of North Bengal, Jalpaiguri and Koch-Behar are the only districts with a higher volume of net in-migration and net out-migration, respectively. Two other districts, e.g., Bardhhaman and Medinipur, showed higher gross inter-districts migration but the lower net-migration balance due to a higher incidence of both 'in' and 'out-migration.

**Conclusion**

In summary, there are some emerging trends observed in the inter-district internal migration process of the state between 2001 and 2011, which may have essential policy relevancies. First, the migration streams of Kolkata and South 24 Parganas have entirely altered during the period. In 2001, Kolkata was a 'migrant-gained' district, and South 24 Parganas was the highest 'migrant-drained' district which reversed in 2011, indicating substantial spatial mobility from Kolkata to the neighbouring South 24 Parganas from 2001 to 2011. As per the place of birth data (2011 Census), nearly 12.4 lakhs people have migrated from Kolkata compared to only 2.9 lakhs people who entered the district. The substantial out-migration from Kolkata, coupled with a decline in fertility rates, emerges as the key driver of the district's unprecedented negative population growth rate from 2001 to 2011 (Sarkar and Mondal, 2012). This demographic evolution might be attributed to factors such as the scarcity of residential plots and the escalating real estate prices within Kolkata, potentially pushing the second-generation natives toward the outskirts and neighbouring districts like North and South 24 Parganas, making these districts the larger 'migrant-gained' districts in 2011. Secondly, the study highlights a conspicuous trend—inter-district spatial mobility is significantly higher in South Bengal districts than North Bengal districts. It indicates a huge inter-regional disparity in southern districts of West Bengal in comparison to northern districts that further require policy focuses for inclusive regional development of the state.

**Policy Recommendation**

In light of the above discussion, several policy perspectives can be considered: To mitigate out-migration from urban centre like Kolkata, policies should focus on creating affordable housing options and well-planned urban development. The

significant inter-regional disparity calls for tailored regional development strategies in West Bengal. Additionally, investments in infrastructure, education, healthcare, and employment opportunities in North-Bengal districts could help alleviate migration pressures and promote more balanced growth in the state. Furthermore, policies that enhance skill development and promote job opportunities in districts with high out-migration can reduce the need for individuals to migrate in search of employment. Moreover, continuous tracking of migration patterns and demographic changes through regular census and surveys can provide policymakers with the necessary data to formulate targeted interventions and adjust policies based on evolving trends. Overall, these policies can contribute to a more balanced and sustainable demographic landscape while fostering inclusive growth across the state's diverse regions.

**Limitation of the study**

Limitations of the study include the reliance on census data, which provides comprehensive entire population coverage for accurate migration calculations. However, a significant drawback pertains to the inherent limited spatial granularity present within census data. Additionally, the census records the duration of residence in years rather than months, preventing the analysis of temporary mobility due to this temporal constraint. Furthermore, the Indian census does not provide specific information on out migration, particularly concerning Indians who migrated abroad; this is why we were unable to analyse international migration from West Bengal. Moreover, another limitation arises due to the absence of district-level migration data for 2011 based on the place of the last residence, impeding the identification of district-level outflows of migration within the country.

**Acknowledgement**

We would like to express our sincere gratitude to the Chief Editor of the journal and reviewers for their valuable insights, thoughtful comments, and constructive suggestions. Their thorough assessment and expertise have significantly contributed to refining the quality and depth of the article. Their dedication to maintaining scholarly rigor and enhancing the overall impact of this article are deeply appreciated.

**Conflict of interest:** There is no conflict of interest.

**References**

Ansary, R. (2018). "Emerging Patterns of migration streams in India: A State Level Analysis of 2011 Census". Migration Letters, 15(3), 347-360.

Agarwal, P. (2022). "State-Migrant Relations in India: Internal Migration, Welfare Rights and COVID-19". *Social Change*, *52*(2), 239-256.

Beattie, T. S., Prakash, R., Mazzuca, A., Kelly, L., Javalkar, P., Raghavendra, T., Ramanaik, S., Collumbien, M., Moses, S., Heise, L., Isac, S., & Watts, C. (2019). "Prevalence and correlates of psychological distress among 13-14 year old adolescent girls in North Karnataka, South India: A cross-sectional study". *BMC Public Health*, *19*(1), 1–12. https://doi.org/10.1186/s12889-018-6355-z.

Bhagat, R. B., & Keshri, K. (2020). "Internal migration in India". In *Internal migration in the countries of Asia* (pp. 207-228). Springer, Cham.

Bhagat, R. B. (2016). "Changing pattern of internal migration in India". In *Contemporary demographic transformations in China, India and Indonesia* (pp. 239-254). Springer, Cham.

Bhagat, R. B. (2008). "Assessing the measurement of internal migration in India". *Asian and Pacific Migration Journal*, *17*(1), 91-102.

Bhagat, R. B. (2010). "Internal migration in India: are the underprivileged migrating

more". *Asia-Pacific Population Journal*, *25*(1), 27-45.

Choudhari, R. (2020), "COVID 19 pandemic: mental health challenges of internal migrant workers of India", Asian Journal of Psychiatry, Vol. 54 No. May, p. 102254, doi: 10.1016/j.ajp.2020.102254.

Chandrasekhar, S., & Sharma, A. (2015). "Urbanization and spatial patterns of internal migration in India". *Spatial demography*, *3*(2), 63-89.

Chandrasekhar, S., & Sharma, A. (2014). "Internal migration for education and employment among youth in India". *Indira Gandhi Institute of Development Research, Mumbai*.

Chakraborty, M., Mukherjee, S., & Dasgupta, P. (2022). "Bengali Migrant Workers in South India: A Mixed-Method Inquiry into Their Earnings, Livings and Struggle During Covid Pandemic". *The Indian Journal of Labour Economics*, 1-19.

Chau, K., Baumann, M., Kabuth, B. and Chau, N. (2012), "School difficulties in immigrant adolescent students and roles of socioeconomic factors, unhealthy behaviours, and physical and mental health", BMC Public Health, Vol. 12No. 1, doi: 10.1186/1471-2458-12-453.

Dodd, W., Wyngaarden, S., Humphries, S., Patel, K., Majowicz, S., Little, M., & Dewey, C. (2018). "The relationship between MGNREGA and internal labour migration in Tamil Nadu, India". *The European Journal of Development Research*, *30*(2), 178-194.

Debnath, M., & Nayak, D. K. (2021). Determinants of temporary migration of rural small, marginal and landless households in West Bengal, India. SN Social Sciences, 1(10), 255.

Debnath, M., & Nayak, D. K. (2022). "Dynamic use of remittances and its benefit on rural migrant households: insights from rural West Bengal, India". *GeoJournal*, 1-16.

Das, U., & Singhal, K. (2022). "Gender difference in mathematics learning in rural India".

Das, U. (2015). "Can the rural employment guarantee scheme reduce rural out-migration: Evidence from West Bengal, India". *The Journal of Development Studies*, *51*(6), 621-641.

Esteban, F. O., & Fuente, G. I. (2014). "The migration of skilled women: A case study in the United Kingdom". Procedia-Social and Behavioural Sciences, Vol 161, pp-234-240.

Greif, M. J., & Dodoo, F. N. A. (2011). "Internal migration to Nairobi's slums: Linking migrant streams to sexual risk behavior". *Health & place*, *17*(1), 86-93.

Kundu, A., and Saraswati R, L. (2012). "Migration and Exclusionary Urbanization in India". Economic and Political Weekly, Vol 47. No 26/27, PP-219-227.

Kundu, A. (1997). "Trends and structure of employment in the 1990s: Implications for urban growth". *Economic and Political Weekly*, 1399-1405.

Kundu, A. (1986). "Migration, Urbanisation and Inter-Regional Inequality: the emerging socio-political challenge". *Economic and Political Weekly*, 2005-2008.

Kundu, A., & Gupta, S. (1996). "Migration, urbanisation and regional inequality". *Economic and Political weekly*, 3391-3398.

Kundu, A. (2018). "Mobility in India: Recent trends and issues concerning database". *Social Change*, *48*(4), 634-644.

Kundu, A. (2019). "Trends in mobility in India: issues of labour market integration and exclusion of vulnerable sections of the population". *Area Development and Policy*, *4*(4), 346-366.

Keshri, K., & Bhagat, R. B. (2012). "Temporary and seasonal migration: Regional pattern, characteristics and associated factors". *Economic and Political Weekly*, 81-88.

Keshri, K., & Bhagat, R. B. (2010). "Temporary and seasonal migration in India". *Genus*, *66*(3), 25-45.

Lei, L., Desai, S., & Chen, F. (2020). "Fathers' migration and nutritional status of children in India: Do the effects vary by community context?". *Demographic research*, *43*, 545.

Lei, L., & Desai, S. (2021). "Male out-migration and the health of left-behind wives in India: The roles of remittances, household responsibilities, and autonomy". *Social Science & Medicine*, *280*, 113982.

Lusome, R., & Bhagat, R. (2006, June). "Trends and patterns of internal migration in India, 1971-2001". In *Annual conference of Indian Association for the Study of Population (IASP) during* (Vol. 7, p. 9). Thiruvananthapuram: Indian

Association for the Study of Population (IASP).

Munshi, K., & Rosenzweig, M. (2016). "Rural to Urban Migration in India: Why Labour Mobility Bucks Global Trend". *Indian Express*.

Mahapatro, S. R. (2020). "Internal Migration: Emerging Patterns". *Handbook of internal migration in India*, 80-92.

Mahapatro, S. (2014). "Contemporary patterns and issues of internal migration in India: Evidence from NSSO". In *KNOWMAD conference on Internal Migration and Urbanization, Dhaka, May 1st*.

Mahapatro, S. R. (2012). "The changing pattern of internal migration in India". In *European Population Conference, Stockholm, Sweden*.

Mistri, A. (2021). "Migrant Workers from West Bengal since 1991". *Economic & Political Weekly*, *56*(29), 21.

Nayyar, G., & Kim, K. Y. (2018). "India's internal labor migration paradox: the statistical and the real". *World Bank Policy Research Working Paper*, (8356).

Premi, M. K. (1980). "Aspects of female migration in India". *Economic and Political Weekly*, 714-720.

Pramanik, R. N. (2021). "Changing Employment Conditions in the Rural Labour Market of West Bengal". *The Indian Journal of Labour Economics*, *64*(3), 825-841.

Piplai, T., & Majumdar, N. (1969). "Internal migration in India: some socio-economic implications". *Sankhyā: The Indian Journal of Statistics, Series B*, 509-522.

Reja, M. S., & Das, B. (2021). "Remittance arrangements within India and covid-19: Kerala's migrant construction workers from West Bengal". *South Asia Research*, *41*(1), 22-34.

Rees, P. (2001). "Internal Migration (Rural – Urban): Industrialized Countries". International Encyclopaedia of the Social and Behavioural Sciences, 7741-7749. doi10.1016/b0-08-043076-7/02199-9.

Raghuraman, B. S., & Chaturvedi, S. (2021). "Internal migration". *Oxford Textbook of Migrant Psychiatry*, 203.

Rajan, S., & Sarkar, P. (2020). "Out-Migration from West Bengal: Measuring the Economic Consequences Both at the Source and Destination". In *Population Dynamics in Eastern India and Bangladesh* (pp. 349-366). Springer, Singapore.

Sarkar, S and Mondal, K. (2012). "Spatial and temporal variation of population growth and sustainability of food grain production in West Bengal". Journal of Settlement and Spatial Planning, Vol 3, No.1, pp-35-42.

Sarkar, S. (2021), "Significance of migration to the COVID 19 outbreaks in major states in India". International Journal of Migration, Health and Social Care, Vol. 17 No. 3, pp. 402-413. https://doi.org/10.1108/IJMHSC-09-2020-0084.

Sengupta, A. (2013), "Migration, poverty and vulnerability in the informal labour market in India". Bangladesh Development Studies, Vol. 36No. 4, pp. 99-116.

Shen, J., & Liu, Y. (2016). "Skilled and less-skilled interregional migration in China: A comparative analysis of spatial patterns and the decision to migrate in 2000–2005". *Habitat International*, *57*, 1-10.

Srivastava, R. (2011). "Internal migration in India". *Human Development in India*.

Skeldon, R. (1986). "On migration patterns in India during the 1970s". *Population and Development Review*, 759-779.

Singh, D. P. (1998). "Female migration in India". *Indian Journal of Social Work*, *59*, 728-742.

Singh, J. P. (1986). "Marital status differentials in rural to city migration in India". *Genus*, 89-106.

Sivaramakrishnan, K. C., Kundu, A., Singh, B. N., & Singh, B. N. (2005). "*Handbook of urbanization in India: an analysis of trends and processes*". Oxford University Press, USA.

Yang, A. A. (1979). "Peasants on the move: A study of internal migration in India". *The Journal of Interdisciplinary History*, *10*(1), 37-58.

Zelinsky, W. (1971). "The Hypothesis of Mobility Transition". Geographical Review, Vol 61, No 2, pp-219-249.