

Regional pattern of inter-district migration in Bihar: Evidence from Census of India

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ABSTRACT

This study aims to investigate the regional pattern of inter-district migrations in Bihar using the evidence from the Census of India, 2001 and 2011. The in-migration, out-migration, net migration, and gross migration rates were estimated at the district level. The findings from this study imply that the people living in centrally located districts along with the river Ganga are more migratory as compared to the peripheral districts of Bihar. The gross migration in this district also comprises a high level of both in-migration and outmigration rates. Although the gross migration is found to be higher in the centrally located districts, the pattern of net migration rates is discrete in terms of regional perspective. The migration is the result of inequality in the distribution of opportunities and restrictions. Historically, migration was linked with urbanisation, industrialisation, and development. The nearness of the Ganga river is one of the greatest geographical and historical advantages of this region. The under-developed districts of Bihar have experienced little migration including in-migration and out-migration. From the policy perspective, it is recommended that these under-developed districts should be focussed on providing the opportunities of educational infrastructure, economic development, and health infrastructure. The migration of the people should be their free choice, but not their distress.

KEYWORDS: Regional disparity; Mobility; Migratory; distress migration; Internal migration; Local migration

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I. INTRODUCTION

International migration has macroeconomic and broad cultural significance. The internal migration has relatively greater significance than international migration in terms of livelihood and fulfilling daily needs. However, a study shows that India remains a relatively historically immobile society (Davis 1951). However, in the recent past, the people in India become more migratory as the movement of the labour force increases along with the advancement in transportation facilities. The growing contribution of the non-agricultural sector to the gross domestic product *i.e.* in urban areas keeps changing the pattern of migration even within a state (Srivastava, 2011). In this study, an attempt has been done to assess the inter-district migration in Bihar.

The changes in the migration pattern in recent decades are due to several reasons. The demographic change across the states and districts of India has a huge potential effect on labour migration. For instance, a decline in fertility increases the labour force participation in the geographical area, while the old age population may increase in the areas where fertility is declined long back (James & Goli, 2016). The significant improvement of transportation such as road, rail, air, etc. has been improved in the last decades along with the revolution of telecommunication in the period of the fourth industrial revolution. The improvement in communication helps people to connect in order to spread the information easily from one place to another which is an important driver of migration. In a country, there is almost no restriction on internal migration in any country in the world. As per the 2011 census, the total number of internal migrants in India is about 450 million (ORGI, 2011). This number is a rise of 45% from 309 million registered in the 2001 census. This increase is even higher than the population's decadal population growth. The internal migration has increased by 30% in 2001 to 37% in 2011 (De, 2019).

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Causes of migration

Migration has differed from mobility that indicates when people change their residential area from one region to another is categorised as migration. The migration may include both voluntary and involuntary or a sometime mixture of both types. The process of migration has a very complex function. Migration is regarded as a significant variable in bringing changes in the size, characteristics, and structure of the population in any given area besides fertility and mortality (Mosse *et al.*, 2002). People are generally moving from depressed areas in terms of physically, economically, politically, socially motivated factors to another where more opportunities are available (Sridharet *et al.*, 2013). Millions of people leave their places of birth and residence due to such type of many reasons. These reasons can be put into two broad categories:

Push factor: It causes people to leave their place of residence or origin; it includes, not enough jobs, less opportunities, "primitive" conditions, desertification, famine/drought, political fear/persecution, poor medical care, loss of wealth, natural disasters, death threats, slavery, pollution, poor housing, landlords, bullying, poor chances of finding courtship, etc.

Pull factors: The reasons which attract people from different places are considered as pull factors. It includes better job opportunities, better living conditions, political and/or religious freedom, better enjoyment, good educational facilities, better medical care, adequate security, family links, industry, better chances of finding courtship, favourable climatic conditions, etc.

Bihar is a state which is going through a socio-political and economic transformation in the 21st century. This state remained in the groups of the bottom of the list in terms of development indicators including education, economy, and health (Khalidet *et al.*, 2018; Dandona *et al.*, 2017; Mandal, 2017). Even within the states of Bihar, the levels of development indicators varied considerably across the districts of India (IIPS & ICF, 2017). In this context, an assessment of internal migration or inter-district migration is needed to be carried out. So, the specific objectives of this study are to analyse the patterns of inter-district migration in Bihar.

Data and methods

In general, in India, the data on migration has a few issues. For instance, data for migration estimation were taken from two major different sources such as the Census of India and the National Sample Survey Organisation (NSSO). The Census of India provides data based on two constructs such as place of residence and place of births. At the same time, the NSSO gives data on the change in place of residence. However, the estimation of inter-district migration is only available from the tables of the Census of India based on place of birth.

The Census of India 2001 and 2011 have been used for the present study (ORGI, 2011; ORGI, 2001). The D-11 table provides us the district level information for each state of India. If a person moves one geographical area to another with residence permanently or semi-permanently is considered as a migrant. As per the Census of India, when a person is enumerated in the census at a different place than his / her *place of birth*, she/he is considered a migrant. A migrant is usually defined as a person who has moved from one politically defined area to another similar area. In the Indian context, these areas are generally a village in rural and a town in urban. Thus a person who moves out from one village or town to another village or town is termed as a migrant provided his/her movement is not purely temporary on account of casual leave, visits, tours, etc.

The Census provides information on in-migration only, but to analyse the patterns of migration of any geographical area in terms of in-migration, out-migration, a matrix has been constructed to estimate the in-migration and out-migration of each district to extract the estimates of out-migration rates. Rows of the matrix indicate the place of birth and columns indicate the place of enumeration. Thus, by summing up all the values within a row, we can have the number of in-migrants of the corresponding districts and in a similar way, we can have the number of in-migrants of all other districts. On the contrary, by summing up all the values of a column, we get the number of out-migrants of the corresponding district and in the same way, out-migrants for all the districts can be derived. The following definition is used to estimate different migration rates.

$$\text{Inmigration Rate of } i\text{th district} = \frac{\text{In-Migrants in } i\text{th district}}{\text{Total Population of } i\text{th district}} \times 1000$$

$$\text{Outmigration Rate of } i\text{th district} = \frac{\text{Out-Migrants from } i\text{th district}}{\text{Total Population of } i\text{th district}} \times 1000$$

$$\text{Net Migration Rate} = \frac{\text{Immigrants in } i\text{th district} - \text{Outmigrants in } i\text{th district}}{\text{Total Population of district } i} \times 1000$$

$$\text{Gross Migration Rate} = \frac{\text{In migrants of district } i + \text{Out migrants of district } i}{\text{Total population of district } i} \times 1000$$

After computing the migration rate, it has been depicted by choropleth maps for the regional presentation of in-migration, out-migration, net migration, and gross migration rates for the most recent data set that is Census of India 2011.

II. RESULTS

There is wide regional variation in the inter-district migration in Bihar. The migration rates across the districts of India in 2001 and 2011 are presented in Tables 1 and 2. Except for Sheohar and Sheikhpura, the in-migration rate has been declined in all districts of Bihar. On a similar line, barring Sitamari, Nalanda, Nawada, Patna, Munger, Gaya, Bhojpur, and Aurangabad, all districts experienced a higher level of out-migration rate. As expected, the gross migration has also been increased in the majority of the districts of Bihar. A negative change in gross migration is found in Aurangabad, Bhojpur, Gaya, Nalanda, Patna, and Sheohar. About half of the districts have also experienced a rise in net migration rates. The pattern of inter-district migration across the districts of Bihar in 2011 is presented in the following sections.

Table 1: Inter-district migration rates in Bihar, 2001

Districts	In-migration rate	Out-migration rate	Net migration rate	Gross migration rate
Pashchim Champaran	1.82	1.78	0.05	3.6
Purba Champaran	3.34	3.67	-0.34	7.01
Sheohar	12.82	7.99	4.83	20.81
Sitamarhi	4.76	5.11	-0.34	9.87
Madhubani	2.93	3.69	-0.76	6.62
Supaul	5.91	4.1	1.81	10.01
Araria	4	2.64	1.35	6.64
Kishanganj	2.88	1.01	1.87	3.89
Purnia	5.91	5.65	0.26	11.56
Katihar	4.01	3.34	0.67	7.35
Madhepura	7.94	8.62	-0.68	16.57
Saharsa	6.41	7.69	-1.27	14.1
Darbhanga	4.97	7.1	-2.13	12.06
Muzaffarpur	7.1	6.15	0.95	13.25
Gopalganj	5.48	3.4	2.08	8.89
Siwan	2.86	5.88	-3.02	8.74
Saran	3.48	2.76	0.72	6.25
Vaishali	5.39	7.94	-2.55	13.34
Samastipur	8	6.78	1.22	14.78
Begusarai	6.36	7.52	-1.16	13.89
Khagaria	9.91	9.94	-0.03	19.85
Bhagalpur	5.85	8.55	-2.7	14.4
Banka	4.99	3.72	1.26	8.71
Munger	9.87	14.39	-4.51	24.26
Lakhisarai	12.78	8.8	3.98	21.58
Sheikhpura	15.22	11.19	4.03	26.41
Nalanda	5.14	17.38	-12.24	22.52
Patna	10.32	14.13	-3.81	24.45
Bhojpur	4.36	9.95	-5.59	14.32
Buxar	6.36	4.17	2.19	10.53
Kaimur	3.84	2.64	1.2	6.49
Rohtas	5.21	5.65	-0.44	10.86
Jehanabad	9.16	9.31	-0.15	18.47
Aurangabad	4.61	13.62	-9.01	18.23
Gaya	4.12	15.24	-11.13	19.36

Nawada	4.85	7.11	-2.26	11.95
Jamui	4.53	4.45	0.08	8.98

Note: The migration rates are estimated per thousand population

Table 2: Inter-district migration rates in Bihar, 2011

Districts	In-migration rate	Out-migration rate	Net migration rate	Gross migration rate
Pashchim Champaran	2.3	2.5	-0.2	4.9
Purba Champaran	4.2	3.9	0.4	8.1
Sheohar	6.7	11.0	-4.3	17.8
Sitamarhi	5.4	4.5	0.9	9.8
Madhubani	3.9	3.9	0.0	7.8
Supaul	6.8	5.7	1.1	12.6
Araria	4.8	3.8	1.0	8.6
Kishanganj	2.8	1.6	1.2	4.4
Purnia	7.9	6.9	1.0	14.8
Katihar	4.8	4.3	0.5	9.2
Madhepura	10.5	11.0	-0.5	21.5
Saharsa	8.8	8.9	-0.1	17.6
Darbhanga	6.0	8.0	-2.0	14.0
Muzaffarpur	8.3	7.2	1.1	15.4
Gopalganj	6.1	5.2	0.9	11.3
Siwan	6.3	6.1	0.2	12.5
Saran	4.6	5.5	-0.9	10.1
Vaishali	7.4	9.0	-1.6	16.4
Samastipur	8.7	8.4	0.3	17.0
Begusarai	8.0	8.5	-0.5	16.6
Khagaria	11.3	12.5	-1.2	23.8
Bhagalpur	7.2	9.3	-2.1	16.5
Banka	5.9	5.3	0.6	11.2
Munger	11.2	14.2	-3.0	25.4
Lakhisarai	12.7	11.8	1.0	24.5
Sheikhpura	14.7	14.7	0.0	29.4
Nalanda	7.8	10.1	-2.4	17.9
Patna	10.5	7.0	3.5	17.4
Bhojpur	6.0	7.6	-1.6	13.6
Buxar	7.5	5.6	1.9	13.1
Kaimur (Bhabua)	5.2	3.3	1.9	8.5
Rohtas	6.4	6.6	-0.3	13.0
Aurangabad	5.4	5.6	-0.2	11.0
Gaya	4.8	5.5	-0.7	10.3
Nawada	6.0	6.9	-1.0	12.9
Jamui	4.9	5.2	-0.3	10.2
Jehanabad	12.5	14.7	-2.2	27.2
Arwal	14.2	12.3	1.9	26.5

Note: The migration rates are estimated per thousand population

In-migration rate

There is a great variation in the inter-district migration pattern of Bihar. Central districts predict a high concentration of in-migration and it diminishing towards the peripheral districts. The figure shows that the districts in the central region of Bihar, near the Ganga river have experienced a higher level of immigration rates as compared to the districts in the peripheral regions. The centrally located districts are Khagaria, Samastipur, Patna, Jehanabad, Arwal, etc. On the other hand, the peripheral districts are Nepal border districts such as Paschim Champaran, Purba Champaran, Sitamarhi, Araria, Kishanganj, Kaimur, Aurangabad, Jamui, Katihar, etc.

Out-migration rate

Figure 2 presents the out-migration rates across the districts of Bihar in 2011. The districts with the highest out-migration are also found in the centrally located districts of Bihar, similar to the district-level pattern of the in-migration rate in Bihar. The outlying districts near Nepal border districts such as Paschim Champaran, Purba Champaran, Sitamarhi, Araria, Kishanganj, Kaimur, Aurangabad, Jamui, Katihar, Kaimur, etc. have a low level of out-migration rate.

Net migration rate

The difference between in-migration and out-migration is termed as net-migration. A positive value represents more people entering the district than leaving it, while a negative value means more people leaving the district than entering it. Here, a balance between push and pull factors are clearly visible in terms of migration. Net migration is the difference between the total number of persons arriving and the total number leaving; it is also referred to as the balance of migration. Figure 3 presents the net migration rates across the districts of Bihar. The figure shows that the pattern of net migration rates across the districts of Bihar is discrete. The districts like Patna, Arwal, Kaimur, and north-eastern districts of Bihar have had a higher level of net migration rates as compared to the others. In these high net migration districts, positive net migration is observed, otherwise negative net migration is found in the remaining majority of the districts.

Figure 1: Inter-district in-migration rate in Bihar, 2011

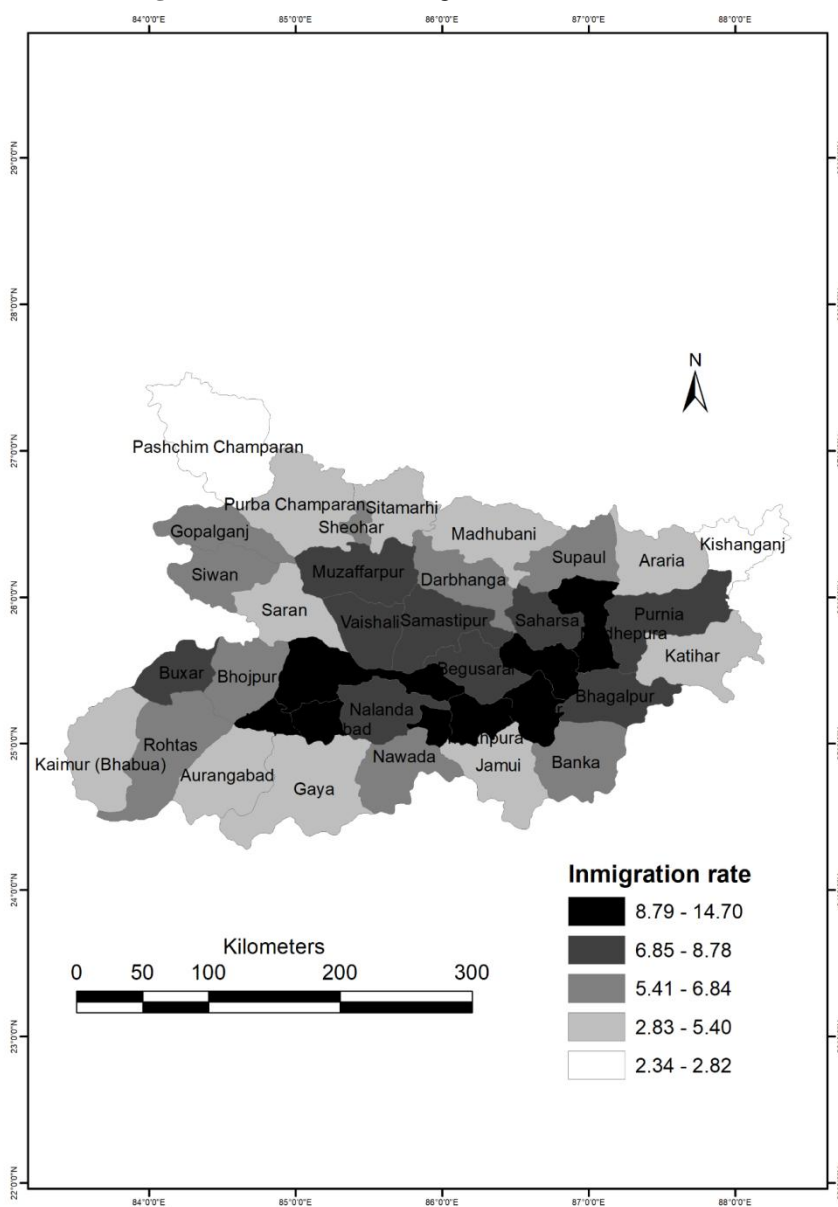


Figure 2: Inter-district out-migration rate in Bihar, 2011

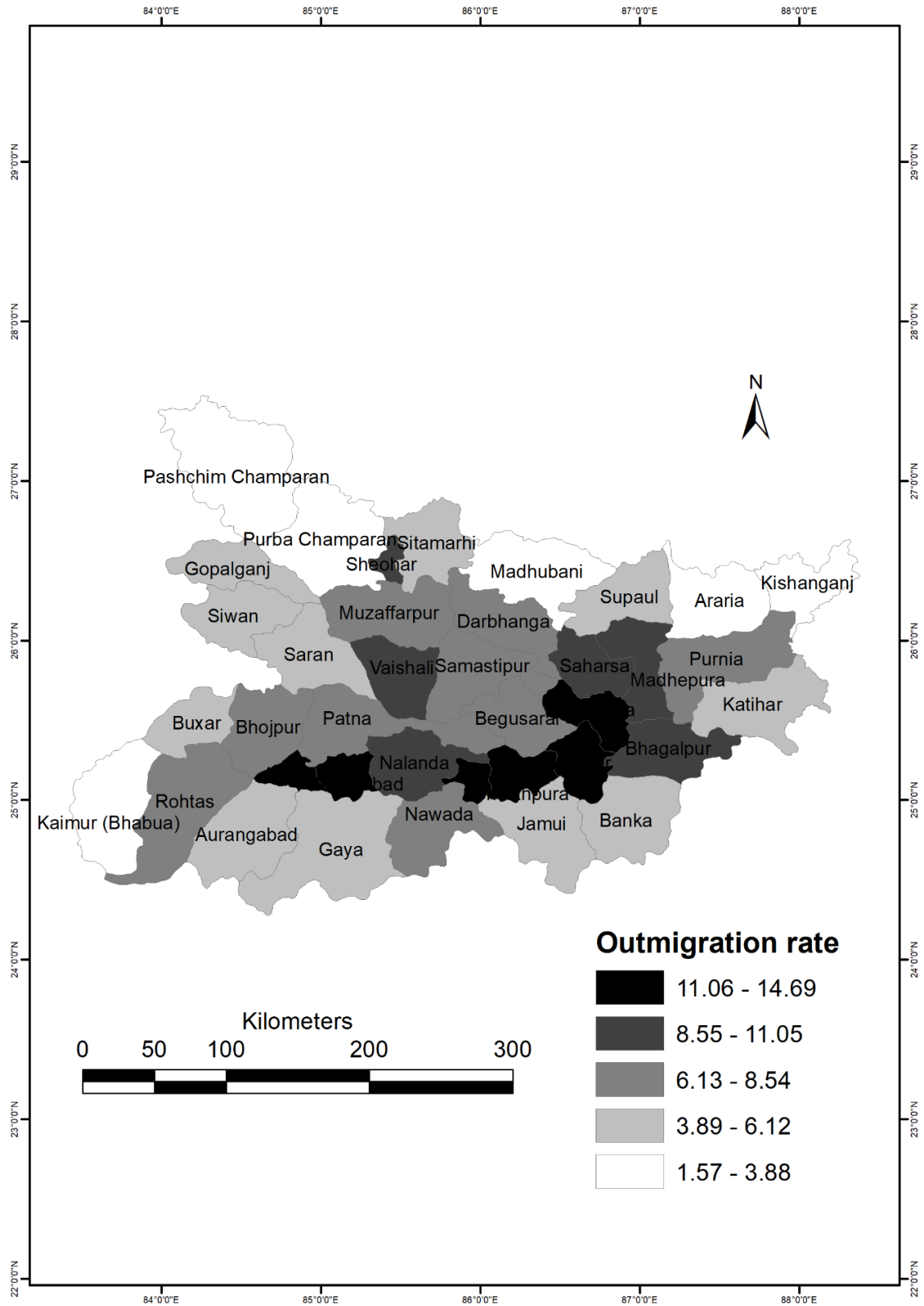


Figure 3: Inter-district net migration rate in Bihar, 2011

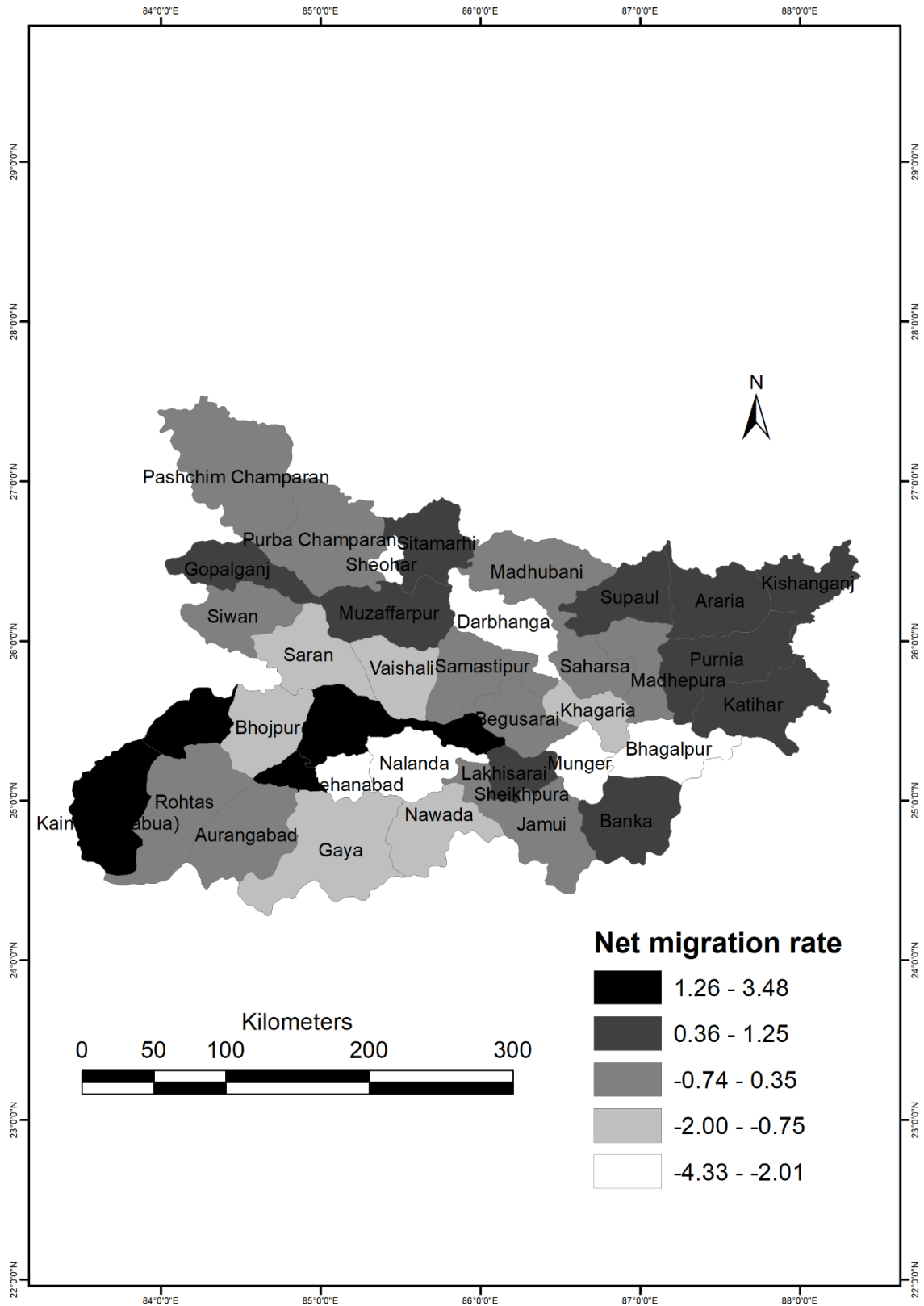
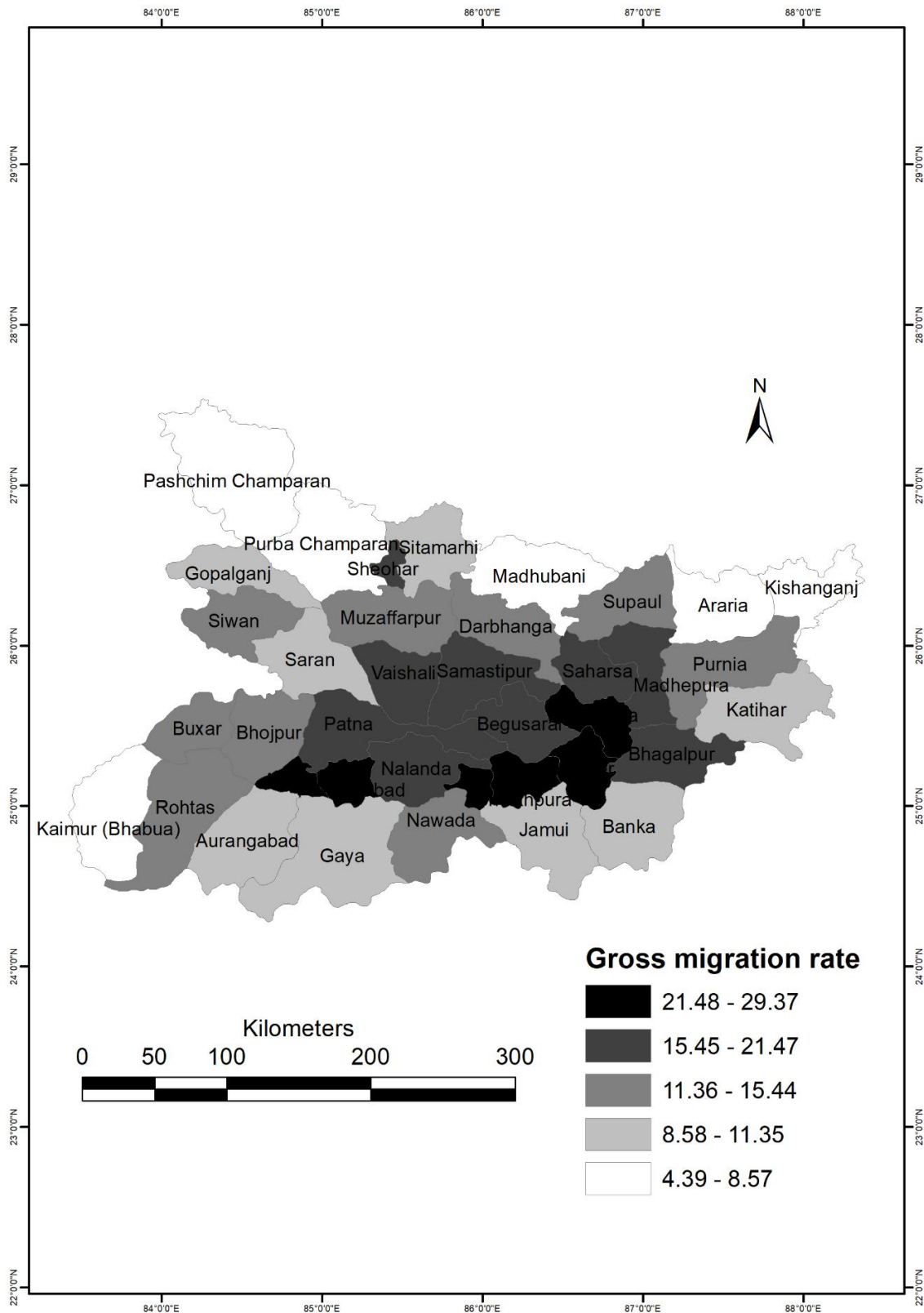


Figure 4: Inter-district gross migration rate in Bihar, 2011



Gross migration rate

The gross migration rate is used for that section of total population movement which is due to both immigration and out-migration. The total population of arrivals of immigrants and departures of out-migrants is called gross migration. Figure 4 presents the district level pattern of the gross migration rate in Bihar, 2011. The figure indicates that the districts located in the central region of Bihar have the highest migratory population in

Bihar than the districts which are located far from the central regions. The centrally located districts such as Khagaria, Samastipur, Patna, Jehanabad, Arwal, Vaishali, Begusarai, Nalanda, Bhagalpur, Saharsha, etc. districts have a high level of gross migration rates. On the contrary, the peripheral districts are Nepal border districts such as Paschim Champaran, Purba Champaran, Sitamarhi, Araria, Kishanganj, Kaimur, Aurangabad, Jamui, Katihar, etc. have a low level of gross migration rates.

III. DISCUSSIONS

The findings from this study imply that the people living in centrally located districts along with the river Ganga are more migratory as compared to the peripheral districts of Bihar. The gross migration in this district also comprises a high level of both in-migration and out-migration rates. Although the gross migration is found to be higher in the centrally located districts, the pattern of net migration rates is discrete in terms of regional dimension.

The migration is the result of inequality in the distribution of opportunities and restrictions. Historically, migration was linked with urbanisation, industrialisation, and development. So, the migration process may also be considered as an indicator of development. However, in recent time, the development of housing slums in the pockets of urban areas changed the pattern of migration. The centrally located districts of Bihar remain the central place of development in terms of education, economic, and health aspects. The nearness of the Ganga river is one of the greatest geographical and historical advantages of this region (Shah, 2009).

On the other hand, peripheral districts are deprived in terms of education, health care facilities, and economic opportunities. The transportation systems including road and rail are not well developed in these regions. So, these states are less migratory. In addition, in the north-eastern districts of Bihar, where millions of people directly or indirectly suffer from the recurrent flood on the Kosi river (Kumar & Singh, 2018; Kafle et al., 2017; Dewan, 2015). Although the people from these districts are mobile, they are less migratory perhaps due to lack of opportunities.

This study has several strengths and limitations. First, this study does not consider the migrants who have migrated to the other states of India or abroad. Because a significant number of people move to the middle-east from Bihar for economic reasons (Datta & Mishra, 2011; Raman, 2012). So, our estimates may be underestimated the whole volume of migration. Secondly, the matrix of migration rates is based on the question of the place of birth. In this question, the duration of migration cannot be captured. So, this study cannot concretely present the contemporary estimates because it gives the migratory description of the cumulative life cycle. However, this study adds in the body of literature and policy implications for the regional disparity in inter-district migration in Bihar.

It can be concluded that the under-developed districts of Bihar which are located in the peripheral regions of Bihar have experienced little migration including in-migration and out-migration. From the policy perspective, these under-developed districts should be focussed on providing the opportunities of educational infrastructure, economic development, and health infrastructure. The migration of the people should be their free choice, but not their distress.

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