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Factors Influencing Migration from North Bihar: An Application of Logistic Regression Model#

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ABSTRACT

There are numerous economic and non-economic factors behind migration. Migrants are pushed out from their native place due to socio-economic condition. Adversely migrants are pulled into the destinations that offer comparatively high wages and employment opportunities and better living standard, health and educational facilities. Bihar stands next to Uttar Pradesh in out-migration at national level. The purpose of the present paper is to investigate factors influencing out-migration from north Bihar as this region is victim of reoccurring flood causing losses of crops and their household assets. Major socio-economic factors causing migration are analyzed using information collected from 180 migrant and 180 non-migrants from three districts namely; Samastipur, Darbhanga and Madhubani because large scale migration has been observed from these districts. Logistic regression model was applied to assess the factors responsible for migration from the study area. The results revealed that youngster belonging to lower income households and having poor housing condition are found more prone to migrate. On the other hand coefficients of education levels, land holding size, marital status were found positive and statistically significant indicating educated people were more prone to migrate as they had poor access to employment in the area under investigation. The coefficient of land holding size was positive and statistically significant pointed out that an increase in size of landholding of household increases the probability to migrate which contradicts the general assumption that poor households are more prone to migrate, does not hold true, particularly for the area under study. It is worth to mention here that migration from landowning households increased during last few decades, on account of stagnant agricultural production, crop losses due to frequent flood and poor infrastructure for agricultural production and un-availability of non-farm activities pushing youngster of even large farm households to outside of Bihar.

Keywords: Agricultural production, Flood, Logistic regression model, Migration

INTRODUCTION

The middle Ganga plain has been the hub of out-migration in the country. On account of wide spread of poverty, unemployment and underdeveloped livelihood, migration is still in vogue from this region and is mainly directed towards the comparatively developed states of western India like Delhi, Punjab, Haryana, Maharashtra, Gujarat etc. Migration from this region is dominated by males, who leave their families behind in the villages. Inter-state migration of wage earners is still continued and intensified in recent years. As per Census of India 2011, the largest number of

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out-migration (20.9 million) is reported from Uttar Pradesh and Bihar. After Uttar Pradesh, Bihar has the second largest number of persons migrating out of state. However, the inter-states migrants constitute the largest proportions of migrants from Bihar. About 14% of male and only 1% of female migrated for work/employment from Bihar as per census 2011.

Among states of eastern Indian, Bihar has been characterized as low and stagnant economic growth, high levels of poverty, and the lowest levels of per capita income (Rs.43822 per capita/annum) among the states in the country still up to 2021. The Human Development Index (HDI) for the state has increased from 0.436 in 2000 to 0.574 in 2019, however, after two decades Bihar is placed at the lowest among the states in India. Bihar is also placed at the lowest in the Gender Equality Index. The literacy rate in the state was 61.80 per cent, the female literacy rate, at 51.5 per cent, and male literacy rate at 71.20 per cent (Census of India, 2011).

The rate of migration from the Bihar to both rural and urban destinations is very high and has increased over the last decade (Kumar and Banerji, 2010; Deshingkar *et al.,* 2009). Remittances from migration have significantly contributed to increase incomes in the migrants native places (Bhaskaran and Mehta, 2009; Rodgers and Rodgers, 2001). Apart from, contributing to growth processes in other parts of the country, the migrants from Bihar have also been key drivers of social change in rural Bihar. However, in recent times, they have been facing a backlash rooted in ethnocentric movements in the host locations such as Maharashtra and Assam (Kumar, 2009).

North Bihar plain has rich natural resources like fertile alluvial soil endowed with surface and sub-surface water resources. The people in the region depend mostly on agriculture. The region is, however; also have low productivity, low crop diversification, less scope for non-agricultural activities, high incidence of rural poverty, marginalisation, feudal exploitation and persistent poor governance. North Bihar is vulnerable to flood as this region is drained by two rivers Gandak and Kosi and their tributaries- the Bagmati, Burhigandak and Kaml-Balan. In recent few decades flood has been the recurring phenomenon of north Bihar only intensity of flood varies from year to year. The flood plains are generally submerged and affect human and animal lives, physical assets and livelihood of people.

Agriculture and its allied sectors are the prime source of livelihood of rural Bihar. However, the dependence on agriculture and allied sector declined from around 75 per cent to 50 per cent during 2004-05 to 2018-19 but still the economy of the state depends on agriculture and allied sectors (NSSO employment and unemployment rounds, Periodic Labour Force Survey).

One of the most important reasons behind reduction in employment in agriculture and allied sector was vast damage to crops from weather aberration during the cropping season. Agricultural production becomes uncertain due to continuous flooding in this region. Agricultural labours works on other land get insufficient wage to feed a family of 4-5 members.

The flood, however, was not the only reason for a declining dependency on agricultural activities. The agricultural scenario changed over the time. Now it becomes commercialized and due to price hike of inputs it is not profitable and employment opportunity in agriculture started to shrink both for men and women on account of advancement in mechanization and increasing population in the state. When the economy of any region faces distress, out migration becomes an option for survival of rural households. Urbanization drew the labour away from the farm in the open market economy.

Keeping in mind, the out-migration from Bihar, the present study is conducted to find out the influencing factors of migration.

MATERIALS AND METHODS

Present study is based on primary data obtained from 180 migrant and 180 non-migrants of households of twelve villages of Samastipur, Darbhanga and Madhubani districts of north Bihar. These districts were three most migration prone districts of North Bihar (64th round NSSO report No.470, 2007-08, Census of India, 2011). Migrants and non-migrant households were selected from matching socio-economic status of the household. The survey was conducted with the

help of pre-structured schedule in the year 2019 and detailed information on various socio-economic aspects were collected.

The descriptive analysis of migrant and non-migrants involving gender, age, education, occupation, land holding and income were carried out to analyse their socio-economic characteristics of both the categories of respondents which may influence them to migrate or not to migrate.

To assess the factors influencing migration, logistic binary regression model was used as the independent variable in logistic regression which is generally dichotomous i.e. the dependent variable take the value 1 with probability of success θ, or the value 0 with the probability 1-θ. This type of variable is known as Bernoulli or binary variable. In the present study θ represents the probability of an event that depends on 'n' covariates or independent variables (Tabachnick and Fidell, 1996; Sricharoen, 2013).

RESULTS AND DISCUSSION

An attempt has been made to undertake comparative analysis of socio-economic status of migrant and non-migrant households. Socio-economic profile and descriptive data of the respondents both migrants and non-migrants are presented in Table 1 and 2.

Perusal of the Tables indicated that majority of migrants (59.00%) belonged to the age group of 20-34 and about 52.0 per cent of them were from nuclear family category. The majority of migrants (88%) were literate and some of them were educated above the standard indicating that educated young persons are more prone to migrate from the study area. Majority of migrant households (62%) had less than 1 ha of land but 90 per cent migrants reported farming as their main occupation and 58 reported daily wage earning as their secondary occupation.

It was also observed that average age of migrant workers was about 33 years and average year of education was about 8 years and had average land holding 0.70 ha. The proportion of earners to total family labour was found to be 0.48 (Table 2). The annual income of migrants and non-migrant were about Rs. 1.28 lakh/year and Rs. 2.97 lakh/year respectively. It was observed from Table 2 that though education level of non-migrant was low but they had

Table 1: Socio-economic profile of the respondents

Particulars	Migrants' Household		Non-migrants' Household	
	Frequency	Percentage	Frequency	Percentage
Family type				
Nuclear	94	52	73	41
Joint	86	48	107	59
Total	180	100	180	100
Gender of Migrant				
Male	180	100	128	71
Female	0	0	52	29
Total	180	100	180	100
Age				
15-19	3	2	0	0
20-34	107	59	51	28
35-50	69	38	109	61
>50	1	1	20	11
Total	180	100	180	100
Literacy of migrant				
Literate	159	88	122	68
Illiterate	21	12	58	32
total	180	100	180	100
Land holding				
0 ha	19	11	10	6
<1 ha	112	62	105	58
1-2 ha	43	24	56	31
2-4 ha	6	3	9	5
>4 ha	0	0	0	0
Total	180	100	180	100
Primary Occupation of migrant at native				
Farm	161	90	169	94
Non-farm	19	10	11	6
Total	180	100	180	100
Secondary occupation of Migrant				
Agriculture and allied	15	8	12	7
Business	12	7	78	43
Service	9	5	5	3
Private work	3	2	8	4
Daily wage earner	105	58	57	32
Others	0		20	11
Total	180	100	180	100

Table 2: Household data of respondents

Particulars	Migrants (N=180)		Non-migrants (N=180)	
	Mean	SD	Mean	SD
Age (years)	32.87	6.45	38.07	7.18
Education	7.73	4.30	5.99	4.55
Land holding size(ha)	0.70	0.63	0.81	0.75
Worker	0.48	0.07	0.42	0.08
Income (Rs in lakh per annum)	1.28	0.28	2.97	1.32

more land and had less proportion of earners in the family and their income was more as compared to migrant workers in the study area. It was only due to their engagement in business activities (Table 1).

Logistic regression was worked out to assess the factors influencing migration. The result of the analysis is presented in Table 3. All the variables except worker i.e. proportion of earning members to total family members) included in the model were found significant at probability level of less than 0.5. The coefficients such as age, income and housing condition are found negative, indicating that with increase in age, income and having good living condition the pace of migration retarded. Other variables like education, land holding size, marital status have positive and significant coefficients indicated that educated people are more prone to migrate as there is paucity of gainful employment in the area under investigation. Another reason could be preference of non-agricultural work by educated people. Similar finding are reported by Sardadvar and Vakulenko (2017); Mkrtchyan and Florinskaya (2018).

The estimate of size of land holding is positive and statistically significant meaning thereby that an increase in size of landholding of household may increase the probability to migrate. The general assumption is that the comparatively poor households are more prone to migrate, does not hold true, particularly for the area under study. However it was observed that migration from landowning households increased during last few decades, on account of stagnant agricultural production, recurring losses due to flood and poor infrastructure for agricultural production and non-farm activities are also pushing youngster of even large size household to outside of Bihar. The finding is in conformity with the findings of Singh *et al.* (2002).

It is generally assumed that married people are less prone to migrate. But the estimate of logistic regression indicated that marital status increased the pace of migration. The reason may be that after marriage liabilities increased and to meet the expanses, married people have to migrate to seek better employment to enhance income. It is considered that the higher proportion of working members in the family, the lower chances of migration. But, the estimate is positive but non-significant. The reason could be that the study area has poor infrastructure and frequent floods might compelled people to migrate to augment their income to meet their household expenses.

CONCLUSION

Hence, it may be said that youngster pertaining to lower income households and having poor housing condition are found more prone to migrate. On the other hand married educated persons with land holding are more prone to migrate as they have poor access to gainful

Table 3: Factor influencing labour migration

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Age	-0.13	0.04	10.37	1	.001	0.87	0.81	0.95
Education	0.31	0.07	18.63	1	0.00	1.36	1.19	1.58
Land holding size (ha)	2.75	0.70	15.52	1	0.00	15.61	3.98	61.28
Income (Rs. Lakh/annum)	-6.69	0.91	53.88	1	0.00	0.001	.000	0.007
Marital status	1.79	.753	5.630	1	0.02	5.98	1.37	26.16
Worker	1.72	3.137	.299	1	0.58	5.56	0.01	2603.62
Housing condition	-1.466	0.62	5.65	1	0.02	0.23	0.07	0.77
Constant	10.527	2.46	18.30	1	0.00	37314.84	-	-

employment in the study area. Educated youths generally prefer non-agricultural employment. An increase in size of landholding of household increases the probability to migrate, hence the general assumption is that poor households are more prone to migrate, does not hold true, particularly for the area under study. However it was observed that migration from landowning households increased during last few decades, on account of stagnant agricultural production, crop losses on account of frequent flood and poor infrastructure for agricultural production and un availability of non-farm activities are also pushing youngster of even large size household to outside of Bihar (Singh *et al.,* 2002). The study revealed that the factors which impelled people to migrate were dignified employment in rural area, possibilities of enhancing income in destination place. All the migrants indicated that they knew their migration was temporary, but it helped them in raising their living condition and made them able to lead dignified lives. Migration provided them an opportunity to dissolve income related problems in the villages.

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