Factors Influencing Internal Labour Migration from Agriculture sector to Non-agricultural Sector in Bangladesh: An Empirical Analysis

ABSTRACT

Aims: *In past, labour was extensively used in agriculture sector and there was huge surplus labour in agriculture sector. However, such trend has recently been changed where surplus labour in agricultural sector has reduced significantly and agriculture sector compete with non-agricultural sector in terms of hiring labour. Thus, the present study was undertaken to analyze the determinants of labour migration from agriculture sector to non-agricultural sector in Gopalganj district of Bangladesh.*

Place and Duration of Study: *The study was conducted at 12 villages of three upazilas (Gopalganj Sadar, Tungipara and Kotalipara) in Gopalganj district. For the study, data were collected during the period from January to March in 2021.*

Methodology: *To this end, primary data were collected from agricultural labours. Descriptive statistics and simple random sampling technique were used in this study. Binary logistic model was used to analyze the collected data. In addition, five point likert scale was used to rank the barrier towards internal labour migration.*

Results: *Results found from the logit model indicate that factors like family size, education, past experience, access to available information, transportation facilities, and savings are positively related with the log of odd ratio in favor of labour migration from agriculture sector to non-agricultural sector while wage rate, age, off-farm income and farm holdings are inversely related with labour transfer from agriculture sector to non-agricultural sector. In addition, respondents in the study area have recognized lack of proper technical training as the major constraint in labour migration with a mean value of 4.48.*

Conclusion: *The present study recommends that government should take initiatives to open skill development institutions in rural level so that agricultural labour can take training. Regarding necessary information on non-agricultural jobs, it can be recommended that government, local agents and NGOs, in case of migration, should take proper initiatives so that agricultural labours can easily get information about non-agricultural jobs.*

Keywords: *Labour migration, agriculture sector, non-agricultural sector, logit model, Bangladesh*

1. Introduction

Bangladesh has a total population of about 168.2 million and the current growth rate of population is 1.37 percentage (Bangladesh Economic Review, 2021). According to the labour force survey 2016-17, 40.6% people involve with agriculture sector which was percentage in 48.10 in 2005-06. Like many developing countries, the amount of agricultural labour in Bangladesh is showing a decreasing pattern and they often found to migrate at non-agricultural sectors due to wage differential between sectors. In Bangladesh, most of the agricultural labour considered migration as their prime livelihood strategy and a large number of agricultural labour come into the non-agricultural sector from agricultural sector with the aim of employment, higher wage and higher standard of living. Especially, migration has occurred for better opportunity and for better job. Over the last few decades, the rate of migration is increasing gradually all over the world. In developing countries, people migrate from one to another area due

to facilities of employment and to fulfill their subsistence need. Rural poor consider migration as a process to be free from the vicious cycle of poverty (Islam et al. 2009). Poverty is considered as a social curse which resists the development of a society.

Poor people can get rid from the trap of poverty as well as improve their socio-economic condition through the process of migration (Siddique, 2003). In addition, socio-economic mobility is considered as a necessary condition for sustainable development and poverty alleviation. Likewise, according to the economic and social power of the migrants, choice of destination and levels of benefits and risks, however, vary significantly. (Siddiqui, 2003).

Labour migration, especially internal migration, is defined as the movement of labour from their home state to another state for the purpose of employment and it includes both permanent and temporary migration as well as rural-urban, urban-rural migration. Historically, it has played a significant role in improving the standard of living of the people of migrants' family. Internal migration is considered more important in terms of the number of people involved and perhaps the amount of remittances they send back home. In the rural economy, agricultural labours are always considered as the most deprived and neglected part of the population. Majority of the agricultural labourers includes landless, marginal, fixed rent tenant or sharecropper and they often found to diversify their profession by resorting to different types of non-agricultural activities as labourers, rickshaw-pullers, van-pullers, small businessman, street hawker, mason helper etc. Labour migration has become an integral part of the economic and social development of Bangladesh since 1980s. It offers additional revenues to the migrants to meet his subsistence needs as well as helps government to attain its long term developmental goals. In 1972, almost 80% of the labour had involved with agriculture while this amount has reduced by 40.6% in 2019 (Bangladesh Economic Review, 2021). At present, surplus labour is found to decline in agriculture sector and most of the agricultural labour prefers to migrate at non-agricultural sector basically due to wage differential between agriculture and non-agricultural sectors. In addition, they also face some difficulties while aiming to migrate themselves at non-agricultural sector. Working opportunities in agriculture sector round the year are not available which is considered as a cause of labour migration. As a result, agricultural labour often face unemployment problem which reduce their income, purchasing power and also impede their standard of living.

Table 1 illustrates the scenario of labour forces in Bangladesh under different labour force surveys. It is evident from table 1 that the number of economically active population above 15 years, according to labour force survey 2005-06, was 4.74 crores with male 3.61 crores and female 1.13 crores whereas the economically active population has increased by 6.35 crores in labour force survey 2016-17 with male 4.35 crores and female 2 crores.

Table 1: Scenario of Labour Force in Bangladesh

Name of the Survey	Economically active	Male (in crores)	Female (in crores)	% of people who have involvement

	population (in crores)			with agriculture
Labour Force Survey: 2016-17	6.35	4.35	2.00	40.6
Labour Force Survey: 2010	5.41	3.79	1.62	47.33
Labour Force Survey: 2005-06	4.74	3.61	1.13	48.10

Source: Bangladesh Economic Review, 2021

In addition to economically active population, it is also obvious from above table that 48.1% people had involvement with agriculture sector in 2005 while this amount had declined by 40.6% in 2016. These above explanations are shown below with the help of Figure 1.

Figure 1: Scenario of Labour Force in Bangladesh

It is obvious from above diagram that people's involvement with agriculture sector has decreased throughout the survey period, though economically active population has increased from 4.74 crores to 6.35 crores.

1.1 Statement of the Problem

In the theories of labour migration given by Authur Lewis, Fei and Ranis, Harris-Todaro and Jorgenson, it is assumed that an economy with surplus labour always considers marginal productivity of labour (MP_L) is zero or near equals to zero (Harris and Todaro, 1970). According to these theories, labour in agriculture sector is paid wage equal to its average product, not according to their marginal product which creates disequilibrium in terms of sectoral wages between agriculture and industry. This disequilibrium is responsible for inter-sectoral migrations which again lead to global efficiency in the sectoral allocation of labour in the labour surplus economy. In the past, it was found that there was

huge surplus labour in agriculture sector and this figure has continued to decrease in recent times. In addition, wage rate in agriculture sector is lower compared with wage in industrial sector. Though, surplus labour exist in agriculture, they often faces many difficulties in migrating themselves to non-agricultural sector. The ultimate consequences are: lower wage rate, lower income, lower purchasing power and finally lower standard of living. When this is the case, it is an open question as to design an appropriate policy regarding the determinants of labour migration and barriers towards labour migration. Furthermore, the importance of labour migration has focused in several public papers including several five year plan of Bangladesh, national budget, Bangladesh Bureau of Statistics. Identifying the determinants of internal labour migration is vital for appropriate government policy formulation as well as to assess the impact of labour migration on surplus labour and to estimate their wage differential between agricultural sector and non-agricultural sector.

1.2 Objectives of the study

The broad objective of this study is to analyze the determinants of labour migration from agricultural sector to non-agricultural sector in Bangladesh. This broad objective has been split into several specific objectives which are as follows:

i. to show the scenario of economically active labour force in Bangladesh.
ii. to describe the occupational status of labour before and after labour migration.
iii. to identify the determinants of labour migration from agriculture sector to non-agricultural sector in the study area.
iv. to assess the barriers towards labour migration from agricultural sector to non-agricultural sector in the study area.

1.3 Operational Definitions

Agricultural Sector

Agriculture sector includes the combination of four sub-sectors including crop, forestry, fishery and livestock.

Non-agricultural sector

In the present study, non-agricultural sector includes industry and service sector.

Internal migration

Internal labour migration refers the movement of labour within the geographical boundary of the country for the purpose of employment and it includes both permanent and temporary migration as well as rural-urban, urban-rural migration.

2. Literature Review

Several studies were done in the field of labour migration both in domestic and abroad (Mannan and Fredericks, 2017; Sarker and Islam, 2018; Imran et al., 2016; Zahonogo., 2011; Gimba and Kumshe, 2011). The most of the studies focuses on the determinants of labour migration by using different approaches. The findings of these studies widely differed from each other in terms of existing relation between labour migration and its determinants.

Mannan and Fredericks (2017) analyzed the household head relation to the migrant and remittances determinants among ten villages on the remittances receiving households in rural Bangladesh. They used household survey data from Bangladesh collected for the period of July to December, 2013. The empirical findings suggest that the household head relation to the migrant is one of the strong determinants of remittances as well as other variables. Shimada (1991) conducted a study on economic change and rural migration in Nigeria. They used both primary and secondary data in analysing their study. He used Simple random technique in his study. Result found from the study indicates that migration is viewed as a sign of economic and political change. Using secondary data, Sarker and Islam (2018) explored the impact of remittances on socio-economic development in Bangladesh. They found that international migration has positive impacts on socio-economic development in Bangladesh. Apart from this, study also reveals that remittance has significant impact on reducing the poverty, household expenditure, saving, leading to maintain the quality of life as well as gender equality.

Imran et al., (2016) operated a study on migration and crop productivity in Punjab in 2016. They used cross-sectional data which were collected from the Southern Punjab and used Cobb Douglas production function to determine the impact of migration on crop productivity. Results found from the study indicate that cotton productivity was adversely affected by rural-urban migration while the wheat productivity was positively related with rural-urban migration. They found that Push and pull factors are involved in decision making process of rural-urban migration. The earlier studies by Todaro (1969), Harris and Todaro (1970) explaining rural-urban migration showed that expected wage differential is the main cause of rural-urban migration. It implies that people will continue migrating from rural to urban centers until the wages in the rural areas become equal to those in urban areas. The economic consideration is believed as the primary motivational factor for rural-urban migration (Muhamud et al. 2010; Ikramullah et al., 2011). Other factors include lack better of social services, better education and health facilities and entertainment at urban centers, marriage and joining family at the urban centers (Hamid, 2010; Gimba and Kumshe, 2011). Other studies indicated that economic push factors (lack of credit, small landholding and rural poverty) were important while others showed high wage rate at urban centers, being the more crucial factor. However, income received from migrants can have positive impact on crop production and the net impact on crop productivity is negative (Rozelle et al., 1999). Migration has positive impact on non-agricultural income and negative impact on agriculture income. The non-migrant households earn

higher agricultural income compared to migrant households, as migration positively affects non-agriculture income and negatively affects agriculture income (Zahonogo 2011).

2.1 Gaps in Previous Literature

While there are many studies regarding the determinants of labour migration in abroad, few studies were found in Bangladesh, especially in this study region. Most of the previous studies on the determinants of labour migration are cross section and cross country studies. The difficulty with such studies is the homogeneity assumptions across the countries, which is unrealistic due to variations in social, economic and institutional conditions. Therefore, country specific studies are needed to throw more light on the determinants of labour migration and the related policy issues. Such studies are either negligible or do not exist in Bangladesh. In determining the factors responsible for labour migration, most of the previous studies ignored some important variables like off farm income, size of farm holding, access to available information which were important for making a good conclusion. So, this study will be an improvement over the previous studies as it considers all of those excluded variables in previous studies.

3. Methodology of the Study

3.1 Study Area and the Rationale

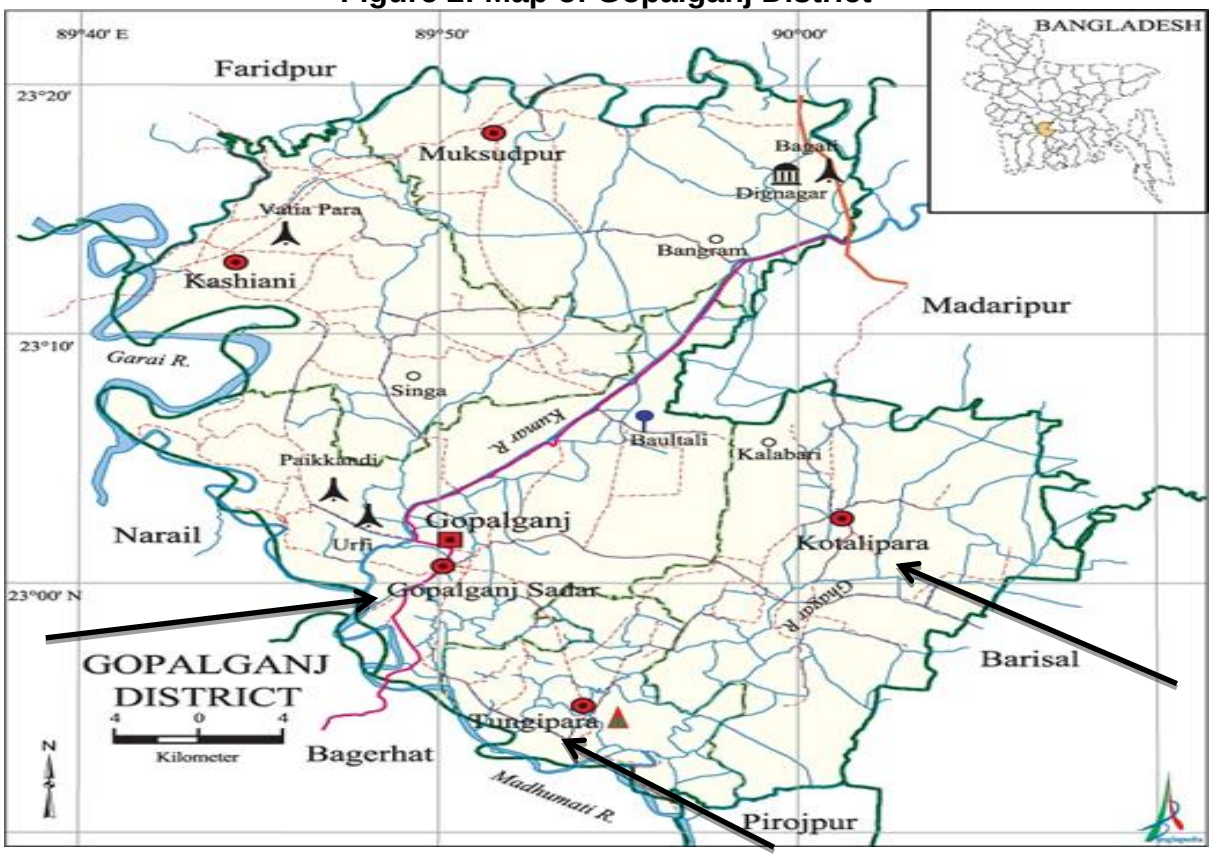
Gopalganj, a district in southern Bangladesh, was chosen for the study as there is huge agricultural labour. Total population of Gopalganj district is 11,72,415 and literacy rate is 58.1% (Census, 2011). For this study, the sample collected from three upazilas of Gopalganj district including Gopalganj sadar, Tungipara and Kotalipara. Then, two unions were selected randomly from each upazila and a total of six unions were selected. Finally, 12 villages were selected randomly from six unions and subsequently, a total of 300 agricultural labours were interviewed for the study.

Table 2: Selection of the Study Area

District	Upazila	Union	Village	Number of Respondent
Gopalganj	Gopalganj Sadar	Gobra	Sonakur	25
			Ghonapara	25
		Borasi	Charpathalia	25
			Bedgram	25
	Tungipara	Patgati	Gimadanga	25
			Gouhardanga	25
		Kushli	Nilpha	25

			Bashuria	25
	Kotalipara	Hiran	Majhbari	25
			Tarashi	25
		Kalabari	Kaliganj	25
			Shimulbari	25
Source: Field Survey, 2021				

Figure 2: Map of Gopalganj District



Note: ⟶ indicates the location of the study area.

3.2 Source of Data

The survey was conducted from January to March 2021 in Gopalganj district. In order to select the agricultural labour for the interview, a list of 1145 agricultural labour was collected for sampling from Union Parishad Office. From the collected list 25 labours were selected randomly from each village. Hence, a total of 300 sample labours were selected randomly to collect socio-demographic and farm-level data to identify factors affecting labour migration from agricultural sector to non-agricultural sector in Gopalganj district of Bangladesh. However, some secondary data were also collected and used in for the study. These

secondary data were collected from various government and non-government organizations such as- agricultural sample survey, yearbook of agriculture statistics (YAS), Bangladesh Bureau of statistics (BBS), Ministry of agriculture (MOA), Bangladesh Economic Review (BER), Union Parishad office, various journals, and newspapers.

3.3 Statistical Technique

District was selected purposively and other units including upazila, union, village and respondents were selected using simple random sampling. Then, collected data were classified, tabulated and analyzed in accordance to the objective set for the study. Both tabular and graphical techniques were used to analyze the collected data. SPSS, Microsoft-Excel and Microsoft-word were used for the analysis.

3.4 Analytical Techniques

In this paper, both the descriptive as well as econometric analyses were used to fulfill the objectives. Descriptive statistics were used to identify the summary statistics of agricultural labour in the study area. Logit model was used to address the determinants of labour migration from agriculture sector to non-agriculture sector in the area. To determine the shares of the selected variables in the process of migrating labour from agriculture sector to non-agriculture sector, the following specification of the model, in logit framework, has been employed:

$$Z = \log\left[\frac{P_i}{1-P_i}\right] = \gamma + \sum_{i=1}^{10}\delta_i X_i + \psi_i \quad \text{.....(1)}$$

$$Z = \log\left[\frac{P_i}{1-P_i}\right] = \log Y = \gamma + \delta_1 X_1 + \delta_2 X_2 + \delta_3 X_3 + \delta_4 X_4 + \delta_5 X_5 + \delta_6 X_6 + \delta_7 X_7 + \delta_8 X_8 + \delta_9 X_9 + \delta_{10} X_{10} + \psi_i \quad \text{.....(2)}$$

Where,

Z =Probability of labour migration from agriculture sector to non-agriculture sector (1 if the respondent is capable to migrate himself from agriculture sector to non-agriculture sector and 0 otherwise); γ =constant term; δ_1 to δ_{10} = logistic coefficient for the explanatory variables; ψ = error term; X_1 = wage rate X_2 = Age; X_3 = family size; X_4 = education; X_5 = Past experience; X_6 = access to available information; X_7 = transportation facilities; X_8 = non-farm income; X_9 = savings and X_{10} = farm holdings.

3.5 Description of the Variables

For this research, the dependent variable defined as the probability of labour migration from agriculture sector to non-agriculture sector. That is 1 if the respondent is capable to migrate from agriculture sector to non-agriculture sector and 0 otherwise. The explanatory variables were taken as those variables which were thought to influence the agricultural labour migration decision. Wage rate, age, family size, education, past experience, access to available information, transportation facilities, off

farm income, savings and farm holdings are considered as explanatory variables. For general perception, variables family size, education, past experience, access to available information, transportation facilities are considered to have positive influence on labour migration whereas wage rate, age, off farm income, savings and farm holdings are marked to have negative influence on labour migration.

Table 3: Summary of the variables used in the model

Variables	Definition	Expected Sign
Wage rate	Taka (BDT)	-
Age	Year	-
Family Size	Number	+
Education	Year of schooling	+
Past experience	Year	+
Access to available information	Dummy (1= access to information regarding migration, 0= otherwise)	+
Transportation facilities	Dummy (1=access to transportation, 0= otherwise)	+
Non-farm income	Taka (BDT)	-
Savings	Taka (BDT)	-
Farm holdings	Operated area in Bighas	-

Source: Field Survey, 2021

4. Results and Discussion

4.1 Socio-economic characteristics of the respondents

Table 4 portrays the socio-economic features of agricultural labour in Gopalganj district. Descriptive statistics shows that majority (34%) of the respondents were within the age group of 41-50 years (Table 4). A small number of the respondents in the study area were within the age group of 61-70 years having (7%). In terms of family size, it is found that 62% respondents had a family size ranges between 4 to 6 person, where 94% male and 6% female. It is observed from table 4 that 31% of the surveyed respondents have small farms and just 12% of the respondents have marginal farms. Education plays an important role in deciding migration decision. Education has categorized as no formal education, primary education, secondary education, higher secondary education, graduate and above. Study reveals that 6% agricultural labours were illiterate but majority of the agricultural labours completed primary (63%) level and 18% completed their secondary school (Table 4). Considering occupational

status, it is revealed that 79% of the respondents were full-time agricultural labour while 21% were part-time agricultural labour. Regarding marital status of the respondents, result revealed that a majority (71%) of the respondents were married whereas single, widowed and divorced represent 9%, 14%, and 6% respectively. With regards to the source of collecting information on non-agricultural job, it is evident that 76% of the respondents collect

information from their friends, neighbor and relatives while 17% of the labour reported that they collect news from local agent.

Table 4: Socio-economic features of the sampled respondent

Particulars	Percent	Particulars	Percent
Age Distribution (Years)		**Earning Members in Family**	
21-30	13	Single	71
31-40	29	Double	19
41-50	34	Three	7
51-60	17	Four	3
61-70	7	**Sex**	
Family Size		Male	94
1-3 person	15	Female	6
4-6 person	62	**Marital Status**	
7 and above	23	Single	9
Farm Holding (in Bigha)		Married	71
Marginal (0.15-1.49)	57	Widowed	14
Small (1.50- 7.49)	31	Divorced	6
Medium (7.50-22.49)	12	**Religious Status**	
Sex		Muslim	53
Male	94	Hindu	47
Female	6	**Years of Experience**	
Education		3-7	9
No formal education (0)	6	8-12	24
Primary level (i-v)	63	13 and above	67
Secondary level (vi-x)	18	**Source of information**	
Higher Secondary level (xi-xii)	12	TV news	5
Graduate and above	1	Newspaper	2
		Friend/neighbor/relatives	76
		Local agent	17

Source: Authors' own calculation

Study revealed that majority (67%) of the respondents had 13 years and above experience as agricultural labour, while 24% had experience of 8-12 years. The implication of this finding is that years of experience has positive impact on migration. In case of earning member, 71% respondent reported that they had single earning member in their family and only 3% respondents told that they has four earning member in their family.

4.2 Occupational Status of the respondents

Table 5 shows the occupational status of the respondents in the study area. It is found from Table 5 that 79% respondents were full-time agricultural labour whereas 21% were part-time agricultural labour in case of before internal labour migration. In case of after migration occupational status, it is evident that maximum respondents (48%) involve themselves in mason

helper while 23% engage them in rickshaw and van pulling activities. 10% respondents took mason as their profession and 5% as transport helper.

Table 5: Occupational Status of the respondents

Occupational Status before Migration		Occupational Status after Migration	
Occupational Status	Percent	Occupational Status	Percent
Full-time agricultural labour	79	Rickshaw and Van puller	23
Part-time agricultural labour	21	Mason	10
		Mason helper	48
		Security guard	4
		Petty business	7
		Transport helper	5
		Driver	3

Source: Field Survey, 2021

4.3 Determinants of Transferring labour from Agriculture Sector to Non-agricultural Sector

In order to investigate the determinants of labour migration from agriculture sector to non-agriculture sector a binary logit model is employed. Results found from the model indicate that factors like family size, education, past experience, access to available information, transportation facilities, and savings are positively related with the log of odd ratio in favor of labour migration from agriculture sector to non-agriculture sector (Table 6). On the other hand, wage rate, age, off-farm income and farm holding are inversely related with labour migration from agriculture sector to non-agriculture sector meaning that their higher value will reduce the possibility of labour migration from agriculture sector to non-agriculture sector and vice versa. The values of log likelihood and chi-square statistic computed from the model are 57.34 and 82.41, respectively.

Table 6: Results of Binary Logit Model

Variable	Coefficient	Z-values	P-value
Constant	9.8980	2.6068	0.0291
wage rate	-0.3871***	-5.0912	0.0001
Age	-0.1272	-0.2743	0.6547
Family size	0.2890***	4.2831	0.0001
Education	0.1441**	2.5743	0.0275
Past Experience	0.2157*	1.5473	0.0580
Access to available information	0.7861	1.0863	0.1581
Transportation facilities	0.3665**	2.4528	0.0217
Off-farm income	-0.0228	-1.1287	0.1175
Savings	0.4192	0.1921	0.7529

Farm holding	-0.0180***	-3.2831	0.0001

LR Chi-Square Value: 82.41
Log likelihood: 57.34
Pseudo R^2: 0.532
Note: ***Significant at 1%, **Significant at 5%,* Significant at 10%

Source: Authors' own calculation.

The computed value of psedudo R^2 is 0.532 which indicates that the overall model is significant and the explanatory variables are jointly able to explain the decision regarding to labour migration from agriculture sector to non-agricultural sector.

4.4 Barriers towards labour Migration from agricultural sector to Non-agricultural sector

The Table 7 shows the major barriers towards labour migration from agriculture sector to non-agriculture sector. To this end, Likert scale was used in ranking the barrier of migration. The main strategy for ranking is that a variable with the highest mean value will be the top ranking and an item carry lowest mean value indicates the lowest ranking. Result obtained from Likert scale shows that lack of technical training carry a mean value of 4.48 and placed the 1st rank in case of the ranking of migration barrier whereas religion barrier placed the last rank with a mean value of 0.58 (Table 7).

Table 7: Barriers towards labour migration

Barriers of Migration	Mean value	Maximum	Minimum	Standard deviation	Rank
Intervention of middleman	3.82	5.00	3.00	0.59	4
Lack of education	3.92	5.00	3.00	0.56	3
Lack of necessary information	4.24	5.00	3.00	0.55	2
Transportation cost	0.64	3.00	1.00	0.64	7
High family ties	2.02	3.00	1.00	0.71	6
sex discrimination	2.82	4.00	2.00	0.66	5

Lack of technical training	4.48	5.00	4.00	0.50	1
Religious barrier	0.58	5.00	1.00	0.34	8

Source: Authors' own calculation

5. Conclusion and Policy Recommendations

The major objective of this paper was to identify the determinants of labour migration from agricultural sector to non-agriculture sector in Gopalganj district. Descriptive statistics were used to show the socio-economic characteristics of the respondents in the study area. In addition, logit model was used to assess the impact of explanatory variables on binary variable. Study showed that 63% agricultural labours completed their primary level education and 6% had no formal education. In terms of the source of information on non-agricultural job, results showed that 76% of the respondents collect news from their friends, neighbor and relatives while 17% of the labour reported that they collected their news from local agent. The study also revealed that majority (67%) of the respondents had 13 years and above experience as agricultural labour, while 24% had an experience between 8 to 12 years.

Results found from the logit model indicate that factors like family size, education, past experience, access to available information, transportation facilities, and savings are positively related with the log of odd ratio in favor of labour migration from agriculture sector to non-agricultural sector while wage rate, age, off-farm income and farm holding are inegatively related with labour migration from agriculture sector to non-agricultureal sector. In addition, respondents in the study area have recognized lack of proper technical training as the major constraint in labour migration with a mean value of 4.48 followed by lack of necessary (4.24) information, lack of education (3.92). Based on the findings of the study, the following recommendations can be made:

i. Most of the non-agricultural jobs require skill and it is found from the study that few amount of agricultural labour has skills oriented training. Thus, agricultural labours should take training before their migration. In this regard, government should take initiatives to open skill development institutions at rural level so that agricultural labour can improve their skill after taking training.

ii. Lack of necessary information is marked as second important constraint regarding migrating labour from agriculture sector to non-agriculture sector. NGOs, local agents and government, in case of migration, should take proper initiatives so that agricultural labours can easily get news regarding non-agricultural jobs.

Author Contributions

Dr. Md. Elias Hossain: Conceptualization, Methodology, Supervision. **Sayda Mahmuda and Md. Abdul Gani Mina:** Introduction, Literature review and conclusion. **Md. Johurul**

Islam and Zubaidur Rahman: Data collection, data processing and estimation. All authors have read and agreed to the published version of the manuscript.

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