

Household Level Determinants of Rural-Urban Migration in Bangladesh

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Abstract—The aim of this study is to analyze the migration process of the rural population of Bangladesh. Heckman Probit model with sample selection was applied in this paper to explore the determinants of migration and intensity of migration at farm household level. The farm survey was conducted in the central part of Bangladesh on 160 farm households with migrant and on 154 farm households without migrant including a total of 316 farm households. The results from the applied model revealed that main determinants of migration at farm household level are household age, economically active males and females, number of young and old dependent members in the household and agricultural land holding. On the other hand the main determinants of intensity of migration are availability of economically adult male in the household, number of young dependents and agricultural land holding.

Keywords—Determinants, Heckman Probit Model, Migration, Rural- Urban.

I. INTRODUCTION

BANGLADESH is one of the most densely populated countries in the world. The population growth rate is 1.32 percent per year. Population density is 964 per sq km [1]. People live below the poverty line is 40% at the national level, 39.5% and 43.2% at rural and urban level respectively according to direct calorie intake (DCI) method of poverty measurement [2]. Agriculture sector contributes 20.24 percent of GDP at constant price in the fiscal year 2009-10.

The total number of international migrants in the world was estimated at 214 million which is 3% of total world population [3] – up from 191 million in 2005. Given that the estimated number of internal migrants is 740 million, around a billion people and roughly one in seventh of the world's population is migrant [3]. Remittances from internal migrants, although smaller in magnitude; also comprise a vital component of rural livelihoods in many developing countries [4]. In Bangladesh, excessive migration flows to major cities have alarmed observers [5]. The vast majority of the world's migrations originate in rural areas, where most of the world's poverty is also concentrated [6]. Internal migration particularly rural to urban migration is predominant in Bangladesh, although seasonal migration in lean period is also prevalent from more

disadvantaged rural areas to more developed rural areas in the country. In Bangladesh 66 percent rural migration is directed towards urban centers, whereas 10 percent account for rural-rural migration and 24 percent for overseas migration [7]. Many people who migrate to urban areas in search of a more productive and lucrative job in the non-agricultural sector are likely to be disappointed, as the influx of people far exceeds the rate of job creation [8]. It is expected that more than 50 percent of the population in Bangladesh will live in urban areas by the year 2025 [9].

Migration is selective in nature. Most of the urban migrants in Bangladesh are young aged. Some research results explores that rural – urban migration in Bangladesh is influenced by environmental pressures, weak agricultural development and food insecurity [8] poverty, landlessness, unemployment in rural areas, easy access to the informal sectors, higher income, better livelihood, job opportunity in the city, better social amenities, migration network [10]-[13]. Determinants of rural - urban migration vary from country to country and even within the country among different regions. Researcher from other countries of the world found that major determinants of rural - urban migration are age, gender, education, economic status, migration network, unemployment education family reason, inadequate social amenities in rural areas [14] and [15]. However this paper gives attention to the determinants of the intensity of migration at the farm household level together with the determinants of migration.

II. METHODOLOGY

A. Data and Study Area

The study was conducted in two districts of Bangladesh namely Kishoreganj, Mymensingh covering three upazilas from each district. During July to September 2013 data were collected from 316 farm households through structured questionnaire with both open ended and close ended questions including both household with migrant member and households without migrant. The questionnaire contained questions about farmers socioeconomic and demographic (age education family members information of household member including migrant members, remittance,) characteristics, farmers (both categories) perception about impacts of migration on agriculture, farm production and food security situation of the households. Data analysis was done with statistical software STATA 11.0.

In this study migration is defined as movement of people from rural areas to the cities either permanent or temporary with duration of at least one year. And those households considered as households with migrants who have at least one

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member migrant to the cities and are engaged in farming in rural areas.

B. Analytical Method

Heckamn probit model was used to analyze the determinants of household migration decision and intensity of migration at the farm household level. Household migration decision is the selection dependent variable which is a dummy variable taking value 1 as households taking decision for migration that is households with migrant and 0 for households without migrant. Intensity of migration is defined as how many members of a household are involved in the migration. Intensity of migration was calculated by using following formula: Intensity of Migration = (No of migrants per household / Households Size)*100.

Later this ratio was converted as dummy variable expression.

Here household migration decision and intensity of migration at the household level are two latent variables which can be expressed by following equations

$$M = \alpha X + \varepsilon \quad (1)$$

$$I = \alpha' X' + \varepsilon' \quad (2)$$

where M is household migration decision and I is intensity of migration at household level. X and X' are vectors of explanatory variables. Assume that the error terms ε and ε' are independently and normally distributed with zero mean and variance σ^2 . The empirical model can be written as

$$M = \alpha_0 + \sum \alpha_k X_k + \varepsilon \quad (3)$$

$$I = \alpha_0 + \sum \alpha'_k X'_k + \varepsilon' \quad (4)$$

Here α_0 and α'_0 are constant terms $\alpha_k X_k$ and $\alpha'_k X'_k$ are unknown parameters to be estimated.

Latent variable I is observed if $M > 0$

$Y = I$ (If $M > 0$)

$Y =$ missing value (If $M \leq 0$)

In (1) and (2), dependent variables M and I are binary in nature which are expressed as follows

$M = 1$ If household occupied migrant member or members

$M = 0$ Otherwise

$I = 1$ if ratio of intensity of migration ranged from 23-60%

$I = 0$ if ratio of intensity of migration ranged from 0-22.22%

With these dummy expressions dependent variable can be written as

$Y = I = (0, 1)$ If $M > 0$

Y is missing value if $M \leq 0$

C. Description of the Explanatory Variables Used in the Model

1. Age of Household Head

Household head's age can be taken as proxy variable for decision making role in the household's decisions [15]. The sign of this variable can be positive or negative. Positive in a sense that experienced household head can manage farming and family responsibilities properly that's why he or she may be willing to permit the active family members to work in the city. On the other hand old aged members in the family might wants to keep their son or daughter with them that is expected sign is negative on migration decision and on the intensity of migration.

2. Number of Economically Active Male Members

According to the Ref. 16, in this study economically active member (male and female) were considered those members in the household whose age between 15-59 years. The sign of this variable are expected to be positive on the migration decision of the household which implies that mostly young aged and active males are involved in migration [16].

3. Number of Economically Active Female Members

Active female members in the household can manage the household without male therefore they might be willing to release males in the household to be migrated in the city. Thus it can be expected that the sign of this variable will be positive.

4. Young Dependents in the Household

According to the [16], young dependents are between age group 0-14 years old. This variable can have both positive and negative sign on the migration decision and intensity of the household. Adult members might be willing to migrate to the city for earning extra income due to additional expenditure of the young members. At the same time they can stay with their family to look after the young members on the household that is negative influence on the migration.

5. Old Dependents in the Household

Old dependents are considered as members between age grouped 60 and above. This variable can have positive influence on the migration decision since old members are experienced and they can play important role in the family so they will permit other member of the household to migrate.

6. Higher Educated Members in the Household

Higher education means more than 10 years of schooling which is considered as higher secondary level. We can expect positive sign of this variable since people with higher education tend to leave working in the agriculture and tend to move in to the city for higher remunerative job.

7. Household Farm Size

Here household farm size was computed adding homestead land, pond gardening, and cultivable land household owned and also adding all kind of rented in land and deducting all kinds of mortgaged out and rented out land. We can expect

negative sign of this variable. With large farm size households need more people for maintenance and may not take decision for migration.

8. Household Debt

Household debt can be expected positive influence on migration intensity with responsibility of payment of this loan.

TABLE I
EXPLANATORY VARIABLES USED IN THE MODEL WITH EXPECTED SIGN

Variables	Units of measurement	Expected sign
Household head age	Years	+/-
Number of economically active males	Number of persons	+
Number of economically active females	Number of persons	+
Young dependents in the household	Number of persons	+/-
Old dependents in the household	Number of persons	+
Higher educated members in the household	Number of persons	+
Household farm size	Hectare	-
Household debt	Dummy 1= household has debt 0= household has no debt	+

Source: Authors specifications

III. RESULTS AND DISCUSSION

A. Descriptive Results

Table II represents the demographic and socioeconomic characteristics of sample farm households of the study area. Results from Table I indicate that on an average household head is older in case of households with migrant than households without migrant. It means that household heads are more experienced in the households with migrant than

households without migrant. Number of economically active members (male and female) and number of educated members are higher in the households with migrant which means that household with many family members are involved in migration. Farm size is less than one hectare in case of both categories of households which implies that farmers are small. More households (69.4%) with migrant have debt than households without migrant (62.8).

TABLE II
DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF SAMPLE FARM HOUSEHOLD

Variables	Households with migrant		Households without migrant	
	Mean	Standard deviation	Mean	Standard deviation
Household head age	50.93	12.73	45.12	13.21
Number of economically active males	2.47	1.09	1.62	.911
Number of economically active females	1.60	0.89	1.35	0.76
Young dependents	1.37	0.09	1.72	1.18
Old dependents	0.65	0.77	0.33	0.56
Higher educated members	1.33	0.12	0.75	1.12
Farm size	0.61	0.57	0.69	0.61
Household debt	111(frequency)	69.4(%)	98 (frequency)	62.8(%)

Source: Author's calculations

B. Determinants of Migration Decision and Intensity of Migration

Table III shows the results of Heckman sample selection probit model. The results shows that the model is highly significant and LR test of independent equations results shows that correlations between migration decisions and intensity of migration is also highly significant. Therefore the use of Heckman model with sample selection is relevant for this research. From estimations it can be said that the main determinants of intensity of rural- urban migration at household level are household head age, number of active males, number of young dependents in the household and farm size and these variables shows significant impact on the intensity of migration. On the other hand the main determinants of household migration decision are household head age, number of active males and females, both young and old dependents in the household and farm size. As expected the explanatory variables household head age, number of

active males and females and number of dependents have significant positive impact on household migration decision. Number of economically active males highly significant positive influence on migration decision and intensity of migration which confirm the results of HIES 2010 [16] that young aged and male are mostly migrating. Although there is negative influence of number of active female on migration intensity but the result is not significant. Number of higher educated members showed unexpected negative impact on migration decision and also in increasing migrant member from each household that is on intensity of migration. Farm size shows significant negative impacts on the both the intensity of migration and migration decision which implies that household with large farm size need more family labor to operate farms.

TABLE III
RESULTS OF THE HECKMAN PROBIT MODEL WITH SAMPLE SELECTION

Variables	Outcome model (Intensity of migration)			Selection model (Migration Decision)		
	Coefficients	Standard Errors	P>Z	Coefficients	Standard Errors	P>Z
Household head age	0.013**	0.008	0.09	0.011*	0.006	0.081
Number of economically adult males	0.226**	0.107	0.035	0.607***	0.088	0.000
Number of economically active females	-0.08	0.011	0.439	0.338***	0.095	0.000
Number of Young dependent	-0.321***	0.072	0.000	0.081*	0.006	0.081
Number of old dependent	0.097	0.139	0.485	0.507***	0.129	0.000
Higher educated member	-0.331***	0.079	0.000	-0.055		0.396
Farm size	-0.317*	0.181	0.081*	-0.473***	0.143	0.001
Household dedt	-0.274	0.177	0.122	----	----	----
Constant	-0.677	0.548	0.217	-2.27	0.451	0.000
Model Summary						
	/athrho			rho		
	Coefficients	=	11.539	Coefficients	=	1
	Standard Errors	=	532	Standard Errors	=	2.02e-07
	p>z	=	0.983			
	Number of Observations	=	316			
	Log likelihood	=	-252.058			
	Wald chi2(8)	=	96.27			
	Prob>chi2	=	0.000			
	LR test of indep. Equns. (rho = 0):	chi2(1) =	8.03	prob>chi2 =	0.0046	

Notes: *, **, *** significant at 10%, 5%, and 1%, respectively

Source: Author's estimations

IV. CONCLUSIONS

In Rural areas of Bangladesh, most of the farm household consisted many family members than urban area. Young male members are more likely to work in nonfarm sector in the city and they are neglecting to work in agriculture sector that's why migration from rural area to urban centers increasing. However some people from farm households are migrating due to holding less agricultural land and to take responsibility of the rest of the family members. More members from the same households are migrating to the city when the households having more number active males and experienced household head.

But the rural people are migrating mostly to the few cities in Bangladesh which is goes beyond the capacity of the cities to absorb excessive population. Therefore the policy should formulate regarding internal migration more particularly regarding rural- urban migration situation in Bangladesh.

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