

An Empirical Study on Labour Out-Migration Its Determinants and Impacts over Agriculture: A Case of Mid-Hills of Western Development Region of Nepal

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ABSTRACT

Migration is a glaring reality of today's world. Further, globalization and integration of economies have added impetus to migration. In Nepalese economy the dwindling importance of the agricultural sector induces a sizeable labor migration in the quest of better livelihood especially in the hilly region in general, and in the Western Development Region, in particular. In view of this problem present study was attempted to study the determinants of migration and its impact over agriculture in Nepal. The study was based on information collected, from 40 migrant and 40 non-migrant families of two Village Development Committees (VDC) of Lamjung District in Mid-Hills of WDR, Nepal, using interview method. Logistic regression model was used to find out the determinants and linear regression model was applied to find out its impact. The variables number of male members in the family had positive impact on probability of migration other than this monthly family income, income from agriculture, and number of economically active members in the family and age of migrant exerted negative effect on probability of migration. In the same scenario the impact of labuor out migration over

agriculture production was significantly negative.

Keywords: Labour out-migration; determinants, impact, migrant; logistic regression, linear regression

BACKGROUND

In the backdrop of the protracted political transition and lack of industrialization and poor economic growth, agrarian nature of Nepali society is being decreasing since past decade while remittance has emerged as an important item of income and a major support to the country's economy i.e. 23 per cent GDP while contribution of agriculture to national GDP has stagnant to about 35 per cent in recent years (**World Bank 2011**). The **National Population and Housing Census (2011)** has validated this notion and has reported that one in every four households (25.42 per cent i.e. 1.38 million households) atleast one member of the household is absent or is living outside the country. About 45 per cent of the country's absentee

population is in the age group of 15 to 24 years, indicating lack of opportunities for youths. In reference of **Department of Foreign Employment (DOFE)** more than 1700 persons leave the country on daily basis in the search of better future ahead. The problem of migration is more pronounced in the hill region of the country which only holds 41.67 per cent of total geographical area and about 40 per cent of country's total population with a total number of 700465 absentee households (38.09% of total households in the region) occupied 51 per cent of absentee households of the country followed by Terai region with a total of 608958 (24.09% of total households in the region) absentee households.

Nowadays, on account of improved access to out-migration opportunities, increasing need of cash income and desire of farm household to escape from the back-breaking work of agriculture facing lifelong problems of marginal land holdings, subsistence practices, low productivity, shortage of inputs in peak season and bounded by risk and uncertainties the active

male population is increasingly looking for opportunities away from the agriculture sector and relying on labor migration as a livelihood strategy to meet their basic requirements and enhance their income levels. In the backdrop of above problematic situation present study was attempted to study the determinant of labour out-migration from Nepal and its impact over gross agriculture production.

Data and Methodology

This study was conducted in two Village Development Committee (VDC) named Sundarbazaar and Chandreswor of Lamjung district of Western Development Region (WDR) of Nepal representing mid-hill region of Nepal. The study was based on the information collected from a sample of 80 households i.e. 40 migrating households and 40 non-migrating households through purposeful survey schedule collected by face to face interview method data pertaining to the year 2012-13.

In order to identify and quantify the determinants of farm labour migration logistic regression model based on the cumulative logistic probability function was fitted using maximum likelihood method.

$$\text{logit}[p(x)] = \ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p$$

Where,

$$p = \frac{e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots}}{1 + e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots}}$$

The variables taken under study were:

Y = Migration status of the respondents

X₁ = Size of cultivable land holding (Ha.)

X₂ = Monthly family income (1,000 Nrs.)

X₃ = Income from agriculture (1,000 Nrs.)

X₄ = Size of family (No. of persons)

X₅ = Male members in the family (No.)

X₆ = economically active family members (No.)

X₇ = Educational status of migrant (Ranking; Primary = 1, secondary = 2, higher secondary = 3, graduate and above = 4)

X₈ = Age of migrant (Years)

X₉ = Food sufficiency level (Month)

To find out the impact of labour out migration over agriculture linear regression model was used.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \mu$$

Where,

Y = Gross household agriculture production (0,000 Nepali Rupees)

X₁ = Total land holding (Hac.)

X₂ = Migration status (Dummy variable) (if yes=1 , if no=0)

X₃ = Family size (No. of persons)

X₄ = Economically active family members (No.)

X_5 = Literacy ratio

X_6 = Livestock holding (LSU units)

U_i = random variable

β_0 = intercept

β 's = regression coefficient

The model will be constructed by using the stepwise probability criteria of F to enter ≤ 0.050 , and probability of F to remove > 0.100 (Poudel and Thapa, 2004). The independent variable which will show high correlation with each other ($r > 0.5$) and low degree of correlation with the dependent variable will be dropped from the regression model to avoid multicollinearity.

Result and discussion

Lamjung district is located in the north-central part of Nepal; officially it is Mid-hills region of WDR having an area of 1692 square kilometers. It extends from $28^{\circ} 03' 19''$ North to $28^{\circ} 30' 38''$ North latitude and $84^{\circ} 11' 23''$ East to $84^{\circ} 38' 10''$ East longitude. According to **National Population and Housing Census 2011**, total number of households in Lamjung district is 42048 having a population of 167724 which accounted for 0.063 per cent of the total population of Nepal. It further

claimed that one in every three households (38 per cent i.e. 15970 households) at least one member of their household is absent or is living out of the country. Total absentee population or population living in abroad is 21161, which accounted for 8.62 per cent of total population of the district. This study area Sundarbazaar and Chandreswor VDC's lies in western part of the district among them Sundarbazaar represent the peri-urban area while the latter one represents rural side.

a. Determinants of labour out-migration

Table 1 shows that out of nine independent variables, five variables were found significantly influencing the probability of labour out-migration. The variables family size, number of male members in the family and education of migrant had positive impact on labour out-migration, while size of cultivable land holding, monthly family income, net income

from agriculture, number of economically active members in the family, age of migrant and food sufficiency had negative impact over probability of migration.

The coefficient of the variable ‘number of male members in the family’ (1.587) was found to be significant, implying that number of male members in the family and probability of labour out-migration had positive relation. The magnitude of coefficient of the variable indicates that increase in male member by one number in the family, will increase about five times probability of having

migrant in the family. It is the fact that Nepali society is dominantly patriarchy type, in the absence of sustained and regular means of livelihood, male members of family are prone to out-migration from the household.

Another variable the number of economically active members in the family had negative coefficient (-0.714), which was significant showing that an increase in the number of economically active members in the family by one number will lead a decrease in labour out-migration by 0.49.

Table 1: Parameter estimates of logistic model of determinants of labour out-migration

Xi	Variables	B	p-value	Exp(B)
	Constant	3.64	0.093*	38.079
X ₁	Size of cultivable land holding (ha.)	-1.289	0.546	0.276
X ₂	Monthly family income (‘000)	-0.192	0.002***	0.826
X ₃	Income from agriculture (‘000)	-0.026	0.043**	0.975
X ₄	Family size (No.)	0.563	0.273	1.756
X ₅	Male members in family (No.)	1.587	0.049**	4.889
X ₆	Economically active family members (No.)	-0.714	0.099*	0.49
X ₇	Educational status of migrant (ranking)	0.082	0.836	1.085
X ₈	Age of migrants (years)	-0.09	0.073*	0.914
X ₉	Food sufficiency in month	-0.21	0.149	0.811

Dependent variable is migration (if yes=1, if no=0)

- 2log likelihood =51.85; Cox& Snell R square= 0.522; Nagelkerke R Square=0.696

*** = significant at 1 percent level; ** = significant at 5 percent level; * = significant at 10 percent level



In the present study the coefficients (-0.192) of the variable monthly family income from off-farm source was found to be significant at one per cent level of significance. The magnitude of the coefficient indicates that with the constant of other independent variables, the monthly family income from off-farm sources increased by one unit led a decrease in labour out-migration by nearly one time. It was further supported by the negative coefficient (-0.26) of 'net income from agriculture' being significant at 5% level of significance implied that increase in net income from agriculture had negative impact on chances of having migrant in the family. If one finds that the income which family of one receives is not sufficient for the fulfillment of one's needs than the decision on migration becomes mandatory, as decision on migration depends on economic security of an individual and his family.

Age of migrant is very crucial factor in determining the migration. The coefficient (-0.09) of variable 'age of migrants' implies that as the age of migrant increased the probability of migration was slowed down by odd ratio of 0.914.

According to Nepal (2012), other things being equal, the results of marginal effects shown that a one year increase in age of household head reduced the probability of migration by 9.20 per cent.

'Education of migrant' and 'food sufficiency of family' are very crucial factors that play an important role in labour migration. Though, the magnitude of the coefficients of two variables indicate that they had insignificant impact on labour out-migration, but positive relationship between migration and education of migrant implied that there was not just a chance of labour drain but also the chances of brain drain too. And negative relationship between food sufficiency and migration shown that the migration was also guided by food security and that was one's duty to feed one's family therefore, family become prone to migration.

The measure of goodness of fit of the model indicates that model predicted about 83.8 per cent of variation. The -2 log likelihood statistics (LL) was 51.85 which was lower than null model (110.904), indicating that the model is better fit. As given in table 1 Nagelkerke R^2 (0.696) was greater than Cox & Snell R^2 (0.521) and

nearer to 1, indicates that the model was better fit. Same findings regarding determinants of migration were supported by Pun (2007), Khanal (2009) Singh *et. al* (2011) Nepal (2012) and Kundu(2013) in their respective study.

b. Impact of labour out-migration over agriculture

For the efficient result stepwise probability criteria of F to enter ≤ 0.050 , and probability of F to remove > 0.100 was

applied. By this criteria only three variables (land holding, livestock holding and migration status of households) with high degree of correlation with dependent variable and low degree of correlation with each other were included in the model. Independent variables which had strong correlation with gross annual agricultural production (Y) were entered step by step in the final regression model to work out the contribution of the variable.

Table 2: Summary of the linear regression model

Model	R	R Square	Se	F value
1	0.72	0.519	8.493	84.139***
2	0.804	0.647	7.323	70.555***
3	0.831	0.69	6.902	56.515***

Note: ***: significant at 1 per cent level

Model 1; Constant and total land holdings

Model 2: Constant; total land holdings and livestock holdings

Model 3: Constant; total land holdings; livestock holdings and migration status

Table 3 shows that land holding and livestock holdings had positive impact over agricultural production, while migration had negative impact over the same. Land holding was found to be statistically significant and contributed 75.22 per cent ($0.519 R^2$) of variation in total agricultural production expressed by the model. In the same way livestock holding was also found

statistically significant and contributed 18.55 per cent ($0.128 R^2$) of total variation expressed by the model. From the negative coefficient of migration it can be concluded that keeping other things constant migration had considerable negative impact over gross return from agriculture. The third most important contributing factor was migration which had significant contribution of 6.23

per cent (0.043 R^2) of total variation expressed by the model.

Table 3: Estimates of effect labour out-migration on agriculture production

Xi	Variable	Unstandardized Coefficients		t value	p-value
		B	Se		
	Constant	7.968	1.735	4.592	0.00***
X1	Total land holding	13.737	1.778	7.727	0.00***
X2	Migration status	-5.145	1.574	-3.269	0.002***
X6	Livestock holding	1.267	0.231	5.474	0.00***

Note: ***: significant at 1 per cent level

The similar type of findings were also found by Rozelle (1999), Taylor *et al.* (2001), Mora *et al.* (2006), Pun (2007) and Khanal (2009) in their respective study.

Conclusion

On account of topographical difficulties, poor access to government facilities and job opportunities, poor agriculture production, fragmented and marginal land holding, etc. the hilly region of Nepal is very prone to labour out-migration since many years. Besides above said facts, privilege provided since 19th century to Mongol Community, which is dominating in the region, to be enrolled in British and Indian army has provided options to make the career of youth of the

Western Development Region in foreign armed forces. The New Economics of Labour Migration and Network Theory of migration, has paved the way for other communities to find a better livelihood options abroad. Nepali society is dominantly patriarchy type therefore, the major economic responsibilities of the household are shouldered by male members of the family. In the absence of sustained and regular means of livelihood, male members of family are prone to out-migration from the household. On account of very low monthly family income due to negligible net returns from agriculture and very low income from off-farm sources the decision on migration will became mandatory, as decision on migration depends on economic

security of an individual and his family. If one finds that the income which one receives is not sufficient for the fulfillment of one's need than the decision on migration becomes mandatory. The negative relationship witnessed between annual gross agricultural income and migration was due to the fact that major part of labour intensive agricultural operations were taken care by remaining female members of migrating households, in the absence of migrating members.

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