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An empirical analysis of factors influencing agricultural employment intensity of migrant farm households at Almora district of Uttarakhand

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ABSTRACT: In hills it is generally observed that factors like rural remote locations, lack of basic facilities, lacking infrastructure, and less employment opportunities, etc have acted as a push factor for the dispersion of the rural population leading to the creation of vicious phenomenon of out-migration. Being a hilly district located at state of Uttarakhand, Almora is also touched by this vicious phenomenon. Almora is dominated by the rural masses and hence agriculture is the lifeline of its economy. This massive dislocation of the rural masses has in turn badly influenced the agricultural scenario of the district. The study is based upon the information collected by personally interviewing 50 migrants rural farm households. The technique of multiple regression was used to analyse the factors influencing the employment intensity of farm households. The results revealed that farm landholding, age of family head, livestock have positively influenced the employment intensity whereas size of the family and education level of head of the family have negatively influenced the employment intensity.

Key words: Employment intensity, multiple regression, migrants, out-migration

Out-migration is a common global phenomenon that is liable for the dislocation of the population. The vicious problem of out-migration has led to a drastic reduction in the human masses of Uttarakhand state in general and Almora district in particular. Between the period of 10 years from 2001 to 2011 around 8061 people have migrated outside from their homes. Many places of the district are fully abandoned and some villages which are currently sustained with population of a single digit are on the verge of achieving a complete zero population status. A trend of dispersion of the population from villages has been observed in the district, as the rural areas are often neglected regions, where the resources related with basic amenities like clean water, electricity, mode of transportation, communication channels and devices are merely available, but one can easily discover the empty houses which have been locked up for years. A diminishing population of the rural sites by 2.79 per cent, during 2001-11 is the indicator of the threatening issue of out-migration occurring in the district. In Almora agriculture is the main source of bread for the majority of people. Being district of hills, in complementary with out-migration, the problems like marginal landholdings, the presence of rainfed conditions, depleting level

of water tables and increasing tyranny of wild animals, etc. have resulted in creation of challenging circumstances for agricultural activities. Besides this, the scope of employment outside agriculture is very limited which has further amplified the problem to worst. The percentage of unemployment of the male gender in rural regions had jumped from 1.29 per cent from (2004-05) to 2.71 per cent (2011-12) (Desikachar and Vishwanathan, 2011). So the situation of disguised and seasonal type of unemployment is preponderating and low earnings are the outcome of these situations. According to a report of Palayan Aayog Uttarakhand (2017-18) as compared to the plain districts of the state per capita income of hills is significantly less.

Generally, agriculture in Almora in particular is subjected to uncertainty due to influence of most of the factors. Irregular returns are associated with agriculture therefore rurals are abandoning agricultural activities and for earning a regular and consistent income they are migrating and leaving their source places in search of jobs irrespective of job quality and the duration of work.

To meet the necessities of life people search for

various livelihood sustaining strategies but the backwardness of regions acts as a pushing force and gives birth to the phenomenon of migration of rural masses. In the backdrop of these prevailing problems, this study was conducted to analyze factors influencing employment intensity of migrant farm households at the locale of study.

MATERIALS AND METHODS

For the present study Almora district of Uttarakhand was selected, as the district has undergone the population reduction of 8,061 masses during the period of 10 years from 2001 to 2010 (Census 2011). Multistage sampling procedure was employed for purpose of data collection. Almora district in total is having 11 blocks out of which 7 developmental blocks are suffering with the threatening problem of out-migration (Sankhiyiki Patrika, 2018). At first stage, from these 7 developmental blocks, 2 blocks were selected randomly. Dwarahat and Dhawaladevi were the selected blocks. At second stage, purposive selection of 5 villages was done from each block with a condition that the selected village should have a population of at least 25 households. Those farm households were considered as migrants if any of their family members have migrated for the purpose of employment outside the Almora district. At third stage, the list of migrant farm households was prepared. From each village, 5 migrant farm households were selected randomly. In total, the sample was comprised of 50 migrant farm households.

For the purpose of study both, primary and secondary data were incorporated. The required primary data for the study pertaining to the year 2018-19 was collected via personally interviewing and interrogating with the selected sample farm households by the means of a pre-tested survey

schedule created for the purpose of study. The survey schedule consisted the required information on the status of outmigration and its duration, agricultural and allied enterprises which are taken up by farm households, employment status of the migrant farm households, and income of farm households from various other non-agricultural means. The secondary data was derived from various publications of the governmental departments, websites, reports of Population Census of 2001 and 2011, reports of Palayan Aayog, Uttarakhand, etc.

Calculation of Employment intensity (E.I) in agriculture

Employment intensity was calculated for migrant farm households as shown below.

$$E.I. = \frac{\text{No. of days employed in agril. activities}}{\text{Total no. of days - No. of days employed in non farm activities}}$$

A worker is supposed to have maximum availability of 300 days for the wage paid work around the year, provided 65 days for festivals, ceremonies, cultural activities, recreational activities and sickness.

Effect of out-migration on employment intensity

To determine effect of outmigration on employment intensity of migrant farm households, Multiple regression analysis was done. The general objective of multiple regression analysis is to derive the relationship between several regressor variables (X) and a regressand variable (Y), in order to predict the joint effect of all regressor variables on the regressand variable and partial effect of each regressor on the regressand. The specification of the linear regression model is explained below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + u$$

Where,

- Y = Employment intensity of farm households (Per cent); X_1 = Operational size of farm holdings (Ha.)
- X_2 = Cropping intensity on the farm (Per cent); X_3 = Age of the head (Years);
- X_4 = Size of family (Number); X_5 = Income of households including remittances (Rupees)
- X_6 = Number of livestock (in terms of cow unit; 1 buffalo=1.5 cow= 3 goats)
- X_7 = Educational level of family head (Dummy variable; 0= below secondary, 1= above secondary)
- X_8 = Fruit trees in the farm (Number); β_0 = Intercept; β_s = Regression coefficient

To estimate the model, technique of Ordinary Least Squares (OLS) was employed, prior to the estimation of the model, the presence of multicollinearity among regressors is examined by employing variance inflation factor (VIF values). If the explanatory variables have VIF values greater than or equal to ten then they are dropped from the model. Similar model was applied by Kumar (1981) to study the effect of out-migration on employment intensity.

RESULTS AND DISCUSSION

Employment intensity of migrant farm households

Employment intensity in agriculture reflects the status of farm employment. Employment intensity in agriculture of farm households is presented in Table 1, from the table it is observed that the agricultural employment intensity in of migrant households was 2.59 per cent.

Factors affecting employment intensity of migrant farm households

In order to escape from the problem of multicollinearity, VIF values were worked out and it was revealed that the VIF values of the explanatory variables were less than ten, hence no multicollinearity was detected in all the variables were incorporated in the regression model.

From Table 2, it can be observed that in case of migrants, R^2 (coefficient of multiple determination) was 0.706, which implied that all the regressors or independent variables have 70.60 per cent of total influence on employment intensity in agriculture.

Table 1: Employment intensity of migrant farm-households'

S. No.	Group	Days of employment		Employment intensity in agriculture (%)
		On-farm	Off-farm	
1.	Migrants	233.80	199.26	2.59

Table 2: Summary of linear regression model for migrants

Model	R	R^2	Adjusted R^2	SE of regression	F-value
(Migrants)	0.840	0.706	0.648	0.630	0.000***

***=significant at 1 per cent level of significance

The model was statistically significant at 1 per cent level of significance

From Table 3, it can be pointed out that, out of 8 regressor variables included in the regression model, only 5 variables viz., farm land holding, age of household head, size of family, number of livestock and education level of head were found to be significant.

Farm land holding is an important parameter which influences the agricultural status of any region. The coefficient of farm land holding was 2.849, which was statistically significant and was positively related with the employment intensity in agriculture. The coefficient of farm land holdings indicated that by keeping all other explanatory variables as constant, if farm land holding increases by one unit i.e., one hectare, the employment intensity in agriculture on the average would increase by 2.85 per cent. This may be due to increase in farm landholdings the area under different farm enterprises will increase which in turn will increase the duration of on-farm activities. The findings were similar with the findings of Kumar (1981) who concluded the positive relationship between operational landholding and employment intensity in agriculture.

The coefficient of age of the household head, was found to be statistically significant. Age is one of the important parameters, which affects maturity level of individuals. The coefficient of age of household head was 0.017 and reflected positive relationship with employment intensity in agriculture. It was interpreted from coefficient of age of household that by keeping all other explanatory variables as constant, with increase in age by one unit (one year), employment intensity in agriculture on an average would increase by 0.017 per cent. This may be due to increment in age, individuals cannot perform better in off-farm activities, when migrants get retired from job in order

to gain some recreation they invest their time in farming activities.

The size of the family forms the basic framework of any household. The coefficient of number of family members was -0.007, which was statistically significant and negatively related with employment intensity in agriculture. The negative relationship implied that by keeping all other explanatory variables as constant, with one unit increase in size of the family, the employment intensity on an average decrease by 0.007 per cent. The possible cause behind this type of relationship can be, due to increase in number of family members, the demand of households' increases and farming activities are not enough to meet the demands of households, therefore in order to compensate additional demands households switch to off-farm activities.

The number of livestock is a crucial component of socio-economic structure of rural farm households. The coefficient of number of livestock was 0.192 which was found to be statistically significant. The coefficient of livestock exhibited positive relationship with employment intensity in agriculture. The positive relationship revealed that, by keeping all other explanatory variables constant, with one unit (1 cow unit) increase in the number of livestock, employment intensity in agriculture on an average increase by 0.192 per cent. The reason behind this was due to increase in livestock, the households invest the major part of their time in management of livestock, which will increase the duration of on-farm activity.

The educational level of head, which was a dummy variable (0=below secondary and 1=above secondary). The coefficient of status of education was -0.471, was statistically significant. The educational level of head reflected negative relationship with the employment intensity in agriculture. The negative relationship pointed out that by keeping all other explanatory variables as constant, with increase in higher secondary education relative to lower secondary education, the employment intensity on an average decreases by 0.471 per cent. This was due to the general fact that, with increase in the status of education, individuals tend to get employed in off-farm activities and quit on-farm activities, hence duration of off-farm activities gets increased. The findings of the study are closely related with findings of Wani *et al.* (2011) reported that with increase in education level, people tend to migrate and shortage of farm labour will occur.

The coefficients of fruit trees on farm and cropping intensity were positive and were positively related to employment intensity in agriculture, but they were found to be statistically insignificant. The coefficient of total income was negative and exhibited negative relationship with employment intensity in agriculture but it was found to be statistically insignificant.

CONCLUSION

The employment intensity in agriculture of migrant households was 2.59 per cent and out of various

Table 3: Factors effecting employment intensity of migrant farm households

Xi	Variable	Un-standardized coefficients		t-value	p-value
		B	SE		
	Constant	0.662	0.626	1.057	0.296
X ₁	Farm land holding (Ha)	2.849	0.551	5.164	0.000***
X ₂	Cropping intensity (%)	0.002	0.002	1.453	0.153
X ₃	Age of head (Years)	0.017	0.006	2.861	0.006***
X ₄	Size of family (No.)	-0.007	0.036	-2.799	0.007***
X ₅	Total income (Rs.)	-0.0000004	0.000	-1.238	0.222
X ₆	Livestock (cow unit)	0.192	0.060	3.166	0.002***
X ₇	Education level of head (Dummy)	-0.471	0.207	-2.269	0.028**
X ₈	Fruit trees on farm (No.)	0.099	0.066	1.505	0.139

***=significant at 1 per cent level; **=significant at 5 per cent level

factors influencing employment intensity in agriculture, the variables namely farm land holdings, age of household head, number of family members, number of livestock and education level of household head were observed having significant effect on employment intensity in agriculture. The coefficients of farm landholdings for migrants was 2.849 which was statistically significant showed positive relationship with employment intensity in agriculture. The coefficient of age of household head for migrants was 0.017 which was statistically significant. The age of household head, in case of migrants was positively related with the employment intensity in agriculture. The coefficient of number of family members, for migrants farm households was -0.007 which was statistically significant. The size of family was negatively related with employment intensity in agriculture. The coefficient of number of livestock, for migrants was 0.192 which was significant at 1 percent level of significance. The number of livestock was positively related with employment intensity in agriculture. The coefficient of education status was -0.471, which was significant at 5 per cent level of significance. Education status was negatively related with employment intensity in agriculture. It is observed that increment in farm landholdings can boost agricultural employment intensity so to increase the landholdings the farm households of the migrant families can organize themselves to form Farmer Producer Organisations (FPOs) and reap the benefits of economies of scale which means together they can unite the resources and cut the cost of production and cultivation which in turn increase the agricultural employment intensity and also generate profitable income. The

study also revealed that the increase in livestock helped in increasing the agricultural employment intensity so policies regarding the development of livestock can be formulated and implemented for the region.

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