Visit us - www.researchjournal.co.in ■ DOI : 10.15740/HAS/IRJAES/8.2/305-309
International Research Journal of Agricultural Economics and Statistics
Volume 8 | Issue 2 | September, 2017 | 305-309 ■ e ISSN-2231-6434

Research Paper

Determinants of migration of farmers: The case of Sira taluk in Karnataka

■ BI. AFRIN ZAINAB, P.S. SRIKANTHA MURTHY, K.S. RASHMI AND H.R. CHIKKATHIMME GOWDA

See end of the paper for authors' affiliations

Correspondence to :
BI. AFRIN ZAINAB
Department of Agricultural Economics, University of Agricultural Sciences, BENGALURU (KARNATAKA) INDIA
Email: afrinzainab 22@gmail.com

Paper History **:**
Received **:** *01.03.2017;*
Revised **:** *25.07.2017;*
Accepted **:** *05.08.2017*

ABSTRACT : A research study was undertaken in Sira Taluk of Karnataka to find out the factors determining the decision of farm family members to migrate and to analyse the income distribution pattern among migrant members. Primary data collected from sample farm house holds was subjected to- statistical analyses to study the income distribution and Logistic regression technique was used to determine the factors affecting the decision of farm family members to migrate. The research results revealed that 25 per cent of households reported to have migrant members and about five per cent reported migration of more than one family member. Rainfed farmers showed higher tendencies to migrate (31.66%) than irrigated farmers (21.66%). Decision to migrate was affected positively by number of persons per family. Farm income had negative influence on migration in rainfed situation, whereas it was a insignificant factor in case of irrigated farmers.

KEY WORDS : Migration, Rainfed, Irrigated, Farm income, logistic regression

HOW TO CITE THIS PAPER : Zainab, Bi Afrin, Murthy, P.S. Srikantha, Rashmi, K.S. and Gowda, H.R. Chikkathimme (2017). Determinants of migration of farmers: The case of Sira taluk in Karnataka. *Internat. Res. J. Agric. Eco. & Stat.*, **8** (2) : 305-309, **DOI : 10.15740/HAS/IRJAES/8.2/305-309.**

INTRODUCTION :

Migration of members of farm households has prevailed in rural India since decades. Number of families reporting migration and number of migrant members in each family is increasing over the years. According to the National Commission on Rural Labour, majority of seasonal migrants are employed in cultivation and plantations, brick-kilns, quarries, construction sites and fish processing. Further, large number of migrants work in urban informal manufacturing, construction, services or transport sectors, employed as casual labourers, head-loaders, rickshaw pullers and hawkers (Dev, 2002). Analysis of NSSO data for the year 2007-08 by Jajati *et al.* (2011) found that the individual characteristics like age, human capital endowments, marital status and household characteristics like the caste, size of the household and land possession have immense influence on both the decision to migrate and sending remittance. Factors influencing the decision of farm family members vary with the farming conditions. Income of farm households is greatly affected by the availability of irrigation facilities and size of land holdings. This in turn affects the decision of family members to migrate.

Review of past studies on factors deciding migration showed that they had not taken into account the farming situations. Hence, the present work was initiated to study the determinants of migration under irrigated and rainfed farming situations.

MATERIALS AND METHODS :

Sira taluk of Tumkur district, located in Central Dry Zone of Karnataka was selected for collecting primary data for the year 2014-15. Classification of sample respondents was made on the basis of land holdings, namely small and large land holding farmers that included 60 farmers in each category. Further they were categorized into rainfed and irrigated farmers. Therefore, in effect sample had four categories of farmers, such as small farmers without irrigation (SR), small farmers with irrigation (SI), large farmers without irrigation (LR) and large farmers with irrigation (LI). Farmers with less than five acres of dry land were categorized under small farmers category and farmers with more than five acres of dry land were categorized under large farmers category. One acre of irrigated land was taken as equivalent to 2.5 acres of dry land.

Migrant members of farm family were classified into seven categories based on their annual income levels. Number of migrant members under different income groups was tabulated for all the categories of farmers such as SR, SI, LR and LI.

Logistic regression :

Logistic regression is useful for the kind of a situation where the prediction of the presence or absence of an outcome based on values of a set of predictor (explanatory) variables is needed.

In the present study the logistic regression model was used to determine the factors that influence decision of the family members of farm households regarding migration. In this analysis, dependent variable (Y_i) is either a migrant or non migrant member. The major interest is the probability of member being a migrant. If Y_i is the random variable (dichotomous), it can then be assumed that Y takes on the values 0 or 1, where 0 denotes the non-migrant member in farm household and 1 denotes a migrant member in the farm household. If X_i,....., X_n are explanatory variables to be related to migration, then the logistic model specifies that the conditional probability of event (*i.e.*, Y = 1) given the values of X_i.....,X_n is as follows :

$$P(Y_i) = 1/[1 + \exp - (\sim - p_{ii} X_{ii})]$$

In order to linearize the right hand side, a logit transformation was applied by taking the logarithm of both sides, therefore, we have:

$$\text{Logit } P(Y_i) = \sim + p_{ii} X_{ii} + e$$

where,

Y_i = 1, If farm household has migrant member

Y_i=0, If farm household has no migrant member

α = Constant term

X_i = Independent variables

β_i = Logistic regression co-efficients for the i^{th} independent variable

e = Random disturbance term

The explanatory variables specified in the model (X_i) are number of years of education, size of land holdings in acres, working persons per family and annual farm income in thousand rupees.

The data was tabulated, coded and analysed using GRETL statistical computer programme. The dependent variable (access to institutional credits) was regressed on selected explanatory variables to identify explanatory variables which highly influence the decision of the family members of farm households regarding migration. The logistic regression co-efficient (β_i) can be used to estimate adjusted odds ratios for each of the independent variables in the model. If β_i, is positive, it means that when the value of the explanatory variables (X) increases, the odds that the farm household is having migrant member increases. If β_i is negative, the odds that the farm household is having migrant member decreases as the value of explanatory variables (X) increases.

RESULTS AND DATA ANALYSIS :

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

General features of migrant members :

Details of general features of migrant members (Table 1) were studied to understand the difference in characters of migrant members among different categories. About 25 per cent of households from all the categories reported having migrant members and about five per cent reported migration of more than one family member. Rainfed farmers showed more tendencies to migrate than irrigated farmers. The possible reasons are

the low returns from agriculture and lack of credit availability to take up other income generating activites within the village and high wages in non-farm sector. In LI category migrant members have better education status compared to any other category and thus, employed mostly in salaried jobs leading to long-term migration.

Annual income levels of migrant members :

As Table 2 shows, average annual income per migrant member was Rs. 51,444, Rs. 1,13,571, Rs. 1,31,700 and Rs. 1,80,000 in SR, SI, LR and LI categories, respectively. Around 63.64 per cent of migrant members of SR category were earning income of Rs. 25.000 to 50,000. About 28.57 per cent of migrant members of SI category earned income between Rs. 50,000 and Rs. 75,000. Percentage of SI and LR farmers earning income between Rs. 75,000 to Rs. 1,00,000 were 42.86 per cent and 41.67 per cent, respectively. Around 25 per cent of

Table 1 : General features of migrant members of sample households in Sira Taluk (2014-15)

Particulars	Small				Large			
	Rainfed (n=30)		Irrigated (n=30)		Rainfed (n=30)		Irrigated (n=30)	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
No. of families reporting migration	9	30.00	7	23.33	10	33.33	6	20.00
No. of families reporting more than one migrant member	2	6.67	0	0	2	6.67	2	6.67
Marital status								
Married	7	63.64	2	28.56	5	41.67	5	62.50
Un-married	4	27.26	5	71.43	7	58.33	3	37.50
Age (years)								
18 and less	0	0.00	0	0.00	0	0.00	0	0.00
19 to 25	2	18.17	3	42.86	5	41.67	5	62.50
26 to 30	5	45.44	3	42.86	6	50.00	3	37.50
31 to 40	2	18.17	1	14.28	1	8.33	0	0.00
41 to 60	2	18.17	0	0.00	0	0.00	0	0.00
60 and more	0	0.00	0	0.00	0	0.00	0	0.00
Education								
Illiterate	0	0.00	0	0.00	1	8.33	0	0.00
Primary School	3	27.26	5	71.43	9	75.00	0	0.00
Middle School	7	63.64	2	28.56	1	8.33	0	0.00
High School	0	0.00	0	0.00	1	8.33	0	0.00
Pre-University	0	0.00	0	0.00	0	0.00	1	12.50
Graduate	1	9.09	0	0.00	0	0.00	7	87.50

Table 2 : Classification of migrant members on the basis of their annual income

Particulars	Small				Large			
	Rainfed (n=30)		Irrigated (n=30)		Rainfed (n=30)		Irrigated (n=30)	
Annual income (Rs.)	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
<25000	1	9.09	0	0.00	1	8.33	0	0.00
25000 – 50000	7	63.64	0	0.00	1	8.33	0	0.00
50000 – 75000	1	9.09	2	28.57	1	8.33	0	0.00
75000 – 100000	1	9.09	3	42.86	5	41.67	0	0.00
100000 – 150000	1	9.09	0	0.00	1	8.33	4	50.00
150000 -200000	0	0.00	1	14.29	0	0.00	2	25.00
>200000	0	0.00	1	14.29	3	25.00	2	25.00
Total	11	100.0	7	100.0	12	100.0	8	100.0
Average income per migrant (Rs./ year)	51444		113571		131700		180000	

migrant members of LR category earned annual income of above Rs. 2,00,000. In LI category 50 per cent of migrant members earned income of Rs. 1,00,000 to Rs. 1,50,000 and percentage of farmers who earned annual income between Rs. 1,00,000 to 1,50,000 and 1,50,000 to Rs. 2,00,000 were 25 per cent each in LI category. From the above revelations it is evident that income level of migrant members increase with availability of irrigation and increase in size of land holdings. This can be related with the education levels of the respective categories of farmers.

Factors influencing the decision of farmers to migrate :

Logit model was fit separately for irrigated and rainfed farmers, as it was observed that factor influencing migration were not the same in two situations. Multicollinearity is the association among the explanatory variables and it is a prominent econometric problem of cross sectional data. As the multicollinearity has a pronounced effect on the consistency and unbiasedness of the estimate, the data should be tested for the multicollinearity problem. The results of the test indicated

Table 3: Variance inflating factor (VIF) test results for multicollinearity among the variables used in the binary logit

Variables	VIF estimate	
	Rainfed	Irrigated
Number of years of education	1.174	1.174
Size of land holdings	2.825	2.825
Working persons per family	1.079	1.079
Annual farm income	2.674	2.674

Table 4 : Estimates of the logit regression for assessing the determinants of migration by rainfed farmers

Variables	Co-efficient	Odds ratio	P value
Constant	-6.97***	0.0009	0.01
Number of years of education	0.22**	1.2486	0.03
Size of land holdings (acres)	-0.57	0.5645	0.23
Working persons per family	2.61***	13.6468	0.00
Annual farm income ('000 Rs.)	-0.007*	1.007	0.06
Log likelihood		-18.10	
Log likelihood ratio test (Chi-square, 4)		40.17	
Akaike criterion		46.20	
Schwarz criterion		56.67	
Cases predicted correctly		86.70 %	

Note: *, ** and *** indicate significance of values at P=0.1, 0.05 and 0.01, respectively NS= Non-significant

Table 5 : Estimates of the logit regression for assessing the determinants of migration by irrigated farmers

Variables	Co-efficient	Odds ratio	P value
Constant	- 7.43***	0.00	0.00
Number of years of education	0.57***	1.76	0.01
Size of land holdings (acres)	0.02	1.01	0.87
Working persons per family	0.65*	1.91	0.08
Annual farm income ('000 Rs.)	- 0.01	0.99	0.15
Log likelihood		-20.60	
Log likelihood ratio test (Chi-square, 4)		21.50	
Akaike criterion		51.21	
Schwarz criterion		61.68	
Cases predicted correctly		83.30 %	

Note: *, ** and *** indicate significance of values at P=0.1, 0.05 and 0.01, respectively NS= Non-significant

that, the primary data has no multicollinearity problem as the variance inflating factor (VIF) of all the variables was less than 10 (Table 3). The log likelihood ratio statistic was found significant for both the irrigated and rainfed farm household categories implying that the explanatory variables included in the model jointly explain the probability of family members of farm households to migrate. The result of logistic model is presented in the Tables 4 and 5.

Among the variables considered in the function, principal variables influencing the decision to migrate in rainfed situation were working persons per family, number of years of education and annual farm income. With one year increase in education the odds ratio in favour of migration increases by 22 per cent. One working person increase in the family leads to increase in the odds ratio in favour of migration by 261 per cent. A unit ('000 Rs.) decrease in farm income resulted in increase the possibility of migration by 0.7 per cent.

In irrigated situation factors influencing migration were number of years of education (at 5 % level of significance) and number of working persons per family. A year increase in education has led to 77 per cent in odds ratio in favour of migration. Higher impact of education in irrigated farmers than on rainfed farmers is because migrant member in irrigated category are well educated and employed mostly in salaried jobs. Similarly, one person increment in working population resulted in 91 per cent increase in odds ratio in favour of migration. More or less similar results were also obtained by Bhandari and Chinnappa Reddy (2015); Chakrapani and Vijaya Kumar (1994); Deshingkar and Daniel (2003); Dev (2002); Haberfeld *et al*. (1999); Jajati and Madheswaran (2011) and Zachariah (1964).

Conclusion :

Overall about 25 per cent of households reported migrant members and about five per cent reported migration of more than one member of family. Rainfed farmers showed higher tendencies to migrate than irrigated farmers. Hence, enhancing irrigation facilities would improve the labour availability for agriculture in rural India. Factors influencing the decision of family member of farm household to migrate in case of rainfed farmers are number of years of education, working persons per family and magnitude of farm income. Therefore, efforts towards increasing farm income will ensure reduced migration in rainfed farmers. Among irrigated farmers only years of education and working persons per family found to influence the decision to migrate.

Authors' affiliations:
P.S. SRIKANTHA MURTHY, University of Agricultural Sciences, G.K.V.K., Bengaluru (Karnataka)
Email: pssrikanthamurthy@gmail.com

K.S. RASHMI AND H.R. CHIKKATHIMME GOWDA, Department of Agricultural Economics, University of Agricultural Sciences, BENGALURU (KARNATAKA) INDIA Email:ksrashmi4@gmail.com; hrchikkathimmegowda@gmail.com

LITERATURE CITED :

Bhandari, Gunjan and Chinnappa Reddy, B.V. (2015). Impact of out-migration on agriculture and women work load: An economic analysis of Hilly Regions of Uttarakhand, India. *Indian J. Agric. Econ.*, **70**(3):395-404.

Chakrapani, C. and Vijaya Kumar, S. (1994). Migration pattern and occupational change (A study of Palamur Labour in Andhra Pradesh. *Indian J. Soc. Work*, **55**(1): 83–94.

Deshingkar, Priya and Daniel, Start (2003). *Seasonal migration for livelihoods in India*: Coping, Accumulation and Exclusion, Working Paper 220, Overseas Development Institute, LONDON, UNITED KINGDOM.

Dev, S.M. (2002). Pro-poor growth in India: What do we know about the employment effects of growth 1980–2000? *Working paper 161*, Overseas Development Institute, LONDON, UNITED KINGDOM.

Haberfeld, Y., Menaria, R.K., Sahoo, B.B. and Vyas, R.N. (1999). Seasonal migration of rural labour in India. *Popul. Res. & Policy Rev.*, **18**(4) : 73–89.

Jajati, Keshari Parida and Madheswaran, S. (2011). *Determinants of migration and remittance in India*: Empirical Evidence. working paper 272pp.

Zachariah, K.C. (1964). *Historical study of internal migration in the Indian subcontinent*, 1901-1931. Research Monograph 1, Demographic Training and Research Centre, Bombay (M.S.) INDIA.

8th Year
★★★★★ of Excellence ★★★★★