Labour migration and paddy production; a comparative analysis

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Introduction

Migration can be identified as the flow or movement of people from the place of origin to the other surrounding, whether inside or outside the country with various reasons. Migration plays a major role in the economic development of Sri Lanka. In recent years, the outflow of Sri Lankan workers has shown an increasing trend. Sri Lanka is predominantly an agricultural country and paddy sector receives the highest priority in development agenda in Sri Lanka, as rice is the staple food in the country. At present Sri Lankan paddy sector suffers from many constraints such as scarcity of arable land, high cost of inputs and scarcity of labour (Ranathunga, 2011). Scarcity of labour for paddy production occurs mainly due to labour migration (Paris.et.al, 2009). In many studies, researchers find out the various impacts of migration. But it is very fewer Sri Lankan studies on examine the impact of labour migration on paddy production. In this context the objectives of the study were (i) to find out the impact of labour migration on paddy production and (ii) to estimate the production function of paddy in relation to the labour migration.

Methodology

Research was carried out Galaha, Thalathuoya and MarassanaGovijanaseva divisions under the Pathahewahata Divisional Secretariat division in Kandy District. Multi stage sampling technique was used to select 150 paddy farm families from selected area. Multi stage sample was surveyed based on a semi structured pre-tested questionnaire to gather necessary information. Both descriptive and inferential statistics were used to analysis the data. Descriptive statistical methods were used to describe the characteristics of the sample such as demographic information about paddy farmers and migrants, production details in paddy and labour usage in paddy cultivation. Cobb-Douglas Production function was used for econometrics analysis.(Nonthakot and Villano, 2008).

Empirical model : $\ln Y = \beta 0 + \beta i \ln(X i) + \varepsilon i$

The Y is the yearly output from paddy production in kilograms. Xi denotes the vector of independent variables such as family labour input, land extend, yearly fixed capital, fertilizer inputs, seed quantity, land quality and household type. In paddy production labour is used under three categories, family labour, hired labour and exchange labour. Among those categories family labour was used for the empirical model. Labour input was measured in man days. Variable of land extend was measured by acre. Yearly fixed capital gives the real value of all machinery, equipment, and value of land in rupees. Variable of fertilizer input shows the amount of fertilizer usage per year in kilograms. Variable of the seed quantity shows the quantity of seed paddy used for cultivation in kilograms. Land quality is a dummy variable distinguishing whether it is irrigated land or not. Household type is a dummy variable indicating the household with at least one out migrant. The references group is the household without any out migrant. εi is the stochastic disturbance term.

Results and Discussion

According to descriptive statistics, nearly 78% in the sample was male and the rest 22% were female. Most of farmers in the sample were older than 40 years. 58% farmers of the sample were

educated up to ordinary level. Most of farmers in this area had a higher level of experience. 39% of farmers had more than 30 year experience. 40% of farmers had10 to 30 years experience. Farmers in this area had a diversified income sourcing, income from paddy cultivation, vegetable and other crops cultivation, animal husbandry, from private sector and government sector occupation and specially from the remittances. Most of farmers get 100000 to 600000 rupees income per year. In that income category 58.06% were migrant household and 41.94% were non-migrant household.

Most of farmers in the area engage in small scale paddy cultivation. Most of them (48%) cultivate less than an acre. Only 1.32% farmers cultivate more than 3 acre. The area gets 1500kg/acre average productivity. To cultivate 1 acre of land area need 70 man days, on average. 55% from the total sample were migrant household and 45% were non-migrant household. Among the migrants 74% were male and 26% were female. Most of migrants were very young people (<30 years). There were 121 migrants in the sample. Among them 81% were send in remittances to their household.In econometric analysis, first present the findings on the determinants of paddy production of the total sample.Labour input played a positive role in paddy production with elasticity being around 6.77 for households.Fertilizer was significant with a positive relationship. 1% increase of fertilizer caused to increase yield by 0.37%.Quantity of seed paddy was significant with-1.62 elasticity. Land quality is significant with -0.02elasticity.

Table 1: Results of the OLS Estimation in Household of the Total Sample

Variable	OLS
Intercept	-5.34***
Labour	6.77***
Land	0.03
Capital	-0.002
Fertilizer	0.37***
Seed Quantity	-1.62***
Land quality	-0.02*
Household Type	-0.005
R^2(%)	99.81
N	150

*, **, *** Significant at 10, 5 and 1 percent probability level, respectively
Source - Sample survey, 2014

In second, present the major findings on the determinants of paddy production of the two type of households: Non migrant household (column 1) and migrant household (column 2) in Table 2. The impact of labour input on paddy yield varied across two type of households, with 1% of labour input yielding 6.72 % increase in paddy output in non-migrant household and 6.9 % yield increase in migrant household. Fertilizers also had positive relationship with both households. The elasticity of fertilizer was 0.29 in non-migrant household and 0.42 in migrant household.

Seed quantity was significant in both household but with a negative relationship. 1% increment of seed quantity caused to 1.31% of yield reduction in non-migrant household and 1.84% of yield reduction in migrant household. There were three seed sowing methods in this area, broadcasting, transplanting and parachute method. Among those methods, for broadcasting need higher amount of seed paddy (approximately 41.74kg/acre) but yield is comparatively lower. For seed sowing in parachute method, need comparatively very low amount of seed paddy (approximately 2.6 kg/acre) but gives higher yield than other two method. T ransplanting is in between these two methods. This is the reason behind negative relationship with seed quantity and paddy yield.

Land was significant only for non-migrant household with elasticity of0.04 and non significant towards the migrant household. Most of farmers in this area were not the owners of the paddy lands and they rent lands from the owners and pay for the lands with yield. Farmers in migrant family, not going to rent land from others. They only cultivate if they had their own lands. Because of that land is not significant towards the migrant house hold. Capital was negatively significant with the migrant household and no any effect towards the non-migrant household. In migrant household though it had many more capital like machinery and equipment no one to operate it (if the earlier operator migrate from paddy cultivation), availability of the capital was a cost. Because of that reason 1% increase of capital in migrant household caused to 0.05% reduction of yield.

Land quality does not significantly affect to the paddy production of migrant or non-migrant household. Because, in this area, non-irrigated lands are rich with spring water and other lands are fulfilled their water requirement by using irrigated water. So there is no significant issue towards the paddy yield.

Table 2: Results of the OLS estimation in two type of household

Variable	Non-migrant Household	Migrant Household
Intercept	-5.40***	-5.36 ***
Labour	6.72***	6.84 ***
Land	0.04*	0.007
Capital	0.002	-0.005 **
Fertilizer	0.29***	0.42 ***
Seed quantity	-1.31***	-1.84***
Land quality	-0.02	-0.01
R^2(%)	99.83	99.81
N	68	82

*, **, *** Significant at 10, 5 and 1 percent probability level , Source - Sample survey, 2014

Conclusions

According to the study, There is a significant different between labour input in migrant household and non-migrant household. Corresponding yield of a unit of labour input in migrant household is higher than the non-migrant household or household in a total sample. Corresponding yield of a unit input of fertilizer also higher in migrant household than non-migrant household. Seed quantity is significant in both household and in total sample with negative relationship. Land variable shows the positive relationship only with the non-migrant household. Capital is significant only towards the migrant household with negative relationship.The land quality was not significant in both type of households.

References

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