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Institutional Interventions in Addressing Labour Scarcity – A Study on Labour Bank Initiatives in Thrissur District of Kerala§

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Abstract

The study has highlighted an institutional intervention in the form of Labour Banks to address the scarcity of farm labourers in Kerala. The study has estimated the impact of Labour Banks on farm productivity, farm income, employment and standard of living of labourers. The study has used difference-in-difference estimation, partial budgeting technique and ANCOVA model for analysis. The Labour Bank member-labourers have depicted improvement in their standard of living, and their wage rate was higher by 21 per cent compared to that of non-members. The farmers who used Labour Bank service could achieve a rise of 0.92 t/ha in paddy productivity, and a profit of ₹ 11448/ha. The study has suggested replication of such models in other areas of the country also.

Key words: Institutional interventions, labour bank, labour scarcity, difference-in-difference estimation, Kerala

JEL Classification: B52, J23, J31

Introduction

For the past many years, labourers, particularly agricultural labourers, are the most unorganized and oppressed with low income, harsh work conditions and irregular and periodic employment. They are mostly landless and constitute the poorest segment of the Indian agricultural population. They largely belong to the socially and economically backward sections of the society. Since they possess no skill or training, they do not have much alternative employment opportunities (Padhi, 2007). Being an agrarian country, the problems of this oppressed section cannot remain unaddressed. The availability of skilled labour at specific times is crucial for ensuring crop productivity and profitability. The shortage of agricultural labourers make negative impacts like reduction in crop yield and cropping intensity and changes in the traditional cropping pattern (Prabakar *et al.*, 2011). Over the years, the productivity of agricultural labourers has shown a decreasing trend, necessitating more number of labourers per unit area. This adds to the already high

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cost of cultivation, and farmers are forced to shift to less labour-intensive crops. In areas where mechanization is adopted, the availability of skilled labourers having knowledge of operation and maintenance of these machineries is in question. The failure of isolated individual attempts of mechanization keeps the people away from adopting these techniques, and there comes the need for a well-planned and properly-monitored group approach.

New institutional interventions are needed to address such an issue where the proposed solution must benefit both farmer and labour community. The formation of a group of trained agricultural labourers equipped with latest technical knowhow and machineries, initiated as 'Food Security Army' by the Agricultural Research Station, Mannuthy, is one of its kind. It is a concept visualized and instituted to accredit farming as a reputed profession, and to address the issue of farm labour shortage. They provide training in farm mechanization to labourers for carrying out various agricultural activities. The programme aims at the effective utilization of educated unemployed youth of Kerala for promoting mechanization in paddy farming. It provides 22-day training which equips them to operate and maintain various machineries used for farm operations (Indiradevi *et al.*, 2010).

After attaining training and adequate expertise, many of the labourers formed groups and started functioning independently as service providers (Labour Banks). Presently, several such groups are functioning throughout Kerala under various names, whose area of operation spreads even across the borders of the state. Based on demand, they equip themselves and diversify their activities. A few names are: Green Army Labour Bank, Sivasakthi Agro Machinery Service Centre, Thankam Agro Machinery Service Centre, Haritha Sena, Karshika Karma Sena, Valluvnad Food Security Army, etc. Many of these groups own their own machineries. While for others, Blocks or Panchayaths provide machineries to boost agricultural activities in the area.

The skilled labour is the major capital of these groups. They provide the services of skilled labourers on demand to farmers and ensure a better remuneration to the labourers. Use of farm machineries has reduced the tough physical effort and has helped more women to join such groups. Earlier, the failure of mechanization was mainly due to lack of availability of enough skilled labourers to operate and repair these farm machineries. The formation of skilled labour banks is a solution to these issues. Now various blocks and panchayats are purchasing farm machineries and are engaging these groups for operating in different farm activities. A farmer in need of labour for any farm activity, can contact any of these groups. The group takes this contract on mutually agreed reasonable charges, and finishes the work in the minimum time. Studies have shown that labourers after joining these groups could achieve improvement in their standard of living through better wages (Indiradevi *et al.*, 2010). This intervention is getting momentum and more and more farmers are utilizing the services of these groups. The assured labour availability through such measures will enhance crop productivity and ultimately, food security.

Though the service of Labour Banks in agriculture is gaining momentum in Kerala, studies pertaining to its impact on either labourers or farmers are limited. This calls for a systematic study on the performance of Labour Banks at the field level and the changes it made in the lives of the labourers. Hence, the present study has been undertaken to find the impact of Labour Banks on (i) farm productivity, (ii) income, (iii) employment, and (iv) standard of living of farm labourers.

Data and Methodology

The present study was conducted in Wadakkanchery and Puzhakkal blocks of Thrissur district in Kerala during August 2013 to May 2014 and primary data pertaining to agro-socio-economic variables of farmers and labourers were collected through a structured interview schedule. The secondary data were collected from various publications like *Economic Review*, *Agricultural Statistics at a Glance*, *Panchayath Level Statistics*, etc., and documents maintained by the Department of Economics and Statistics. The total sample size was of 128 farmers, comprising 32 each of user farmers and non-user farmers, member labourers and non-member labourers of Labour Bank. The study has used difference-in-difference estimation, partial budgeting analysis, and ANCOVA model for analysis.

Analytical Tools

Difference-in-difference Estimation

Difference-in-difference estimation was used to estimate the impact of use of labour bank service on paddy productivity and the model used is given in Equation (1):

$$Y = \beta_0+\beta_1 dA+\beta_2 dT+\beta_3 (dA*dT)+ \beta_4 X_{ij} +U \quad \ldots(1)$$

where,

Y = Paddy yield (t/ha),

dA= Dummy variable representing use status,

dT = Dummy variable representing time period,

X_{ij} = A set of farm-specific and farmer-specific controls [includes plant protection chemicals (mL/ha), fertilizes (kg/ha), farming experience (years), education (years)],

β_1 = Difference if any, between the two groups before using labour bank service,

β_2 = Difference in yield in the second period, in the absence of labour bank service,

β_3 = Difference-in-difference estimate, represents the impact of Labour Bank services, and

U = Error-term.

Partial Budgeting Technique

Partial budgeting is commonly used to estimate the effects of outcome of possible adjustments in the farm business. Partial budget compares the positive and negative effects of the proposed change on net income. Added costs are those costs additionally incurred towards the adjustment made. In the present study, it comprised increase in the costs of farmyard manure and machinery hiring charges. Added return is the additional income obtained by making the proposed change. It comprised increase in yield obtained after use of labour bank service. Reduced costs are the reduction in cost as a result of the proposed change. It comprised reductions in the cost of seed, manual labour, plant protection chemicals, weedicides and fertilizers. Reduced returns are the returns which are foregone due to the adoption of the proposed change. Here there is no reduction in returns as a result of use of the labour bank service.

ANCOVA Model

To estimate the impact of Labour Bank membership on labourers' standard of living, ANCOVA model was found suitable. The consumption expenditure – a proxy for standard of living, was taken as the regressand based on the past studies (Blundell and Ian, 1996; Montgomery *et al.*, 1999; Brewer and Cormac, 2012). The regressors comprised a dummy variable indicating the joining status of labourers in Labour Bank and a number of quantitative variables such as age, family size, wage rate, and number of working days/year. The model used was:

$$CE = a+D_1+b_1 Ag+b_2 FS+b_3 WR+b_4 NWD+U \quad \ldots(2)$$

where,

CE = Consumption expenditure/month,

D_1 = Dummy variable for joining status (1, if joined, 0, otherwise),

Ag = Age (years),

FS = Family size (No.),

WR = Wage rate (₹/day),

NWD = Number of working days/year,

a = Constant-term,

U = Error-term, and

b_1, b_2, b_3, b_4 = Estimated coefficients of elasticities.

Results and Discussion

Among the respondents, 15.6 per cent of the user-farmers had education up to graduation level compared to none among the non-users. About 66 per cent users and 75 per cent non-users had education up to secondary level. The higher education level of user farmers had a positive effect on availing of Labour Bank service. Most of the sample labourers (75% of the members and 78% of non-members) had secondary school education.

Regarding the experience in farming, 40 per cent of the users had 10-20 years of experience, whereas 40 per cent of the non-users had 20-30 years of experience. Among labourers, 53 per cent of the members and 50 per cent of the non-members had 10-20 years of experience in farming. About 16 per cent

Table 1. Pattern of employment of the sample labourers

(Persondays/season)

Number of working days	Members				Non-members			
	Kharif	*Rabi*	*Summer*	Total	*Kharif*	*Rabi*	*Summer*	Total
Farm-working days outside labour banks	2	3	4	9 (4.64)	34	40	21	95 (45.89)
Farm-working days through labour banks	43	72	22	137 (70.62)	0	0	0	0 (0.00)
Non-farm and off-farm working days	5	5	5	15 (7.73)	17	21	19	57 (27.54)
MGNREGA				33 (17.01)				55 (26.57)
Total	50	80	51	194 (100.0)	51	61	40	207 (100.0)

Note: Figures within the parentheses represent percentage to the total

of non-members and 9 per cent of the members had more than 30 years of experience in farming.

The availability of more employment leads to improvement in the living standards and food security of the rural people. Therefore, employment pattern in farm, and non-farm plus off-farm sources was studied for the sample labourers and is furnished in Table 1. A perusal of Table 1 reveals that the labourers who joined Labour Banks lagged by 13 days in the total number of working days/year. But, actually it was due to more employment by MGNREGA to non-members than to members of Labour Banks. Similarly, non-farm and off-farm works contributed 27.5 per cent of the total employment to non-members and merely 7.7 per cent to the members. The competitive wage rates offered through Labour Banks and commitment of employment for the entire season made other opportunities like MGNREGA and non-farm and off-farm sources less attractive to the members. Construction works, loading and unloading, driving, work in local companies and work as home servants were found to be the major off-farm and non-farm employment taken by the labourers.

The members of Labour Banks get on-farm employment for 146 person-days/year, whereas it was only 95 person-days/year for non-members. The average wage rate was ₹ 573/day for members compared to ₹ 473/day for non-members. The gross annual income also was higher by 9.74 per cent for member labourers compared to non-members owing to more number of labour days at higher wage rate.

Impact of Labour Bank Service on Paddy Productivity

The impact of Labour Bank service on productivity of paddy crop was estimated through difference-in-difference method and the results are presented in Table 2. The user-farmers selected were those who were availing the service of Labour Bank for the past two years. Hence, data were collected for the current year and two earlier years for both users and non-users to find out the true impact of Labour Banks on crop yield.

The results of difference-in-difference estimation showed the value of R^2 to be 0.3362, denoting that 33.6 per cent variation in yield was explained by the

Table 2. Impact of Labour Bank service on productivity of paddy crop in Kerala

Variable	Coefficient	Robust standard error	P-value
Time period (t)	-0.138	0.277	0.619
Adoption status (a)	-0.114	0.361	0.752
Difference in difference estimate (txa)	0.922**	0.457	0.046**
Controls	YES	YES	YES
R^2		0.3362	
F-value		13.39	

Note: ***, ** and * denote significance at 1 per cent, 5 per cent and 10 per cent levels, respectively.

Table 3. Partial budgeting analysis

Debit	Value (₹/ha)	Credit	Value (₹/ha)
Added costs		Reduced costs	
Farmyard manure	68	Seeds	762
Machine labour	8826	Fertilizer	1222
		Plant protection chemicals	17
		Weedicides	159
		Human labour	7537
		Total	9696
Reduced returns	-	Added returns	
		Grain yield and straw yield	10,645
Total added costs and reduced returns	8894	Total reduced costs and added returns	20,342
Net gain = 20,342–8894=11,448 (₹/ha)			

variables included in the model. The F-value of 13.39 showed that 13.4 per cent variation in yield was addressed by the given model. The coefficient of difference-in-difference estimate was positive and significant showing significant improvement in yield among the users as a result of availing of Labour Bank service. The results also showed improvement of 0.92 tonnes in yield of paddy as a result of availing of Labour Bank service, which provided skilled labourers and machineries on time that ensured better crop management. Use of transplanters, mat nursery, early transplanting, proper spacing, and proper and timely crop management due to availability of skilled labourers on time might be the factors which helped in improving the yield. Before adoption of Labour Bank service, there was a severe labour shortage at peak periods which caused a delay in operations and was a hindrance to achieving a better crop yield.

Impact of Labour Bank Service on Farm Income

The economics of cultivation by users was compared with that of non-users. The partial budgeting technique was employed to arrive at the net gain by Labour Bank service users over non-users and the results are presented in Table 3.

From the components of partial budgeting, the added returns to users were due to the increased productivity obtained through timely availability of skilled labourers and machinery. The reduction in cost was due to the value of seeds, fertilizer, plant protection chemicals, weedicides and human labour. Since they used mat-nurseries and transplanters, expenses on seed were comparatively low for users. However, the cost on machine labour and farmyard manure contributed to the increase in cost of users. The increment in profit realized by the users was ₹11,448/ha. It is concluded that the adoption of Labour Bank service would provide additional profit to the farmers.

Impact of Labour Bank Membership on Lliving Standards of Labourers

The impact of Labour Bank membership on the living standards of farm labourers was analyzed using ANCOVA model. The consumption expenditure was taken as the proxy for standard of living. The results are presented in Table 4.

In the ANCOVA model, dummy variable representing joining status in Labour Banks gave positive and significant results. It shows, on an average, consumption expenditure per person per month (proxy for standard of living) was higher by ₹174 for the members, vis-a-vis non-members. This reveals that standards of living of labourers who had joined in Labour Banks had improved compared to those who didn't join. A rise in consumption expenditure indicates long-term increase in income. It is the advantage of consumption expenditure over income as a proxy for standard of living. An increase in income may be due to short-term fluctuations.

Other factors that emerged as significant were age, family size and wage rate. The age and family size

Table 4. Impact of Labour Bank membership on living standards of labourers in Kerala

Variable	Co-efficient	P-value
Joining status (dummy)	174.102	0.019**
Age	-10.008	0.026**
Family size	-56.345	0.093*
Wage rate	0.474	0.035**
Number of working days	0.820	0.149
R^2	0.3982	
F-value	7.68	

Note: ** and * denote significance at 5 per cent and 10 per cent levels, respectively.

were found negatively significant, whereas wage rate was positively significant. The R^2 value of 0.3982 showed that 39.8 per cent of the variation in consumption expenditure could be explained by the variables included in the model.

Conclusions

The study has highlighted an institutional intervention in the form of Labour Bank to address farm labour scarcity in Kerala. The availability of trained agricultural labourers through Labour Banks has been found beneficial to both farmers and labourers. The farmers are benefitted through improvement in crop productivity and higher profit and labourers are benefitted through assured employment, more number of labour days and higher wage rate. The benefit to farmers is mainly through timely availability of skilled farm labourers. As labour scarcity is becoming an important problem in many areas, such an institutional intervention can be replicated with adequate modifications in other parts of the country also. The emergence of such institutions can make long lasting positive impacts on the rural labour folk. Even though there are a number of such groups in the study area, they are not able to meet the farmers' demand and hence there is need for more training and extension activities. The government should promote such institutional interventions by providing necessary institutional framework and supply of farm machineries and equipments.

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