Research Article

Indian Journal of Extension Education
Vol. 62, No. 1 (January–March), 2026, (48-53)

ISSN 0537-1996 (Print)
ISSN 2454-552X (Online)

Effect of Labour Bank-Karshika *Karma Sena* on the Livelihood of Agricultural Labour Households in Kerala

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HIGHLIGHTS

- Labour bank-*Karshika Karma Sena* served as a source of livelihood strategy for poor agricultural labour households by providing work opportunities.
- Participation in Karshika Karma Sena aided in employment generation by providing 24.74 days of additional working days to participants related to non-participants
- Karshika Karma Sena participation enabled the participant's household to increase their annual income by Rs. 65117.

ARTICLE INFO

Keywords: Labour bank, Karshika Karma Sena, Livelihood, Employment, Income, Regression adjustment.

https://doi.org/10.48165/IJEE.2026.62108

Citation: Aryakrishnan, J. U., Raj, K. I., Renjini, V. R., Paul, R. K., Bishnoi, S., & Kumar, S. (2026). Effect of labour bank-karshika *Karma Sena* on the livelihood of agricultural labour households in Kerala. *Indian Journal of Extension Education*, *62*(1), 48-53. https://doi.org/10.48165/IJEE.2026.62108

ABSTRACT

Labour Bank-*Karshika Karma Sena* is an institutional intervention designed to address labour scarcity in the agricultural sector of Kerala. The study was conducted in two districts, viz Palakkad and Thrissur, based on the maximum paddy area and production. The total sample size was 176 agricultural labourers, entailing 80 participants and 96 non-participants pertaining to the year 2024. Agricultural labour work was the major contributor to employment for sample respondents. It was 71.12% and 51.44% for participants and non-participants, respectively. Income from agricultural labour activities formed a sizeable share in overall household income for participants, of which around 70% of the agricultural labour income was obtained from KKS activities. The effect of *Karshiaka Karma Sena* participation on employment and income has been worked out using a regression adjustment model. The results infer that participation in the KKS has enabled the labourers to increase their annually employed days by 24.74 days and to increase their average annual household income by Rs. 65117. Overall, such innovative institutional intervention has opened up avenues for the sustenance of the livelihood security of agricultural labourers in the state.

INTRODUCTION

Agriculture serves as a fundamental source of food, employment, income and livelihood for rural households worldwide, forming the backbone of many rural economies and contributing to social cohesion. But over the years, the contribution of this sector to overall national income and employment has decreased in India. Kerala is one of the Indian states that experienced a significant decline in the agricultural sector's contribution to providing employment. Agricultural labourers face various problems like minimum or inadequate wages, improper employment, inadequate working conditions and indebtedness (Gade et al., 2019). As a labourer is an important factor of production, their migration for earning a better livelihood increases the existing imbalance between demand and supply of labourers (Start & Deshingkar, 2003). The agriculture in Kerala is not an exception to this trend. The shortage

Received 28-10-2025; Accepted 20-11-2025

of agricultural labour makes negative impacts like reduction in crop yield, cropping intensity and changes in the traditional cropping pattern (Prabakar et al., 2011). Cost of cultivation shows that the share of labour cost in total operational cost in paddy is highest in Kerala (69.88%) (Samal et al., 2018). The increase in labour cost in Kerala is attributed to the rural-urban migration, higher wage rate compared to other states and labour scarcity in agriculture (Sharma & Prakash, 2011). Deceleration in area under crops and production of food crops has further exacerbated the lacklustre performance of agriculture in Kerala (Harilal & Eswaran, 2017). Increasing the level of farm mechanization offers an effective solution to the persistent problem of labour scarcity. This highlights the need for stronger participation from both government and non-government organisations to promote mechanised farming practices among rural communities, thereby ensuring sustainable agricultural production (Baruah et al., 2025).

Rural employment schemes not only provide crucial wage opportunities but also enhance agricultural productivity by creating durable and useful assets (Tripathi et al., 2025). To solve the labour scarcity and to protect the rights of agricultural labourers by promising respectable income, social security and dignity, an innovative policy initiative called Labour Bank-*Karshika Karma Sena* (KKS) has been introduced by Kerala. This has brought about a turnaround to the situation in the State. *Karshika Karma Sena* works by forming a group of skilled agricultural labourers at Grama Panchayat level by providing needful training related to package of practices of paddy cultivation and machinery operations. Any additional income of labour generated by this intervention is going to boost the standard of living of labour household. Although *Karshika Karma* Sena has been showing prominence in recent times in the state, empirical studies examining its effect on labourers are limited. In this backdrop it became essential to study the effect of *Karshika Karma Sena* on livelihood of agricultural labour household. The knowledge arising from the research work would pave the way to resolve labour scarcity in agriculture sector for academics, policy makers and other stakeholders engaged in agriculture.

METHODOLOGY

Two districts viz. Palakkad and Thrissur of Kerala were selected based on the maximum area coverage and paddy production. The data on socio-economic characteristics of agricultural labourers, landholding sizes etc, were collected by personal interview method using a pre-tested schedule pertaining to the year 2024. From each selected district two blocks and from each selected block, two grama panchayats where the scheme was implemented were selected randomly. From each grama panchayat, 10 KKS participants and 12 KKS non-participants were selected randomly i.e., Data from a total of 176 agricultural labour were collected and used for the study. It included 80 KKS-participants and 96 KKS-non-participants. Respondents were selected using a simple random sampling method.

To isolate the effect of Labour bank-Karshika Karma Sena on employment and annual income of agricultural labour households, the Regression adjustment technique is used on the dataset. A prerequisite of the application of the regression adjustment method is to make the conditions statistically equal with respect to various observed characteristics that may also influence the outcome. Then fitted a separate outcome equation for the treated and control groups. For KKS participants:

$$Y_i = \alpha + \beta_j X_{ij} + u_i \quad \text{... (1)}$$

For KKS non-participants:

$$Y_i = \delta + \tau_j X_{ij} + e_i \quad \text{... (2)}$$

Where, Y_i =Total number of days employed in a year/total annual household income, X_{ij} is set of possible explanatory variables affecting the Y_i

The explanatory variables influencing the number of days employed include age, education, caste, gender, family size, number of earning members, agricultural labour experience, non-agricultural work experience and landholding size. For household income, the explanatory variables were age, education, caste, gender, family size, number of earning members, agricultural labour experience, employment in agricultural labour work, employment in other activities and landholding size.

α and δ = Constant-term, β_j and τ_j = set of estimated coefficients of explanatory variable, u_i and e_i = Error-term

This model estimates Potential Mean Outcomes (PMO) separately for treated (KKS participants) and control (non-participants) groups. PMO represent the expected value of an outcome, such as total days employed in a year or annual household income if all individuals in the sample were assigned to either the treatment or control group. The impact of KKS participation is measured as the difference between the PMO of participants and non-participants. This difference is expressed as the Average Treatment Effect (ATE). The standard z test was employed to determine if the ATE was statistically different from zero.

RESULTS

Effect of KKS participation on agricultural labourers' employment generation

The agricultural labourers are engaged in different income-generating activities to meet their livelihood requirements. The number of employed days can significantly affect total income and the overall well-being of their households. Participation in the *Karshika Karma Sena* would help to increase the number of days employed by providing regular employment opportunities and focusing on skill development for agricultural machinery operations. The average days of employment for sample agricultural labourers through different activities in a calendar year are presented in Table 1. The results indicated the existence of a significant difference in the total number of days employed between KKS participants and non-participants. For KKS participants, it was 194 days and for KKS non-participants, it was 173 days. A perusal of the number of days employed across different activities revealed a statistically significant difference between participants and non-participants in agricultural labour and non-farm activities. This could be attributed to the role played by KKS in employment generation for agricultural labourers. For KKS participants, the major contribution to the total number of days employed was obtained through agricultural labour activity (71.12%), of which more than 86 per cent came from KKS works. For KKS non-participants, more than half (51.44%) of the

Table 1. Number of days employed in different activities in a year by the agricultural labour

Nature of work		KKS-participants	KKS-non participants	t-value
Agricultural labour	Through KKS	61.85	0	
	Outside KKS	9.27	51.44	
Total agricultural labour		71.12	51.44	31.31*
MGNREGA		21.13	32.36	1.52
Farm activity		2.57	3.46	0.87
Nonfarm activity		5.18	12.74	3.73*
Total		100	100	3.46**

Figures in parentheses indicate percentage of total number of days employed, *Significant at 1%, **Significant at 5%
Source: Field Survey by authors, 2024

total number of days employed in a year derived from agricultural labour activity, followed by MGNREGA (32.36%), non-farm activity (12.76%) and farm activity (3.46%).

Employment is essential for financial stability, subsequent well-being and better standard of living for an individual. This creates a sense of purpose, identity and social integration. For individuals, employment and the income it provides is essential for budgeting and securing financial support. The summary statistics of variables under consideration for evaluating regression adjustment model for employment and household income among KKS participants and non-participants are presented in Table 2. The t-test statistics discern the fact that the differences between the two groups of the *Karshika Karma Sena* were significantly different in terms of that particular variable.

Karshika Karma Sena focuses on enhancing the well-being of agricultural labourers by providing better, regular employment opportunities and skill enhancement. Findings of the regression adjustment technique on the effect of KKS participation on employment generation by calculating PMO and ATE have been presented in Table 3. The results inferred that as the average number of days employed in a year would have been 198.56 days if all the respondents (including KKS non-participants) became KKS participants. This was represented as PMO KKS participants. Likewise, PMO KKS non-participants can be interpreted as the average number of days employed in a year would have been reduced to 173.82 days if all the respondents (including KKS participants) became KKS non-participants. The difference between PMO KKS participants and PMO KKS non-participants was shown as the average treatment effect (ATE). The ATE figure was a positive value, indicating that participation in KKS helped the agricultural labourers to increase their total number of days employed in a year by 24.74 days. Thus, the results revealed the significant role played by KKS in generating a greater number of employment days for the participant workers and thereby better livelihood sustainability.

As income rises, household welfare tends to improve, primarily through increased consumption expenditure. In this context, it becomes important to assess the impact of participation in KKS on household income. The source-wise distribution of income among KKS participants and non-participants has been examined, and the impact of KKS participation on overall household income has been assessed. Average annual household income of KKS participants and non-participants, from various sources like agricultural labour, MGNREGA, farm and non-farm activities, has been presented in Figure 1. Annual household income indicates the income of all earning members in the family in a year. A perusal of the figure showed a notable significant difference between KKS participants' and non-participants' annual household income. The

Table 3. Results of the regression adjustment technique of total number of days employed in a year

Particular	Coefficient	Robust error	Z value
PMO KKS-participants	198.56*	2.52	79.79
PMOKKS nonparticipants	173.82*	1.34	129.30
ATE	24.74*	2.16	11.41

*Significant at 1%;
Source: Author's calculation from field survey,2024

Table 2. Summary statistics of variables used for regression adjustment for employment and income

Variable	Mean values of variables used in Regression adjustment		
	KKS participants	KKS non-participants	t value
Dependent variable			
Total number of days employed in year	194	173	3.46**
Annual household income (Rs./year)	2,40,320	1,98,090	8.31*
Explanatory variable			
Age (years)	38.08	47.70	7.31*
Education (number of years of schooling)	10.46	7.22	7.02*
Caste (0=general 1=OBC 2=SC/ST)	1.38	1.31	-0.77
Gender (1=male, 0=female)	0.33	0.20	2.22
Family size (No)	3.95	3.18	1.09
Number of earning members (No)	1.52	1.60	0.88
Experience as agricultural labour (in years)	12.60	14.40	0.25
Experience of working in non-agricultural activity (in years)	11.00	14.23	0.98
Number of days employed as an agricultural worker	138.00	89.00	31.31*
Number of days employed in other activities	56.00	84.00	23.22**
Land holding size (in cents)	16.60	11.80	-5.2*

*Significant at 1 %, **Significant at 5%, *Source:* Field Survey by authors, 2024

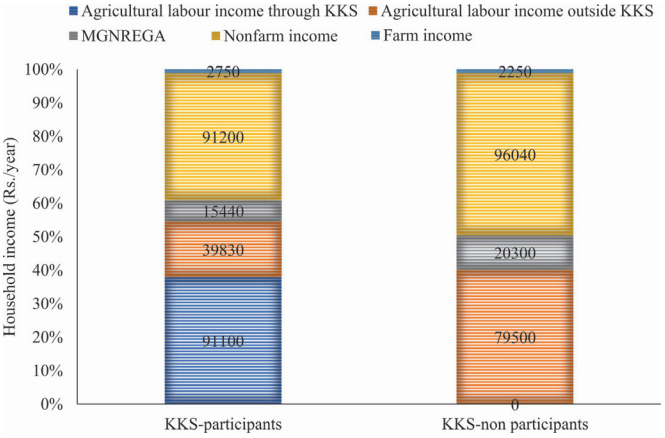

Figure 1. Annual household income of agricultural labour from different sources

average annual income of KKS participants' households was Rs.240320, and that of KKS non-participants was Rs. 198090. Income contribution (%) from different sources for the sample household showed income from agricultural labour work (54.48 %) was the major contributor of KKS-participant's household followed by non-farm work (37.96%), MGNREGA (6.64 %) and farm work (1.14 %). But for KKS non-participants' households, non-farm income (48.48%) was the highest contributor to annual household income, followed by agricultural labour income (40.13%), MGNREGA (10.25%) income and farm income (1.14%). The percentage share of farm income in overall income was very less for both KKS participants and non-participants. This was due to small landholding size of respondents. Findings revealed the existence of a significant difference in agricultural labour income between participants' and non-participants' households. This difference had subsequently contributed to the overall significant difference in annual household income between these two categories. Since agricultural labour income through KKS contributed around 70% of the total agricultural labour income for participants' households, it was clear that *Karshika Karma Sena* had played a significant role in increasing the household income of participants.

Household income plays a crucial role as a key socioeconomic indicator, reflecting a household's financial health and ability to access resources. *Karshika Karma Sena* emphasises enhancing the quality of living for agricultural labourers by assuring a stable income and financial independence. This is possible by way of providing stable work opportunities, better quality work environment and skill upgradation. The results of the regression adjustment technique on effect of KKS participation on the annual household income of agricultural labour was presented in Table 4. Potential mean outcome (PMO) of KKS participants revealed that the mean value of annual household income would have been Rs. 2,36,507.32 if all the respondents (including non-participants) became KKS-participants. Similarly, potential mean outcome (PMO) of KKS non-participants inferred the fact that the mean value of annual household income would have been decreased to Rs. 1,71,390.80 if all the respondents (including participants) became KKS non-participants. The difference between PMO KKS participants and PMO KKS non-participants was shown as the average treatment effect (ATE). Analysis obtained a significantly positive value for ATE, indicating that participation in KKS helped the households to increase the average annual household income by Rs. 65,117.52. Through this intervention, KKS not only enhances the capacity of rural households to earn a stable livelihood but also effectively increases the number of days of employment available to them, thereby improving overall household economic safety.

Table 4. Results of regression adjustment model of annual income of household (Rs/year)

Particular	Coefficient	Robust error	Z value
PMO KKS-participants	236507.32*	22850.95	10.35
PMO KKS non-participants	171390.80*	18291.36	9.37
ATE	65117.52*	7931.30	8.21

*Significant at 1%

Source: Authors' calculation from field survey, 2024

DISCUSSION

The livelihood patterns of agricultural labour households in the study area reveal a dependence on multiple employment sources, including agricultural labour, MGNREGA employment, farm-based activities and non-farm work. Such diversification is a common coping strategy in rural settings, where employment opportunities are often seasonal and educational as well as skill limitations restrict access to stable, high-paying jobs. The present findings are consistent with the results of Ngasainao and Jha (2025), who reported that food and occupational security together explained 70.92% of the variance in the livelihood security of farm women in Kerala. Similar patterns of income diversification were reported by Mary et al. (2015) and Pal et al. (2017). In the current study, agricultural labour work emerged as the predominant source of employment for both KKS participants (71.12%) and non-participants (51.44%). This observation supports the findings of Narasimham and Bhairavamurthy (2014), who highlighted the continued reliance on agriculture as the primary source of employment in rural areas due to limited opportunities in the non-agricultural sector. Regression adjustment analysis further revealed that participation in *Karshika Karma Sena* (KKS) increased the annual number of workdays for agricultural labourers by 24.74 days. This positive effect can be attributed to several factors including relatively higher education levels among KKS participants, improved skills gained through targeted training programmes, effective institutional mechanisms and the provision of more regular employment opportunities through KKS interventions. These results parallel the findings of Malangmeih et al. (2014), who stated an increase in average annual employment from 165.40 days to 222.50 days following the implementation of MGNREGA in Bankura district, West Bengal, demonstrating the critical role of government interventions in enhancing rural employment and overall quality of life. Collectively, these results underscore the vital contribution of government-supported livelihood initiatives in expanding employment opportunities, strengthening labour security and improving rural household resilience.

The findings of the present study demonstrate a significant positive impact of *Karshika Karma Sena* (KKS) participation on household income, with member households reporting an annual

increase of approximately Rs. 65,117. This income enhancement aligns with the results of Praveena et al. (2025), who noted that self-help group (SHG) membership contributes substantially to increased household income, disciplined savings behaviour, investment in productive assets and greater engagement in self-employment activities. The present study further highlights that KKS functions as an important source of supplementary employment for rural households, thereby fostering chance of financial independence among economically disadvantaged populations. The observed outcomes are consistent with evidence reported by Ahemad and Katoch (2022), who described similar improvements under the National Rural Livelihood Mission (NRLM), where the formation and strengthening of SHGs led to enhanced income levels and expanded employment opportunities for rural women. Likewise, Malangmeih et al. (2014) identified that wage employment programmes, such as MGNREGA, play a crucial role in augmenting rural wage income. Further supporting evidence comes from Kumar (2023), who concluded that the Prime Minister's Employment Generation Programme (PMEGP) not only facilitated income generation but also contributed to skill development and empowerment among youth and marginalized groups. Similarly, Kriti et al. (2025) emphasized the effectiveness of NGO-led livelihood initiatives in promoting income generation among rural women in Bihar. Collectively, the findings of this study reinforce the broader understanding that structured livelihood interventions, whether government-led like KKS, NGO-facilitated or community-based, play a pivotal role in improving household income, enhancing employment opportunities, and fostering socio-economic empowerment in rural contexts.

Karshika Karma Sena (KKS), an institutional intervention, was established to address the growing scarcity of agricultural labour in Kerala while simultaneously improving livelihood opportunities for rural agricultural labour households. The findings of the present study demonstrate that KKS has a significant positive impact on employment generation and income enhancement, ultimately contributing to improved household well-being. This effectiveness can be attributed to several enabling factors, including a strong administrative framework, systematic capacity-building initiatives and skill enhancement in areas such as crop cultivation and agricultural machinery operation. Increased motivation and awareness among participants could have further strengthened the programme's outcomes. The role of skill development within KKS mirrors observations in earlier empirical work. Sharma (2021) reported that skill development initiatives undertaken by NGOs significantly empowered rural women, both economically and socially. In the context of KKS, whose functioning revolves around mechanised farm operations, training and capacity-building programmes are indispensable. They help rural labourers overcome practical, technical, and social barriers that often constrain the effective implementation of employment-oriented schemes. The findings also align with the results of Pathak and Kakati (2024), who documented substantial improvements in farmers' skills and knowledge following training interventions under the Assam Agribusiness and Rural Transformation Project (APART). Furthermore, the operational model of KKS underscores the importance of grassroots institutional structures. The programme functions through Gram Panchayats, which regularly disseminate key information regarding KKS formation, labour recruitment processes, and meeting deliberations through the Gram Sabha. This participatory approach ensures transparency and strengthens community engagement. Similar insights were reported by Nain et al. (2015), who emphasized the critical role played by government development bodies in disseminating agricultural information at the local level.

CONCLUSION

The findings of this study demonstrate that the Labour Bank model-*Karshika Karma Sena* (KKS) holds substantial potential as an institutional mechanism to mitigate agricultural labour scarcity in Kerala while simultaneously improving the livelihoods of rural agricultural labour households. By organising skilled labour groups at the Gram Panchayat level and providing targeted training in crop cultivation practices and machinery operation, KKS effectively enhances both employment opportunities and annual household income among its participants.

The success of this intervention emphasises the need for continued investment in strengthening institutional frameworks such as KKS. Enhancing outreach and awareness initiatives is vital to attract more rural youth and build a sustainable, skilled agricultural workforce. Sustained government support in identifying untapped rural employment opportunities is essential for improving livelihood security and overall rural well-being.

DECLARATIONS

Ethics approval and informed consent: Informed consent was sought from the respondents for the study.

Competing Interest: The Authors have no competing interests.

Conflict of interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The authors declare that during the preparation of this work, they thoroughly reviewed, revised, and edited the content as needed. The authors take full responsibility for the final content of this publication.

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