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Research Paper

Supply-demand analysis of agricultural labour in Dharwad district

■ **GAYATHRI MOHAN, L.B. KUNNAL AND S.V. KANAMAD**

See end of the paper for authors' affiliations

Correspondence to :
GAYATHRI MOHAN
Department of Agricultural Economics, University of Agricultural Sciences, G.K.V.K., BENGALURU (KARNATAKA) INDIA

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ABSTRACT : Over the past couple of years, there is a growing concern that the farm labour availability has been decreasing as a result of occupational changes, people's mindset, Government policies and reforms, making it imperative to investigate into the dynamics of scarcity of agricultural labour and the reasons contributing to this. A study was undertaken considering the status of labour scarcity in agricultural economy with special reference to Dharwad district of Karnataka. A Multistage random sampling procedure was adopted to select the sample respondents. A total of 120 farmers were interviewed for the study. It was found that the labour demand exceeded supply for almost seven months and reached its peak during the sowing and weeding operations in both *rabi* and *kharif* seasons. According to sample respondents migration of labourers to nearby villages for higher wages was the most serious problem leading to labour scarcity.

KEY WORDS : Agricultural labour, Garrett ranking**,** Labour scarcity, Supply-demand gap

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INTRODUCTION :

A person who works on another person's land for wages in money or kind or share is regarded as an agricultural labourer. She or he has no risk in cultivation, but merely works on another person's land for wages" (Anonymous, 2012). Even though India has the second largest manpower in the world, all sectors of the economy have been affected by the scarcity of labour, the impact being felt more in agricultural sector (Bardhan, 1984). In recent years, particularly after the implementation of MGNREGA, expansion of public works and increased rural to urban migration owing to urbanization and generation of casual employment in the tertiary sector in towns and cities, notable labour scarcity has been reported in agricultural sector (Akhil and Bijoyata, 2011). All these have created panic and helplessness among the farmers who may not hesitate to abandon farming (Baba *et al*., 2011). This is the general situation existing in India and the situation in Karnataka is not different. These issues need to be studied in detail and discussed as these have far reaching implications on agriculture and rural development. Hence the present study was undertaken to identify the extent of labour scarcity with special reference to Dharwad district of Karnataka and to analyse the probable reasons responsible for this.

MATERIALS AND METHODS :

A multistage random sampling procedure was adopted for the selection of sample respondents. In the first stage, Dharwad district was selected as it serves as an agricultural representative of Karnataka state, with 69 per cent of its area under agriculture and growing almost all major crops in the state. In the second stage based on the highest net sown area, two taluks namely Dharwad and Navalgund were selected. In the third stage, two villages namely Hebballi and Garag from Dharwad taluk and Kalavad and Morabha from Navalgund taluk were randomly selected for the study. In the fourth stage, 15 small farmers (with land holding less than 2 ha.) and 15 large farmers (with land holding more than 2 ha.), from all the four villages, were selected randomly. Thus, a total of 120 farmers were interviewed to elicit the required information for the study. The selected farmers were personally interviewed using pre

tested schedule. The data collected pertained to the agricultural year, 2010-11. The data on the agricultural labour force available in the study area, as per the 2001 census was collected from the District Statistical Office, Dharwad. The supply-demand gap of agricultural labourers was analysed using the tabular presentation method. The percentages and averages were worked out and presented in the form of tables. The month-wise labour requirement for different crops was calculated to find out the month-wise labour demand for the major crops grown in the area. The labour supply was calculated based on the total labour force available. The difference between the two gave account of the month-wise agriculture labourers' supply-demand gap.

Garrett's ranking technique was used to rank the factors contributing to the labour scarcity. Six factors were identified as the major reasons contributing to labour scarcity in the study area taking into consideration the opinions of the sample farmers and the various studies undertaken in the field. The factors considered were existence of MGNREGA, higher wages in other locally available jobs, shift to a regular/permanent job since agricultural job is seasonal, agriculture labour presumed to be a low self esteem job, migration to nearby city for higher wages, migration due to improvement in education status. Each of the sample farmers were asked to rank the above factors from rank one to rank six. In this analysis, rank one meant most important factor and rank six meant least important factor. Further, rank assigned to each factor by each individual was converted into per cent position using the following formula,

$$\text{Per cent position} = 100 \times (R_{ij} - 0.5)/N_j$$

where,

R_{ij} stands for rank given for the i^{th} factor (I = 1,2,….6) by the j^{th} individual (j=1,2,….120).

N_j stands for number of factors ranked by j^{th} individual.

Once the per cent positions were found, scores were determined for each per cent position by referring Garrett's table. Then the scores for each factor were summed over the number of sample farmers who ranked the factor. In this way, total scores were arrived at each of the six factors and mean scores were calculated by dividing the total score by the number of respondents, who gave ranks. Finally, overall ranking of the six factors was done by assigning rank 1,2,3,……6 in the descending order of the mean scores.

RESULTS AND DATA ANALYSIS :

The crop-wise, operation-wise and month-wise labour requirement was worked out from the primary data collected from the sample respondent and the corresponding values were multiplied with the total area under each crop to get the month-wise labour requirement per year in the study area. The supply of agricultural labourers per year has been worked out by assuming that the available agriculture labour force is employed on an average for 20 days in a month (Prabhakar *et al*., 2011). Thus considering the total agricultural labour force in the district as 185509 (DSO data, Dharwad, 2010-11, as per 2001 census), the supply of labour comes to around 3710180 man-days per month. Of the total agricultural labourers available per year, around 8.33 per cent is available for work per month.

The month-wise labour requirement for the major crops is presented in Table 1. The table reveals that the highest demand for labour is in the months of June (8.59%) and November (7.79%) followed by July (7.69%), October (6.85%), August (6.55%), May (5.71%), December (5.28%), January (4.46%), February (3.11%), September (2.01%), April (1.32%) and least in the month of March (0.005%). It is revealed that the labour demand exceeds the supply for almost eight months, *viz.*, January, May, June, July, August, October, November and December. Since the month of June coincides with the sowing season of most of the *Kharif* crops and weeding season of most of the vegetable crops, paddy and chilly, labour requirement was almost double the supply, which depicts the extent of labour scarcity in Dharwad district during the peak agricultural season. The month of November which coincides with the sowing and first weeding operations of most of the *Rabi* crops, is the month of second highest labour scarcity. Similar results were reported by Chendrasekhar *et al.* (2011), Prabakar *et al.* (2011) and Sarda Prasad (2011) in their study.

The number of farmers reporting farm labour scarcity in the study area is presented in Table 2. Among the small farmers, around 53.33 per cent of the farmers in Garag village reported labour scarcity, followed by Morabha village (20.00%), Hebballi village (13.33%) and least by farmers of Kalavad village (6.67%), whereas, among the large farmers, all the farmers in Morabha village reported the problem of farm labour scarcity, followed by the farmers of Hebballi and Kalavad (both 86.67%) and Garag farmers (66.67%). Thus, highest labour scarcity was reported by the farmers of Garag and Morabha (both 60.00%), followed by the farmers of Hebballi village (50.00%) and Kalavad village (46.67%). The total number of farmers facing labour scarcity in the study area was 54.17 per cent with a higher share of large farmers (85.00%) than the small farmers (23.33%) reporting the problem.

The major reasons for the labour scarcity as opined by the sample farmers are as follows.

- Existence of MGNREGA.
- Higher wages in other locally available jobs.
- Shift to regular/ permanent job since agriculture is seasonal.
- Agriculture labour presumed to be a low self esteem job.
- Migration to nearby cities for higher wages.
- Migration due to improvement in educational status.

The reasons identified for labour scarcity were analysed using Garrett ranking method and the results are presented in Table 3. Migration to nearby cities for higher wages was ranked

Table 1 : Month-wise supply-demand of agricultural labour for principal crops in Dharwad district (Mandays)

Crops	Area (ha)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Paddy	28154				394156 (12.5)	1013544 (32.14)	900928 (28.57)		844620 (26.79)					3153248
Jowar [r]	37783	755660 (28.57)									982358 (37.14)	906792 (34.29)		2644810
Jowar [k]	5507						143182 (33.41)	143182 (33.41)	33042 (7.71)			110140		428546
Maize	47166						1792308 (41.30)	1414980 (32.61)	188664 (4.35)	943320 (21.74)				4339272
Wheat	39144	282996 (9.38)	1037652 (34.38)								660324 (21.88)	848988 (28.13)	188664 (6.25)	3018624
Soyabean	30809						431326 (15.22)	739416 (26.09)	431326 (15.22)		1232360 (43.48)			2834428
Groundnut	35688						249816 (9.33)	785136 (29.33)	571008 (21.33)		1070640 (40.00)			2676600
Green gram	26350						316200 (16.67)	737800 (38.89)	843200 (44.44)					1897200
Chickpea	52161	1043220 (29.41)									104322 (2.94)	1460508 (41.18)	938898 (26.47)	3546948
Sunflower	10220						122640 (11.76)	306600 (29.41)	245280 (23.53)	367920 (35.29)				1042440
Safflower	5441	163230 (28.85)									130584 (23.08)	217640 (38.46)	54410 (9.62)	565864
Cotton	88340				353360 (3.39)	2473520 (23.73)	1060080 (10.17)	530040 (5.08)			1236760 (11.86)	2473520 (23.73)	2296840 (22.03)	10424120
Sugarcane	6605		13210 (1.75)	26420 (3.51)	26420 (3.51)		105680 (14.04)	237780 (31.58)	105680 (14.04)	39630 (5.26)	39630 (5.26)	13210 (1.75)	145310 (19.30)	752970
Tomato (R&K)	554	22160 (35.09)	22160 (35.09)	7756 (12.27)	11080 (17.54)	24376 (38.60)	22160 (35.09)	22160 (35.09)			7756 (12.27)	11080 (17.54)	24376 (38.60)	63156#
Brinjal (R&K)	626	22160 (35.09)	22160 (35.09)	7756 (12.27)	11080 (17.54)	24376 (38.60)	22160 (35.09)	22160 (35.09)			7756 (12.27)	11080 (17.54)	24376 (38.60)	63156#
Potato	1142						15988 (17.50)	27408 (30.00)	20556 (22.50)	27408 (30.00)				91360
Onion	28174				563480 (15.38)	676176 (18.46)	1408700 (38.46)	169044 (4.62)	845220 (23.08)					3662620
Chilli (R & K)	41230	1649200 (26.94)	1649200	412300 (6.74)	577220 (9.42)	824600 (13.46)	989520 (16.16)	1649200 (26.94)	1649200 (26.94)	412300 (6.74)	577220 (6.74)	824600 (13.46)	989520 (16.16)	6122645#
Demand		3938626 (4.46)	2744382 (3.11)	454232 (0.005)	1162860 (1.32)	5036592 (5.71)	7580688 (8.59)	6784906 (7.69)	5777796 (6.55)	1790578 (2.01)	6049710 (6.85)	6877538 (7.79)	4662394 (5.28)	88262322
Supply							185509* x 20** = 3710180							
Supply-demand gap		-228446	965798	3255948	2547320	-1326412	-3870508	-3074726	-2067616	1919602	-2339530	-3167378	-952214	

*Total agricultural labour population in the district, ** Number of mandays employed per month taken as 20 (Prabhakar *et al.*, 2011) # Per crop season;
Tomato and Brinjal : *Rabi*-(October to February) and *Kharif*–(March to July); Chilli : *Rabi*-(October to March) and *Kharif*-(April to September) Figures in parentheses indicate percentage values

Table 2: Farmers reporting farm labour scarcity in the study area **(n=120)**

Taluk	Villages	No. of farmers reporting farm labour shortage		
		Small farmers	Large farmers	Total
Dharwad	Garag	8 (53.33)	10 (66.67)	18 (60)
	Hebballi	2 (13.33)	13 (86.67	15 (50)
Navalgund	Morabha	3 (20.00)	15 (100)	18 (60)
	Kalavad	1 (6.67)	13 (86.67)	14 (46.67)
Total		14 (23.33)	51 (85)	65 (54.17)

Figures in parentheses indicate percentage values

Table 3 : Garrett's ranking for the reasons for labour scarcity

Reasons	Mean score	Rank
Existence of NREGA (A)	35	VI
Higher wages in other jobs available locally	57.8	III
Shift to a regular/ permanent job since agricultural job is seasonal	59.33	II
Agriculture labour presumed to be a low esteem job	39.82	V
Migration to nearby city for higher wages	60.62	I
Migration due to improvement in education status	47.77	IV

I, followed by shift to regular/ permanent job since agriculture is seasonal. Existence of MGNREGA was ranked as the VI and last among the various problems identified. The absence of proper implementation of MGNREGA programme is the probable reason for the migration of the labourers. MGNREGA works have been recorded in the villages but as such the villagers were not given any employment under the scheme. Hence migration to other cities was high, but at the same time as MGNREGA is not implemented properly, its effect of driving out labourers from agricultural operations during peak agriculture season was low. The migration of the labourers resulted in labour scarcity particularly during the peak season. As a result of this, the wage rates escalated, particularly in the peak season, resulting in acute labour shortage, especially for the small farmers who are unable to afford employing the labourers at the high wage rates. The labour scarcity affected the timely operation in the crop cultivation, which resulted in the reduction in productivity of the crops. Most of the workers shifted to regular/ permanent jobs as agricultural activities were seasonal and did not ensure wage generation through-out the year. Instead of doing part time farming, they preferred permanent shifting to non-agricultural jobs to ensure through-out the year earnings. The agricultural labourers were willing to do other locally available jobs rather than farm labour, as these works were less arduous, ensured timely payment and less working hours when compared to the agricultural activities. The rural youths were reluctant to work in the fields and mostly migrated due to improvement in education status. They preferred more remunerative and less cumbersome jobs than the field labour works. Moreover the agriculture labour is presumed to be a low esteem job, particularly among youths. Similar work related to the present investigation was also carried out by Sen (1964), Nath (1974), Binswayer and Rozenzweig (1984), Benjamin (1992), Mishra and Goodwin (1997).

Authors' affiliations:

L.B. KUNNAL, Department of Agricultural Economics, University of Agricultural Sciences, DHARWAD (KARNATAKA) INDIA.

S.V. KANAMAD, University of Horticultural Sciences, BAGALKOT (KARNATAKA) INDIA

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