LABOUR USE PATTERN IN THE SMALL FARMS OF TAMIL NADU

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The 'left-over people' in the Indian agrarian economy is represented by the small farmer and his close allies of marginal and sub-marginal farmers and landless agricultural labour.   Their significance in an agriculture based economic system stems from their population strength and the contributery share they could make to dynamise the entire gamut of developmental processes. Contrarywise, their weakness in the economic and organizational spheres has come to be recognized as a major barrier stifling the nation's growth.   In general, low employment opportunities and poor wage incomes for the small farm[1] families in the farm and non-farm sectors of the rural complex are reckoned to be the major factors for the socio-economic backwardness of the vulnerable category.   In a productivity sense, these people have large measure of functional idleness, and as a result, their per capita incomes also are dismayingly low.[2]   As among the 'left-over people' each of them need category-specific programme which would help them to rehabilitate their economy.

The study attempts (*i*) to identify certain basic characteristics of the small farms in terms of their size and investments; (*ii*) to analyse the crop systems in the small farms; (*iii*) to investigate the pattern of employment of manual labour; and (*iv*) to identify the determinants of family labour use under four types of irrigation systems.   Certain policy guidelines are suggested to enlarge employment potentials.

DATA AND METHODOLOGY

To evaluate the pattern of labour use, investigations' were carried out in four districts of Tamil Nadu having clearly definable systems of irrigation. Salem district was chosen for well irrigation, Thanjavur for canal irrigation, Chingleput for tank-fed irrigation and East Ramanathapuram for rainfed situation.[3]   The distribution of small farms studied were 30 in Salem, 27 in Thanjavur, and 28 in each of Chingleput and East Ramanathapuram districts.   The required information on farm structure and investments, crop pattern and crop intensities, labour use and employments were collected by personal interview with the respondents through a pre-tested questionnaire.

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    1. Controversies exist over the use of the term, 'small farmer' which implies spatial characteristics.   Low income farmer is suggested as an alternative.   The term 'small farmer' is adopted for the present discussion and it implies also low income characteristics for the given situation.
    2. John P. Lewis, "The Public Works Approach to Low Income and Poverty Problems: The New Potentialities of an Old Answer," *Journal of Development Planning* (Department of Economic and Social Affairs, United Nations), No. 5, 1972 as reported in *Development Digest*, Vol. XI, No. 4, October, 1971, p. 42.
    3. The present study uses the data obtained from a larger random sample of 144 farms of which the small farms were 113.   The sub-sample of small farms is used for analysis.   For detailed information see, Pattern of Labour Utilization, Wage Structure and Labour Productivity in Selected Regions of Tamil Nadu, Tamil Nadu Agricultural University, Coimbatore.

Labour requirements for different crops and the extent of family labour participation were also assessed. The determinants of family labour use in the small farms were estimated by fitting a linear function. For the purposes of study, farms of two hectares and less were identified as small farms.

<div align="center">CHARACTERISTICS OF SMALL FARMS</div>

Farm Size

In aggregate, the average size of the 113 small farms was 0.90 hectare only, with the average for well irrigated areas of Salem as 0.95 hectare, for the rainfed area of East Ramanathapuram as 1.06 hectare and for tank-fed areas of Chingleput as 1.04 hectare. In the canal irrigated zones of Thanjavur, the average farm size was only 0.51 hectare.

The disturbing feature of these farms was that besides being small, they were fragmented and on an average each farm having two to three fragments, the number being more in the canal-fed district of Thanjavur. In a few of the villages, fragment units were too small and placed far apart. The disposition of the small farms by themselves was found to vitiate against economic operation.

Investments

The average investment on fixed assets per hectare amounted to Rs. 18,262.74, of which nearly 80 per cent and 12 per cent were accounted for by land and buildings, respectively. Here only the current market values had been assigned, though in reality in most of the cases, they were inherited properties, and at times the farmer had acquired a small piece of land to make his holding a bit compact wherever possible. Similarly, additions to buildings had also been less, though improvements had been effected where the buildings served the dual purpose of home and farmstead. The investment pattern, districtwise is shown in Table I.

TABLE I—INVESTMENTS ON FIXED ASSETS PER HECTARE OF OPERATIONAL AREA IN SMALL FARMS

(Rupees)

District	Land	Buildings	Livestock	Machineries and equipments	Total
1. Salem	15,055.91 (77.00)	1,929.51 (9.86)	1,233.39 (6.30)	1,334.60 (6.84)	19,552.90
2. Thanjavur	11,112.53 (65.84)	3,606.00 (21.69)	1,670.16 (10.04)	234.67 (1.43)	16,623.36
3. Chingleput	13,251.00 (79.83)	1,832.17 (11.03)	744.18 (4.48)	771.08 (4.66)	16,598.43
4. East Ramanathapuram	1,953.70 (53.12)	1,207.00 (32.81)	419.08 (11.39)	98.08 (2.68)	3,677.86
Average	14,492.89 (79.36)	2,143.67 (11.74)	1,016.70 (5.57)	609.48 (3.33)	18,262.74 (100.00)

(Figures in parentheses indicate percentages to the total.)

In terms of absolute values, the size of investment approximated nearly to Rs. 20,000 per hectare when irrigated by wells as in Salem district, and it was found to be nearly equal in the tank-fed and canal irrigated areas, though inter-component differences were noticed. The total investments on livestock and machinery in Salem significantly differed from the three other situations, and understandably so due to the installation of pumping machineries and the accessories including the livestock needed to support high crop intensities. The investment pattern in the rain-fed district of East Ramanathapuram was found to differ substantially from the three situations.

CROP PATTERN AND CROPPING INTENSITY

The nature of the crops grown and their proportionate distribution as among food and non-food crops illustrated the degree of monetization in the small farms, and the extent to which purchased inputs and labour entered the production activities. The districtwise picture is presented in Table II.

TABLE II—PROPORTIONAL DISTRIBUTION OF FOOD AND NON-FOOD CROPS

District					Gross cropped area	Area sown to		Percentage of area under non-food crops
						Food crops	Non-food crops	
1. Salem	..	..	..	..	42.43	30.46	11.97	28.21
2. Thanjavur	..	..	..	..	23.70	23.70	—	—
3. Chingleput	..	..	..	..	52.36	45.40	7.86	14.05
4. East Ramanathapuram		..	..		30.25	25.97	4.28	14.14
Total	..	..	..	..	148.74	125.53	23.61	13.90

The small farms in general attempted to become self-sufficient in the food needs of the farm family by concentrating on the production of paddy and millets. Thanjavur and Chingleput farms produced paddy under fairly assured irrigation from canals and tanks. Here irrigation water became available at lesser cost and hence high duty crops like paddy found entry in the crop system. Where water became costly as in Salem, the farmers rationalized their water use by switching over to millets like sorghum, bajra and *ragi*, which were less exacting in water requirements.

Crop diversification by introducing commercial crops was observed to be minimal in the small farms and possibly so due to resource constraints, particularly land, water, credit and service facilities. However, a different picture was observed in Salem due to relatively high degree of monetization of farm economy by cultivating remunerative crops like tapioca, chillies and vegetables which regularly entered the crop system though the area sown

might be small, thereby helping to enhance the income base and employment potentials. The predominance of sago industry in Salem district had helped to strengthen the farm organization and its economic setting. In Salem district, the use of groundwater resources for irrigation was commonly met with and economy in the water use and choice of crops were so matched as to realise high return per unit area. Even though water was a costly input, the farmers managed to have a cropping intensity of 161 per cent in Salem, whereas even under assured irrigated conditions in Thanjavur and Chingleput district it was only 151 per cent and 138 per cent, respectively.

LABOUR USE PATTERN

The source of power for performing farm activities in the small farms was mainly from human labour and to a limited extent from bullocks and mechanical energy. Family labour and hired labour, permanent and casual found entry, consistent with the situational needs. The small farms had limited permanent labour employment to the minimum and family labour substituted permanent labour wherever possible. Normally, routine operations of farm maintenance and running were assigned to permanent labour, which came under the purview of family labour in the small farms. Predominance of intensive use of family labour was the general characteristic of these farms to minimize out of pocket expenses and ensure employment within their own farm, whatever might be its worth.

In the study area, of the 113 farms, only 11 had permanent labour, of which six were in Salem district. Farms with assured irrigation all round the year practising high crop intensities and growing labour intensive crops were found to engage limited permanent labour to supplement family labour.

Use of Family Labour

Family labour involvement in farm activities was complete in the sense that they actually worked with the hired labour and were not mere on-lookers supervising and managing the farm. During the peak seasons, persons who might otherwise be regarded as outside the working age-groups were drawn into agricultural activity, though their productive contribution may be neither very prolonged nor very efficient.[4] Family labour participation in actual field work besides being monetarily rewarding, brought them also psychologically nearer to the landless agricultural labourers and to a sense of belonging and oneness. Such an attitudinal orientation, more evident in the small farms, contributed for efficiency in work turnover and healthy employer-employee relationship.

The use of family labour was comparatively much less in Thanjavur district and female labour participation was found to be totally absent. This

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4. Gunnar Myrdal : Asian Drama, Volume II, Twentieth Century Fund, Inc., U.S.A., Allen Lane, The Penguin Press, London, 1968, p. 1072.

unique situation evidenced in this district might probably be traced to the social and cultural characteristics more specifically in the old deltaic regions.

Family labour of these small farms was found not to seek off-farm or non-farm occupations except perhaps in East Ramanathapuram and to a very limited extent in Chingleput. In the former district out of 28 farm households, only 11 members occasionally went as agricultural labourers at going wage rates of Rs. 3 to Rs. 4 per day. In Chingleput six members out of 28 households found non-farm occupations in service sectors.

Extent of Labour Utilization

To study the functional importance of family labour in the small farms, the labour use per hectare of gross sown area was calculated for the four situations to identify their differential behaviour (Table III).

TABLE III—LABOUR USE PER HECTARE OF GROSS CROPPED AREA

(man-days)

District	Total labour days engaged	Family labour	Casual labour	Permanent labour
1. Salem	150.54 (100.00)	74.12 (49.23)	67.99 (45.16)	8.43 (5.61)
2. Thanjavur	127.96 (100.00)	12.90 (10.08)	114.05 (89.12)	1.01 (0.80)
3. Chingleput	121.23 (100.00)	55.82 (46.04)	63.20 (52.13)	2.21 (1.83)
4. East Ramanathapuram	97.66 (100.00)	52.24 (53.49)	45.42 (46.51)	—
Average	124.35 (100.00)	48.77 (39.21)	72.66 (58.43)	2.92 (2.36)

(Figures in parentheses indicate percentages to the total.)

As seen in Table III, the average labour units required per hectare of gross cropped area was 124.35 man-days, of which 39.21 per cent was supplied by the family labour, 58.43 per cent by the casual and 2.36 per cent by the permanent labour. The labour use per unit area was perceptibly high in Salem, and it nearly approximated the aggregate average in Thanjavur and Chingleput districts. Larger irrigated coverage, while increasing crop intensity, raises the requirement of human labour.[5] Growing labour intensive crops like tapioca, vegetables and chillies following fairly high crop intensities in Salem, as against a food crop rotation system in Thanjavur and Chingleput districts accounted for these differences.

5. C. H. Hanumantha Rao : Agricultural Production Functions Costs and Returns, Asia Publishing House, Bombay, 1965, pp. 72-90.

Family labour share was around 50 per cent of the total labour requirements in Salem, Chingleput and East Ramanathapuram districts, while this was just over 10 per cent in Thanjavur. The average percentage could have been much higher, had not the mean pulled down by much lesser participation of family labour in Thanjavur. In this district this gap was sought to be bridged by employing casual labour. The significance of permanent labour was negligible in the three districts, except in Salem, even where it averaged less than six per cent. The pertinent issue seems to be the dependency of even small farms on outside labour. Unlike industries, agriculture has seasonal peaks and slacks in demand for labour and it is extremely difficult to complete field operations with family labour alone and particularly impossible in the case of small farms of some viability. Given this, one should be cautious to specify strategies for distribution of lands consistent with the goals of social justice and equity.

DETERMINANTS OF FAMILY LABOUR USE

A linear function of the following form was fitted to understand the relationship between family labour use and the specified variables*:

$$Y = a + b_1 x_1 + b_2 x_2 + b_3 x_3$$

where,

Y = family labour use in man-days,

x_1 = gross cropped area in acres,

x_2 = gross income in rupees,

x_3 = wage rates for hired labour per man-day in rupees,

a, b_1, b_2, b_3 = parameters.

It may be noted that the explanatory variables specified in the model may also serve as proxies for technical, social and economic determinants of the use of family labour. The gross area cultivated may represent the technical feasibility of cropping under resource constraints and available technology. The gross income may be considered as a kind of social preference and work ethics at a given point of time governing family labour participation in farming and the wage rates, the opportunity cost of non-participation in farm work and decisions on this issue are influenced by economic consideration.

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* The number of earners in the sample farm households exhibited uniformly and hence this was not considered as a determinant variable.

The estimated functions are presented in Table IV. The coefficients of multiple determinants were significant. The regression coefficients of gross cropped area for the four zones were significant and positive. This must be interpreted as, for example, that an increase in the gross cropped area by one acre in Salem zone would, other things being equal, increase the use of family labour by 1.21 man-days consistent with crop patterns and the related labour input coefficients.

TABI IV—ESTIMATED FUNCTIONS

District	No. of observa- tions	Constant intercept	Regression coefficients			R^2
			x_1	x_2	x_3	
1. Salem ..	30	—26.89510	1.21107* (0.58995)	1.21249* (0.45946)	1.03952 (0.88503)	0.69
2. Thanjavur ..	27	34.73909	12.51900** (1.55720)	—0.00400** (0.00111)	—9.43200** (2.84740)	0.78
3. Chingleput ..	28	161.07110	60.47800** (7.28670)	—0.00110 (0.00947)	—44.25900** (11.61800)	0.96
4. East Rama- nathapuram ..	28	0.42365	1.33647* (0.63910)	0.70474 (0.51162)	0.02615 (1.06536)	0.41

* Significant at 5 per cent level.
** Significant at one per cent level.

The regression coefficients of gross farm income are significant only in Salem and Thanjavur but they differ in signs and size. Apart from usual statistical interpretation one would perhaps be inclined to consider the social aspect. Salem zone is noted for relatively higher degree of monetization and also arduous nature of farming. An increase in the gross income may impel further motivation for family labour participation and hence the positive sign must be interpreted accordingly. On the other hand, Thanjavur zone is noted for canal irrigation and extensive rice cultivation. An increase in the gross income is likely to take off, to some extent, family labour from direct participation. If the regression coefficient of wages for higher labour is also taken into consideration, the negative sign implies some reluctance on the part of family labour to move out of participation. This zone is noted for frequent wage disputes and agrarian unrest. Among the income and wage effects, the latter seems to be strong which has been the case in recent years in this delta. In Chingleput, the negative sign of regression coefficients of wages may also be interpreted similarly.

CONCLUSION

The small farms are to emerge as economically viable units, through strengthening their own resource base primarily by providing assured irrigation facilities. The shifts in crop pattern and increases in crop intensities have built-in capacities to create employment opportunities for rural labour

in general and family labour in particular. By providing the needed infrastructural facilities at the macro and at the farm level, deliberate attempts are necessary to diversify the farm enterprise and to stabilize employment, thus obviating seasonal swings. However, prodigious difficulties stand in the way of mounting rural development programmes which will provide a sustained increase in the welfare level of a significant proportion of poor farmers in an under-developed country.[6]

Besides, the income and wage effects on family labour participation seems to be stronger in some regions. This may be rationalized through appropriate income with price supports and wage policies. Finally, the policy of distribution of surplus lands to landless labourers and small farmers should be based on sound criteria inasmuch as farming is necessarily a joint venture by family and hired labour and particularly, without the latter farming is impossible. Recognition of this significant limitation may perhaps lead to determination of what may be called 'land floor' below which the farm size is rendered strictly impartible through appropriate legal sanctions.

SMALL FARMERS AND AGRICULTURAL PRICES
—A CASE OF COTTON

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INTRODUCTION

Concerted efforts are being made both at the State and national level to develop the marketing organization in the country. As a part of the strategy consistently outlined in the Five-Year Plans for agricultural development, a network of regulated markets has been created in most parts of the country. In the States where marketing legislation has been promulgated, very little area is left unserviced by regulated markets. The regulated markets are being equipped with well laid out market yards with trading facilities such as auction platforms and sale halls, grading and market intelligence service, etc., and other amenities such as portable water supply, sanitation measures, rest houses and so on. Massive development programmes for regulated markets have been launched by the State Governments of Bihar and Karnataka with the help of the International Development Association (IDA). Besides the implementation of the development project with IDA assistance at a cost of Rs. 9.484 crores in Karnataka,[1] the State Government is supple-

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6. Albert Waterston, "A Viable Model for Rural Development," *Finance and Development*, Vol. 11, No. 4, December, 1974, p. 23.

* Director of Research and Assistant Director (Research), respectively, Karnataka State Agricultural Marketing Board, Bangalore.

1. Project Implementation Plan, Karnataka State Marketing Department, 1974, p. 1.