CHAPTER VII

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VII.1 INTRODUCTION

Labour is an important input in agricultural production process. Labour requirement will vary from farm operation to operation with in a crop. Some operations both on grounds of tradition and some criteria of efficiently are performed by male or female workers. Transplanting, weeding and harvesting have traditionally been a female preserve on the other hand, land preparation is a strenuous job involving ploughing, bunding and irrigation have been traditionally a male preserve. A realistic assessment of the structure and size of the labour force and prospects for non-agricultural employment expansion suggests that agricultural development should not only increase out but should also increase labour absorption (Ishikawa, 1978). Contemporary growth theory views unemployment, poverty, and income inequality are related phenomena (Sen, 1975) and Todoro, 1989). Employment is seen both as a means of creating income and as a vehicle for income distribution. The magnitude of unemployment and underemployment in many less developed countries is enormous.
(Todaro, 1989). In agriculture, farm power is one of the important inputs used in agriculture to carry out various operations such as ploughing, levelling, irrigation, transplanting, weeding, manuring, harvesting and threshing.

Labour market participation in the major source of income for may land less and small farmhouse holds in rural areas of developing countries like India. Seasonal fluctuations in wage and employment opportunities also have serious effects on their welfare. The sequential and seasonal nature of agriculture production implies that, in an environment where rainfall and its timing is an important determinant of yields, the productive use of inputs such as labour may depend on the total amount of inputs used and also the timings of their application (Nath, Antler, Weaver and Shefrow, 1987). As a result, changes in wage rates have a different effect on demand for labour.

Some recent studies based on the micro level analysis of farm management surveys as well as other small sample inquiries suggest that the principle variants of labour use are cropping intensity, cropping pattern, bio-technology application, mechanisation,
irrigation, land size, land distribution and number of institutional factors (Bardhan, 1987, and Partha Sarathy, 1990).

Further, a higher intensity of cultivation involves more intensive application of inputs particularly labour to land. Due to the existence of positive relationship between crop and activity wise labour use, size of the farm is usually found to have a negative relationship with employment of human labour per unit of land.

The need for quantitative measurement of the rural employment has been emphasised for formulating policy measures. The measurements of problems become difficult. The difficulty arises in finding out as to who is in and who is out in the labour force, because of differences in working age and labour hours of work. Seasonal variation in the use of labour and provision of self-employed family works on farms. The problem of rural employment is different from that of urban employment. If one goes to rural area and asks the farm workers, very few of them will say that, they are employed for the whole day. They will say that, they do farm work generally for 10 to 12 hours a day in busy season.

The Indian rural labour force as a percentage of the rural population as given by national sample survey (45 round) varies
from 39.9% in May-June to 43.4% in July-Aug 1995. While the seed fertiliser based technology has been show by many indicating a favourable direct effect on farm employment has showed technology. The employment impact of farm mechanisation continues to be a subject of considerable controversy. Obviously, the problem of rural employment is more in the form of under utilisation of labour than the form of open unemployment. The number of persons actively seeking full time work is less. These exists a considerable degree of under utilisation of labour resulting into lower level of productivity and income and a large number of self-employed persons.

The study is basically designed to analyse the labour absorption capacity of yanam region, Union Territory of Pondicherry, a prosperous and progressive agricultural region and the period of study is post green revolution era. The study area covers the Yanam region and the period is taken as 1996-97 for the primary data. The present study addresses that Yanam is a part of Union Territory of Pondicherry, which is situated in the coastal area of Bay of Bengal. Government of Pondicherry has been implementing a number of programmes in Yanam region for improving the living conditions of farm households. After introduction of new agricultural strategy during 1967, many development programmes started to improve the
socio-economic conditions of farm households. But it is noticed that agricultural labours of that region are confronted to unemployment problem in agriculture sector. The agricultural labour conditions are weak socially and economically.

The farm operation of the paddy crop is active and the yield also on increase. Since the agricultural labourers happen to be the downtrodden sections of society, the labour force is facing unemployment problem and non-involvement of this labour force in farm operations. This could be reason why agriculture labours are still poor illiterate and unemployed. The cropping pattern is not uniform; no study is undertaken so far in micro level to study the labour absorption of Yanam agriculture. In view of the above framework, the objectives of the study are

1. To find out the extent of the interlocking between the new technology components viz., HYVs, fertilisers, pesticides, irrigation tractor and the agricultural operations.

2. To analyse the extent and pattern of labour utilisation among farm operations across different farm size categories.
3. To assess the changes in factor substitutability, particularly with reference to labour input across different farm size categories.

4. To examine the inter-relationship between labour use and socio-demographic and economic characteristics of farm households, and

5. To suggest policy measures for improving labour absorption capacity in agriculture.

The research study is made on Yanam region, in the Union Territory of Pondicherry. More specifically, the study is conducted in five selected agriculturally intensive villages' viz., Kanakalapeta, Mettakuru, Farmpeta, Advipolam and Dariyalatippa. As per village administration officers records all the farmers of 5 villages taken for study. The present study covers May 1996 to June 1997. This time period is taken as a minimum to cover both the seasons of paddy crop. A census survey method is employed for collection of data. The total farm households numbered 170. The study is based on primary survey.
VII. 2 SOCIO-ECONOMIC PRECINCT OF FARM HOUSEHOLDS

From the anatomy of socio-economic features of farm households of the study area, it is observed that farm category wise farmers constitute 33.53% are of marginal farmers, 31.17% are of small farmers, 13.53% are of medium farmers and 21.76% are of large farmers.

The demographic analysis indicates that the size of the family ranges between 4 to 5 members. The male female ration is 1.34. The dependency ratio of large farmers is 160.42, which is high while marginal farmer’s dependency ratio is 82.35.

The study of literacy status of farm households reveals that though the literacy level differs from category to category, average illiterate are 67.27 % the marginal farmers serves the maximum 71.94% of illiterates while medium farmers found to be 62.88% the lowest.

The analysis of economic characteristics of farm households exposes that there are as high as 65.91% own land farmers in Yanam on an average. It is very interesting to note that 85.99% of marginal farmers possess own land, which is high, whereas large farmers possess as low as 59.44%.
From the analysis of household assets and annual income, it is found that about 22.35% households have percapita income of above Rs.13, 000/- the investigation of per capita assets holding shows that around 55% house holds have percapita land. The main components of their assets are land and household assets.

From the anatomy of cropping pattern it is found that 70.54 % acres land is growing paddy. The enquiry of cropping intensity indicates that marginal farmers coping intensity is reported to be high 294.83 percentage.

Analysis of cost of cultivation shows that the greater the farm size the greater would be the cost of cultivation although in the face of argument there seems to be same kind of expectation of rural poor, it requires further probe to decide the validity of the findings. In the study of cost of cultivation the opportunity cost of land or depreciation or interest on value on land have not been included. More over the cost of cultivation as not included in the management cost of farmers, so if all the costs are computed scientifically as done in the industrial costing studies it would be possible to measure cost of cultivation with greater precision.
In a micro analysis, the study aims to analyse the extent of labour absorption activity wise viz., channelling bundling, drainage, levelling, preparation of the soil, nursery preparation, transplanting, irrigation and fertiliser application pest control, weeding, harvesting and post harvesting activities in Yaman region. Total man-days per acre 22, 11, 14.87, 50.04, 3.21, 3.12, 3.19, 25.28, 121.80 and 20.62 respectively.

Labour requirement vary from operation to operation, some operations are more labour intensive than other operations. At aggregate level it is clear that intercultural activities such as harvesting, threshing, winnowing and processing transplanting activity takes out more labour followed by weeding activity, post harvesting activity and pre cultivation activity such as channeling, bunding drainage and levelling. Therefore, there is scope to increase man-days if increasing some of the factors like size of the holdings, assets, wages, credit and other factors. Along with the determinants, the factor elasticity’s states that there is a scope for augmenting demand for human labour in the context of new technologies which enhances irrigation management and use of bio-technology at higher level.
From the analysis of labour use with other input relations, the MRTS between labour and farmyard manure is negatively related in the case of medium and large farmers, it is observed that bullock labour is substituted by machine labour in the case of medium and large farmers.

From the factor elasticity analysis, it is found that the proportionate change in seed, farmyard manure, and pesticides contributed favourably to the proportionate change in labour in the paddy crop. But it is also observed that the percentage change in fertiliser, irrigation bullock labour cost, hired charges on tractor contribute negatively to the percentage change in human labour for the study period.

It is clear that, the elasticity of substitution between seed, farmyard manure, pesticides, and labour seems to be positive and higher. Hence there is a scope to increase labour use in the crop such as paddy.

The elasticity of substitution of labour to other inputs tells that, higher the levels of marginal rate of technical substitution the proportionate change in labour and other inputs ratio increases. Hence there is a scope to increase, the labour absorption in paddy
crop where the elasticity of substitution between labour and other inputs is positive and higher.

Contributed factors activity for total labour absorption factors determining labour absorption activity wise and farm category wise are assets, wage, operational holdings, credit, seed, pesticides, fertilizer, irrigation, farm yard manure, bullock labour and hired charges on tractor, transport, marketing and storage and family size. Among them, for all farms operational holdings, wage, seed, bullock labour and hired charges on tractor are satisfactorily significant. Then value of coefficient of OPH shows that the one unit increase in OPH would charge the demand for labour by 3.04, 0.02, 0.003, 0.34, 0.001 units respectively.

The results of regression model relating to all the 4 categories of farmers and for all activities have come out with good fit as the coefficient of determination exceeds 0.89 it is as high as 0.95 in the case of marginal farmers. All the four categories of farmers have turned to be satisfied. Therefore, these factors are important determinants of labour absorption.
VI. 3 CONTRIBUTING FACTOR - OPERATION WISE

From the analysis of affect of labour absorption, a set of significant determinants is identified for each operation based on the fitted regression. They are attributes for each activity is shown in the following table.

**TABLE VII.1**

**CONTRIBUTING FACTORS - OPERATION WISE**

<table>
<thead>
<tr>
<th>SL.No.</th>
<th>Activity</th>
<th>Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pre cultivation</td>
<td>Assets*** and Wage *</td>
</tr>
<tr>
<td>2</td>
<td>Preparation of soil</td>
<td>Operational holding*, Wage*, Credit* and Family size*</td>
</tr>
<tr>
<td>3</td>
<td>Nursery Preparation</td>
<td>Wage*, Seed* and Transport marketing and storage*</td>
</tr>
<tr>
<td>4</td>
<td>Sowing and Transplantation</td>
<td>Assets* and Wage*</td>
</tr>
<tr>
<td>5</td>
<td>Irrigation</td>
<td>Wage*, Fertiliser* and irrigation***</td>
</tr>
<tr>
<td>6</td>
<td>Fertiliser application</td>
<td>Fertiliser*** and irrigation*</td>
</tr>
<tr>
<td>7</td>
<td>Disease control</td>
<td>Fertiliser**, Wage* and Pesticides**</td>
</tr>
<tr>
<td>8</td>
<td>Weeding</td>
<td>Assets*** and Wage*</td>
</tr>
<tr>
<td>9</td>
<td>Inter cultural activity</td>
<td>Wage* and Pesticides*</td>
</tr>
<tr>
<td>10</td>
<td>Post harvesting</td>
<td>Wage*, credit** and Transport marketing and storage**</td>
</tr>
</tbody>
</table>

Source: From operation wise regression model.

*, ** and *** indicates 1%, 5% and 10% levels of significance.

To conclude, it is necessary to increase use of significant determinants operation wise in paddy crop. This needs gross root level education to the farmers to step up the above stated significant
Determinants use in the process of production. The farmers should realise the need of inputs operation wise so that they can promote farm out put and employment.

VII. 4 THEORETICAL IMPLICATIONS AND FINDINGS OF THE RESEARCHER

1. Family labour contribution is found to be the highest in the marginal farm size followed by small farmers medium farmers and large farmers respectively.

2. The special feature in the study area is the availability of and use of contract labour

3. All the farmers irrespective of farm size is found to be using HYV is scale neutral as to the size of the farm

4. Traditional way of transplantation is dominant and weedicide is not available to any farmer

5. All the farmers are found to be using chemical fertilisers. Majority applied chemical fertiliser more than one time.

6. Hand sprayer is in wide use power sprayers is used by many farmers

7. Bullocks are the major mode of threshing. A major portion of marginal and small farmers uses only bullocks for threshing and a major portion of medium and large farmers uses improved implements and bullocks
8. Analysis of family labour contribution is from adult male family members in some operations and female adult members in some operations of the crop.

9. Family female labour contribution in the study areas is found to be limited to some operations such as transplanting weeding and harvesting in the study area among 170 farmers 59 (34.71) farmers belong to forward cast have no family female labour contribution. Among this 59 farmers, 12 farmers belong to marginal 17 to small 12 to medium and 18 to large farmers the researcher observed that women from upper class families is less likely to participate in agriculture work than others. Hence, yanam upper class family female labour participation was found to be totally absent to the agricultural work. Where as SC/ST labour participation is found to be totally present in the agricultural activities. The upper class families will not permit the females to the public appearance.

10. It is observed that some operations are more labour intensive such as pre-cultivation, sowing & transplantation, and weeding and some activities are low labour intensive such as irrigation, fertiliser application, and disease control and post harvesting.

It has been registered that proportion of family labour falls with the rise in farm size. It is quite interesting that the family labour use is completely absent in the medium size farms in kanakalapet village, a hamlet of yanam region this is due to the fact that the land is highly
vested in the hands of a few higher caste farmers, particularly women from higher caste do not work. This is purely an outcome of particularly social values such as a false feeling that upper caste women should not work on the farm and she should confine herself to the household work to the kitchen, hence hired labour component is higher in the case of medium and large farmers in particular.

Hired labour requirement is found to be significantly high in all sizes of farm in the study region. The labour use is quite higher in marginal farms than other categories this may be attributed to the fact that higher cropping intensity is found in the case of marginal and large farms. It may be said that the use of mechanical inputs and the operation of economies also contribute to the less number of hired labour.

VII. 5 POLICY IMPLICATIONS

The results of the study reveals several factors, which suggest a number of policy implications, these are summarised below.

1. The literacy conditions especially of marginal farmers are not satisfactory as measured by the availability of education facilities. It is suggested that the government should, step up
its activities under literacy and adult education programmes in the study area.

2. A view on the socio-demographic factors across farm size categories shows that there is a possibility of hired female labour absorption on medium farms, since the higher family (5.74) size with a lower sex ratio (1.20) and with a higher literacy rate is found (37.12). Further, the higher absorption of hired labour is possible in farms, for being the lowest family size.

3. It is found that while reviewing economic variability among farm categories, marginal farmers have own land with a low financial investment (0.29) is very low per acre. It is suggested that, the credit availability is important factor providing job opportunities. This suggests that easy, timely, credit facilities through institutions may have a multiplier effect on employment generation in the study area. All efforts should be taken to remove their impediments in the equitable flow of credit to the marginal farmers in particular. Therefore the marginal farmers will increase saving potential to enhance the
financial investment in par-with with other categories of farmers.

4. From the factor elasticity analysis it is found that seed, farm yard manure and pesticides contributed favourably with labour input in the paddy crop in all farm categories, similarly same is found in the elasticity of substitution between seed, FYM and pesticides seems to be positive and higher. Hence the Government can encourage farmers to in such a way to increase the quantities of the inputs which yield to increase productivity and also increase the labour use in paddy crop.

5. From the results of factors affecting labour absorption, the significant determinants for all farms are Operational holdings, wage, seed, bullock labour cost, hired charges on tractor, transport marketing & storage and family size in the study area may be induced by providing incentives to step up production so as to increase labour absorption. There should be an increase in these variables and it should be noted down.

6. The results of the study recommend that the improvement of living conditions of farm households is a pre-condition to
adopt the are agricultural development programmes and technological transfer more effectively. The activity wise analysis shows that the interlocking of inputs and factor substitutability is high in specific farm activities. Hence, farm operation-specific input relations are to be noted down while implementing in agricultural development programmes in the study area.

7. The study also reveals that new technology employment prove with the capacity of absorbing more labour. This suggests that the spread of HYV programme to all the uncovered in the study area. Augmentation of irrigation facilities, supply of subsides fertilisers, HYV seeds should be accorded a greater priority by the government, so that there will be a progress and labour absorption proceed without set back.

In all the parameters considered for the study, marginal farmers are at a disadvantage. This suggests that the preferential treatment should be given to the marginal and small farmers. In other words there should be built in bias in Government policies. For instance, even if the subsidies are reduced, marginal farmers should have all accessibility to the subsidy by the Government. In other words, the
Government should implement a dual policy mix in favour of marginal farmers.

VII. 6 AREAS OF FURTHER RESEARCH OR AGENDA FOR FUTURE RESEARCHERS

From the analysis of factors influencing the demand for labour, the factors influencing productivity of labour in the farms is an important area for further research. Moreover, an analysis of the inter relationship between the variables influencing the productivity of labour and the variables influencing the demand for labour is also a potent area for further research. It will be of more help to give solutions. The analysis of labour use with respect to various types of labour organisations, which affect the labour availability in also another area of further research. Apart from this; an analysis of the distributive aspects of the gains accruing from different labour use patterns is also another area for further research. It suggested that the researchers particularly those engaged in cost of cultivation studies, could bestow their attention in future, on this area of research. They could assess the factor share more precisely particularly the wage component which would be of great use from the academic as well as policy perspective. There are differences not only in total labour input but also in the
amount of family labour vis-à-vis hired labour. It is suggested that the researchers particularly those pursuing in the cost of cultivation studies could bestow their efforts in future on this area of labour absorption and Agricultural wages in the pre and post liberalisation of periods.
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